Libro de Resúmenes

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Índice

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IN MEMORIAN

Dra. Amira Ponce Zunino (1931-2024)

La Dra. Amira Ponce Zunino (1931-2024) forjó una distinguida trayectoria académica que culminó con su designación como Profesora Consulta de la Universidad Nacional de Cuyo (UNCuyo) y como Investigador Independiente de CONICET.

Su llegada a Mendoza, desde su Entre Ríos natal, coincidió con el inicio de las actividades académicas de la Facultad de Ciencias Médicas de la UNCuyo, allá por el año 1951. Ya en 1953, comenzó a desarrollar su doble vocación, la docencia y la ciencia, en el Instituto de Fisiología (FCM-UNCuyo), espacio de trabajo guiado por el reconocido Dr. Fasciolo, discípulo del premio Nobel Bernardo Houssay. Desde ese año hasta su última participación en un trabajo científico en 2022, integró de forma estable el plantel de Fisiología y mantuvo su actividad académica por más de seis décadas, un ejemplo de dedicación sin igual.

Como figura emblemática de la Facultad de Ciencias Médicas de la UNCuyo, su carrera científica se centró en la investigación cardiovascular. Su primer trabajo científico, registrado en 1962, se denominó “Corazón aislado de gato en anoxia y alcalosis: actividad mecánica y caudal coronario”. En las últimas etapas de su trayectoria, su investigación se enfocó en la búsqueda de productos naturales para atenuar el estrés oxidativo asociado al fenómeno de isquemia-reperfusión del tejido cardíaco. Se distinguió por su dominio en la utilización de diversos modelos de investigación, desde células y tejidos aislados hasta el corazón aislado y perfundido, siendo una referente en el campo.

Su compromiso se extendía a la comunidad científica, siendo miembro activo de diversas sociedades y promoviendo la comunicación y discusión científica en equipos multidisciplinarios. Su legado, marcado por la brillantez académica, sigue vivo a través de sus numerosos discípulos, profesionales, docentes e investigadores.

La Dra. Amira Ponce Zumino fue incluida en el libro “Historia de la medicina a través de sus mujeres”, el cual rescata la historia de vida de las primeras médicas mendocinas, destacando los desafíos que enfrentaron en aquella época y la excepcional aceptación de estas mujeres en el ámbito universitario y médico.

IN MEMORIAN

Dr. Fernando Daniel Saravi (1955-2024)

El Profesor Doctor Fernando Daniel Saraví (1955-2025) dedicó 50 años de su vida a una admirable labor docente y de investigación en Fisiología en el Instituto de Fisiología de la Facultad de Ciencias Médicas de la UNCuyo. Su extensa trayectoria, iniciada como ayudante alumno ad honorem en la década del '70, coincidió con la refundación de la Sociedad de Biología de Cuyo.

El Dr. Saraví se destacó por su talento pedagógico y su capacidad de síntesis, evidentes en su texto virtual de Fisiología y Biofísica de acceso libre. Con esta obra, acercaba a los estudiantes a la vanguardia del conocimiento y a la integración de saberes.

Un hito crucial fue su liderazgo, aún como estudiante de grado, en la organización de las Primeras Jornadas de Iniciación a la Investigación de la FCM-UNCuyo en 1980. Este impulso fue reactivado en 2014, inspirando la fundación de la Asociación Científica de Estudiantes de la Salud (ACES) de la UNCuyo, consolidando un legado que hoy se refuerza con la incorporación de espacios curriculares de Metodología de la Investigación en el grado.

La carrera del Dr. Saraví, luego de su egreso como médico en 1981, constituye un caso excepcional al lograr integrar con éxito tres dimensiones: la docencia, la investigación y la asistencia. Esta visión se reflejó en su enfoque investigativo, con foco en la fisiología digestiva y la fisiología del hueso. Su tesis doctoral se centró inicialmente en la Fisiología Digestiva, particularmente en el transporte transepitelial en el colon. Sus trabajos exploraron la biofísica y bioenergética de dicho transporte, tomando como referencia la diferenciación funcional entre las regiones proximales y distales del intestino, y esbozando la preocupación por diversas patologías humanas del colon, tales como el cáncer colorrectal, la colitis y el estreñimiento.

El Dr. Saraví fue Jefe del Servicio de Densitometría Ósea de la Escuela de Medicina Nuclear (1995-2025). Entre sus logros se destacan sus aportes en la creación de una base de referencia de composición corporal pediátrica y en el estudio de la densidad ósea, incluyendo el efecto de la yerba mate en mujeres posmenopáusicas.

Su trayectoria es un testimonio de la integración exitosa de la ciencia, la educación y la clínica, dejando un legado profundo en la FCM-UNCuyo.

SIMPOSIOS Y CONFERENCIAS

OPENING LECTURE

"MAGNETIC HYBRID NANOMATERIALS APPLIED TO THE REMEDIATION OF MINING EFFLUENTS: TOWARD EFFICIENT AND SUSTAINABLE PROCESSESNANOMATERIALES"

Dr. Sergio Ariel Maratta Martínez

Metallic mining generates liquid effluents containing high concentrations of heavy metals and toxic species. These wastes represent a critical challenge to the sustainability of the activity, given their environmental impact and the costs associated with their treatment.

In this context, nanotechnology emerges as a disruptive alternative. In particular, magnetic hybrid nanomaterials constitute an innovative platform for effluent remediation, as they combine the high adsorption capacity of their functionalized surfaces with the possibility of being rapidly recovered through magnetic separation.

INTERNATIONAL SYMPOSIUM

TECHNOLOGIES FOR THE EXTRACTION AND ENCAPSULATION OF ESSENTIAL OILS: CHALLENGES AND SOLUTIONS FROM AN APPLIED CHEMISTRY PERSPECTIVE

Diaz-Dosque M, Ortega D, Silva F, Concha V, Valenzuela B, Molina-Berrios AE ; Jara JA.
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Plant-derived natural products have been used for centuries to prevent and treat a wide variety of diseases. Among them, essential oils (EOs) stand out as complex mixtures of secondary metabolites—mainly monoterpenes, sesquiterpenes and phenylpropanoid-type compounds—with a broad range of biological effects, including antimicrobial activity, antioxidant capacity, moderate analgesic effects, modulation of biofilm formation and maturation, and increasing evidence supporting their antineoplastic potential. In the oral mucosa, this profile is particularly relevant in conditions such as candidiasis and in the study of local coadjuvant strategies with antineoplastic action, where the aim is to reduce microbial load, control pain and, at the same time, promote the functional recovery of the mucosal surface.

Despite this potential, EOs present important physicochemical limitations. Their marked hydrophobicity hinders dispersion in aqueous media; their high volatility and tendency to undergo auto-catalytic oxidation and photodegradation reduce stability over time. In addition, at high free concentrations they may cause local irritation and overly intense aroma and taste, which compromise clinical acceptability. Altogether, these factors make it difficult to maintain effective levels at the site of action and narrow the therapeutic window, so direct and repeated application on the oral mucosa is not an ideal approach.

In this context, encapsulation emerges as a central technological tool. Encapsulating EOs helps stabilize the active compound, modulate its release and improve its safety and tolerability profile. Incorporation of the oil into polymeric matrices or colloidal systems attenuates the most aggressive sensory notes, reduces the immediate contact of free oil with the epithelium and prolongs its residence time in the oral microenvironment, enabling a slower and more sustained release. Within this framework, we discuss the main chemical challenges associated both with EO extraction and with the design of their encapsulated formulations, emphasizing how process variables at each stage impact stability, composition and biological performance.

In our group, we prioritize the use of edible and traditionally used species with consolidated supply chains to ensure traceability and continuous availability; among them are Origanum vulgare, Lavandula dentata and Mentha suaveolens. EOs are obtained mainly by hydrodistillation using a Clevenger-type apparatus, in which fresh or dried plant material is boiled in water so that the vapors carry the volatile fraction. Subsequent condensation and phase separation allow recovery of the oil with control over process time, solid-to-water ratio and effective temperature, favoring reproducible yields, limiting excessive thermal degradation and providing oils representative of each species, suitable for characterization and encapsulation.

For the encapsulated formulation, we employ emulsification and ionic gelation, generating hybrid alginate–gelatin matrices. Alginate, rich in G blocks, is cross-linked with Ca^{+2} to form ionic networks that provide structure and diffusion control; gelatin contributes film-forming capacity, mechanical elasticity and additional interaction sites, promoting the formation of capsules or hydrogels with mucoadhesive properties. These systems are complemented by Pickering emulsions stabilized by solid particles such as calcium carbonate, starch nanocrystals and cellulose nanocrystals, which locate at the oil–water interface as physical barriers that reduce droplet coalescence and uncontrolled diffusion of the active compound.

The combination of these approaches yields systems with high encapsulation efficiencies, protection against oxidation and photodegradation, attenuation of initial irritative peaks and tunable release profiles, capable of maintaining local sub-cytotoxic concentrations over clinically relevant periods. In this way, the antimicrobial activity and antineoplastic potential of EOs are preserved, the risk of selecting microbial resistance associated with high-dose pulsatile exposures is reduced, and a profile compatible with repeated and safe use in the oral cavity is maintained.

DEVELOPMENT OF ESSENTIAL OIL–LOADED HYDROGELS FOR THE TREATMENT OF DENTURE STOMATITIS THROUGH AN INTERDISCIPLINARY APPROACH

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Candida albicans biofilms are responsible for recurrent and resistant infections, such as denture stomatitis, one of the most common fungal infections affecting humans. Currently available drugs are ineffective against biofilms and, consequently, denture stomatitis exhibits high resistance and chronicity, impairing patients' quality of life, especially in older adults who wear removable dentures. Available antifungal agents cannot penetrate the biofilm matrix; therefore, innovative alternatives for their eradication must be explored.
Essential oils stand out as promising alternatives due to their well-recognized antimicrobial activity. Preliminary data from our group demonstrate that the essential oil of *Origanum vulgare* inhibits biofilms of reference strains of *C. albicans*.
However, their high volatility represents a limitation that must be overcome in order to formulate a preparation aimed at the treatment of denture stomatitis. Through the incorporation of the essential oil into hydrogel matrices, it was possible to obtain formulations capable of inhibiting the growth, adhesion, proliferation, and viability of early and mature *C. albicans* biofilms, both in reference strains (ATCC 90019 and 10231) and in clinical isolates from patients with denture stomatitis.
Nevertheless, factors such as seasonality must be considered, since the harvesting period can significantly affect the composition of essential oils as well as their biological activity, as we were able to observe in the compositional profiles obtained by GC/MS.
Our results demonstrate that the incorporation of essential oils into a hydrogel matrix is an innovative alternative for obtaining formulations with antibiofilm activity; however, it is essential to consider their development from an interdisciplinary perspective, which enables a more comprehensive approach to understanding, developing, and evaluating natural products.

LECTURE 2

EVOLUTIONARY BIOCHEMISTRY: AN APPROACH TO UNDERSTANDING THE ORIGIN AND THE EMERGENCE OF ENZYMATIC FUNCTIONS

Dra. María Laura Mascotti, IHEM CONICET- UNCuyo

Evolutionary Biochemistry constitutes an interdisciplinary framework that combines phylogenetic analyses, ancestral sequence reconstruction, and biochemical and biophysical characterization of proteins, with the aim of elucidating the molecular mechanisms underlying the emergence of new enzymatic functions (1). Its main strength lies in the possibility of experimentally accessing extinct ancestral proteins, which makes it possible to recreate in the laboratory evolutionary trajectories that connect functional divergences throughout the history of diverse protein families.

Over the past decade, this approach has driven a paradigm shift in the study of enzymes: from a reductionist view toward a systemic conception, in which enzymatic function is understood as the emergent result of multiple concurrent physicochemical phenomena.

In this context, our work has focused on the study of the origin and evolution of nucleotide-dependent enzymes. Through the reconstruction of ancestral sequences from different families of flavin monooxygenases, we identified the physicochemical determinants associated with their catalytic activity and characterized the functional transitions that led to the acquisition of new traits over the course of evolution. These findings reinforce the notion that enzymatic function is an intrinsically multicausal phenomenon and provide a conceptual framework for understanding processes of molecular innovation and highly complex biological transitions.

SYMPOSIUM ON EXPERIMENTAL RADIOBIOLOGY

EXPLORING RADIOPHARMACEUTICAL STRATEGIES FOR AGGRESSIVE SOLID TUMORS

Oglio R, Nevares N, Miranda J, Dores Y, Zapata M, Perona M, Carpano M, Rodriguez C, Lopez Bularte C, Pozzi O, Juvenal G, Thomasz L.
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The development of targeted radionuclide therapies represents one of the most promising strategies in modern oncology, enabling the selective delivery of ionizing radiation to tumors while minimizing exposure to healthy tissues. In this context, our laboratories have development two therapeutic radiopharmaceuticals with potential applications in aggressive and poor prognosis neoplasms: ^{131}I-delta-iodolactone (^{131}I-ILδ) and [^{177}Lu]Lu-PSMA-617. Delta-iodolactone (IL-δ) is an iodinated derivative of arachidonic acid, identified as 6-iodo-5-hydroxyeicosatrienoic delta-lactone. This molecule has attracted growing interest due to its role in thyroid autoregulation and its potent antitumor effects. IL-δ has shown antineoplastic activity beyond the thyroid gland, in models of breast cancer, neuroblastoma, glioblastoma, melanoma, lung carcinoma, and colon cancer. In our laboratories, we successfully developed the synthesis of this iodinated lipid and its radiolabeling with ^{131}I. ^{131}I may enhance its therapeutic potential by promoting tumor-selective energy deposition. In parallel, [^{177}Lu]Lu-PSMA-617, an FDA-approved therapeutic radioligand for PSMA-positive metastatic castration-resistant prostate cancer (mCRPC), was evaluated for its potential application beyond prostate cancer. Specifically, we assessed its therapeutic efficacy in a murine model of triple-negative breast cancer (TNBC) and in a human colorectal cancer model. In TNBC, treatment with 74 MBq of [^{177}Lu]Lu-PSMA-617 inhibited tumor growth by 72% and significantly extended survival, while maintaining good systemic tolerance. This response was accompanied by reduced vascular density and increased leukocyte (CD45) infiltration. In colorectal cancer, tumor inhibition was moderate (30%), suggesting that therapeutic efficacy may depend on vascular density, PSMA expression levels and tumor microenvironment. In summary, ^{131}I-ILδ and [^{177}Lu]Lu-PSMA-617 represent two distinct therapeutic approaches based on different biological mechanisms to achieve tumor control and demonstrate the potential for future clinical translation of locally developed radiopharmaceuticals.

RADIOSENSITIZATION OF HYPOXIC TUMOR CELLS USING ILLUMINATED PHOTOSYNTHETIC MICROALGAE AND DOSIMETRIC CONSIDERATIONS IN RADIOBIOLOGICAL EXPERIMENTS

Dr Ignacio Guillermo Espinoza Bornscheuer
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La hipoxia tumoral es uno de los principales desafíos en radioterapia, ya que está asociada a la radioresistencia de las células tumorales. Este fenómeno es frecuente en tumores sólidos y se vincula de manera consistente a un peor pronóstico clínico. Aunque diversas estrategias han sido exploradas para mitigar la hipoxia, ninguna se aplica de forma rutinaria en la práctica clínica. En esta presentación se mostrarán resultados experimentales obtenidos con células tumorales de la línea MCF-7 sometidas a condiciones hipóxicas, en los cuales se evaluó el potencial radiosensibilizador de microalgas fotosintéticas biocompatibles bajo iluminación controlada como una alternativa innovadora para compensar la escasez de oxígeno. Además, se discutirá la relevancia de una dosimetría precisa en estudios radiobiológicos y se presentará la metodología dosimétrica empleada, incluyendo un análisis sobre posibles mejoras a los protocolos establecidos para irradiadores de rayos X de kilovoltaje utilizados en experimentación radiobiológica.

BIOLOGICAL RESPONSE TO RADIATION: TRANSLATIONAL AND MULTIDISCIPLINARY PERSPECTIVES

Mgter. Lara Negrin
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The study of the biological response induced by ionizing radiation is essential for its use and optimization in medical applications. In this presentation, the activities of the Radiobiology and Biodosimetry Laboratory of Fundación Intecnus will be described, organized around three main pillars with a translational and multidisciplinary approach. First, we will discuss advances in biodosimetry, highlighting the need for rapid methods such as the development of gene expression biomarkers to estimate absorbed doses. We will also address how this technology can be used in radiotherapy treatments to identify radiosensitivity biomarkers that guide personalized protocols. Finally, research in Nuclear Medicine will be presented, aiming to characterize the radioinduced biological response to radiopharmaceuticals used in Nuclear Medicine therapy and their potential contribution to internal dosimetry. Taken together, these lines of work reflect how the integration of biology, physics, and clinical practice can drive translational radiobiology, strengthening therapeutic precision and improving patient safety.

SYMPOSIUM WINE AND SOCIETY

WHAT WE TALK ABOUT WHEN WE TALK ABOUT MALBEC? A CULTIVAR WITH MULTIPLE PERSONALITIES

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Biotechnology applied to the wine industry encompasses a wide range of techniques and scientific developments, from fundamental studies of recombinant DNA technology, bioinformatics, genomics, proteomics, metabolomics, and other "-omics." In this regard, the role that Next-Generation Sequencing (NGS) and gene editing technologies are assuming for the functional study and potential modification of the grapevine plant is crucial.
Using various genetic and genomic tools (including NGS techniques), our group has initiated several projects related to the study of phenotypic and genetic variation in the grapevine for different quality-related traits: biosynthesis of color-determining compounds or nutraceuticals, berry shape and size, among others. We study the diversity present among different grapevine varieties and, in particular, within the Malbec variety, both in its evolution during the selection process since its arrival in the country more than 170 years ago and in the variety's potential adaptation to climate change conditions. Recently, our research team has deciphered the complete diploid genome of Malbec, providing a clearer perspective on the genetic interaction between its two parental varieties, Prunelard and Magdeleine Noire des Charentes. We achieved a detailed and precise assembly of the haploid complements that make up the Malbec diploid genome, with exceptionally low error rates.
Likewise, with the aim of conducting functional studies of the grapevine genes we identified in our genomic and transcriptomic experiments or performing genetic modifications to adapt the plant to stress conditions, we are developing transformation and gene-editing experiments using "DNA-free" CRISPR/Cas9 technology.

RESVERATROL AS A THERAPEUTIC MOLECULE IN THE 21ST CENTURY

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Resveratrol (3,5,4′-trihydroxystilbene) is a natural polyphenolic phytoalexin widely investigated for its potential therapeutic actions since its association with the 'French Paradox'. The trans isomer, considered the biologically active form, exhibits a broad spectrum of molecular effects despite its low systemic bioavailability. Its pharmacological profile includes anti-inflammatory, antioxidant, metabolic, cardioprotective and epigenetic actions mediated by multiple converging pathways. At the inflammatory level, resveratrol selectively inhibits COX-1 activity and suppresses COX-2–induced prostaglandin synthesis, while downregulating NF-κB in a dose- and time-dependent manner. These mechanisms contribute to decreased cytokine production and attenuation of chronic inflammatory signalling. Resveratrol also activates SIRT1 and the AMPK/PGC-1α axis, promoting mitochondrial biogenesis, enhancing ATP production and modulating cellular responses to energetic stress. These effects extend to improved mitochondrial turnover through stimulation of mitophagy, particularly via pathways involving Sirt1/Sirt3 and BNIP3, with significant implications for endothelial protection during hyperlipidemia and ischemia/reperfusion injury. Antioxidant activity is further mediated by the p62–Keap1/Nrf2 signalling cascade, resulting in enhanced expression of SOD-1, CAT, glutathione peroxidase and heme oxygenase-1, and inhibition of pro-oxidant enzymes such as caspase-3. In metabolic regulation, resveratrol promotes browning of white adipose tissue through SIRT1/AMPK-dependent mechanisms, reducing lipid accumulation and improving insulin sensitivity. Cardiovascular studies demonstrate that resveratrol supports endothelial nitric oxide synthase activity, improves vascular autonomous function, reduces oxidative stress in erythrocytes, mitigates blood pressure elevation in hypertensive models and prevents atherosclerotic plaque progression through anti-inflammatory and anti-thrombotic actions. At the epigenetic level, clinical evidence suggests that consumption of resveratrol-enriched wine can reverse epigenetic aging by modulating DNA methylation profiles, histone modifications and nucleosome positioning. Additional clinical data indicate improvements in hippocampal connectivity, glucose metabolism and memory performance in older adults receiving daily resveratrol supplementation. Despite a favourable safety profile at doses below 2 g/day and positive results in approximately two-thirds of clinical trials, substantial variability persists across studies due to differences in formulation, population characteristics, baseline health, treatment duration and dose. A major limitation remains its inherently poor bioavailability, which has driven the exploration of novel delivery systems and metabolite profiling, including the contribution of microbiota-derived compounds such as lunularin. Current evidence underscores the therapeutic promise of resveratrol but highlights the need for large, well-designed randomized trials and optimized formulations to translate its robust preclinical effects into consistent clinical outcomes.

CLOSING LECTURE

HOW THE OXIDATIVE STRESS RESPONSE OF *STREPTOCOCCUS PNEUMONIAE* IMPACTS ON ITS INTRACELLULAR SURVIVAL IN HOST CELLS

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Streptococcus pneumoniae is a gram-positive, aerotolerant bacterium that naturally colonizes the human nasopharynx. It is responsible for various infections, including sinusitis, otitis, pneumonia, and meningitis, making it a major cause of morbidity and mortality worldwide. While *S. pneumoniae* is considered a typical extracellular pathogen, emerging evidence indicates that it plays a significant role in its replication and survival within host cells, contributing to disease progression and pathogenesis. This bacterium produces high levels of H_2O_2 to eliminate other microorganisms present in the respiratory tract microbiota. However, it also triggers an oxidative stress response to endure these challenging conditions. Moreover, this self-defense mechanism is beneficial for tolerating the oxidative stress imposed by the host's immune response. In our laboratory, we have reported that two-component systems play a crucial role in the pneumococcal stress response to oxidative conditions and the intracellular survival of *S. pneumoniae* in host cells. Furthermore, we have provided evidence that influenza infection enhances the intracellular survival of *S. pneumoniae* within pneumocytes. We have demonstrated that the SirRH signal transduction system controls the expression of genes involved in the oxidative stress response, which *S. pneumoniae* requires to increase its intracellular survival in influenza A-infected pneumocytes. Recently, we reported the first mechanism of antibiotic persistence in *S. pneumoniae*, particularly against fluoroquinolones, which is induced by the oxidative stress imposed by host cells during its transient intracellular life. These findings regarding the role of the oxidative stress response during the intracellular phase of the pneumococcus, including coinfection with influenza A and the induction of antibiotic persistence in host cells, contribute to our understanding of pneumococcal pathogenesis and its implications for secondary bacterial infections in influenza patients, as well as the potential negative impacts on fluoroquinolone treatment for pneumococcal diseases.

AREA 1: BIOLOGIA GENERAL, CELULAR Y MOLECULAR (BM)

BIOLOGIA GENERAL, CELULAR Y MOLECULAR

BM01- RADIATION-INDUCED EFFECT OF ADIPOSE TISSUE ON RENAL CANCER PROGRESSION

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Radiotherapy (RT) is a common cancer treatment aimed primarily at killing tumor cells. However, RT also affects the tumor microenvironment, influencing tumor growth, spread, and tumor control. In renal cancer, conventional RT has shown limited effectiveness. In contrast, stereotactic ablative radiotherapy (SABR), which uses high doses in fewer sessions, has demonstrated better tumor control in both primary and metastatic renal cancer, along with improved patient quality of life. As a result, SABR is gaining global relevance, especially for patients unable to undergo surgery or with small tumors. Despite its growing use, the mechanisms by which SABR affects tumor behavior and the microenvironment remain poorly understood. This study begins to explore the effect of SABR on the MT; specifically, we evaluated if soluble factors released by irradiated normal (hRANi) and tumor (hRATi) perirenal adipose tissue modulates the proliferation, migration and adhesion of human renal epithelial cell lines. It also aims to identify soluble components present in the different conditioned media (CMs) from hRANi and hRATi. Fragments of normal (hRAN) and tumor (hRAT) perirenal adipose tissue were collected from kidney donors and renal cancer patients, respectively. These tissues were irradiated with X-rays at doses of 0, 2, and 10 Gy, and then incubated for 24 hours to generate CMs. Protein expression of adiponectin, leptin, perilipin 1, and FABP4 was analyzed by Western blot. Additionally, human renal epithelial cell lines—tumor (786-O) and non-tumor (HK-2)—were treated with the CMs to assess cell proliferation (MTT assay), adhesion, and migration (wound healing assay). hRAT irradiated with 2 Gy showed a significant decrease in the expression of leptin (pro-tumorigenic adipocytokine) and FABP4 (elevated in patients with renal cancer) compared to non-irradiated hRAT. When evaluating changes in the biological activity of cells incubated with the different CMs, we observed that hRATi-CMs 10 Gy significantly lost its ability to stimulate proliferation of HK-2 and 786-O cells at 24 and 48 h ($p<0.05$) compared to hRATi-CMs at 0 Gy and 2 Gy, and/or the control medium. We found the adhesion capacity of both cell lines incubated with hRATi-CMs 10 Gy decreased compared to those incubated with hRATi-CMs 0 and 2 Gy ($p<0.05$). Finally, we observed that 786-O cells incubated with hRATi-CMs 10Gy showed a significantly reduced migration capacity at 6 and 12 h *vs.* hRATi-CMs 0 and 2 Gy ($p<0.05$). In conclusion, radiation alters the behavior of the peritumoral renal adipose tissue, and the irradiated adipose tissue, at high doses, can reverse at least in part the tumor features.

BM02- LIQUID BIOPSIES AND KIDNEY CANCER: SEARCH FOR BIOMARKERS

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Renal cell carcinoma (RCC) is one of the most common and deadliest urological tumors worldwide. In this context, liquid biopsies emerge as a promising alternative for the detection and monitoring of biomarkers in biological fluids such as blood and urine, offering a non-invasive and repeatable method. This study aimed to identify and validate potential biomarkers for RCC by combining experimental and bioinformatics approaches. Tissue, plasma, and urine samples from patients and healthy controls were analyzed using qRT-PCR and Western blot techniques, evaluating the expression of VEGF, AQP1, AQP2, PLIN1, PLIN2, adiponectin, NF-κB, Hsp27, and PCNA. Simultaneously, *in silico* analyses were performed using data from The Cancer Genome Atlas (TCGA) and bioinformatics tools to corroborate and validate the experimental results. The findings revealed differential gene and protein expression profiles between patients and controls, highlighting the increased expression of VEGF, AQP1, PLIN2, and Hsp27, along with the decreased expression of PLIN1 and adiponectin in RCC patients. These results suggest the involvement of multiple molecular pathways related to angiogenesis, lipid metabolism, cell proliferation, and stress resistance, reinforcing the potential of these markers for early detection and prognosis of the disease. In conclusion, integrating liquid biopsies with bioinformatics analysis offers a multidimensional approach to the study of RCC, providing strong evidence for the future development of biomarker panels applicable in clinical practice and personalized medicine.

BM03- POTENTIAL INTERACTION OF COMPLEXIN2 AND DOC2B IN GLUT4 TRANSLOCATION IN MIOBLASTIC CELLS

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In muscle tissue, insulin increases the amount of GLUT4 at the plasma membrane through a process known as GLUT4 exocytosis. GLUT4 is a glucose transporter whose exocytosis involves the fusion of GLUT4-containing vesicles with the plasma membrane. This fusion is mediated by SNARE proteins (Syntaxin4, SNAP23, and VAMP2) and accessory proteins (Munc18c, Doc2b, and Synip). Together, these proteins facilitate vesicle fusion with the plasma membrane, thereby increasing GLUT4 availability at the cell surface and enhancing glucose uptake. Impaired GLUT4 translocation is considered a key factor in the development of insulin resistance, which is characterized by a reduced or absent tissue response to insulin, leading to diminished glucose uptake in skeletal muscle. Therefore, studying the regulation of GLUT4 exocytosis is essential for a deeper understanding of the underlying cellular mechanisms. Our research group has recently reported the presence of complexin 2 (Cplx2) in myoblastic cells and skeletal muscle, as well as its role in regulating GLUT4 exocytosis. Cplx2 displays dual functions, both activating and inhibiting Ca^{2+}-regulated exocytosis. Conversely, other groups have associated the Ca^{2+}-sensor protein Doc2b with GLUT4 exocytosis. However, the functional relationship between Cplx2 and Doc2b remains unclear. Here, we aimed to investigate the potential functional interaction between Cplx2 and Doc2b in the regulation of GLUT4 exocytosis. To this end, we used immunofluorescence with confocal microscopy and pull-down assays employing His-tagged Cplx2 immobilized on Ni-beads and cell lysates containing Doc2b. Our results revealed an insulin-dependent increase in the colocalization of Cplx2 and Doc2b at the plasma membrane, as well as an interaction detected in pull-down assays. These findings suggest a cooperative role of Cplx2 and Doc2b in the regulation of GLUT4 exocytosis, contributing to a better understanding of the molecular mechanisms underlying insulin action in skeletal muscle.

BM04- SEX-DEPENDENT DIFFERENTIAL EXPRESSION OF HORMONAL RECEPTORS AND EPIGENETIC REGULATORS IN HIPPOCAMPUS OF OFFSPRING EXPOSED TO MATERNAL HYPERTHYROIDISM AND PRENATAL STRESS

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Maternal thyroid hormones (THs) and prenatal stress (PS) are well-recognized modulators of fetal programming, each capable of altering brain development through changes in hormone signaling and epigenetic regulation. However, their combined impact has not been thoroughly explored. The hippocampus, highly sensitive to endocrine and stress-related influences, represents a critical region for assessing long-term neuroendocrine outcomes. This study aimed to determine whether maternal hyperthyroidism (HyperT) potentiates the epigenetic effects of PS on the hippocampus of adult offspring. Female Wistar rats were induced with mild HyperT by daily T4 (0.1 mg/kg/day, s.c.) injections or vehicle (Eu) before and during gestation. Pregnant dams were exposed to chronic unpredictable moderate stress (PS) from gestational day (GD) 6 to GD18 or left undisturbed (non-PS). Offspring were reared under standard conditions until adulthood, when hippocampal expression of thyroid (TRβ1, TRβ2) and estrogen receptors (ERα, ERβ), along with epigenetic enzymes (DNMT1, Set7), were quantified by RT-qPCR. In males, TRβ1 expression increased only in the HyperT+PS group ($p<0.05$), while ERα remained unchanged. In females, HyperT induced upregulation of TRβ1 ($p<0.01$), and HyperT+PS further enhanced TRβ2 expression ($p<0.05$). Both ERα and ERβ were reduced in HyperT groups regardless of stress ($p<0.05$). Regarding epigenetic enzymes, males showed an increase in Set7 expression only in the HyperT+PS group ($p<0.001$), while DNMT1 remained unchanged. In females, both Dnmt1 and Set7 expression were increased by either PS ($p<0.05$) or HyperT ($p<0.01$) alone, with additive effects when both factors were combined ($p<0.01$ vs HyperT non-PS and $p<0.001$ vs Eu PS). These findings reveal sex-specific patterns of gene expression in response to maternal HyperT and PS. In particular, the altered expression of epigenetic regulators such as DNMT1 and Set7 suggests that epigenetic machinery may also be sensitive to these early-life challenges, potentially contributing to long-term changes in hippocampal gene regulation.

BM05- PRIMER VALIDATION FOR CIRCADIAN GENE EXPRESSION ANALYSIS IN SPLENIC MACROPHAGES

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Circadian rhythms align physiology and behavior with the 24-hour solar cycle, an adaptive process orchestrated by the molecular clock. In mammals, the suprachiasmatic nucleus (SCN) functions as the master pacemaker, synchronizing peripheral clocks through sympathetic and hormonal cues. Preliminary evidence from our laboratory suggests that norepinephrine (NE), released by sympathetic innervation, sustains BMAL1 rhythmicity in splenic macrophages (MΦ), thereby linking circadian regulation to immune function. To further explore clock–immune interactions in the spleen, we focused on the expression of *Rorα*, *Rev-erbα*, and *Per1/2*, key transcriptional regulators of the molecular clock. Quantitative PCR (qPCR) offers a wide dynamic range, sensitivity, and accuracy, but requires careful optimization and validation to ensure reproducibility and biological relevance. Therefore, our aim was to validate primer pairs for robust and specific amplification of these circadian genes. Primers were designed using PrimerQuest™ Tool and subjected to rigorous *in silico* evaluation, including analyses of specificity, splicing variants, predicted amplicon size, and the absence of secondary structures. This was followed by empirical optimization, in which cDNA input and primer concentrations were titrated. Reliable amplification was obtained using 300 nM primer concentrations with 100 ng template. Amplification specificity was confirmed by capillary electrophoresis sequencing (CES), which verified the identity of the PCR products. With optimized conditions, the validated primers displayed high sensitivity and reproducibility, enabling the detection of temporal expression changes in *Rorα*, *Rev-erbα*, and *Per1/2* in splenic MΦ. These results demonstrate that the selected primer sets are suitable for quantitative assessment of circadian gene expression and provide a robust methodological framework for future studies. The validated qPCR primers constitute a reliable tool for investigating circadian gene expression in splenic MΦ. This methodological advancement establishes the basis for studying how NE and the SCN–spleen axis shape immune rhythmicity, thereby contributing to our understanding of neuro-immune circadian regulation.

BM06- PROSTATE CANCER CELLS MODULATE ADIPOKINE AND HORMONE RECEPTOR EXPRESSION IN PERIPROSTATIC ADIPOSE TISSUE

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Epithelial–stromal interactions are crucial for normal tissue homeostasis and cancer development. In prostate cancer (PCa), obesity is associated with worse outcomes, highlighting the role of adipose tissue as a stromal regulator. We have previously demonstrated that peritumoral adipose tissue influences tumor cell behavior. Here, we investigated the reverse dialogue, assessing how PCa cells affect periprostatic adipose tissue (PPAT). Normal PPAT from retropubic adenomectomies were incubated for 24 h with conditioned media (CMs) from three PCa cell lines with different hormonal dependence and aggressiveness (LNCaP, DU145, PC3). Morphology, lipid content, and the expression of adipokines and hormone receptors were evaluated. No major morphological or lipid content changes were detected. However, all tumor-derived CMs increased leptin expression, a pro-tumorigenic adipokine linked to proliferation, migration, and angiogenesis. Notably, LNCaP-CM (hormone-sensitive) upregulated aromatase, androgen receptor (AR), and estrogen receptor α (ERα). Since AR and ERα are associated with tumor growth in hormone-sensitive PCa, these results suggest that LNCaP cells induce PPAT to enhance peripheral aromatization and hormone supply. In contrast, DU145- and PC3-CMs (both hormone-insensitive) only reduced ERβ, a receptor with proposed antiproliferative roles. In conclusion, prostate tumor cells actively reprogram PPAT in a hormone phenotype–dependent manner, supporting its role as an active partner in PCa progression.

BM07- STRUCTURAL CHARACTERIZATION OF THE INTERACTION BETWEEN CYCLOOXYGENASE 1 AND 2 WITH FLAVONOIDS

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Cyclooxygenase (COX) is a key enzyme involved in the synthesis of prostanoids, including prostaglandins, prostacyclin and tromboxane, through the conversion of arachidonic acid to prostaglandin H2, which is the rate-limiting step in prostanoid production. There are two principal isoforms of COX which are named as COX-1 and COX-2. COX-2 isoform is believed to be responsible for biosynthesis of prostaglandins PGs that are associated with inflammation. COX inhibition is one of the targets of non-steroidal anti-inflammatory drugs (NSAIDs), the most widely used drugs for the treatment of various inflammatory diseases and relieving pain. Traditional NSAIDs work by inhibiting both COX-1 and COX-2 isoforms, while "COXIBs" exert their biological effects by inhibiting COX-2. Both groups of drugs present adverse effects, so the search for other types of compounds with anti-inflammatory activity is of interest. Flavonoids have demonstrated anti-inflammatory and gastrointestinal protective activity in animal models, and in previous studies we have analyzed their binding to COX. Our objective was to compare the binding of flavonoids, 7-O-methyleriodictiol, nepetin, 7-O-methylsudachitin and quercetin, at the binding sites of the COX-1 and COX-2 enzymes. Although COX-1, and COX-2 isoforms are highly similar in structure, there is a notable structural difference in the active site (catalytic domain) of COX-2. For this purpose, structural data for the human COX-1 (AY3C) and COX-2 proteins (5IKR) deposited in the Protein Data Bank (PDB) were used. The Autodock Vina and Chimera bioinformatic tools were used to perform *in silico* docking assays of the compounds to the COX-1 and 2 enzymes. The binding of the compounds to the enzyme was observed and evaluated using the Pymol and Chimera programs. The results suggest that flavonoids bind to two binding sites on the surface of both enzymes with high affinity. One of these sites is the active site of each enzyme, where flavonoids show high affinities compared to the indomethacin control. The flavonoid 7-O-methyleriodictyol shows the highest binding affinity for the COX-2 active site. The results suggest that flavonoids could have anti-inflammatory effects by binding these compounds to cyclooxygenase proteins, regulating their metabolic functions.

BM08- INTEGRATION OF ADDITIVE MANUFACTURING, MORPHOLOGICAL CHARACTERIZATION, AND ARTIFICIAL INTELLIGENCE ANALYSIS IN THREE-DIMENSIONAL SCAFFOLDS FOR TISSUE ENGINEERING: PRINTED GRIDS AS AN EXTRACELLULAR MATRIX FOR CELL CULTURE

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Three-dimensional biocompatible scaffolds play a crucial role in tissue engineering by mimicking the extracellular matrix and facilitating cell adhesion, proliferation, and differentiation. Additive manufacturing enables the fabrication of controlled geometries; however, achieving high reproducibility and structural precision remains a major challenge. This study aims to integrate experimental, computational, and analytical methodologies to enhance standardization and reproducibility in the design and characterization of 3D scaffolds for biomedical applications. Scaffolds were designed and fabricated using additive manufacturing technologies—Fused Deposition Modeling (FDM) and Digital Light Processing (DLP)—with various geometries (grid, tri-hexagonal, and gyroid). Structural analysis was performed by scanning electron microscopy (SEM) to evaluate homogeneity, pore distribution, and dimensional accuracy. Subsequently, the micrographs were processed through a Python-based computational framework integrating artificial intelligence libraries (OpenCV, Scikit-Image, and ChatGPT-4o) to extract morphological metrics and conduct statistical analyses (ANOVA, boxplots, violin plots). SEM analyses revealed average cavities of 140 × 140 µm with a depth of 140 µm, showing intra- and inter-lot variability under identical printing conditions. AI-assisted image processing enabled precise quantification of geometric deviations, improved boundary detection, and yielded higher reproducibility compared with manual methods. Comparative evaluation demonstrated that DLP printing achieved superior microstructural precision, whereas FDM provided greater dimensional stability in larger scaffolds. The integration of experimental characterization with artificial intelligence–based analysis significantly enhances the traceability, precision, and reproducibility of additive manufacturing processes. This unified methodological framework contributes to the development of standardized, biocompatible scaffolds and establishes a foundation for future applications in regenerative medicine and advanced bio-fabrication.

BM09- ANTITUMOR EFFECT OF EXTRACTS OBTAINED FROM DIFFERENT TYPES OF GRAPES AND OLIVE POMACE ON RENAL CANCER

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Wine and olive oil productions are two of the main agri-food economic activities in Mendoza, and grape and olive pomace are by-products resulting from this production. These pomaces are sources of bioactive phenolic compounds that could be used for tumor prevention. Initially, bioactive extracts from different pomaces were obtained and characterized: 1) conventional Malbec (CM), 2) organic Malbec (OM), and 3) olive pomace (O) using: a) Natural Deep Eutectic Solvents (NADES) and b) acidified water (AQ, conventional procedure). In this work, we evaluated the effect on cell proliferation, viability, adhesion, and migration of seven serial dilutions (from 50 mg/mL to 0.78 mg/mL) of each of the six extracts on tumor (786-O and ACHN) and non-tumor (HK-2) human renal epithelial cell lines. Proliferation was assessed at 24 and 48 h by MTT, viability by Trypan blue, adhesion by MTT, and migration by Wound healing. CM and OM extracts significantly decreased the proliferation and viability of the three cell lines in a dose- and time-dependent manner ($p<0.05$), while extract A also did so, but only at high concentrations. The CM-, OM-, and A-NADES extracts produced a stronger reduction in the proliferation and viability of the three cell lines than the corresponding aqueous (CM-, OM-, and A-AQ) extracts ($p < 0.05$). The effect on proliferation and viability was significantly greater in tumor cell lines than in non-tumor cell lines ($p<0.05$). Likewise, the extracts significantly decreased cell adhesion of the 786-O line ($p<0.05$), with CM- and OM-NADES being more efficient than the respective AQ extracts. Finally, CM-, OM-, and O-NADES extracts decreased cell migration of both 786-O and ACHN ($p<0.05$). However, 786-O (primary tumor cells) was much more sensitive to the extracts than ACHN (metastatic site cells). In conclusion, 1) NADES extracts showed a greater antitumor effect than AQ; 2) CM and OM extracts presented a greater antitumor effect than O; 3) finally, tumor renal cell lines were more sensitive to the extracts than non-tumor cell lines.

BM10- EXPLORING THE THERAPEUTIC POTENTIAL OF SYNTHETIC COMPOUNDS AGAINST *Leishmania amazonensis*

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Leishmaniasis is a parasitic zoonotic disease on the rise in South America and is considered by the WHO as a neglected tropical disease, disproportionately affecting low-income populations with limited access to health services. Globally, an estimated 700,000 to 1 million new cases are reported each year. Transmission occurs through the bite of infected sand flies, and the clinical manifestations—cutaneous, mucocutaneous, or visceral—depend largely on the infecting species. In Argentina, the disease mainly affects the northern region, where its incidence has steadily increased over the past two decades. Current therapies remain unsatisfactory due to their toxicity, high cost, difficult administration, and the emergence of drug-resistant strains. These limitations highlight the urgent need for new therapeutic strategies. In this context, synthetic compounds have gained attention as potential sources of novel antileishmanial agents. Here, we evaluated the therapeutic efficacy of two synthetic compounds, LL-PA-075 and APC-1-109, in an *in vivo* model of cutaneous leishmaniasis. Male BALB/c mice (8–10 weeks) were infected in the right footpad with 1×10^4 *Leishmania amazonensis* promastigotes and treated locally once a week for 10 weeks. LL-PA-075 treatment resulted in a marked reduction in footpad swelling, accompanied by a significant decrease in parasite burden and splenic index, as well as a downward trend in total IgG levels. In contrast, APC-1-109 did not exhibit significant therapeutic effects. It even seems to exacerbate the infection since the parameters analysed increase in mice treated with APC-1-109. Taken together, these findings highlight LL-PA-075 as a promising candidate for the development of new therapies against *L. amazonensis* and cutaneous leishmaniasis.

BM11- EFFECT OF ESTROGEN AND PROGESTERONE ON THE REGULATION AND INTRACELLULAR TRANSPORT OF CATHEPSIN D AND ITS RECEPTORS IN A HUMAN ENDOMETRIUM-DERIVED CELL LINE

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The endometrium is a key tissue for reproduction. The steroid hormones estrogen (E2) and progesterone (P4) regulate morphological and functional transformations during the menstrual cycle, converting the endometrium into a receptive state, highlighting the importance of intracellular trafficking to allow implantation. Impaired adhesive capacity of the endometrial luminal epithelium leads to inadequate blastocyst adhesion and implantation failure. Defective endometrial adhesion is a major cause of infertility-related implantation failure but the mechanisms contributing to this remain poorly defined. In recent years, the involvement of Lysosomes have been recognized for their involvement in numerous physiological processes. Lysosomal proteases, including cathepsins, play roles in menstruation, implantation, and placental formation, as well as in several diseases, including cancer and endometriosis. Despite its important role in key reproductive processes, the mechanism of cathepsin D (CatD) activity and its intracellular regulation have not been extensively studied in endometrial epithelial cells. In this study, we used a human endometrial epithelial cell line to investigate whether the expression and/or localization of CatD and its transporter proteins could be influenced by sex hormones. Using fluorescence microscopy and immunoblot, we observed that CatD expression shows significant variations following hormonal treatments, especially with P4, which increased the expression of immature forms of the protease. We also observed increased expression of CD-MPR under P4 and of sortilin under E2. These findings suggest that, in endometrial epithelial cells, CatD predominantly utilizes the CD-MPR pathway during the postovulatory phase of the cycle (when P4 predominates) and the sortilin-mediated pathway during the E2 phase. These studies contribute to our understanding of the mechanisms underlying the intracellular mechanism of the lysosomal protease CatD and its receptors under the influence of steroid hormones in a cell line derived from human endometrial epithelium. Unraveling the molecular mechanisms involved in E2- and P4-modulated CatD trafficking may provide new insights into endometrial function. Intracellular transport of CatD will shed further light on endometrial function and open up new avenues for developing novel approaches to improve reproduction.

BM12- POLYPHOSPHATE METABOLISM IN *PSEUDOMONAS AERUGINOSA* AS A THERAPEUTIC TARGET: CONSTRUCTION OF MARKERLESS AND KNOCKOUT MUTANTS

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Polyphosphate (polyP) is a high-energy biological polymer of inorganic phosphates, ubiquitous in the microbial world, playing an essential role in the survival and pathogenesis of opportunistic pathogens such as *Pseudomonas aeruginosa*. PolyP metabolism regulated by polyphosphate kinases (Ppk1, Ppk2) and exopolyphosphatase (Ppx) is fundamental for stress tolerance, ATP synthesis, virulence factor production, and biofilm formation. Given its central role, inhibition of the enzymes involved in polyP metabolism represents a potential therapeutic strategy to combat antibiotic-resistant *Pseudomonas aeruginosa* infections. To investigate the specific functions of these genes, this study was designed to generate markerless deletion mutants in the PAO1 wild-type strain. The methodology employed a double homologous recombination process using the sacB-containing suicide vector pEX18ApGW and the helper plasmid pTNS2. The procedure began with cloning the upstream and downstream flanking regions of each target gene, along with a gentamicin resistance (Gm^R) cassette inserted via KpnI, BamHI, and PstI restriction sites, into pEX18ApGW. Successful ligation was confirmed by restriction digestion. The recombinant constructs were introduced into PAO1 cells by electroporation (pulsed at ~2.5 kV), followed by recovery in SOC medium. Primary mutant selection was performed by sequential plating on gentamicin, followed by stringent counter-selection on gentamicin and 5% sucrose to isolate double-crossover recombinants (Gm^R, Suc^R). These were verified by colony PCR. Subsequently, the pFLP2 plasmid was introduced via a second electroporation into the primary mutants to remove the Gm^R cassette through Flp recombinase-mediated recombination. Final confirmation of the markerless mutants (*Δppk1, Δppk2, Δppx*) was based on their gentamicin-sensitive and carbenicillin-sensitive (Gm^s, Cb^s) phenotypes and a final colony PCR that yielded an intermediate-sized amplicon (approximately 500 bp smaller than the wild-type fragment). In conclusion, the results confirmed the successful, high-fidelity construction and cryopreservation of two validated clones for each single-gene markerless deletion mutant. This collection provides a valuable tool for future functional assays aimed at phenotypically characterizing the impact of disrupted polyP metabolism on key bacterial traits, thereby supporting the evaluation of this pathway as a potential anti-virulence target.

BM13- BACTERIAL INFECTIONS IN MUCO-OBSTRUCTIVE LUNG DISEASES: AN ONGOING CHALLENGE

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Muco-obstructive pulmonary diseases are characterized by thick mucus accumulation, leading to chronic inflammation, tissue damage, and impaired lung function. This altered environment creates hypoxic niches that favour bacterial colonization and biofilm formation, with *Pseudomonas aeruginosa* (*P. aeruginosa*) being a prevalent and persistent opportunistic pathogen. Its remarkable adaptability, metabolic flexibility, and ability to form biofilms make it a leading cause of chronic lung infections in patients with muco-obstructive diseases. In recent years, numerous carbonic anhydrases in bacteria (CA-b) have been detected, cloned, and characterized in various pathogenic bacteria. CA-b enzymes belong to a superfamily of metalloenzymes, of which three classes have been identified in bacterial genomes: α-, β-, and γ-CA-b. These enzymes catalyze the hydration of CO_2, a reaction central to bacterial metabolism, as it connects to multiple metabolic and biochemical pathways, including carboxylation reactions and pH homeostasis. *P. aeruginosa* encodes three CA-b enzymes (psCA1, psCA2, and psCA3), each with distinct regulation and function, suggesting they mediate specific physiological responses, although this adaptive mechanism remains poorly understood. Based on these observations, we postulate that hypoxia induced by mucus accumulation enhances bacterial colonization, with CA-b enzymes playing an important role in both the colonization of this environment and the persistence of infection, thereby contributing to the development of chronic pulmonary disease. To address this, we constructed *P. aeruginosa* PAO1 mutant strains lacking each of the CA-b enzymes through allelic replacement, in order to assess the individual contribution of each CA-b to bacterial pathogenicity under hypoxic conditions. Our results confirmed the successful construction of all three markerless single-gene deletion mutants. These mutants are now ready for functional analyses to assess the phenotypic consequences of disrupted CA-b metabolism on essential bacterial processes, including biofilm development and virulence. These studies will facilitate the evaluation of this pathway as a potential target for novel anti-virulence therapies, with the goal of delaying the progression of chronic infections and improving patients' quality of life and clinical outcomes.

BM14- 14-3-3γ MODULATES AUTOPHAGIC FLUX BY LIMITING AUTOPHAGOSOME ACCUMULATION

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The 14-3-3 family comprises conserved regulatory proteins that control diverse cellular pathways through phosphor serine / threonine-dependent interactions. Although implicated in stress signaling, the functions of specific paralogs in processes such as autophagy remain poorly defined. Autophagy, a crucial lysosomal degradation pathway, is activated by nutrient starvation to maintain cellular homeostasis. To investigate the role of the 14-3-3γ paralog, we generated a stable knockdown cell line (shRNA-YWHAG) using 3T3-L1 preadipocytes, which was additionally transfected with the RFP-LC3 reporter to visualize autophagic vesicles. To assess the autophagic flux, cells were subjected to a 2-hour nutrient starvation treatment using HBSS medium, combined with Bafilomycin A1 (BafA1) to block lysosomal degradation, and thus, visualize autophagosome accumulation. Following treatment, the cells were fixed, and the number of RFP-LC3-positive puncta was quantified by fluorescence microscopy. Under nutrient-rich conditions, no significant differences were observed in basal autophagy between wild-type and 14-3-3γ-silenced cells. The percentage of cells displaying activated autophagy under starvation was increased 4 times, without significant differences between the two lines. However, quantitative analysis of the responsive cells demonstrated that 14-3-3γ-silenced cells accumulated a significantly higher number of autophagosomes per cell compared to their wild-type counterparts ($p<0.001$). This specific phenotype -unaltered activation but amplified autophagosome accumulation- suggests that 14-3-3γ plays a role in the modulation of autophagy flux rather than in its triggering. These findings indicate that the loss of 14-3-3γ exacerbates autophagosome accumulation induced by the combination of nutrient stress and lysosomal inhibition. Therefore, this paralog is dispensable for the initiation of autophagy but acts as a modulator of the overall response. These results establish 14-3-3γ as a novel modulator of autophagy; further investigation to delineate its precise molecular mechanism is ongoing.

BM15- 14-3-3γ KNOCKDOWN AFFECTS ADHESION, CELL CYCLE, AND PROLIFERATION OF 3T3-L1 CELLS

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The 14-3-3 protein family comprises dimeric proteins that act as "adapter proteins," modulating interactions among components of signal transduction pathways. This family includes seven highly conserved paralogs in mammals that regulate multiple signaling cascades through phosphorylation-dependent interactions. The 14-3-3γ paralog has been implicated in apoptosis, senescence, and the regulation of cell cycle dynamics; however, its specific role in cell cycle control remains uncharacterized. To further understand its role, we used wild-type (WT) and 14-3-3γ knockdown (shG) 3T3-L1 cells generated by lentiviral delivery of a specific shRNA. Cell viability and proliferation were assessed at 24, 48, and 72 hours with different concentrations of fetal bovine serum (FBS). Both cell lines displayed a serum concentration– dependent increase in viable cell numbers; however, WT cells consistently exhibited 20–60% higher counts than shG cells ($p < 0.005$). Furthermore, the shG cells showed a significantly prolonged doubling time in DMEM supplemented with 10% FBS (46 h) compared to WT cells (20 h), indicating a proliferative delay associated with 14-3-3γ silencing. Analysis of cell adhesion revealed reduced adhesion levels in shG cells relative to WT cells, independent of incubation time and serum concentration. Flow cytometry of asynchronous cultures showed that, 24 hours post-seeding, shG cells accumulated in the G2/M phase, as previously reported in the literature. Mechanistically, 14-3-3γ binds to phosphorylated Cdc25, a key cell cycle regulator, protecting it from ubiquitin-mediated regulation and thereby modulating mitotic entry. Decreased 14-3-3γ levels disrupts this balance, leading to decreased adhesion and proliferation. Elucidating the molecular mechanisms underlying these phenotypes is our current goal.

BM16- CONDITIONED MEDIUM FROM BRAF^{V600E} VEMURAFENIB-RESISTANT MELANOMA CELLS PROMOTES GALECTIN 9 SECRETION IN MACROPHAGES

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Melanoma, the most aggressive form of skin cancer, is characterized by the rapid development of acquired resistance to targeted therapies such as Vemurafenib (Vem), which severely limits their long-term clinical efficacy and highlights the urgent need to identify new therapeutic targets. Among the crucial mechanisms described, the expression of the immunosuppressive immune checkpoint receptor TIM-3 and its ligand, Galectin 9 (Gal 9), on tumor-infiltrating macrophages contributes significantly to tumor progression and drug resistance. Our previous studies demonstrated that modulation of the autophagic flux in BRAF^{V600E} melanoma cells resistant to Vem plays a key role in the secretion of paracrine factors that transfer Vem resistance to sensitive cells. The aim of this study was to determine the impact of the conditioned medium (CM), which contains these secreted factors, from Vem-resistant melanoma cells on the modulation of the Gal 9/TIM-3 axis in macrophages. To this end, macrophages derived from the THP-1 monocytic cell line were treated with CM collected from Vem-sensitive (LuS) and Vem-resistant (LuR) melanoma cells. The expression and secretion of Gal 9 and TIM-3 were analyzed using three distinct techniques: quantification of secreted protein by ELISA, intracellular protein levels by Western blot, and mRNA expression levels by qPCR. Treatment with CM-LuR promoted a significant increase in Gal 9 secretion (measured by ELISA) in macrophages, which was accompanied by a corresponding decrease in intracellular Gal 9 accumulation (Western blot). Furthermore, CM-LuR treatment induced significantly higher mRNA expression levels for both Gal 9 and TIM-3 compared to the control and CM-LuS. Notably, melanoma cells (LuS and LuR) do not express or secrete Gal 9. Our findings suggest that factors secreted by Vem-resistant melanoma cells are capable of modulating the Gal 9/TIM-3 axis in macrophages. This modulation, evidenced by increased Gal 9 secretion and elevated Gal 9 and TIM-3 mRNA expression, indicates that resistant cells release signals that promote an immunosuppressive tumor microenvironment favorable for melanoma progression.

BM17- STUDY OF THE INTERACTION OF SMALL LIGANDS WITH THE 14-3-3 PROTEIN BY DIRECT TITRATION

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The 14-3-3 protein family, composed of seven paralogs in mammals, regulates critical cellular processes such as adipogenesis, cell cycle, and apoptosis. These proteins perform their function by binding to phosphorylated serine and threonine residues in target proteins through a conserved binding groove, making them attractive targets for drug development. Previous research by our group demonstrated a significant increase in the expression of the 14-3-3γ paralog during adipogenesis, highlighting its relevance in this process. With the aim of identifying binding sites susceptible to pharmacological intervention, we performed a virtual screening of 20 million compounds from the ZINC database on a 14-3-3 monomer, using molecular docking with AutoDock VINA. This analysis identified 50 compounds from the β-carboline family with high affinity for a specific region located on the opposite side of the main binding groove. The objective of this work was to experimentally validate the protein-ligand interaction by direct titration. To this end, the 14-3-3γ protein was expressed in *Escherichia coli* and purified by affinity chromatography (IMAC) and size exclusion chromatography (SEC). Among the ligands identified, those whose UV absorption peak was different from that of the protein (280 nm) were selected, allowing a spectrophotometric approach without the use of markers. The selected ligands were diluted to 2 mM in TRIS-NaCl buffer pH 7.5 with 20% DMSO. Triplicate titrations were performed for each of three protein concentrations (0.5, 1.0, and 1.8 μM) using the selected ligands. When comparing the absorption spectra of the protein-ligand complexes to those of the ligand alone, Perlolyrine was observed to show significant changes in absorbance at 380 nm. This change suggests the formation of a complex with an apparent stoichiometry of two ligand molecules per protein (dimeric form) (n_{max} = 2). Additionally, the compound was tested in 3T3-L1 cells induced to adipogenesis. At a final concentration of 4 μM, an increase in adipogenic differentiation was observed, as determined by Oil Red O staining measured at 345 nm. In conclusion, these results suggest the interaction and formation of the 14-3-3γ-Perlolyrine complex, supporting the usefulness of direct titration spectrophotometric assays as a complementary tool for verifying interactions predicted by molecular docking. Combining this approach with other biophysical and structural techniques will allow for more accurate characterization of binding sites in 14-3-3 proteins and advance the development of pharmacological modulators.

BM18- DECODING NON-MUSCLE MYOSINS IN BREAST CANCER: BIOMARKERS AND THERAPEUTIC OPPORTUNITIES

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Breast cancer is the leading cause of cancer-related death among women in Argentina. Its high incidence, coupled with drug resistance, the adverse effects of chemotherapy, recurrence, and metastasis, highlights the need for new therapeutic strategies and biomarkers with prognostic and/or predictive value. Non-muscle myosins perform key functions in tumor progression—including cytoskeleton organization, vesicular trafficking, adhesion, and cell migration—exhibiting dual roles, acting as both tumor suppressors and promoters depending on the context. For instance: MYH9 stabilizes the tumor suppressor protein p53, MYO1B and MYO5A promote migration and invasion, MYO1C and MYO5B act as suppressors. This evidence indicates that myosins could be critical signaling modulators and potential cancer biomarkers, although their prognostic/predictive value in breast cancer still lacks exhaustive characterization. We postulate that non-muscle myosins exhibit a distinctive gene expression pattern in each molecular subtype of breast cancer with potential prognostic and/or predictive value. While certain expression patterns are associated with a good prognosis, others are related to adverse clinicopathological characteristics and a worse prognosis in breast cancer patients. The general objective of this project is to evaluate the role of myosins in breast cancer and their potential prognostic/predictive value through in silico studies (TCGA cohort) and in vitro assays in cell lines. Specific objectives: 1. To characterize at the transcriptomic level the differential expression of non-muscle myosins across different molecular subtypes of breast cancer through in silico analysis of the TCGA cohort. 2. To evaluate the correlation between the expression patterns of non-muscle myosins and clinicopathological variables, clinical evolution, and treatment response. 3. To identify non-muscle myosins with prognostic and/or predictive value in breast cancer. To evaluate the differential expression of non-muscle myosins, we performed an *in-silico* analysis of The Cancer Genome Atlas (TCGA). Our preliminary results on the differential expression of non-muscle myosins in breast cancer, obtained through in silico analysis of The Cancer Genome Atlas (TCGA) cohort (1097 patients with invasive mammary adenocarcinoma, without previous treatments, and who underwent surgical resection), performed using the EdgeR method, revealed a significant differential expression of genes coding for non-muscle myosins. In total, 15 subexpressed myosin heavy chain genes were identified, with notable decreases of between 5 and 7-fold on a logarithmic scale, among which MYH2, MYH7, MYH6, MYH13, MYH1, MYH8, and MYH11 stand out. On the other hand, overexpressed genes were observed compared to normal tissue, including MYO3B, MYO19, MYH16, MYO1G, and MYO3A. These findings suggest that the dysregulation of various non-muscle myosins could be closely associated with breast cancer progression, positioning them as potential biomarkers with prognostic value and possible therapeutic targets to be explored in subsequent studies. The clinical heterogeneity of breast cancer and drug resistance underscore the need for novel therapeutic strategies. This study seeks to establish the prognostic and predictive value of specific myosins, identifying potential biomarkers and molecular targets that could open up opportunities for more effective therapies.

BM19- PRESENCE OF PERITUBULAR MACROPHAGES IN THE SEMINIFEROUS TUBULES OF THE TESTICULAR TISSUE OF RABBITS FED A HIGH-FAT DIET AND SUPPLEMENTED WITH EXTRA VIRGIN OLIVE OIL

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In the wall of the seminiferous tubules of rodent's testis, the peritubular myoid cells form a monolayer. This provides peristaltic action and structural support. In recent research, a second major subpopulation of testicular macrophages, known as peritubular macrophages (PTMs), it has been observed that resides along with the more familiar interstitial testicular macrophages. This particular subset of testicular mononuclear phagocytes has been described as cells capable of releasing colony stimulating factors and enzymes involved in the biosynthesis of retinoic acid for the differentiation of spermatogonia A. However, to date, no studies have been published that describe the presence of these macrophages in rabbit testicles. Furthermore, there is an absence of evidence to suggest that these cells exhibit variation in response to high-fat diets, given that such diets are recognized as pro-inflammatory states. The objective of this study was to investigate the impact of a high fat diet (HFD) and the supplementation of extra virgin olive oil (EVOO) to an HFD on the presence and quantity of PTMs in rabbit testis. Male New Zealand White rabbits were fed a commercial rabbit pellet (normocholesterolemic rabbits: NCR), a high-fat diet (hypercholesterolemic rabbits: HCR) comprising 14% bovine fat, and a diet supplemented with extra virgin olive oil (7% bovine fat + 7% EVOO). Immune cells were detected using an anti-Iba1 antibody with confocal microscopy on histological sections. The findings of this study indicate the presence of a discrepancy in PTM levels in response to diets comprising saturated and unsaturated fats. However, further research is required to ascertain the underlying mechanisms.

BM20- GENETIC DIVERSITY AND POPULATION STRUCTURE OF THE HALOPHYTE *Sarcocornia Neei* LAG. IN SALINE ENVIRONMENTS OF SAN LUIS PROVINCE, ARGENTINA

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Soil salinity is one of the main abiotic stresses limiting crop productivity worldwide. Halophytic species, such as *Sarcocornia neei* Lag. exhibit remarkable physiological and molecular adaptations that enable them to complete their life cycle under high salinity conditions. These plants represent valuable models for understanding salt tolerance and potential resources for sustainable land use and crop improvement. This study aimed to evaluate the genetic diversity and population structure of two natural populations of *S. neei* located in the province of San Luis, Argentina—Salinas del Bebedero and Bajo de la Salada—using Start Codon Targeted (SCoT) molecular markers. Genomic DNA was extracted from 19 individuals using a modified CTAB protocol, with purity values (A260/280) ranging from 1.8 to 2.1, confirming suitability for downstream molecular analyses. Six SCoT primers (SCoT 2, 3, 4, 6, 8, and 10) were tested under optimized PCR conditions, producing 284 reproducible bands, 86 of which were polymorphic. Genetic parameters were estimated using POPGENE and NTSYS software. The overall percentage of polymorphic loci (%P) was 97.26%, indicating high genetic variability among all individuals. Within-population diversity was higher at Salinas del Bebedero (h = 0.1959; %P = 76.71) compared to Bajo de la Salada (h = 0.0881; %P = 41.10). The AMOVA results revealed that 95% of the total genetic variation was distributed within populations, while 5% was attributable to differences between populations (GST = 0.197; ΦPT = 0.051), suggesting moderate population differentiation. The high level of intrapopulation genetic diversity found in *S. neei* reflects its adaptive potential to variable saline environments. This research constitutes the first molecular assessment of *S. neei* in Argentina and provides a foundation for future studies aimed at conservation, genetic resource management, and the sustainable utilization of native halophytic species in saline ecosystems.

BM21- STRUCTURAL CHARACTERIZATION OF *Trypanosoma cruzi* CPSF30 AND FIP1- LIKE PROTEINS ASSOCIATION

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Chagas' disease is a chronic systemic parasitic infection caused by the protozoan *Trypanosoma cruzi*. It has a high overall prevalence (between 6 and 8 million cases), and between 65 and 100 million people are at risk of contracting this infection. Currently available drugs are highly toxic and often ineffective, particularly in treating the chronic stage of the disease. The identification of new targets for chemotherapy is very important and their three-dimensional structure resolution provides essential information. In trypanosomes, transcription is polycistronic, and individual mRNAs are generated through a coupled trans-splicing and polyadenylation reaction. Both TcCPSF30 and TcFIP1-LIKE are nuclear proteins that form part of a macromolecular complex involved in mRNA cleavage and polyadenylation, essential for cell viability. Previous studies have identified specific amino acids in these proteins that mediate their interaction. The interface between TcFIP1 and TcCPSF30 shows significant differences from its human counterpart, making both proteins potential targets for the rational design of anti-Chagas drugs. Studies carried out in our laboratory allowed us to characterize TcCPSF30 and TcFIP1-LIKE as intrinsically disordered proteins (IDP). The IDP proteins, due to their highly flexible nature, present particular difficulties in performing conformational and structural studies, such as the difficulty of obtaining protein crystals for X-ray study. From the analysis of the primary structure, different bioinformatics tools (such as QUARTERplus) allowed us to identify and characterize the disordered regions of both proteins. These observations, combined with previous results, allowed for the construction of different predictive models using different bioinformatics tools, primarily AlphaFold. The structural models obtained were analyzed with PDBsum, PISA, contact (CCP4), Pymol, Chimera and VMD bioinformatic tools. The results obtained suggest which are the main interactions at the interface in the association between TcFIP1-like and TcCPSF30. This study represents an important step in the characterization of the associations between key protein components of the mRNA cleavage and polyadenylation complex in *Trypanosoma cruzi*.

BM22- NOVEL APPROACHES USING MULTI-TARGET COMPOUND COMBINATIONS FOR OPTIMIZING TRYPANOCIDAL ACTIVITY

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Chagas disease, caused by the parasite *Trypanosoma cruzi*, currently affects approximately 10 million people worldwide. The available treatments are often ineffective, partly due to the high genetic diversity of parasite strains, which exhibit differential responses to therapy, some being sensitive, while others display resistance. In this study, we propose a therapeutic strategy targeting two conserved pathways present in all parasite strains but distinct from those in mammalian cells. One pathway, ergosterol biosynthesis, is absent in mammalian cells, whereas the other, the antioxidant defense system, differs markedly from its mammalian counterpart. Our goal is to maximize parasite damage while minimizing host cell toxicity. To evaluate this approach, we tested menadione (MND), a pro-oxidant compound, and ketoconazole (KTC), an antifungal agent already in clinical use, both individually and in combination. We first determined the IC_{50} values for each compound against epimastigotes and trypomastigotes. Subsequently, we used CompuSyn software to model different drug combinations: menadione:ketoconazole ratios: A (0.1:0.9), B, C, D and E (0.9:0.1). All tested combinations (A,B,C,D and E) exhibited synergistic effects, and we focused on the two extreme ratios, A and E, for further analysis. Transmission electron microscopy (TEM) revealed that parasites treated with menadione at its IC_{50} (1.7 µM) showed extensive vacuolization and mitochondrial swelling after 24 and 48 h, respectively. Treatment with ketoconazole at its IC_{50} (14 µM) also induced pronounced vacuolization. Combination A caused vacuolization and mitochondrial swelling, while combination E induced plasma membrane blebbing, extensive vacuolization, and nuclear deformation compared to controls. Additionally, we evaluated intracellular amastigote replication and quantified both amastigotes per cell and trypomastigote release at 24 and 48 h. All treatments reduced amastigote numbers relative to controls, with combination A showing the strongest inhibition at 48 h. Trypomastigote release was also reduced under all treatment conditions. Although further studies are needed, our findings support that multi-target compound combinations represent a promising strategy against *Trypanosoma cruzi*.

BM23- NEW METHOD FOR GENOTYPING NULL ALLELE OF GLUTATHIONE-S-TRANSFERASE THETA 1 GENE (GSTT1)

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Glutathione S-transferase theta 1 (GSTT1) and glutathione S-transferase Mu 1 (GSTM1) enzymes are glutathione-S-transferases with broad significance for susceptibility or resistance to multifactorial human diseases, as well as detoxification of environmental chemicals and drugs. Some individuals may have a complete deletion of GSTM1 and GSTT1 genes, which can contribute to patient-to-patient variability in drug safety and efficacy. The sequences of GSTT1 gene, HA3 and HA5 repetitive sequences and the 50Kb deletion were located on chromosome 22. The sequences were aligned using Bio Edit software. Primers were designed that hybridize to the gene and to the flanking regions of the deletion. A single assay using a multiplex PCR was performed for simultaneous gene amplification and allows to differentiate homozygotes and heterozygotes genotypes. Briefly, the PCR reaction mixture consisted of 100 ng of genomic DNA, 1× of 5× Buffer, 1.5 mM of MgCl2, 0.25 mM of each dNTP, 20 pM of each primer and 0,2 ul of Taq polymerase (Invitrogen) completed to 25 µL with molecular grade water. The PCR protocol included an initial denaturation temperature of 94ºC (2 min) followed by 30 cycles of amplification (15seg at 94ºC, 15seg at 60ºC, and extension for 15seg at 72ºC). DNA fragments were analysed on a 2% agarose gel stained with Gel Red. Expected products sizes were 291bp and 564 bp for WT and Null allele respectively. The frequencies of WT and Null alleles were determined. Hardy–Weinberg equilibrium was tested in the GSTT1 gene by Chi square. A p value less than 0.05 was considered as statistically significant. The allele frequencies found were Null (52.7%) and WT (47.3%), with a heterozygous frequency greater than 90%.

BM24- CRYSTAL STRUCTURE OF THE BRCT3 DOMAIN OF HUMAN TOPBP1

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TOPBP1 is a conserved scaffold with nine BRCT domains that integrates replication-stress signalling, checkpoint activation and DNA repair. Through modular BRCT-mediated interactions, TOPBP1 couples 9-1-1 clamp engagement at stalled forks with ATR pathway activation, coordinates origin firing and fork protection, and assembles repair and chromatin factors during S phase and after DNA damage. Ligand-validated specificities exist for several BRCT pairs (e.g., BRCT1/2 recognising components of the 9-1-1 pathway and BRCT4/5 recognising phosphopeptides from checkpoint and repair adaptors), yet BRCT3 remains poorly defined: its ligand preferences are unclear, structural data have been limited to lower-resolution EM/NMR models, and its contribution to the interaction network has not been resolved. Here, we report the first crystallographic structure of human TOPBP1-BRCT3 at a resolution of 2.2 Å. Domain boundaries were selected using AI structural predictions (RoseTTAFold and AlphaFold2), the gene was cloned from cDNA into a pET28b-derived vector, and the protein was produced in *E. coli* with an N-terminal His_6-StrepII-TEV tag (151 aa). Crystals grew in PACT A3 (0.1 M SPG, pH 6, 25% w/v PEG 1500) and data were collected at BL13-XALOC (ALBA). Phases were obtained by molecular replacement using an AlphaFold3 model. The current model reveals a canonical BRCT fold with a well-ordered hydrophobic core and surface features suitable for phospho-dependent or adaptor-mediated recognition, but without bound ligands in the crystal. This structure closes a key gap in the TOPBP1 BRCT atlas and provides a stable reference for mapping conserved versus variable surface patches unique to BRCT3, as well as comparing pocket architecture and electrostatics with ligand-competent BRCTs across TOPBP1. Together, these results establish a structural foundation for testing mechanistic models of how BRCT3 contributes to checkpoint control, fork stability, and genome maintenance, complementing existing structural knowledge of other TOPBP1 BRCT modules.

BM25- ANTITUMOR ACTIVITY OF CHALCONES JS-23 AND X2 IN BREAST CANCER CELLS

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Breast cancer is a highly prevalent disease and the leading cause of cancer-related death in women. Drug resistance, disease recurrence, and metastasis remain the major challenges in Oncology. It is essential to search for new therapeutic alternatives to enhance the effectiveness of current treatments. Chalcones are flavonoid precursor molecules. Numerous reports have demonstrated their antitumor activity in different *in vitro* and *in vivo* cancer models through diverse molecular mechanism. Chalcones are characterized by structural versatility, good bioavailability, and low toxicity, making them promising candidates for the development of new antitumor agents. In this study, the *in vitro* antitumor activity of the novel semisynthetic chalcones JS-23 and X2 was evaluated in the breast cancer cell lines MCF-7 and MDA-MB-231. These molecules have electron-donating substituents, whereas JS-23 contains a chlorine atom, X2 contains a nitrogen and an O-benzyl group, which enhance their selectivity and reactivity. Cell viability was assessed by the MTT assay using increasing concentrations of the chalcones (0–35 µM) for 24 and 48 h. Treatments were performed with IC_{50} values at 48 h and higher concentrations in order to evaluate cell migration through wound healing assay, and cellular adhesion by MTT. Results showed that both chalcones significantly reduced cell viability in MCF-7 and MDA-MB-231 cells in a concentration- and time-dependent manner. MDA-MB-231 cell line exhibited greater sensitivity. Cell migration was significantly inhibited by the chalcones, although X2 exhibited an earlier effect in MCF-7 cells. The cellular adhesion was inhibited in MCF-7 cells; JS-23 showed a dose-dependent effect, while X2 acted independently of dose. Altogether, these findings demonstrated the antitumor activity of chalcones in the studied cell lines. Future studies will focus on characterizing the molecular targets of JS-23 and X2, associated with lncRNA UCA1 and Wnt/β-catenin signaling pathway.

BM26- $GABA_BR$ AND CHOP: FRIENDS OR ENEMIES?

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GABA signalling involves ionotropic receptors ($GABA_AR$ and $GABA_CR$), mediating fast responses, and metabotropic receptors ($GABA_BR$), which mediate slower actions via G-protein coupling. The heterodimeric $GABA_BR$, composed of the $GABA_{B1}$ and $GABA_{B2}$ subunits,forms multiprotein complexes by interacting with GABAAR and other partners, such as APP, KCC2, and the transcription factors CHOP and CREB. Previous studies from our laboratory have shown that the $GABA_{B2}$ subunit declines with aging in the cerebellar cortex, potentially compromising synaptic complex function. In this context, CHOP (C/EBP Homologous Protein) is a stress-induced transcription factor with proapoptotic activity. CHOP has been proposed to act as an intermediate in $GABA_BR$ heterodimerization and plasma membrane localization. While its interaction with $GABA_BR$ has not been fully characterized, evidence suggests a possible protein-protein interaction under cellular stress, for example, during ischemia. It remains unclear whether such interaction occurs under physiological conditions in regions including the hippocampus and cerebellum, or how it changes with aging. We hypothesized that stress-induced CHOP overexpression during aging may promote an interaction with $GABA_BR$, impair B1/B2 heterodimer formation, lead to intracellular retention of receptors, and reduce their surface availability, thereby contributing to the decline in $GABA_BR$-mediated inhibitory signalling. Our main goal was to characterize the relationship between CHOP and $GABA_BR$ in the cerebellum and to understand how this interaction operates during aging and its potential impact on inhibitory signalling. For this work, cerebellar specimens were collected from young and old male Wistar rats. Immunohistochemistry was applied to study the expression and distribution of $GABA_BR$ subunits and CHOP, allowing us to assess potential colocalization and age-related changes in Purkinje cells. As expected, we observed decreased $GABA_{B2}$ levels, increased CHOP expression, and colocalization within Purkinje cell somata in the cerebellum of older rats. These results suggest that CHOP could modulate the organization and function of $GABA_BR$ under the influence of aging in the rat cerebellum.

AREA 2: BIOQUIMICA, FISIOLOGIA, PATOLOGIA Y PRODUCCION VEGETAL (BV)

BIOQUIMICA, FISIOLOGIA, PATOLOGIA Y PRODUCCION VEGETAL

BV1-DETECTION OF CORYPALLINE, AN ATYPICAL ALKALOID IN *Pyrolirion tubiflorum* FROM THE AMARYLLIDACEAE FAMILY

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The Amaryllidaceae family produces over 500 structurally diverse alkaloids with notable pharmacological activities, including antitumor, antiviral, and cholinesterase inhibitory effects. Despite this chemical richness, many species remain phytochemically unexplored. *Pyrolirion tubiflorum* (L'Hér.) M. Roem. is an Andean species whose distribution includes Ecuador, Peru, and northern Chile. It inhabits dry inter-Andean valleys and flowers from August to January, producing a striking, solitary orange blossom. In Peru, it is appreciated in the regions of Cusco, Apurímac, and Ayacucho for its ornamental value and its association with the onset of the rainy season, as it blooms with the first rains and is commonly known as "*Chihuanhuai*". The presence of alkaloid bioactivity in *P. albicans*, another species within the genus, positions *P. tubiflorum* as a promising candidate for phytochemical analysis. The aim of this work was to determine the alkaloid composition of *P. tubiflorum* bulbs. Samples were collected in January, after flowering, from the Lucre District (Cusco, Perú) at an altitude of 3000 m. Dry bulbs were chopped, dried, and subsequently subjected to the alkaloids extraction and analyzed by GC-MS using a DB-5MS column. The compounds were identified using AMDIS 2.65 software, supported by a private library of 300 Amaryllidaceae alkaloids. The GC-MS analysis of *P. tubiflorum* revealed 19 alkaloids, including the first reported occurrence of corypalline, hordenine, and N-methyltyramine in Amaryllidaceae. These alkaloids are phenethylamine or simple isoquinoline derivatives synthetized from tyrosine. Notably, corypalline serves as a key biosynthetic precursor for complex secobisbenzylisoquinoline alkaloids typically found in plant families like Berberidaceae and Menispermaceae. These results highlight *P. tubiflorum* as a distinctive and unique alkaloid profile within Amaryllidaceae, featuring both typical alkaloids like lycorine and sanguinine and unusual compounds. Future studies will confirm through isolation, detailed NMR analysis, and biological activity assessment to establish their chemotaxonomic and pharmacological importance.

BV2-NODULATION CAPACITY OF *ADESMIA MURICATA* IN ITS NATURAL ECOSYSTEM: IMPLICATIONS FOR BIOLOGICAL NITROGEN FIXATION

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There is currently an increase in the global territory covered by arid zones as a result of global warming. Although native legumes constitute an important component of the flora in these ecosystems, there is little information on their capacity for biological nitrogen fixation (BNF) in their natural habitat. The objectives of this study were to determine the nodulation status of *Adesmia muricata* (Jacq.) DC. in its natural ecosystem. In Río Cuarto (Córdoba province, Argentina) (33°07′20"S 64°22′25"W), the root system of *A. muricata* (Jacq.) DC. was collected. The structures found were documented by taking photos, and nodulation and the nodulation phenotype were determined in situ. Subsequently, the material was preserved in FAA (Formalin-Acetic Acid-Water) and the nodule's internal structure was determined by preparing histological sections, which were analyzed with a Panthera C2 Trinocular microscope and a MotiCAM PROS5 Lite camera. The species *Adesmia muricata* presented nodules with an oblong shape and determinate growth. They are associated with lateral or adventitious roots, which is why they are considered the Aeschynomenoid type, a characteristic previously observed in species of the same genus. Regarding their anatomical structure, they feature a cortex, where the meristematic zone and vascular bundles are located, and an infection zone. It can be concluded that the native legume *Adesmia muricata* possesses the capacity to nodulate in its natural ecosystem. It would be important to continue studies on its BNF efficiency, which is crucial for the conservation and utilization of this species of interest

BV3-VEGETATIVE AND ANATOMICAL MORPHOMETRIC CHARACTERISTICS IN *VICIA SATIVA* (LEGUMINOSAE) CULTIVATED IN THREE CONTRASTING SOILS

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Crop productivity depends, among other factors, on soil quality. In the experimental field of the Facultad de Agonomía y Veterinaria de la UNRC, the growth and development of different forage species, including *Vicia sativa*, are compared in different soils: conventional tillage, direct sowing, and pristine soil. The objective of this work was to compare morphometric and anatomical characteristics of *V. sativa* roots in three contrasting soils in two consecutive crop years: 2024 and 2025 with different sowing dates (July and May, respectively). The variables analyzed were: Green weight (g), Plant height (cm), Leaflet length and width (cm), Branching, Main root diameter (µ), Vascular cylinder diameter (µ), Number of cortex cell layers, Root vessel member diameter (µ), and Number of root vessel members/surface. The design of the experiment was completely randomized with three replicates. The evaluation was performed on plants collected 75 days after sowing. For observation and measurement of root anatomical characteristics, cross-sections were made using the conventional technique to obtain histological specimens. They were observed with a Zeiss microscope and photographed with Motic Images Plus 3.0. The data obtained were analyzed using ANOVA and Fisher's LSD test. Significant differences between the evaluated in 2024 traits were found in Green weight, Plant height and Root vessel diameter, with those grown in pristine soil reaching the highest values: 3.79 g Green weight (p=0.01), 29.83 cm Plant height (p=0.01) and 2.74µ in Root vessel diameter (p=0.03). In 2025, there was a greater development in plants from pristine soil but significant differences are added in Leaflet width and Branching. The values were: 8.57 g (p = 0.01) for Green weight, 38.09 cm (p = 0.0004) for Plant height, 0.77 cm in Leaflet width, 6.64 in Branching and 3.36 µ (p = 0.01) in the Diameter of root vessel members. These data express firstly the better conditions of the pristine soil for the development of *V. sativa* in both cultivation years and secondly the earlier sowing (autumn) correlates with a notable increase in fresh organic matter in 2025, therefore, the combination of both factors in the cultivation of *V. sativa* would favor higher production.

BV4-MIXED PASTURES OF *Adesmia bicolor* AND *Festuca arundinacea*: NITRATE EVALUATION UNDER IRRIGATED AND RAINFED CONDITIONS

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Nitrogen (N) is a macronutrient that constitutes chlorophyll and is present in most organic compounds found in plants. Among inorganic nitrogen, nitrate (NO^-) is the main form absorbed by plants in aerated soils. The use of a legume species associated with cut grasses results in benefits, saving on nitrogen fertilization, reducing production costs, and decreasing environmental pollution. The objective of this study was to evaluate the effect of irrigation, cutting intensity, and species proportion on soil nitrate availability in tall fescue (*Festuca arundinacea*) grown in association with adesmia (*Adesmia bicolor*). The experiment was carried out at the Experimental Teaching and Experimentation Field of the National University of Río Cuarto, Argentina, on a Typic Haplustoll soil. Twenty-four plots with different species ratios were subjected to combinations of irrigation regimes and cutting intensities. Soil nitrate concentrations ($N\text{-}NO_3^-$) were monitored over three years and analyzed using ANOVA and Fisher's LSD test. Results showed that irrigation reduced surface nitrate levels, likely due to leaching, while rainfed plots accumulated higher concentrations. Cutting intensity did not cause significant differences, although a tendency toward lower nitrate values under more intense cutting was observed. The 1:1 ratio of adesmia and tall fescue showed the highest nitrate accumulation, indicating a synergistic effect on nitrogen fixation and utilization. Soil mechanical resistance was also measured, revealing significant compaction between 20 and 35 cm depth, which may restrict root growth and resource use efficiency. These findings highlight that mixed pastures with balanced species proportions and proper water management can enhance nitrogen availability and contribute to more sustainable agricultural systems in the Pampas region.

BV5-SCREENING OF ADVANCED SORGHUM (*Sorghum bicolor* (L.) Moench) LINES FOR THEIR ABILITY TO GERMINATE UNDER SIMULATED WATER STRESS CONDITIONS

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Water availability deficit is one of the main causes of yield loss in crops. Water plays a fundamental role in every stage of plant growth. Developing drought-tolerant varieties capable of maintaining performance under water stress conditions is a primary objective in plant breeding. Reducing in vitro osmotic potential with polyethylene glycol (PEG) during germination is a technique used to simulate water stress. This study aimed to evaluate the germination capacity of advanced sorghum lines under different PEG concentrations. A total of 24 genotypes, 22 advanced lines obtained at FAV-UNRC, and 2 control cultivars, were tested under three water conditions (PEG 6000: 0, 14, and 18%). Seeds were placed in a chamber at 25 °C in trays containing germination substrate and the corresponding PEG solution. Fifty seeds per tray and three replicates per genotype were used. The variables analyzed 10 days after sowing were: germination capacity (%), leaf biomass (g), root biomass (g), and total biomass (g). Based on these variables, the seedlings vigor index, the leaf/root biomass ratio, and the proportion of root biomass (%) were calculated. Data were analyzed using linear mixed models, and, in addition, for the condition of greater water stress (PEG 18 %), principal component analysis (PCA) was performed. The results showed that sorghum genotypes exhibit variable tolerance levels to water deficit during germination. As the PEG concentration increased, the means of the genotypes showed a decreasing trend for all variables, with the most significant impact at 18 % PEG, except for the proportion of root biomass, which increased with water deficit. The PCA showed a correlation between variables and revealed that the variables leaf biomass, total biomass, vigor index, and proportion of root biomass contributed most to the first principal component. Seven advanced lines show superior performance for the variables analyzed. These genotypes will be evaluated in multi-environment trials to verify their performance and assess their use in the development of cultivars suitable for regions with water limitations.

BV6-WATER STRESS TOLERANCE IN SORGHUM GENOTYPES: AN APPROACH USING DROUGHT INDICES

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Sorghum (*Sorghum bicolor* (L.) Moench) is a species whose grain is used for human and animal consumption, as well as in industry. The crop is notable for its ability to thrive and produce acceptable amounts of grain, even under conditions of reduced water availability. Water deficit is one of the main factors limiting the development and productivity of many agricultural species. Indices of water stress tolerance are useful tools for evaluating and comparing the ability of crops to withstand and recover from periods of water deficit. The objective of this study was to identify advanced grain sorghum lines tolerant to water stress conditions in the early stages of cultivation. The plant material consisted of 24 genotypes (22 advanced lines and 2 control cultivars) of sorghum that were exposed to three simulated water limitation conditions with polyethylene glycol (PEG 6000: 0, 14, and 18 %) during the germination phase. Three trays with 50 seeds per genotype and treatment were placed under controlled chamber conditions (25 °C), containing the germination substrate and the corresponding solution. Ten days after germination, the total biomass of seedlings was determined, and this value was used to estimate the relative biomass index for the 14 and 18 % PEG treatments. This index was obtained as the ratio of the biomass of seedlings in the trays with 14 and 18 % PEG to the average biomass of the control samples (0 % PEG). Nine different stress tolerance indices were determined. Among them, the yield index was correlated with total biomass at 14 and 18 % PEG using a 3D graph. Significant positive correlations between the indices and biomass at 14 and 18 % PEG indicate the ability of the indices to identify genotypes with tolerance to water stress conditions. The 3D graph allowed the selection of nine genotypes with the highest biomass under both water limitation conditions. These superior genotypes will undergo additional testing in multi-environment trials to confirm their performance and use them in the development of cultivars with proven tolerance to limited water supply conditions. Overall, the drought stress indices proved highly effective for classifying and characterizing the performance of the genotypes.

BV7-CHEMOTYPES AND ANTIFUNGAL ACTIVITY OF *EUCALYPTUS* ESSENTIAL OILS AGAINST *Penicillium expansum*

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Eucalyptus spp. essential oils (EOs) represent a natural alternative for postharvest fungal control, although their efficacy depends on the genotype and terpene composition. This study evaluated the variation in the Minimum Inhibitory Concentration (MIC) of foliar EOs from 15 individuals *of E. camaldulensis, E. globulus,* and *E. sideroxylon* against *Penicillium expansum*, identifying chemotypes and assessing the contribution of individual terpenes to antifungal bioactivity. The MIC was determined by plate microdilution, and the chemical profile of the EOs was characterized by gas chromatography-mass spectrometry. For comparative analysis, Principal Components Analysis (PCA) was used, compositional differences were assessed with Permutational Multivariate Analysis of Variance (PERMANOVA), and chemotypes were defined as clusters of individuals with similar terpene composition identified through unsupervised k-means clustering of the complete chemical profile, independent of species assignment. The correlation between chemical composition and MIC was established with Spearman correlations and Random Forest models. *E. camaldulensis* exhibited the lowest MIC (6.05 ± 1,21 mg/mL), followed by *E. globulus* (14.10 ± 5,89 mg/mL) and *E. sideroxylon* (57.63 ± 49.62 mg/mL). PCA segregated samples by species (PC1 = 52.8%, PC2 = 19.9%), and PERMANOVA confirmed significant differences in chemical composition between species ($R^2 = 0.457$; $p = 0.001$). Five chemotypes with statistically significant differences in MIC were identified across the 15 individuals analyzed. 1,8-Cineole showed a strong negative correlation with MIC ($\rho = -0.516$), D-limonene showed a moderate negative correlation ($\rho = 0.258$; $p = 0.0025$), while α-pinene, α-terpineol, and globulol presented positive correlations with higher MIC values. RF models explained 96–97% of variance, confirming that terpene composition is a robust predictor of MIC. In conclusion, terpene composition is a determining factor in the antifungal activity of *Eucalyptus* EOs. Chemotypes with high concentrations of 1,8-cineole presented the lowest MICs, while those with profiles rich in α-pinene, α-terpineol, and globulol tend to have lower efficacy. These findings underscore the potential for selecting genotypes, particularly of *E. camaldulensis*, with optimized terpene profiles for biotechnological applications in post-harvest control.

BV8-EMERGENCE RATE OF MAIZE (*Zea mays*) UNDER DIFFERENT IRRIGATION AND PLANTING DEPTH CONDITIONS

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The aim of this work was to evaluate the effect of water availability and sowing depth on the early development of maize (Zea mays L.) seedlings. The study compared the growth from sowing till V2 in height of maize seedlings sown at two depths (3 cm and 6 cm) and under two irrigation regimes (with initial irrigation (I1) and irrigation at 7 days (I7), irrigated to field capacity). The substrate used was a homogenized layer from 0 to 20cm of sandy-loam soil. Measurements were taken at two specific times, day seven and day nine after sowing from the soil up to the tip of the largest leaf. The results of the study show that irrigation has a positive and significant impact on the growth of maize seedlings, regardless of planting depth. Seedlings that received irrigation showed greater average growth compared to seedlings that were not irrigated till I7, both at 3 cm and 6 cm depth. Specifically, seedlings sown at 3 cm depth and with irrigation showed the highest average growth on both measurement days (14,39cm in day 7 and 23,22cm in day 9 for 3cm depth. 13,29cm in day 7 and 22,20 in day 9 for 6cm depth). This suggests that a shallower planting depth, combined with adequate water availability, promotes faster seedling development. In contrast, seedlings sown at 6 cm depth showed lower average growth, especially those that did not receive initial irrigation. This finding indicates that a greater planting depth can hinder seedling growth, particularly in conditions of water scarcity. In addition to average growth, the variability in growth within each group was analyzed, measured by the standard deviation. The variability tended to be greater on day 9 measurements, suggesting that the differences in growth between seedlings become more pronounced over time. Seedlings without initial irrigation and sown at 6 cm showed the highest standard deviation on day 9, indicating greater dispersion in growth within this group. The data are normally distributed and homoscedastic. The statistical analysis (ANOVA) revealed that there are significant differences ($p>0.05$) in growth between days 7 and 9 for all combinations of depth and irrigation. With a mean height in day 7 of 14,39 cm I1 and 7,23cm I7 at 3cm dept, 13,29cm I1 and 5,43cm I7 at 6cm dept. Day 9 23,22cm I1 and 22,20cm I7 at 3cm dept, 14,53cm I1 and 13,91cm I7 at 6cm dept. This confirms that time has a significant effect on seedling growth, and that this effect is consistent across all conditions evaluated. In terms of growth rate, it was found that this was slightly higher for seedlings with irrigation, especially at 6 cm depth. Although total growth was lower without irrigation, the growth rate was relatively high, suggesting that although they grow less, they do so at a constant rate. In conclusion, the importance of irrigation as a crucial factor for the growth of maize seedlings is highlighted. While planting depth also influences growth, the effect of irrigation is more pronounced.

BV9-RESPONSE TO LATE TRANSPLANTATION OF TOPINAMBUR SEEDLINGS

Helianthus tuberosus L

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The Jerusalem artichoke, *Helianthus tuberosus L.*, is used as a commercial product in different areas such as horticulture, in industry for obtaining inulin with great nutritional benefits, or even as fodder. In the latter case, its tubers, which are the best-known organs of this species, or the aerial part, are consumed. Topinambur tubers are sown in spring and after approximately 15 weeks the plants begin to form their reserve organs. In autumn, senescence begins and nutrients are translocated to the reserve organs. For some time now, trials have been conducted to characterize the crop and its productive response in the semi-arid region, although there is little information on this species in San Luis. The objective of this study was to evaluate the effect of transplanting on white Jerusalem artichoke seedlings with different vigor levels. They were characterized based on their height and vigor as Category 1 (C1): vigorous plants (50-60 cm), Category 2 (C2): moderately vigorous plants (40 cm), and Category 3 (C3): low-vigor plants (25-35 cm). The design was completely randomized, from the selection of C1-C2-C3 seedlings within a plantation on ridges under controlled irrigation in the experimental field of Agricultural Sciences of the FICA-UNSL in Villa Mercedes, San Luis. Planting was carried out on December 5, 2024, in ridges with a distance of 0.70 m between them and a separation of 0.5 m between plants. For each category, 10 seedlings were selected to constitute the replicates (N=30). Three flood irrigations were carried out, and the water supply from rainfall was 400 mm from planting to end of cycle. The results in height development measured in cm for January were for C1: 64.45 ±15.15; C2: 56.00 ±8.11; and C3: 52.83 ±12.86. For February, C1: 117.73 ±26.34; C2: 115.00 ±12.11 and C3: 92.5 ±23.66. For March, the mean heights accompanied by standard deviation were C1: 163.09 ±33.00; C2: 169.5 ±17.49; and C3: 146.67 ±22.58. At the end of the cycle (April), the results were for C1: 172.18 ±32.87; C2: 181.4 ±16.92; and C3: 155.17 ±21.31. Analysis of the data using ANOVA and subsequent Tukey's test ($p<0.05$) showed that for January and February there were differences between categories, with C3 statistically lower than the others. For March and April, there were no significant differences ($p>0.05$), and all plants developed with very good vigor. These data provide information that the initial transplant height did not influence the final crop height under these management conditions, making it necessary to evaluate the other characteristics.

BV10-TRITICALE YAVÚ-UNRC: HOW DOES SOWING DENSITY AFFECT REPRODUCTIVE TRAITS?

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Seed availability in forage cultivars is a limiting factor which conditions its use in agricultural establishments. Hybrid cereal crops, such as triticale (x*Triticosecale* Wittmack), are affected by multiple biotic, abiotic and management factors that influence the quantity and quality of the seed produced. The aim of this experiment was to evaluate the effect of sowing density on reproductive traits in triticale. A trial was implemented with 3 densities: 88 kg/ha (equivalent to 210 seeds/m^2), 176 kg/ha (421 seeds/m^2) and 468 kg/ha (1118 seeds/m^2). Ten traits were evaluated in a completely randomized design with 3 replications. The data obtained were analyzed using ANOVA, DGC mean difference test and Pearson correlations. Differences between densities were significant in 8 traits. The number of grains/spikelet (40.3 ± 12.4) and the individual grain weight (39.5 ± 6.7 mg) were not significantly affected. The number of tillers was significantly higher in the high-density treatment (352.4 ± 108.9 tillers/m^2), as was the number of spikes (304.8 ± 82.0 tillers/m^2). The increase in the number of tillers and spikes caused a significant decrease in spike length, the number of spikelets/spike, and the number of grains/spike. The 88 kg/ha density showed the highest values, with significant differences, for the percentage of fertile tillers (99.2%), grain weight/spike (1.9 ± 0.5 g), and yield (458.0 ± 113.3 g/m^2). Yield was significantly correlated with spike and grain traits (r values between 0.42 and 0.84). The results demonstrate that Yavú-UNRC triticale possesses a high capacity to compensate for the decrease or excess of vegetative and reproductive structures by increasing grain weight per spike and the higher percentage of fertile tillers and thereby maintaining an adequate grain yield under each situation.

BV11-EXPOSURE TO DIFFERENT CONCENTRATIONS OF ZINC AND CADMIUM INDUCES STRUCTURAL CHANGES IN SOYBEAN ROOTS AND LEAVES

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Heavy metals represent a global concern due to their non-biodegradable nature and accumulation in living organisms, posing ecological and health risks. This issue is mainly driven by the extensive use of fertilizers and wastewater for irrigation. Although numerous studies have explored plant responses to individual metal stressors, the effects of combined metal exposure remain poorly understood.

In this study, we examined how the interaction between cadmium (Cd), a phytotoxic element, and excess zinc (Zn), an essential micronutrient, alters the morpho-anatomy of soybean (*Glycine max* (L.) Merr) roots and leaves. Plants were grown hydroponically in Hoagland nutrient solution for 10 days, followed by no supplementation (C, control) or exposure to 40 µM $CdCl_2$ (Cd), 0.6 or 4.8 mM $ZnCl_2$ (Zn[0.6] and Zn[4.8]), and combined exposure to Cd+Zn[0.6] and Cd+Zn[4.8] for 6 days. Root results showed significant reductions in total diameter and area in Cd, Zn[4.8], and combined metal treatments ($p<0.0001$) compared to C. Root length and dry weight significantly decreased ($p<0.05$, $p<0.01$, and $p<0.001$) in all treatments compared to C. The percentage of water content (PWC) decreased in all treatments, reaching significance in Zn[0.6] and Cd+Zn combinations ($p<0.05$ and $p<0.005$). In leaves, significant reductions were observed in mesophyll thickness ($p<0.0001$) and central vein thickness ($p<0.0001$) across all treatments relative to C. Stem length and leaf area also decreased significantly ($p<0.05$; $p<0.0001$). Leaf dry weight was significantly reduced in Cd, Zn[4.8], and both Cd+Zn combinations ($p<0.0001$; $p<0.005$; $p<0.01$) compared to C. PWC decreased in all treatments, with greater significance in Cd, Zn[4.8], and Cd+Zn[4.8] ($p<0.001$ and $p<0.0001$). These findings indicate that the Cd/Zn duo alters structure and function in both organs, particularly at higher Zn concentrations, likely as a response to combined toxicity. Anatomical changes, such as the reduction of total root area and alteration of mesophyll thickness, support this conclusion. While low Zn doses may enhance Cd tolerance in soybean, high Zn concentrations induce alterations in both root and leaf structure.

BV12-NEUROACTIVE POTENTIAL OF THE BOLIVIAN ENDEMIC *Hieronymiella bedelarii*

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Hieronymiella bedelarii R. Lara & Huaylla is a bulbous geophyte strictly endemic to the sandstone formations of Cerro Llamachaki, Torotoro (Charcas Municipality, Potosí, Bolivia), at approximately 3000 m.a.s.l. This species grows directly between sandstone rocks in a highly specific microhabitat of the Bolivian Andes. Specimens were collected in April 2024, after flowering, and bulb samples were used to obtain methanolic (ME) and alkaloid-enriched (AEE) extracts. This study focused on identifying the alkaloid profiles and to assessing the cholinesterase inhibition and antioxidant potential of the extracts from the bulbs of the *H. bedelarii.* The total phenolic content (TPC) and flavonoid content (FC) in the ME were 44.21 ± 1.56 and 6.93 ± 0.44, respectively. *H. bedelarii* exhibited free radical scavenging activity against DPPH (48.15 ± 1.10%) and ABTS (26.31 ± 2.09%) radicals, as well as antioxidant capacity determined by the FRAP assay (4.53 ± 0.21 mg Trolox equivalents/g ME). GC-MS analysis revealed the presence of approximately 24 alkaloids of the AEE, containing as the predominant compounds, tazzetine, candimine, and galantamine (11.33, 5.38, and 4.89 µg/100 mg DW, respectively). AEEs showed stronger inhibition of acetylcholinesterase (AChE) compared to butyrylcholinesterase (BuChE). The AEE exhibited significant acetylcholinesterase (AChE) inhibitory activity (IC_{50}= 10.18 ± 0.75 µg/mL), and low butyrylcholinesterase inhibition (BuChE) with values IC_{50} = 193.19 ± 7.25 µg/mL. This study provides the first comprehensive insight in the *H. bedelarii*, on the phytochemical composition and biological activities. The results highlight this narrowly distributed Bolivian endemic species as a novel natural source of bioactive alkaloids with potential neuroprotective and antioxidant properties. Further research focused on the isolation, structural characterization, and biological evaluation of its active constituents is recommended.

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BV13-SEED PRIMING OF Pappophorum aespitosum TO ENHACNE TOLERANCE TO DROUGHT AND SALINITY STRESS. estudte

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Land degradation directly affects the well-being and future of approximately one-sixth of the world's population. Among the strategies known for the recovery and protection of degraded soils is the implementation of soil management practices through the sowing of native annual or perennial forage species. Species of the Poaceae family, such as *Pappophorum caespitosum* Fries, which is adapted to water scarcity, represent a viable alternative. However, the germination of its caryopses and the subsequent establishment of seedlings may be compromised if environmental conditions at the time of emergence are not adequate. The osmotic conditioning (priming) treatment is applied to seeds to promote rapid and uniform germination under both optimal and adverse conditions. It is used to shorten the time between imbibition and seedling emergence. Two osmopriming agents were evaluated on caryopses using two osmotic potentials and two exposure durations: mannitol and polyethylene glycol 6000 (PEG), at −0.5 and −1.0 MPa for 6 and 12 hours. After the exposure period, the caryopses were air-dried at room temperature for 48 hours. Subsequently, they were sown in four replicates per treatment, each consisting of 25 osmoprimed or non-primed (control) caryopses, and subjected to the following treatments: control (distilled water), water stress (PEG solutions of −0.3, −0.6, −0.9, and −1.2 MPa), and salt stress (NaCl solutions with electrical conductivities of 10.31, 18.71, 27.41, and 33.14 mS/cm). Germination was recorded every 24 hours, considering a caryopsis germinated when the radicle was visible (2 mm in length). The germination percentage and germination rate index were calculated. The osmopriming treatment that showed the best performance was mannitol at an osmotic potential of −0.5 MPa, with no significant differences between exposure durations. Under water stress conditions, osmoprimed caryopses exhibited higher germination percentages than non-primed ones, up to an osmotic potential of −0.9 MPa. Osmoprimed caryopses were more negatively affected under saline stress conditions. Significant differences between caryopsis conditions were only observed under the 10.31 mS/cm salinity treatment. Osmopriming represents a feasible approach to enhance the germination of *Pappophorum caespitosum* and promote vegetation cover recovery on degraded soils, under the stressful environmental conditions typical of arid regions.

BV14-EVALUATION OF PREGERMINATION TREATMENTS IN THE HIGH-ANDEAN ENDEMIC SPECIES *Poa holciformis estudte*

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Endemic species possess high ecological value and, due to their restricted geographic distribution, exhibit great vulnerability to environmental changes. In the Central Andes, human activities associated with mining represent one of the main sources of disturbance. The success of conservation and ecological restoration largely depends on understanding the early stages of the plant life cycle, such as the germination process. Seeds of high-Andean species commonly exhibit dormancy; therefore, the application of scarification or pregermination treatments that promote germination is essential. In this study, different pregermination treatments (threshing, , washing 10 times, soaking for 24 h, gibberellic acid for 24 h, indolebutyric acid for 24 h, and cold stratification for 15 days) were evaluated to break seed dormancy in the high-Andean endemic species *Poa holciformis* (ARG416/00350CLa). The seeds, conserved in the Germplasm Bank (Department of Biology, FCEFyN, UNSJ), originated from the area of influence of the "Los Azules" mining project (Calingasta, San Juan). A Plackett-Burman experimental design was used to test combinations of pregermination factors. Seeds were sown in moistened Petri dishes (10 seeds × 4 replicates) and randomly placed in a germination chamber (12/12 h photoperiod, 15–25 °C). Germination (radicle >2 mm) was recorded daily, and the germination percentage (PG%), radicle emergence index (ERI), germination rate index (IVG), and weighted Timson index at the onset of germination (TI) were determined. Runs 8 (trillado y giberelinas), 4 (threshing, cold scarifying and washing), and 12 (threshing, washing, soaking and gibberellins) showed the highest PG% (92.5%, 70%, and 67.5%, respectively). Indolebutyric acid showed possible negative effects on GP%. The factors most likely influencing radicle emergence were threshing (positive effect) and indolebutyric acid (negative effect). Likewise, GRI and the WTI weighted at the beginning of germination appeared to affect germination speed and onset. In all cases, the factors exceeded the t-value threshold. These results provide valuable information to optimize the germination process of *P. holciformis* and highlight the importance of using statistical designs to identify factors influencing germination, thereby reducing the number of trials while maximizing the information obtained.

BV15-EVALUATION OF DORMANCY BREAKING IN *Astragalus pulviniformis esdte*

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The high-Andean flora remains poorly known and is highly vulnerable to anthropogenic activities, whose negative impact on the environment leads to biodiversity loss. The genetic potential of seeds is key for ecological restoration; therefore, germplasm banks play a fundamental role in their conservation. This study evaluated the germination of a seed sample of *Astragalus pulviniformis* (accession number ARG1416/00160CLa) (Fabaceae), an endemic high-Andean species conserved in the Germplasm Bank of the Plant Resources Laboratory (Department of Biology, FCEFyN, UNSJ). The sample was collected in the area influenced by the "Los Azules" mining project (Calingasta, San Juan). Different combinations of pregerminative treatments were applied to break dormancy. Each treatment combination represented a distinct set of factors defined by the Plackett–Burman experimental design. The factors considered were sulfuric acid (5 min), hydrogen peroxide (5 min), repeated washing (×10), cold stratification (15 days), soaking (24 h), gibberellic acid, and indolebutyric acid. Petri dishes lined with moistened paper were sown with 10 seeds each (4 replicates per treatment combination) and randomly placed in a germination chamber (12/12 h photoperiod, 15–25 °C thermoperiod). Germination (radicle >2 mm) was recorded daily, and the germination percentage (PG%), radicle emergence rate (ERI), germination speed index (IVG), and Timson index (TI) were determined. Statistical analysis showed that treatment combinations 3 (sulfuric acid, soaking, and gibberellic acid) and 10 (hydrogen peroxide, sulfuric acid, soaking, gibberellic acid, and indolebutyric acid) achieved the highest PG% (50% and 47.5%, respectively). Sulfuric acid was the most significant factor for all evaluated indices, with a positive effect exceeding the Bonferroni limit. The soaking factor showed a potential positive effect on all indices, surpassing the t-value threshold. The washing and cold stratification factors appeared to exert a negative effect on PG%, exceeding the t-value limit, as did the washing factor for ERI. The results indicate that chemical scarification with sulfuric acid has a significant positive effect on dormancy breaking in *A. pulviniformis* seeds, enhancing germination speed, uniformity, and efficiency, as does possibily soaking. These findings are highly relevant for the development of propagation strategies to be implemented in the restoration of degraded areas in the High Andes.

BV16-BIOSTIMULANT EFFECT OF *Saccharomyces cerevisiae* ON ONION (*Allium cepa* L.) SEEDLINGS IN THE PRESENCE OF *Fusarium proliferatum*

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San Juan province, Argentina, is the country's leading onion seed production area, benefiting from ideal agroecological conditions. However, the low nutrient availability typical of arid and semiarid soils necessitates the use of mineral fertilizers, which negatively impact the soil, water, and atmosphere. Furthermore, yields are reduced by soilborne fungal pathogens, particularly *Fusarium*. Some yeasts, known as Plant Growth-Promoting Microorganisms (PGPM), offer a sustainable alternative, having shown growth-promoting properties even in the presence of phytopathogens. This study aimed to evaluate the effect of two antagonistic *S. cerevisiae* isolates (PB71 and PB78), previously characterized as PGPM in onion seedlings, on vegetative parameters in the presence of three *Fusarium proliferatum* isolates (BC13, BC14, and BC15). Eight onion seeds per treatment (one per cell) were sown in peat: perlite substrate (3:1), in triplicate. Seeds were inoculated with a yeast suspension (100µL; 5×10^7 cells/mL), followed 24 h later by a pathogen suspension (100µL; 10^5 conidia/mL). After 30 days under controlled conditions (25 °C, with 12 h light/12 h dark cycles), vegetative parameters (shoot and root length, fresh weight, and dry weight) of surviving seedlings were measured and analyzed by ANOVA followed by Tukey's test ($p < 0.05$). Three controls were included: seedlings inoculated with sterile distilled water, seedlings inoculated only with the yeast, and seedlings inoculated only with the pathogen. The results showed that *S. cerevisiae* PB71 significantly increased the shoot length by 9.41% in seedlings challenged with *F. proliferatum* BC13. Similarly, PB78 increased this parameter by 8.95% against *F. proliferatum* BC15, showing significant differences compared to the water control ($p < 0.05$). No significant differences were observed for other vegetative parameters. In conclusion, both *S. cerevisiae* PB71 and PB78 effectively promoted shoot growth in onion seedlings despite the presence of a *Fusarium* challenge, suggesting their potential as a sustainable bioinput for agriculture.

BV17-AGROECOLOGICAL INNOVATION: *ZUCCAGNIA PUNCTATA*, A NATURAL BIOHERBICIDE

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Over the past decade, the search for environmentally friendly alternatives to synthetic herbicides has intensified due to increasing concerns about weed resistance and residue persistence. In this context, plants capable of producing phytotoxic metabolites have emerged as promising sources for the development of natural herbicides. The aim of this study was to evaluate the bioherbicidal potential of products obtained from *Zuccagnia punctata* through *in vitro* germination assays. Aerial parts of the plant were collected and processed by hydrodistillation to obtain three subproducts: decoction, essential oil, and hydrolat. Herbicidal activity of these subproducts, was assessed against two weed models, *Lolium perenne* (monocotyledon) and *Chenopodium quinoa* (dicotyledon), and compared with a commercial synthetic herbicide (S-metolachlor, positive control) and distilled water (negative control). Germination percentage (GP), germination inhibition (GI), and the weed control index (ALAM) were determined for each treatment. The decoction showed the highest herbicidal activity, completely inhibiting germination in *C. quinoa* and achieving 97.5 ± 2.5% inhibition in *L. perenne*, comparable to the positive control. Chemical analysis by HPLC/MS revealed the presence of three phenolic acids, seven flavones, one chalcone, two terpenes, and one fatty acid. The major compound was identified as geranyl caffeate, along with rhapontin and a caffeic acid ester. Notable flavones included rhamnetin, rhamnacin, and sakuranetin, while the characteristic chalcone 2′,4′-dihydroxy-3′-methoxychalcone was also detected. Most of these compounds have been reported for their phytotoxic activity. These findings demonstrate that *Z. punctata* possesses significant bioherbicidal activity, supporting its potential as a sustainable source of natural metabolites for the development of eco-friendly herbicidal formulations.

BV18-PREGERMINATION TREATMENTS IN *Carex macloviana* D'URV. (CYPERACEAE) USING A PLACKETT-BURMAN DESIGN

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The Cyperaceae are key species in high Andean ecosystems. *Carex macloviana* d'Urv., abundant and representative of the lowlands of the San Juan Mountains, was selected as a model to study its germination mechanisms, which are little known. The seeds of this species were extracted from the Germplasm Bank (Department of Biology-FCEFyN-UNSJ) and come from the area of influence of the "Los Azules" mining project (Calingasta, San Juan). Different pre-germination treatments were evaluated using a Plackett-Burman design, with the aim of identifying the most influential factors in dormancy breaking, reducing the number of trials and the quantity of seeds used. The treatments evaluated were: (a) cold stratification, (b) sulfuric acid, (c) hydrogen peroxide, (d) bleach, (e) soaking, (f) gibberellic acid, and (g) indolebutyric acid. A total of 240 seeds were used, distributed in 12 experimental runs with 4 replicates of 10 seeds each. The seeds were incubated in a germination chamber with alternating temperatures (15–25 °C, 12/12 h light-dark) for 40 days. The overall model was significant ($p = 0.0041$). Sulfuric acid had a negative effect on the percentage and speed of germination ($p = 0.0035$ and $p = 0.0061$), while soaking showed a positive effect ($p = 0.0355$). Bleach treatment significantly affected the mean germination time ($p = 0.0016$). Runs 1, 4, 6, and 11 showed the highest germination percentages. The results suggest that dormancy in *C. macloviana* is not physical and that prior imbibition favors germination. This work constitutes the first experimental germination precedent for the species and highlights the usefulness of the Plackett-Burman design for selecting relevant factors, optimizing the use of seeds and experimental resources.

BV19-EFFECT OF TEMPERATURE ON GERMINATION OF *Eustephia armifera* (AMARYLLIDACEAE)

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The Amaryllidaceae family includes numerous endemic species valued for their ornamental and medicinal properties linked to the presence of bioactive alkaloids. However, their natural populations are often small and exhibit limited regeneration in the wild, increasing their vulnerability. *Eustephia armifera* J.F. Macbr., endemic to southern Peru, inhabits transitional zones between the puna and the montane forest. Its morphological traits suggest affinities with *Hieronymiella*, a relationship currently being examined to clarify its systematic placement. Considering its occurrence in ecologically sensitive Andean zones, propagation studies based on sexual reproduction offer valuable insights into germination behaviour, contributing to long-term survival and sustainable utilisation. Temperature strongly influences seed germination dynamics, affecting both rate and success, and is therefore a critical factor in propagation studies. This study aimed to evaluate the effect of temperature on the germination of *E. armifera* seeds under controlled conditions. Seeds were collected in April 2024 in Marcapata (Puno, Peru) and stored at 5 °C for three months. Three constant temperatures (20, 25, and 30 °C) were tested under a 12/12 h light/dark photoperiod, with four replicates per treatment. Each replicate comprised 15 seeds placed in Petri dishes on moistened filter paper. Germination (radicles ≥ 3 mm) was recorded daily for 30 days. Germination percentage (GP), germination energy (GE), germination speed index (GSI), and mean germination time (MGT) were determined. Data were analysed by one-way ANOVA, and significant differences among temperatures were identified using Tukey's HSD test ($\alpha = 0.05$). Germination was monitored for 30 days under three temperature regimes. Germination occurred only at 20 °C and 25 °C, with the highest GP (96.7 ± 3.9 %) and GSI (0.69 ± 0.06) at 25 °C, while no germination occurred at 30 °C. GE was low (< 3%), indicating a delayed onset of germination. No significant differences were found between 20 °C and 25 °C for MGT (21.5 ± 0.7 and 21.9 ± 1.2 days, respectively). These results suggest a narrow optimal temperature range for *E. armifera* seed germination.

BV20-LIGHT EFFECT ON *ALOYSIA GRATISSIMA IN VITRO* ORGANOGENESIS

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Aloysia gratissima is a native medicinal aromatic plant valued for its digestive, antispasmodic, and sedative properties. It also plays an important ecological role in the mountain ecosystems of the San Luis province and provides various ecosystem benefits. Given the growing industrial demand and the need for sustainable production, in vitro micropropagation techniques were evaluated as an alternative for large-scale multiplication. The objective of this study was to optimize the micropropagation protocol for A. gratissima by evaluating the effect of different light spectra on organogenesis. Nodal segments of mother plants were used, subjected to two surface disinfection treatments that varied in exposure time to 70% ethanol and 30% sodium hypochlorite. The explants were grown in Murashige and Skoog (MS) medium supplemented with 20 g L^{-1} of sucrose and solidified with 0.7% agar, under four light treatments that combined white, red, far-red, UV, and blue spectra. The cultures were maintained at 24 ± 1 °C and a 16-h photoperiod. The treatment with the longest exposure time (3 minutes in the disinfectant agents) was more effective in disinfection, significantly reducing contamination. Light treatments influenced the development of shoots and leaves. The applied light treatments showed an influence on the in vitro development of S. integrifolia. The TI treatment (UV 0.40%; red 0.98%; blue 0.01%; green 0.21%; far-red 1.23%) promoted a complete response (formation of leaves, roots, and callogenesis). In contrast, treatment TII (UV 0.03%; red 34.05%; blue 32.30%; green 25.16%; far-red 1.23%) showed low incidence of callus formation and poor root development. Treatments TIII and TIV, which had a higher proportion of red light (35.47% and 40.26%, respectively), showed minimal callus and root formation. Specific plant responses to light spectrum can sometimes be predictable based on published research; however, the overall plant reaction is difficult to predict due to the complicated interplay of many different internal responses, brought about by the action of different photoreceptors, which influence primary (production of amino acids, nucleotides, sugars, and lipids) and secondary (terpenes, phenols, and alkaloids) metabolism. The effect of the different spectra analyzed allows achieving morphogenesis in A. gratissima without the addition of growth regulators, constituting a biotechnological tool for future germplasm propagation and conservation programs.

BV21-PRODUCTION DYNAMIC OF *Thynopirum ponticum* PASTURE IN THE CENTER OF SAN LUIS AND ITS RELATION WITH SURFACE AND SUBSURFACE WATER AVAILABILITY

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Among the winter perennial species adapted to semi-arid regions, on areas with water fluctuations and salinity, *Thynopirum ponticum* (agropiro alargado) is a forage resource of special interest. To understand the factors regulating its production in these environments, the objective was to determinate the dynamics of its aboveground production during one cycle and compare it with the potential water availability (surface and subsurface) during the same period. The study was conducted in the lowest topographically sector of the FICA experimental field (Villa Mercedes, San Luis), in the "El Morro" watershed. This area features a variable water table (from 3 m to the surface) and signs of salinity. During one growth cycle, the productivity of six plots of 1 m^2 with fixed defoliation frequencies every 30 days was characterized, recording aerial cover (%), height (cm), forage accumulation (kgDM.ha^{-1}), and phenological status. Potential water availability was described by recording daily/monthly rainfall and the variation in the water table depth recorded with a phreatometer. The information was integrated through visual comparison of forage accumulation curves and water variation. The pasture maintained excellent aerial cover -75% in winter, to over 90% the rest of the year-. Distal height and monthly accumulation were significantly different (p<0.01) across dates according to the season, with greater lengths in spring. The distribution of forage production was markedly seasonal: very low monthly accumulation (< 100 kgDM.ha^{-1}) in winter and 70% concentration in spring. The total cumulative production for the cycle was 1840 kgDM.ha^{-1} ± 370 kgDM.ha^{-1}. The total annual precipitation was 471 mm, distributed over 55 days with precipitation. Of the total recorded, only 19 mm occurred during the winter period, representing 4% of the total. Approximately ~240 days elapsed (mid-March to mid-November) with scarce rainfall (<20 mm) and, consequently, low atmospheric water supply. Spring, meanwhile, accounted for 41.6% of the annual rainfall. The rainfall records followed the pattern described in updated literature for the area. The depth of the water table remained relatively stable, between 279 and 300 cm. Although a slight rise was observed toward May, unrelated to precipitation, the water table continued to decline with the onset of spring rains, reflecting no significant atmospheric recharge. *Thinopyrum ponticum* exhibited marked spring growth, which coincided with the occurrence of major precipitation, suggesting a strong dependence on surface water. Under the conditions of this study, no significant contribution from the water table to aerial productivity was observed. The possibility of controlled harvesting in the fall would be associated with limiting factors other than water availability. It is suggested that water availability should be analyzed at the watershed level, not locally, for a complete understanding of the dynamics.

BV22-PHENOLOGICAL AND STRUCTURAL RESPONSE OF *Digitaria eriantha* TO CHANGES IN SOIL WATER AND NITROGEN AVAILABILITY

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The use of implanted perennial pastures increases the productivity of livestock systems. In the semi-arid region of San Luis, water deficit and soil nitrogen content are relevant factors affecting the growth of plant species. *Digitaria eriantha* Steud is a summer-cycle perennial used in the region as a forage resource. It also forms voluminous clumps up to 100 cm tall, considering its flowering stems. During December, it rapidly accumulates biomass, coinciding with reproductive phenological stages, and at the same time, displays a highly variable number of flowering stems for different scenarios. The study was carried out at the Faculty of Agricultural Engineering and Sciences (UNSL), using 30-liter pots for the plants. Two study factors were analyzed: irrigation and applied nitrogen level. Two irrigation levels were established: frequent irrigation (FRI) and occasional irrigation (OIR). For the second factor, a control level (0 kg N/ha) and a nitrogen subsidy were proposed, seeking potential pasture productivity (equivalent to 200 kg N/ha). A completely randomized split-plot factorial experimental design was used with 5 replications, two study factors, and two levels for each factor. Phenology, stem number, and radiation interception were recorded once a week during the trial period. At the end of the cycle, a cut was made to determine aboveground biomass accumulation (ABA). The onset and duration of phenological stages in thermal time (ºC.d) for the different treatments, as well as the efficiency of use of intercepted photosynthetically active radiation (EURFAi), were calculated. Significant effects on crop phenology were found, mainly associated with the levels of nitrogen applied to the soil. Elongation began at the same time for all treatments, while inflorescence emergence was earlier for those that received fertilization (p<0.05), and the flowering-anthesis stage lasted longer in these treatments (p<0.05). A high variation was found for the number of floral stems per plant. Likewise, a significant difference was determined in favor of the fertilized treatments, which generated a greater number of stems and a greater accumulation of aerial biomass (p<0.05). No significant effects were detected for the irrigation factor. Furthermore, the fertilized treatments were statistically superior in their use of radiation (EURFAi). There was a difference of 0.34 g DM per MJ of PAR captured by the plant, in favor of N200. These results show that high nitrogen inputs to the soil stimulated the production of the lignified fraction of the plant, advanced phenological stages, increased production, and improved radiation use.

BV23-ARSENIC ABSORPTION BY *Salvinia minima* IN LONG TIME CONTAMINATED WATERS: BIORREMEDIATION APPROACH

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Among the naturally occurring pollutants in the environment, we find the presence of the semimetal Arsenic (As). The objective of this study was to evaluate whether *S. minima*, with great vegetative reproduction, can behave as a bioremediation species. The plants were washed with distilled water and a 10mM EDTA solution and grown in batch-type hydroponics, using a modified Hoagland solution, with artificial lighting (190µ E.S-1.m-1), 16/8 photoperiod (light/dark) and a temperature of 25 +/- 2ºC, for 7 days of adaptation. As exposure was performed with raw water and 0.2 ppm of Sodium Arsenate added. As absorption was analyzed in a long period of time (between 42 h and 384 h of exposure). Three samples of water and three samples of plant were extracted every 48 h. The leaf and root homogenates were subjected to acid mineralization (HNO_3) by a wet method in microwaves using hermetic Teflon reactors with a pressure valve. The water samples were extracted at the same time periods and acidified with 1% HNO3. The determination of the As concentration was performed on the internal controls over time by ICP-Mass. Statistical analysis was performed using one-way ANOVA followed by Tukey's test; with $^{***}p < 0.001$, and with $^{****}p < 0.0001$. The variation in As over long periods in *S. minima* showed a significant increase between 48 h and 240 h and 336 h with $^{***}p \leq 0.001$, and a highly significant increase between 48 h and 384 h with $^{****}p < 0.0001$, The fresh weight of the plant remained constant, which allows us to infer that it is a suitable species for-water bodies biorremediation, since it does not suffer damage when concentrating As is in its tissues.

AREA 3: BIOTECNOLOGIA Y GENETICA

BIOTECNOLOGIA Y GENETICA

BG01- BIOSYNTHESIS OF SILVER METALLIC NANOPARTICLES MEDIATED BY INERT FUNGAL BIOMASS OF *Aspergillus fumigatus*

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Nanotechnology is a rapidly growing discipline that deals with the synthesis and development of various nanomaterials. Currently, various types of metallic nanomaterials such as copper, zinc, titanium, magnesium, gold and silver are being prepared. Several investigations have resorted to the use of biological systems for the synthesis of nanoparticles as an alternative to chemical and physical methods, since several microorganisms are well known to produce inorganic materials either intracellularly or extracellularly. In this study, silver nanoparticles were biosynthesized using inert biomass (dead and dry) of the fungus *Aspergillus fumigatus*. The fungus used was obtained from the Institute for Research in Mycology and Mycotoxicology of University of Río Cuarto, Córdoba, Argentina. To produce biomass first, the fungus *Aspergillus fumigatus* was inoculated in YES liquid medium (15% sucrose, 2% yeast extract), adding 5 discs (7 mm in diameter) of biomass obtained over 7 days in a Petri dish. It was incubated in a culture oven at 28°C without agitation until maximum growth was achieved, developed in increasing volumes ranging from 100 ml to 500 ml in a 1-liter Erlenmeyer flask over a total period of 21 days. After this time, it was sterilized in an autoclave at 121°C at 1,2 atmospheres of pressure for 20 minutes. The biomass was then filtered and dried in an oven at 100°C for 2 hours. In this way, dead and dry (inert) fungal biomass is obtained. To obtain the nanoparticles, 2 g of inert fungal biomass was suspended in 80 mL of a 100 mM $AgNO_3$ solution with an initial pH of 4.7, with agitation at 300 rpm and 25°C for 96 h, sampling every 24 h. A control using 80 mL of distilled water with 2 g of biomass was carried out in parallel with the test. The samples were analysed by UV-visible spectrophotometry (300-700 nm). It could be observed that after 72 h of reaction the surface resonance plasmon corresponding to silver nanoparticles at 418 nm was already observed. The sample is currently being analysed using TEM to determine the size and morphology of the nanoparticles. This work represents an interesting approach for the biosynthesis of silver nanoparticles by Green Chemistry. It presents several advantages among which we can mention: this process is environmentally friendly because it is carried out under moderate reaction conditions, the scale-up of the process is simple, as well as the possibility of obtaining large amounts of biomass in a low-cost culture medium.

BG02- HYDROCARBONIZATION OF MEDICAL *CANNABIS* RESIDUE: OBTAINING SILVER NANOPARTICLES FROM THE LIQUID EFFLUENT

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Nanotechnology is a revolutionary field that's transforming science and industry. By manipulating materials at an incredibly small scale (between 1 and 100 nanometers), it harnesses their unique properties to create innovative solutions across various disciplines. Silver nanoparticles (AgNPs) are becoming more common in consumer and medical products because they have outstanding characteristics: powerful antibacterial properties, versatile applications, safety and effectiveness. Scalable and reproducible approaches are necessary; however, they also should offer biocompatibility assurance. Therefore, recent advances have shifted to green synthesis techniques, which leverage biological resources like plant extracts, fungi, bacteria, and enzymes. This eco-friendly approach provides a sustainable and non-toxic alternative to traditional chemical methods. Plant extract-mediated synthesis is an increasingly popular alternative as “green synthesis" method for creating AgNPs. Toward a circular economy and sustainable development, a known thermochemical process that converts residues into materials is hydrothermal carbonization (HTC). This process operates at moderate temperatures and the absence of polluting emissions, making it ideal for environmental purposes. In San Juan province, the growing medical *Cannabis* industry generates large quantities of residues (stems and leaves). This is an ideal opportunity to apply residue valorization and produce hydrocarbons, thus contributing to the sustainability of the industry. The HTC liquid effluent is rich in phenols that could be used to green synthesis of AgNPs. Polyphenols function as reducing agents for nanoparticle formation and as stabilizing agents, preventing their agglomeration. Their concentration in the HTC liquid effluent is important because the hydroxyl groups of the phenolic rings act as the reducers for the redox reaction involved in AgNPs formation. The novelty of this work is to try out the HTC liquid effluent as a reductor agent. Two distinct HTC obtaining conditions were assayed for medicinal *Cannabis* residues. Sample 1 was obtained at 180 °C, with a solid-to-liquid ratio of 0.1 g/mL and a reaction time of 240 min, whereas Sample 2 was produced at 250 °C, with a S/L ratio of 0.05 g/mL and a time of 120 min. After the HTC process, liquid effluents were filtered and pH values were measured, 6.62 for sample 1 and 4.75 for sample 2. Then both were used to obtain AgNPs, 1mL of each sample was added to 100mM AgNO3. Afterwards, it was agitated at 300 rpm and 25 °C for 120 minutes, sampling every 30 minutes. Samples were analyzed by UV-visible spectrophotometry (300-700nm). A plasmon band with an absorbance maximum at 465 nm was observed in sample 1 and 436 nm in sample 2 at 120 minutes of the sampling. The amplitude between 400-470 nm confirmed the AgNPs synthesis thus reducing the power of the phenols in HTC liquid effluents obtained at different conditions. These results demonstrate the feasibility of a "green synthesis" for silver nanoparticles and simultaneously valorize a residue via the HTC process, becoming a novel and economically viable approach.

BG03- GREEN SYNTHESIS OF SILVER NANOPARTICLES USING GRAPE STEM EXTRACT AND EVALUATION OF THEIR ANTIFUNGAL ACTIVITY

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The study of biological systems in nanoparticle synthesis is essential for the development of environmentally friendly production methods. The use of microorganisms and plant extracts in the biosynthesis of silver nanoparticles (AgNPs) is currently proposed. Plant extracts containing polyphenols can reduce Ag+ ions in aqueous solution to AgNPs, acting as reducing and stabilizing agents. These nanoparticles can be used as antimicrobial agents and to control phytopathogens, among other applications. In this work, AgNPs were biosynthesized from a grape stem extract as a source of polyphenols and an $AgNO_3$ solution. The extract was obtained from 10 g of grape stem and 40 mL of water-ethanol (70:30, v/v), at room temperature, for 48 hours in the dark; the total polyphenol content was 1.59 mg gallic acid/mL (Folin-Ciocalteu method). To 10 mL of 10 mM $AgNO_3$ solution was added 0.25 mL of grape stem extract, the temperature was adjusted to 40°C and pH=10, with stirring. The formation of AgNPs was verified by the appearance of an absorption maximum at 409 nm, corresponding to the surface plasmon resonance. Transmission electron microscopy revealed spherical nanoparticles with an average diameter of 11.7 ± 3.75 nm. A preliminary antifungal assay demonstrated that the synthesized AgNPs inhibit the growth of *Aspergillus niger* in a microplate test containing 500 µL of PDA medium, 30 µL of spore suspension of the microorganism ($6.5x10^4$ spores/mL) and 2.5, 5, 10, 20 µL of AgNPs. The grape stem is a solid residue generated by the wine industry that is discarded or scattered in vineyards. This residue has potential application on an industrial scale in the green synthesis of AgNPs using the methodology developed in this work.

BG04- DEVELOPMENT OF LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (LAMP) FOR DETECTION OF *Brettanomyces spp.* IN DIFFERENT MATRIX

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Brettanomyces (or *Dekkera*) species are the major cause of red wine spoilage caused by yeasts due to the production of volatiles ethyl phenols (4-ethylphenol and 4-ethylguaycol) and other compounds responsible for organoleptic defects. Therefore, the early detection of this yeast is essential to prevent wine spoilage. Our aim was to design primer sets for a loop-mediated isothermal amplification (LAMP) method to specifically identify each of the four *Brettanomyces* local species, such as *bruxellensis*, *custersiana*, *naardenensis* and *anomala*. We developed a LAMP method by directly sampling to detect *Brettanomyces spp.* in samples of different matrix. Each primer set was designed with target sequences in the ITS region of the four species, and we could specifically amplify the target DNA of isolates from wine. The primer sets differentiated strains of the target species from strains belonging to other species, even within the genus *Brettanomyces*. To increase assay sensitivity, the effects of a previous cell wall lysis, by both enzymatic and mechanical methods, were evaluated. Standard curves were constructed by mechanically lysed cells in culture medium, and in samples red wines. Regression values and efficiencies (>0.99) were obtained, and it was possible to detect less than 10 cells per reaction in all the matrices. Cell wall disruption by mechanical methods showed the best results to enhance assay sensitivity ($p<0.05$). The results with LAMP method with these primer sets could detect about 10×10^1 cfu/ml of *Brettanomyces* yeasts from suspensions in distilled water, wine and beer. Furthermore, four naturally contaminated wines from different regions of Rio Negro valley wine regions were also tested ($p<0.01$) versus control. These results suggest that the LAMP method with primer sets for the identification of *Brettanomyces* yeasts is advantageous in terms of specificity, sensitivity, ease of operation and very low cost compared with traditional standard PCR methods and therefore, this method provides an effective tool for detecting yeasts during industrial wine fermentation and rapidly controlling the risk of spoilage, as underestimation or false-negative results can have serious consequences in the final product.

BG05- IDENTIFICATION AND DETECTION OF *Xanthomona arboricola juglandis* WITH "LINA" ASSAY

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Xanthomona arboricola pv. juglandis (Xaj) is the main causal agent of premature walnut drop, resulting in being responsible for significant economic losses worldwide. In addition, Loop Isothermal Novel Assay (LINA) is a simple, specific, cost-effective, and rapid nucleic acid amplification method compared with the conventional PCR assay. Our goal was to develop a method that allows early diagnosis, anticipates microbial infection and enables timely plant health management and control strategies. For this purpose, different target genes (*XopA*, *XopAH*, and *XopG*) were evaluated, and specific primers were designed for both isothermal amplification and conventional PCR using Bio Edit and Prime Explore V4 software. Bacterial samples were isolated from infected walnut tissues, and genomic DNA was extracted either by column-based purification or by direct colony isolation. Then, they were stored at –20 °C until use. In LINA assays, external primers (F3–B3), internal primers (FIP–BIP), and *Bst 2.0* WarmStart polymerase (NEB) were used. For conventional PCR, common primers and *Taq* polymerase were applied. Amplification products were visualized on 1.8% agarose gels and compared with molecular weight ladders. The LINA assays were additionally confirmed using colour change with phenol red and fluorescence. Analysis of walnut samples collected from different regions of the Río Negro Valley showed that the *XopA* and *XopAH* genes produced positive amplification within 25-30 minutes in LINA assays at 63°C, while *XopG* yielded negative results. Conventional PCR confirmed these findings with similar specificity. In conclusion, the qualitative LINA assay proved effective for detecting genes associated with *Xaj*, enabling early diagnosis before visible symptoms appear. We concluded that the LINA qualitative assay can be used to detect different genes that recognize microorganisms responsible for premature drop and thus make early detection before physic manifestation of the symptomatology occurs.

BG06- EVALUATION OF EXTRACTION METHODS FOR OBTAINING SECONDARY METABOLITES IN *NOTHOFAGUS ANTARCTICA*

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Nothofagus antarctica, commonly known as ñire, is a deciduous tree species native to the temperate ecosystems of Chile and Argentina. Beyond its ecological importance as a key species in Patagonian forests, ñire has significant potential as a non-timber resource, which has been undervalued to date. This research focused on ñire (Nothofagus antarctica), a tree species native to the temperate ecosystems of Chile and Argentina, successfully identified the optimal method for extracting its valuable bioactive compounds through comparative analysis. Contrary to expectations that tend to favor modern technologies, the results revealed that the most effective technique was conventional maceration assisted by agitation using 60% ethanol as a solvent. This specific extract not only had the highest extraction yield, but also exhibited significant total phenolic content (56.24 ± 1.48 mg GAE/g) and exceptional antioxidant potency, with an IC_{50} value of less than 0.1 mg/mL in the DPPH assay, rivaling and even surpassing the reference capacity of quercetin. The study also corroborated that organic solvents, such as ethanol and methanol, are significantly superior to water for releasing these metabolites, underscoring the importance of solvent polarity. The effectiveness of a simple method and a green solvent such as ethanol suggests that the structure of the ñire plant matrix releases its compounds efficiently without the need for energy-intensive applications. These findings are a fundamental step toward the comprehensive valuation of this species, as they establish a simple, economical, and scalable extraction protocol for obtaining high-quality natural ingredients with potent biological activity, positioning ñire as a promising source of antioxidants for the nutraceutical, cosmetic, and food industries, while also generating an economic incentive for the conservation of Patagonian forests through a sustainable non-timber resource.

BG07- PARTIAL LEAST SQUARE REGRESSION-BASED PREDICTION OF ESSENTIAL OIL YIELD IN *Eucalyptus camaldulensis* USING NEAR-INFRARED SPECTROSCOPY

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The essential oil (EO) of *Eucalyptus camaldulensis* presents recognized antimicrobial, antifungal, insecticidal, and antioxidant properties, making it a valuable natural resource with promising biotechnological and pharmaceutical applications. Particularly after the pandemic, the global demand for natural products has grown steadily, highlighting the need for efficient strategies to optimize the production and selection of EO-rich genotypes. Traditional chemical analyses for EO quantification are time-consuming, destructive, and costly; therefore, implementing rapid and non-destructive tools is critical to support large-scale screening in breeding programs. In this context, near-infrared spectroscopy (NIR) has emerged as an innovative technology with simple operation, rapid throughput, and reduced costs, suitable for evaluating the natural variability present in *Eucalyptus* populations. The objective of this study was to evaluate the predictive capacity of NIR spectroscopy for foliar EO content in a genetically diverse panel of 140 adult individuals of *E. camaldulensis* established in Los Vilos, Coquimbo Region (Chile), a site characterized by arid Mediterranean-type climatic conditions. Essential oil was extracted by hydrodistillation and quantified as foliar yield, while spectral reflectance was recorded using a portable NIR device. Data were processed with partial least squares regression (PLSR) to generate predictive models. Results revealed significant correlations between EO content and several spectral indices, with the N_1654_1715 index showing the strongest association (r = 0.315). The predictive NIR model reached a very high explanatory power (R^2 = 0.937; RMSET = 0.093; RPD = 4.013), confirming its reliability and demonstrating its potential for accurate EO estimation in unknown samples. These findings validate NIR spectroscopy as an effective, rapid, and low-cost method to estimate EO content in *E. camaldulensis*, enabling the identification of superior genotypes and supporting applied strategies for genetic improvement, sustainable cultivation, and industrial exploitation of this species.

BG08- MACHINE LEARNING-BASED QSAR MODELING OF MYELOPEROXIDASE INHIBITORS

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The heme enzyme myeloperoxidase (MPO) plays a key role in the innate immune defense mechanism by generating microbicidal reactive oxidants. However, recent evidence has shown that MPO-derived oxidants also contribute to the progression of various inflammatory diseases. Due to the harmful effects of circulating MPO, there is growing interest in developing new, efficient, and specific inhibitors to mitigate its negative impact in these conditions. The application of *in silico* methods based on machine learning is emerging as an effective strategy to address Quantitative Structure-Activity Relationship (QSAR) studies. Machine learning (ML), a subset of artificial intelligence (AI), enables computer systems to learn patterns and make decisions from data without being explicitly programmed. The objective of this work is to develop and validate QSAR models that predict the activity of MPO inhibitors. We developed QSAR models for 66 molecules (3-alkylindole, 2H-indazoles, and 1H-indazolones derivatives) with known inhibitory activities as the initial data set, using an artificial neural network (ANN) with one hidden layer and 6 neurons and Levenberg-Marquardt algorithm from Mat Lab. We utilized the MLR algorithm to reduce the number of variables (molecular descriptors) from 16,000 to 10. Then we analyzed the 6-variable ANNs to compare them with our MLR-QSAR and with 10-variables as the maximum allowable value. The statistical parameters are as follows: 6-variable ANNs: R^2_{train}: 0.925, R^2_{test}:0.885 and 10-variable ANNs: R^2_{train}: 0.943, R^2_{test}:0.901. Finally, we predicted the activity of six external structures. The results obtained indicate that the ML models have excellent predictive power.

BG09- COMPUTATIONAL STUDY OF TRI-PEPTIDES CONTAINING CYSTEINE AS ANTIOXIDANT AGENTS

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Antioxidants agents play an essential role in the food industry improving the oxidative stability of food products. In the last years, the search for new natural antioxidants has increased due to the potentially high toxicity of chemical additives. Therefore, the synthesis and evaluation of antioxidant activity in peptides is a field of current research. From a previous QSAR study, 18 tripeptides were selected to obtain the lowest-energy conformer of each one. For this purpose, the CREST conformational sampling method was used. This is an automated conformational sampling technique that uses of Biased Molecular Dynamics and an intelligent redundancy removal algorithm, ensuring that the base structure is the lowest-energy conformation. Each structure was further optimized at hybrid meta-GGA M06-2X DFT level and a suitable basis set, 6-311+g(d,p). This hybrid functional is recognized for its precision in main group chemistry and kinetics. Then, Fukui index fo values were analyzed to determine the susceptibility of cysteine (Cys)-containing tripeptides to be attacked by the hydroxyl radical (HO·). The results indicate that reactivity is significantly dependent on the position of Cys within the peptide chain. Specifically, when cysteine is located at the amino-terminal (N-terminal) position, the most susceptible tripeptide is CRQ (f0 =0.3121). Conversely, maximum susceptibility shifts to TCK (f0 =0.3267) when Cys is in the central position, and to SEC (f0 =0.3104) when it is situated at the C-terminal end. Therefore, Cys placement is a determinant of antioxidant potential and can be exploited to rationally design peptide-based natural antioxidants for food applications.

BG10- OPTIMIZATION OF PROTEIN SEPARATION IN *Larrea divaricata* EXTRACTS BY HPLC-SEC

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Larrea divaricata Cav. (Jarilla) is a native plant whose water-soluble protein fractions have demonstrated immunogenic properties and cross-reactivity against proteins from opportunistic pathogens such as *Pseudomonas aeruginosa*. Characterizing the proteins in the Jarilla extract is essential to identify the molecules responsible for this reactivity. The objective of this work was the extraction, concentration, and purification of proteins for subsequent separation by size-exclusion liquid chromatography (HPLC-SEC). The extraction protocol was carried out using dried or frozen young leaves and branches and a buffer containing chelating agents (EDTA) and antioxidants (cysteine or DTT) to prevent protein browning and denaturation induced by polyphenolic compounds. To enrich the extract, different protein concentration methods were used: precipitation with $(NH_4)_2SO_4$, ethanol, acetone, or ultrafiltration through a 10 kDa cut-off membrane. HPLC-SEC was used for the separation of the highest quality concentrated extract. Proteins were assayed on a Perkin-Elmer Series 200 chromatographic system associated with a Shimadzu UV-1280 double-beam spectrophotometer, with a wavelength range (UV) of 190 to 290 nm and equipped with a quartz cell. For the chromatographic separation step, variables affecting the process were evaluated, such as column type, mobile phase composition, optimal separation pH, and flow rate. The study optimized protein extraction and concentration from the jarilla. The protocol with EDTA and cysteine prevented protein browning and degradation. Ultrafiltration with 10 kDa membranes proved to be an effective method for concentrating these proteins. The optimal HPLC-SEC conditions were the column type, Phenomenex BioSep-SEC-S2000 silica; mobile phase composition, 20 nM PBS; optimal separation pH, pH 7.2; and flow rate, 0.25 ml/min. Once the conditions were optimized, the SEC technique was able to separate up to six protein bands or aggregates, with molecular weights ranging from 3 to 29 kDa. This suggests that ultrafiltration effectively concentrated the proteins in the jarilla extract. Despite its success in separating low molecular weight proteins, HPLC-SEC failed to detect or resolve proteins with molecular weights greater than 30 kDa. This raises the need to investigate the technical limitations of the detection system or SEC column for these high molecular weight molecules. Additionally, it is necessary to investigate alternative separation techniques or more sensitive detection methods for the complete characterization of all proteins present in the jarilla extract. An effective separation technique is required to further study the promising immunological properties of *L. divaricata*. Successful identification of the specific proteins that mediate cross-reactivity with *P. aeruginosa* is critical for the development of potential therapeutic or immunological agents.

BG11- GENOMIC CONTROL OF LEAF POLYPHENOLS IN A *Eucalyptus globulus* PROGENY TRIAL

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Polyphenols are secondary metabolites broadly distributed in plants and recognized for their diverse bioactive properties, including antioxidant, antimicrobial, and anti-inflammatory activities. *Eucalyptus globulus*, one of the most widely planted species in Chile, is recognized for its high foliar polyphenol content. This study aimed to determine the genomic heritability of polyphenol production in leaves of *E. globulus* to support breeding programs oriented toward bioactive compound production. A progeny trial composed of 62 full-sib families (n = 350 individuals) established in Purranque, Chile, was evaluated. Mature leaves were collected and polyphenols extracted with methanol under ultrasound-assisted conditions. Total phenols, flavonoids, and proanthocyanidins were quantified by spectrophotometric methods. Genotyping was performed using a SNP (Single Nucleotide Polymorphism) array, yielding 14.4K SNPs and 3.3K haplotypes after filtering. Results showed broad phenotypic variability: total phenols ranged from 1.95 to 71.3 mg/g dry weight (dw), flavonoids from 0.016 to 3 mg/g dw, and proanthocyanidins from 0.009 to 0.96 mg/g dw. SNP-based heritability estimates were 0.24 for extract yield, 0.25 for total polyphenols, 0.24 for flavonoids, and 0.20 for proanthocyanidins, while haplotype-based estimates were comparable. These findings demonstrate a measurable genetic component underlying foliar polyphenol content in *E. globulus*. Families with superior polyphenol production were identified as promising candidates for selection. In conclusion, the genetic control evidenced supports the feasibility of predictive and genomic-assisted breeding approaches to enhance the production of bioactive compounds in this species, offering sustainable opportunities for pharmaceutical, nutraceutical, and cosmetic applications.

BG12- MODEL-BASED ANALYSIS OF FERMENTATION DYNAMICS: A PROBIOTIC BEER CASE STUDY

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Mathematical modeling has become an essential tool for understanding and optimizing fermentation processes, particularly in the development of functional and probiotic beverages. In this context, the use of *Saccharomyces cerevisiae* PB101, an autochthonous yeast isolated from viticultural environments in San Juan (Argentina), represents a novel approach for brewing probiotic beer. The aim of this study was to describe and model the fermentation kinetics of a Kölsch-style beer produced with this probiotic strain, emphasizing its survival capacity and metabolic behavior. Fermentations were conducted in 2024 and 2025, yielding survival rates of 73.49 ± 0.54% and 80.17 ± 3.73% after exposure to simulated gastrointestinal conditions. These data were subsequently used to mathematically model microbial growth. Traditional models often fail to capture the complex dynamics of probiotic fermentations, particularly the lag phases related to metabolic adaptation. To overcome these limitations, an innovative yet simple modeling framework was developed, incorporating two dynamic state variables—total and dead cells—and coupling. Overall, the proposed modeling strategy enhances predictive reliability and offers a robust basis for optimizing functional beverage fermentations using autochthonous probiotic yeasts.

BG13- A REFINED LUEDEKING–PIRET FRAMEWORK FOR PREDICTING ETHANOL BIOSYNTHESIS IN FERMENTATION SYSTEMS

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For this study, an autochthonous probiotic yeast strain originating from the viticultural environments of San Juan, Argentina, was employed, representing a novel approach in the brewing industry. This research builds upon extensive previous work by the research group on microbial growth kinetics and the characterization of autochthonous yeast strains from the region. Prior studies comprehensively evaluated fermentative performance, flavor complexity in craft beer, and key probiotic attributes, including biosafety, resistance to gastrointestinal conditions and adhesion properties. In addition, laboratory-scale assays demonstrated enzymatic activities that enhance digestion, antioxidant capacity, cholesterol-reducing effects in the medium, and the production of organic acids. o. Building upon this biological foundation, mathematical modeling serves as an indispensable methodology for the systematic analysis and optimization of product formation kinetics within industrial fermentation systems. A significant challenge in this field lies in the inherent limitation of classical kinetic models, which often fail to represent the non-linear dynamics of metabolite biosynthesis, particularly the characteristic lag phases preceding active production. To overcome these limitations, the present work introduces a refined mathematical framework centered on a modified Luedeking–Piret equation, designed to accurately describe and predict ethanol synthesis. This model effectively decouples the complex physiological processes governing the system, translating them into quantifiable kinetic parameters for product accumulation. Specifically, it incorporates viable cells instead of total biomass, as viable cells are the true contributors to metabolite production, and it includes delay functions to account for both the lag phase and cell death—two essential phenomena for accurately representing microbial kinetics. The modified Luedeking–Piret (L–P) model describes ethanol production dynamics, achieving a high degree of accuracy with an R^2 of 98.99%. This strong correlation between experimental data and model predictions underscores the model's capability to effectively capture the relationship between viable biomass and ethanol formation by incorporating both the growth-associated ($Y_{p/x}$) and non-growth-associated (m_p) terms that govern product synthesis. The results obtained from this modeling framework demonstrate superior predictive performance, accurately determining the final metabolite concentration and the dynamic trajectory of its formation. Consequently, this approach provides a robust and transferable foundation for enhancing fermentation efficiency and standardizing outputs in the development of advanced functional beverages.

BG14- EVALUATION OF PISTACHIO WASTE AS A SUBSTRATE FOR THE CULTIVATION OF THE EDIBLE MUSHROOM *Pleurotus ostreatus*

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The pistachio (*Pistacia vera* L. var. Kerman), a member of the Anacardiaceae family, produce a nut with a high value, widely consumed for its exceptional nutritional profile and unique sensory attributes. Over the past decades, global pistachio production has expanded considerably, exceeding 1,300 kilotons in 2023 (FAOSTAT). In San Juan province, there are currently 8,600 hectares of pistachios planted. The cultivation and processing of pistachio generate large volumes of lignocellulosic by-products, mainly hard shell-endocarp-(HS) and green hull-exocarp-(GH), which represent more than 60% of the processed fruit and currently lack industrial utilization. This study aimed to assess the feasibility of utilizing pistachio agro-industrial waste as a substrate for the cultivation of the edible mushroom *Pleurotus ostreatus***.** Seven treatments (5 replicates each) were carried out using a mixture design that combined GH, HS, and wood shavings as co-substrate in different proportions. The substrates were placed in bags and sterilized at 121°C for 40 minutes (3 consecutive cycles). Under laminar flow conditions, treatments were inoculated with active grain-cultured mycelium (spawn) of *P. ostreatus*. The bags were incubated for 15 days in darkness at 25°C. Mycelial colonization percentage and mean colonization time (MCT) were determined. Results showed significant differences among treatments (ANOVA, $p < 0.05$). The treatment with 100% GH presented the lowest MCT (2.78±0.34), indicating the fastest growth rate compared to the other treatments. Likewise, this treatment, along with the mixtures containing 30% GH, 70% wood shavings and 50% HS, 50% wood shavings, reached 100% colonization. In contrast, the treatment with 100% HS showed reduced mycelial development, with 78% colonization on day 15 and a MCT of 7.81±0.72. This study supports the potential of pistachio by-products as viable alternatives to conventional lignocellulosic substrates for the cultivation of edible mushrooms, specifically *Pleurotus ostreatus*. Their use promotes the sustainable valorization of agro-industrial wastes, and aligns with circular economy initiatives in the San Juan region. Future research will focus on scaling up *P. ostreatus* fruiting body production using the substrate mixtures that demonstrated optimal mycelial growth.

BG15- VALORIZATION OF PEA PODS WASTE AIMING TO OBTAIN A PRODUCT WITH SUITABLE SENSORIAL QUALITY FOR USE AS A FOOD INGREDIENT

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Industrial pea (*Pisum sativum L.*) processing generates pods as waste, representing 30 to 40% of the total weight. These pods are an abundant, low-cost source of dietary fiber and other bioactive compounds, yet their potential remains largely untapped. Pea pods are a rich source of fiber and can be valorized as an ingredient in the development of new food products. However, their use is limited by undesirable sensory characteristics such as bitterness, astringency, and marine or saline off-flavors. This study aimed to identify a processing method that yields a product with suitable sensory characteristics for food applications, thus providing added value to a largely discarded byproduct of the food industry. Pea pods were processed as follows: (i) Cleaning: pods were manually peeled and washed with potable water; (ii) Pretreatment: to remove undesirable flavors, pods were scalded in water at 70, 80, and 90 °C for 3, 6, 9, and 12 min, followed by rapid cooling in sterile cold water; (iii) Drying: pods were dehydrated at 65 °C by convective hot air in a drying chamber until reaching a final moisture content of 9.5 ± 0.5% (w/w). The effect of pretreatment on drying time and sensory attributes of the dehydrated product was evaluated. A trained sensory panel (n = 7) conducted a sensory discriminative test to assess bitterness, astringency, and marine/saline flavors. The drying times obtained were as follows: (i) 70 °C: 63 ± 3 min for scalded times between 3–9 min, and 80 ± 5 min for 12 min; (ii) 80 °C: 80 ± 5 min for 3 and 6 min scalded, with longer scalding times producing drying times superior to 90 min; (iii) 90 °C: 100 ± 5 min for all scalded durations (3–12 min). Increasing scald temperature resulted in a statistically significant increase in drying time ($p < 0.05$). For treatments at 70 °C and 80 °C, with durations of 12 min and 9–12 min, respectively, the drying time was significantly higher compared to shorter scalding periods ($p < 0.05$). At 90 °C, no statistically significant differences were observed among the scald times tested ($p > 0.05$). Regarding sensory properties, samples treated at 70 °C for 3–9 min and at 80 °C for 3–6 min exhibited improved flavors, with the elimination of bitterness, astringency, and marine/saline taste. Thus, scalding at 70 °C for 3–9 min provided an improved flavor profile and shorter drying times. These conditions provide an optimal balance between sensory quality improvement and process efficiency, resulting in a dehydrated product with shorter drying times and lower energy consumption. The study demonstrates the feasibility of revalorizing pea pods as a novel food ingredient, contributing to waste reduction and promoting sustainable resource use in the agri-food industry. Future research will focus on compositional analysis and the evaluation of functional properties to support the incorporation of these ingredients into fiber-enriched or plant-based food formulations.

BG16- A COMPARATIVE STUDY OF THE EFFECT OF DIFFERENT SACCHARIDES AS CRYOPROTECTIVE AGENTS AT DIFFERENT FREEZING RATES

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A *green algae* belonging to the genus *Spirogyra* that grows in shallow water bodies and produces free-floating nets was isolated from the Río Grande of Carolina (San Luis, Argentina). *Spirogyra* is a filamentous, *unbranched,* photosynthetic green algae with a high protein content, making it a potential source for food formulation. This study evaluated the effect of fructose and sucrose as cryoprotective agents and their impact on preventing cellular membrane damage caused by ice crystal formation—the primary cause of cell death during cryopreservation. Samples of *Spirogyra* immersed in fructose 20% (w/v) or sucrose 12% (w/v) solutions were frozen at two rates: (1) 0.50 ± 0.10 °C/min and (2) 1.20 ± 0.18 °C/min until reaching −40 °C and stored for 120 days. Samples were thawed in a thermostated bath at 37 °C. Results were compared against a control sample without cryoprotective agents. Cell viability was determined spectrophotometrically using methylene blue 1 mM at 664 nm with an exposure time of 2:25 min, showing a linear correlation between absorbance and cell viability ($R^2 = 0.992$). A cell was considered dead when membrane rupture allowed dye penetration, whereas intact membranes indicated viable cells. Membrane structural integrity was analyzed using Lugol's solution (40% v/v) under optical microscopy (40x). Digital images from nine replicates per sample were processed with Image-Pro Plus 6.0 software, and statistical analysis was performed using GraphPad InStat. The contraction percentage of the plasma membrane inside the cell wall was calculated as the ratio of the non-occupied area (white) to the total cell area. For the control samples, viability was 69.36 ± 0.25% at rate (1) and 75.80 ± 2.00% at rate (2). With sucrose 12% (w/v), viability reached 69.68 ± 1.28% and 66.37 ± 0.42% for rates (1) and (2), respectively, while samples treated with fructose 20% (w/v) achieved 102.04 ± 1.32% and 94.18 ± 0.51% at rates (1) and (2), respectively. Results showed that the use of fructose 20% (w/v) significantly increased cell viability compared with both the control and the sucrose 12% (w/v) samples at the two freezing rates tested ($p < 0.001$). Microscopic observations with Lugol's solution revealed that samples with fructose 20% (w/v) maintained an undamaged three-dimensional spiral structure, particularly at the higher freezing rate, showing an increase in contraction percentage from 44.31 ± 2.67% for sucrose 12% (w/v) to 53.14 ± 0.94% for fructose 20% (w/v). These results demonstrate that the use of fructose 20% (w/v) as a monosaccharide cryoprotectant agent improves cell viability and preserves the three-dimensional spiral structure of *Spirogyra* during freezing, effectively reducing membrane destabilization caused by dehydration and ice crystal formation.

BG17- MICROBIAL DIVERSITY IN HIGH-ALTITUDE SOILS: RESISTANCE TO EXTREME CONDITIONS AND BIOTECHNOLOGICAL APPLICATIONS

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High-Andean wetlands represent singular ecosystems exposed to extreme environmental conditions such as low temperatures, acidic pH, nutrient scarcity, and intense UV radiation. These constraints impose strong selective pressures on soil microbial communities, fostering the evolution of physiologically and metabolically adapted populations. To characterize the microbial response to restrictive physicochemical conditions in surface and subsurface soils from Andean wetlands of north-western Argentina, and to evaluate their potential for biotechnological applications in high-altitude restoration. Ten soil samples were analysed for pH and electrical conductivity (EC), and microbial abundance was quantified by plate counts of bacteria, fungi, and yeasts under different pH (5 and 7) and temperature (13 °C and 28 °C) conditions. Soils showed slightly acidic pH values (mean 5.7) and variable EC (70–1000 µS). Initial microbial counts were low ($<10^3$ CFU/mL) but increased significantly under optimized incubation, reaching 8.5×10^6 CFU/mL for neutrophilic bacteria at 13 °C and 2.5×10^4 CFU/mL for yeasts at low temperature. These results indicate the presence of acidophilic and psychrophilic communities capable of slow growth and resistance to chemical and thermal stress. The detection of these specialized microorganisms highlights their biotechnological potential as inoculants for the restoration of degraded high-altitude environments, as well as their possible use as biofertilizers or plant growth promoters in agronomic systems under environmental stress. These results provide valuable insights into microbial adaptation in extreme mountain ecosystems, while simultaneously opening perspectives for applied microbiology and ecological restoration.

BG18- EVALUATION OF THE EFFECT OF BIOCHAR AND GROWTH-PROMOTING MICROORGANISMS ON PLANT DEVELOPMENT

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Biochar represents a promising tool for climate change mitigation due to its ability to stabilize carbon in soils over extended time scales while improving water retention and nutrient availability. However, its effect on plant growth can vary, particularly when alternative agro-industrial sources are used. In this study, *carbonilla*—a byproduct of the charcoal industry—was employed as a low-cost substitute for biochar to assess its potential phytotoxicity and its interaction with plant growth-promoting microorganisms. *Raphanus sativus* was used as a bioindicator species, and according to a D-Optimal experimental design, 28 runs with inoculation levels ranged from 0 to 10^8 cells/mL of A: *Azospirillum sp.* and 0 to 10^5 conidia/mL of B: *Trichoderma sp.* in substrate mixtures composed of C: Biochar (0–15%), D: Manure (0–15%), and E: Soil (15–100%). The maximum plant growth, modeled as "$\sqrt{}$(Max growth + 0.68) = +7.14 × C + 2.36 × D + 6.26 × E," was mainly explained by the positive influence of biochar and soil, with no evidence of inhibitory effects. The growth rate, "Vel = 0.025 × A × C + 0.27 × A × D + 0.11 × A × E + 0.23 × B × C + 0.057 × B × D + 0.15 × B × E," depended on significant interactions between microorganisms and substrate components, with *Azospirillum*–manure and *Trichoderma*–biochar emerging as the most favorable combinations. The results indicate that *carbonilla* can be used as a viable soil amendment without adverse effects on plant development, and that microbial co-inoculation enhances growth in biochar–manure mixtures, suggesting a functional synergy that improves substrate productivity.

BG19- NANOENCAPSULATION OF PHYTOACTIVE COMPOUNDS FROM ESSENTIAL OILS OBTAINED FROM *Laureliopsis philippiana* and *Cryptocarya alba* WITH PVA AND PCL POLYMERS

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In recent years, canine pyoderma has seen an increase in cases caused by multiple antibiotic-resistant bacteria, with *Staphylococcus pseudintermedius* being one of the most common bacteria found in this illness. The presence of a methicillin-resistant strain in more than 50% of cases is a significant concern in the veterinary field, with these strains resistant to more than one antibiotic in nearly 80% of cases. The use of essential oils to treat antibiotic-resistant bacteria has been documented, and oils obtained from *Laureliopsis philippiana* and *Cryptocarya alba* have been shown to have antibacterial activity against various microorganisms, including bacteria. This study aims to determine whether nanoencapsulation of the bioactive compounds found in the essential oils from *L. philippiana* and *C. alba*, using polyvinyl alcohol (PVA) and Polycaprolactone (PCL) nanoparticles, can extend the shelf life of these oils within delivery systems such as dry shampoo or hydrogels, while still maintaining their antibacterial effects against different strains of *S. pseudointermedius* from both ATCC and clinical isolates. To identify the best method for synthesizing the PVA/PCL nanoparticles, a standardization process focused on the emulsion technique was conducted, leading to the selection of two encapsulation methods based on nanoparticle size, polydispersity index (PDI) assessed through dynamic light scattering (DLS), and morphological features analyzed via scanning electron microscopy (SEM). To assess whether the nanoemulsions preserved the antibacterial activity of the essential oil, agar diffusion and minimum inhibitory concentration (MIC) assays against both ATCC and clinical isolates of *S. pseudintermedius* were performed on a series of nanoemulsions prepared with different encapsulation methods, including varying combinations of PCL and PVA with essential oil different concentrations. The resulting evidence obtained from MIC assays against a clinical isolate has shown that the antimicrobial activity of the nanoemulsions containing *L. philippiana* essential oil is comparable to that of said essential oil in pure concentration. According to these results, it is possible to conclude that the nanoencapsulation of the essential oil allows for a better release of its compounds towards the bacteria, resulting in a higher activity with a lower concentration of essential oil.

BG20- EVALUATION OF FUNGAL REACTIVATION IN MYCELIUM-BASED MATERIALS

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Mycelium-based materials, or mycomaterials, have emerged as sustainable alternatives to synthetic polymers, driven by global trends toward circular bioeconomies and eco-friendly construction materials. These mycelium-derived composites offer biodegradability, low-energy production, and tunable mechanical properties, yet their long-term stability post-processing remains a critical challenge. The development of fungal-based materials (mycoblocks) requires assessing mycelial viability after thermal processing to ensure stability. This study evaluated reactivation of mycelium from oven-dried mycoblocks of *T. sanguinea* LSR01 and *T. villosa* LSR02 under two conditions: (1) immersion in non-sterile water for 24 h at 28 ± 2 °C, and (2) incubation on potato dextrose agar (PDA) for 30 days at 26 ± 2 °C. The mycoblocks were produced using an optimized hemp substrate at 80% humidity, which was then inoculated and incubated at 26°C for approximately one month, completing fermentation in 2 cm³ molds. No mycelial regrowth was observed in the submerged condition, indicating that water contact alone is insufficient to restore activity post-drying. However, PDA incubation revealed visible regrowth, with quantitative grayscale image analysis showing significant strain differences: *T. sanguinea* LSR01 exhibited minimal reactivation (mean grayscale value 9.0 ± 0.65, shifting toward white), while *T. villosa* LSR02 displayed more extensive growth (mean 35.0 ± 1.06). These findings demonstrate partial mycelial survival after thermal treatment, highly dependent on strain physiology, such as thick-walled hyphae or protective matrices. Similar partial survival has been reported in *Ganoderma lucidum* and *Pleurotus ostreatus* under desiccation. Thermal processing does not guarantee complete inactivation, highlighting the need for strain selection and post-treatments like varnishes or hydrophobic coatings to enhance long-term stability of fungal materials in humid or open environments. Photographs confirmed no reactivation after 24 h on PDA but evident growth after 30 days.

BG21- SUSTAINABLE BIOCONVERSION OF PISTACHIO AND POMEGRANATE BYPRODUCTS BY *Rhizopus oryzae*: TOWARD A CIRCULAR BIOECONOMY

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In recent years, emerging agro-industries such as pistachio (*Pistacia vera*) and pomegranate (*Punica granatum*) processing have developed in San Juan. During the processing of these raw materials, new solid residues are generated, and their management and/or treatment must be evaluated. Under a bioeconomy and circularity approach, these residues can be considered high-value by-products, as agro-industrial residues represent an abundant and low-cost source of nutrients with potential use as substrates in bioprocesses aimed at valorization. One bioproduct of interest could be lactic acid obtained through solid state fungal fermentation of these residues. However, before performing larger-scale trials, the optimal proportion of each by-product must be determined. In this study, the growth of the fungus *Rhizopus oryzae* NCIM 1299, from the Culture Collection of the Reference Center for Mycology, National University of Rosario, was evaluated in culture media formulated with mixtures of by-products derived from pistachio—hard woody shell (HWS) and external green shell (EGS)—and pomegranate—seed (SPG) and peel (PPG). The software Design Expert 13 was used to apply a simple centroid mixture design, obtaining fifteen combinations. In all cases, 30 g/L of different dried, milled, and sterilized residues were used; pH was measured, and sterilization was carried out at 121 °C for 15 minutes. The fungal growth potential was studied through a hyphal extension assay on agar solid media plates. Isolate culture of *R. oryzae* NCIM 1299 was cut into inoculum disks (Ø7 mm), and one single disk was placed on the edge of each Petri dish in contact with the dish wall. Each experiment was conducted in triplicate and incubated at 25 °C for seven days in the dark. Radial growth (mm) was measured daily for seven days using a caliper, and each assay was photographed for subsequent analysis with ImageJ image processing software. Preliminary results showed differences in the initial pH of the media, ranging from 4 to 6 depending on the proportion of residues used, which could influence the fungal growth rate. Mixtures containing balanced proportions of SPG and HWS promoted faster radial growth, demonstrating the feasibility of using combined pistachio and pomegranate by-products as a base for alternative media intended for the cultivation of filamentous fungi of biotechnological interest. Among the tested mixtures, the highest radial growth rate was observed in the 1:1 HWS:EGS medium (2.81 mm/day), followed by 1:1 SPG:EGS (2.50 mm/day) and 1:1:1 SPG:HWS:EGS (2.49 mm/day). Media containing only SPG or PPG showed lower growth rates, likely due to their higher acidity (pH ≈ 4). These results highlight the potential of pistachio and pomegranate by-products as effective components of low-cost, nutrient-rich media for fungal cultivation. Future work will focus on testing the mixtures with the highest growth rates at a larger scale, where fungal biomass, glucosamine, and lactic acid production—the metabolite of interest in this study—will be quantified. In addition, the supplementation of these mixtures with microalgal biomass extracts will be explored to improve the efficiency of the solid-state fermentation process.

BG22- BIOTECHNOLOGICAL APPROACH TO THE RECOVERY OF ANTIOXIDANT PHENOLIC COMPOUNDS FROM THE NATIVE SPECIES *TESSARIA ABSINTHIOIDES*

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Tessaria absinthioides Hook. & Arn. (“pájaro bobo”) has been reported in recent years for its remarkable antioxidant, hypocholesterolemic, and hypoglycemic potential, as well as for being a promising source of bioactive metabolites, mainly phenolic compounds. The aim of this study was to optimize the extraction conditions of these compounds to obtain a decoction with high antioxidant capacity, using a Box-Behnken factorial design (BBD). For this purpose, different decoctions were prepared from dried and ground plant material, considering as variables the plant-to-water ratio (5, 10, and 15% w/v), boiling time (25–45 min), and extraction temperature (80–100 °C). Antioxidant activity was evaluated using the DPPH ((2,2-difenil-1-picrilhidrazilo) radical scavenging assay, and the total phenolic content was determined by the Folin-Ciocalteu method. From the 39 tested treatments, the optimal conditions for maximizing phenolic compound extraction and antioxidant activity were 5% w/v, 100 °C, and 45 minutes. These results establish a reproducible optimization framework for *Tessaria absinthioides*, enabling decoctions with high antioxidant potency under simple, scalable conditions. This approach facilitates standardization for the development of nutraceutical supplements and functional foods based on a native species, promoting regional value chains.

BG23- ASSESSMENT OF THE GROWTH DYNAMICS OF *Botrytis cinerea* CO-CULTURED WITH THE ANTAGONISTIC YEAST *Metschnikowia pulcherrima*

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Gray mold caused by *B. cinerea* is one of the main phytosanitary problems affecting table grapes, leading to significant postharvest losses. The use of antagonistic yeasts has emerged as a sustainable alternative to synthetic fungicides, with *M. pulcherrima* being recognized for its multiple antifungal mechanisms, including competition for space and nutrients through the production of pulcherriminic acid. Mathematical modeling of fungal growth enables a quantitative description of pathogen–antagonist interactions and allows the assessment of their behavior under different nutritional conditions. This study aimed to compare the magnitude of the antagonistic effect in culture media of different nutritional complexity by modeling the growth dynamics of *B. cinerea* (B97) in co-culture with *M. pulcherrima* (Mp43). Three media were used: Potato Dextrose Agar (PDA; pH 5.5), Crushed Grape Agar (UTA; pH 3.5), and UTA* (pH 5.5), the latter two simulating the nutritional conditions of table grapes. The yeast (100 µL; 1×10^8 cells mL^{-1}) was surface-inoculated, and a mycelial plug was placed at the center for the treatment, while controls included only the fungus. Mycelial growth was evaluated over 15 days at 25°C using digital image analysis processed with ImageJ software. The growth of B97 fitted well to a logistic model in all treatments, with R^2 coefficients above 0.85, confirming the suitability of the model to describe fungal growth dynamics. The estimated parameters (maximum growth percentage, A; growth rate, µ) showed a marked inhibition of B97 development in the presence of Mp43 under all tested conditions. Inhibition was strongest in PDA and also significant in UTA and UTA*, with variations attributable to the nutritional composition of each medium. In PDA, A decreased from 99.4 in the control to 2.2 in the treatment, while in UTA, µ was reduced from 21.5 to 0.26. Overall, the results confirm that Mp43 significantly inhibits B97 growth under different nutritional environments. The logistic model proved to be a suitable tool to describe fungal growth dynamics, and the UTA medium represents a reliable in vitro system that simulates table grape conditions. However, further tests on grape clusters are needed to better reproduce the fruit's physicochemical environment and to assess possible differential physiological responses of the microorganisms involved.

AREA 4: CLINICA HUMANA Y ODONTOLOGIA

CLINICA HUMANA Y ODONTOLOGIA

CL01- PREGNANCY OUTCOMES IN WOMEN WITH HYPERTHYROIDISM

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Thyroid hormones are essential for normal gestation. Hyperthyroidism (hyperT) can disrupt this balance, generating reproductive disorders such as preterm birth as well as cause metabolic, angiogenic and developmental alterations at the maternal-fetal interface. Given these potential effects, this study aimed to investigate the impact of hyperT on gestational and reproductive outcomes in women and update the prevalence rate. Our cohort of mothers consisted of 84 women admitted to Hospital Lagomaggiore in Mendoza. Statistical and graphical analyses were performed using the R programming language. The Shapiro-Wilk test was used to evaluate the normality of residuals, and the Bartlett test to verify homogeneity of variance. Statistical differences between group medians were assessed using the Kruskal-Wallis test, and Dunn's test was used post-hoc. Associations between categorical variables were determined using Fisher's test. Of the 3426 admitted patients to the Perinatology Department of Hospital Lagomaggiore during the 1st June 2024 to 31st May 2025, only 9 had hyperthyroidism, leading to a prevalence of about 2 out of every 1000 mothers. Among these, 84 were enrolled in this study and 65 were healthy controls (77.4%), 11 had hypothyroidism (13.1%), and 8 had hyperT (9.5%). Women with hyperT showed a higher but not statistically significant trend in the frequency of previous miscarriages compared to hypothyroid patients and controls (62.5% vs 9.1% and 19.7% respectively). Furthermore, the analysis of gestational age at delivery revealed a lower median gestational age in the hyperT group compared to both hypothyroid ($p<0.05$) and control groups ($p<0.01$). An association between hypothyroidism condition and preterm birth (less to 37 weeks) was found ($p=0.014$ by Fisher's test). Regarding delivery method, cesarean sections were most frequent among hyperT women, while vaginal delivery was more prevalent in hypothyroid and control groups, but without statistical significance. Assessment of breast development before lactation indicated normal mammary trophism and milk secretion in hyperT mothers, similar to healthy controls. These results highlight that hyperT during pregnancy is associated with adverse reproductive outcomes, including higher miscarriage rates, shorter gestation periods and an increased likelihood of cesarean delivery. Therefore, early detection and management of hyperT during pregnancy are crucial to reducing the risk of adverse maternal and perinatal effects.

CL02- PULMONARY FUNGAL INFECTIONS: THREE DIFFERENT CLINICAL PRESENTATIONS

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Pulmonary fungal infections are uncommon but severe diseases with high morbidity and mortality, predominantly affecting immunocompromised patients. *Aspergillus* species are the main etiological agents of invasive fungal infections (IFI), presenting with variable clinical and radiological features that frequently mimic bacterial infections.

We describe three cases of pulmonary IFI diagnosed within the past year, each caused by different sections of the genus *Aspergillus*. All patients were male and immunosuppressed. Case 1 had severe COPD on oral corticosteroids, while Cases 2 and 3 were oncology patients with stage IV solid tumors under chemotherapy. Fever was present in all cases; dyspnea occurred only in Case 1. Radiological findings included nodular lesions, cavitations, alveolar consolidation, and necrotic abscess formation. Microbiological studies revealed *Aspergillus* section *terrei* (Case 1), section *fumigati* (Case 2), and section *flavi* (Case 3). Serum and mini-BAL galactomannan assays were positive in Cases 1 and 3. Antifungal therapy was initiated; however, Cases 1 and 3 died due to pulmonary coinfection and probable nosocomial bacterial infection, respectively. Case 2 remains under antifungal treatment and follow-up. Pulmonary fungal infections act as opportunistic diseases, with increasing incidence in immunocompromised populations. Clinical and radiological overlap with bacterial infections often delays diagnosis. Antigen detection and fungal cell wall biomarkers enable earlier initiation of antifungal therapy, reducing mortality and improving outcomes. Pulmonary fungal infections (PFI) are rare but life-threatening conditions, particularly in immunocompromised patients. The genus *Aspergillus* is the leading cause of invasive fungal infections (IFI), which are associated with high morbidity and mortality rates. Clinical manifestations are often nonspecific, while radiological findings can mimic bacterial pneumonia, delaying appropriate diagnosis and treatment. This case series aims to contribute to the understanding of PFI by presenting three different clinical scenarios with distinct *Aspergillus* species as etiological agents.

CL03- CHAGAS DISEASE: PREVALENCE OF *Trypanosoma cruzi* INFECTION IN PATIENTS FROM QUINES HOSPITAL, SAN LUIS (2024–2025)

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The World Health Organization estimates that Chagas disease affects over 7 million people globally, the majority of whom reside in Latin America. In Argentina, it is estimated that around 2 million individuals are infected; however, these figures are highly uncertain due to significant underreporting and underdiagnosis, particularly in socially vulnerable areas. Chagas disease is a parasitic zoonosis that poses a public health threat and progresses through two clinical phases: acute and chronic. The acute phase typically presents with mild, non-specific symptoms such as fever, fatigue, hepatosplenomegaly, and skin nodules. The chronic phase may persist for years and is mainly characterized by asymptomatic (indeterminate) forms or symptomatic cardiac, digestive, or mixed manifestations. Certain clinical outcomes, particularly chronic Chagasic cardiomyopathy, appear to be associated with patient age and disease duration. An observational, retrospective, and descriptive study was conducted using 478 serological samples processed at Quines Hospital, located in the northwest region of San Luis Province, between January 2024 and August 2025. Serological diagnosis was performed using enzyme immunoassay (EIA) and indirect hemagglutination (HAI). In cases of discordant results, a third confirmatory test (indirect immunofluorescence, IFI) was applied. Among the analyzed samples, 37 tested positives by at least two diagnostic methods, resulting in an overall prevalence of 7.74%. Most positive cases (78.38%, N=29 out of 185 samples analyzed) were detected in 2025, largely due to a screening campaign targeting individuals receiving disability pensions who attended the hospital in February–March. Analysis of HAI titers showed that 45.9% of positive patients presented with high titers (>256), indicating a robust immune response suggestive of chronic persistent infection or higher exposure intensity. Notably, the presence of elevated titers in most patients coincides with a predominance of cases among older adults (83.8% over 40 years of age), likely infected decades ago, before the effective control of vectorial transmission (San Luis has been free of vectorial transmission since 2014). Another key finding is that, although women comprised the majority of the sample (70.27%), men exhibited nearly twice the positivity rate (56.75%, N=21 in women and 43.24%, N=16 in men). This disparity may be related to reduced access to routine medical screenings among men, who may be less likely to seek medical care due to asymptomatic presentation. The higher proportion of women tested is attributed to the inclusion of prenatal screening, consistent with vertical transmission prevention programs. Based on these findings, Chagas disease persists with a significant prevalence among older adults and males, underscoring the need to strengthen screening strategies in vulnerable populations.

CL04- PREVALENCE OF TOXOPLASMOSIS IN PREGNANT WOMEN IN THE NORTHERN REGION OF SAN LUIS PROVINCE, 2023–2025

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Toxoplasmosis is a parasitic disease caused by the protozoan *Toxoplasma gondii*. Primary infection in immunocompetent individuals is usually asymptomatic; however, in recently infected pregnant women, it represents a major concern, as vertical transmission may cause severe fetal damage, particularly when it occurs during the first trimester of gestation. In this context, serological screening and continuous monitoring throughout pregnancy are essential to determine prior immunity or susceptibility to infection. Early identification of seronegative women enables the implementation of preventive measures, while timely diagnosis of acute cases allows for antiparasitic treatment that significantly reduces both vertical transmission and congenital sequelae. This study analysed data from the clinical laboratory of a public hospital in the city of Quines, San Luis, Argentina, during the period from January 2023 to August 2025. A total of 408 serum samples from 368 pregnant women undergoing prenatal care across all trimesters were processed. Among the 304 women with complete data, most were young adults. The majority (66%) of the patients were in the 20–29 age range (97 patients aged 20–24 and 104 aged 25–29), while adolescents under 20 represented the smallest group (27 cases, 9%). Pregnant women aged 30–34 accounted for 57 cases (19%), and those aged 35 or older made up only 19 cases. The sequential diagnostic algorithm recommended by the Argentine Consensus on Congenital Toxoplasmosis was applied, using ELISA and ELFA serological assays to detect anti-Toxoplasma antibodies. All women were tested for IgG at their first prenatal visit. IgG antibodies were detected in 29 women (7.07%); among them, 18 (62.07%) had no previous serological records, which prompted additional IgM testing to exclude recent or active infection. No IgM-positive cases were identified, and therefore, IgG avidity testing was not required. In contrast, 346 women (94.02%) remained seronegative, underscoring the high proportion of susceptible pregnant women and highlighting the critical need for preventive public health strategies. In conclusion, this study emphasizes the importance of sustaining and strengthening serological screening and preventive education during pregnancy. The diagnostic algorithm proved effective in optimizing laboratory resources without compromising diagnostic accuracy, particularly when supported by reliable clinical records. The absence of acute infections during the study period is encouraging and suggests that, with appropriate preventive measures, both pregnant women and their unborn children can be effectively protected against toxoplasmosis.

CL05- RELATIONSHIP BETWEEN AGE, STRESS, AND MEMORY PERFORMANCE IN OLDER ADULTS

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Age-related cognitive decline can be influenced by psychosocial factors such as stress, as well as by immunological and metabolic changes. Understanding these interactions is important for the early detection of cognitive impairment. Objective: To examine the associations among age, perceived stress (PS), memory, and clinical biomarkers (cortisol, glucose, leukocytes, albumin, and others) in a sample of older adults. Method: A descriptive-correlational study was conducted with 29 older adults (mean age = 68.7 years, SD = 6.3). Immediate recall tasks were administered in both forward and backward orders. Perceived stress levels were recorded, and plasma cortisol, blood glucose, albumin, globulin, albumin/globulin ratio, total leukocytes, erythrocytes, and neutrophils were measured. Descriptive analyses, one-sample t-tests, and Pearson correlations ($p < 0.05$) were performed. Data normality was assessed using the Shapiro–Wilk test. Results: Strong negative correlations were observed between age and performance on forward ($r = –0.76$, $p < 0.001$) and backwards ($r = –0.70$, $p < 0.01$) memory tasks. Perceived stress was also inversely associated with both memory measures ($r = –0.56$, $p < 0.05$). No significant correlations were found between cortisol levels and memory performance. The albumin-to-globulin ratio showed a mean value of 1.58 (SD = 0.28). Conclusions: These findings suggest that both age and perceived stress negatively affect immediate memory performance in older adults, whereas cortisol does not show significant associations. The results underscore the need for multidimensional approaches to assessing cognitive ageing.

CL06- COMPARATIVE ANALYSIS OF FRACTURES IN THE ARTICULAR CAVITY OF THE HUMAN CRANIAL BASE RELATED TO THE TEMPOROMANDIBULAR JOINT

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The temporomandibular joint (TMJ) represents a complex functional unit that links osseous, muscular, ligamentous, and neurovascular structures. Its location at the base of the skull and its proximity to otological regions make it a highly clinically sensitive area. In particular, the articular cavity of the temporal bone presents relevant anatomical fissures: tympanosquamous, petrotympanic, and petro-occipital. These fissures allow the passage of structures such as the chorda tympani nerve, the anterior tympanic artery, and ligaments that connect the articular disc with the middle ear. The study aimed to compare the length of these fissures between the right and left cavities and establish their frequency of occurrence in dry human skulls. 100 human bone specimens from the osteolibraries of the Faculties of Medical Sciences and Dentistry of the National University of La Plata were analysed. Whole skulls and separate bases with preserved midcranial regions were included. Latero-medial measurements of the fissures were made using a vernier calliper, and direct observations were made with a 3x LED magnifying glass. The presence of each fissure was recorded in 50 skulls. Tympanosquamous fissure was evident in 100% of cases. Petrotympanic and petrosquamous fissures were visualized in 44% of the cavities, both right and left. In terms of length, 64% of the skulls were smaller on the right side, 29% were larger, and 7% had bilateral symmetry. The results show significant anatomical variability in the joint cavity of the TMJ. The presence of neurovascular structures in these fissures reinforces their clinical importance in the diagnosis and treatment of cranio-mandibular pathologies. It is proposed to incorporate these findings into multidisciplinary therapeutic approaches that consider the relationship between joint anatomy and otological symptoms.

CL07- HOSPITAL WASTE MANAGEMENT AT THE DR. RAMÓN CARRILLO CENTRAL HOSPITAL, SAN LUIS

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This study addresses the comprehensive management of hospital waste at the Dr. Ramón Carrillo Central Hospital in the province of San Luis, Argentina, with the aim of understanding, describing, and evaluating the current state of waste management in its different areas. Inadequate management of this waste poses a significant risk to public health and the environment, making its study a key tool for strengthening environmental health and institutional sustainability policies. A descriptive study with a qualitative and quantitative approach was conducted in the form of a case study. The survey was conducted between August and December 2024 through direct observation, review of documentation provided by the hospital's infrastructure and planning department, and the use of visit forms in all areas (inpatient wards, operating rooms, laboratory, pharmacy, maintenance, among others). Data was collected on volumes generated, types of waste, and segregation practices, comparing them with current national, provincial, and municipal legislation. The results show that the hospital has a formal waste management system, with classification at source, safe internal transport, use of color codes (red for pathological waste, transparent for solid urban waste), and recording by means of removal manifests. Compliance with legal requirements for treatment and final disposal by authorized companies was verified, ensuring traceability and environmental control. A high proportion of bio pathogenic waste (35%) was observed, exceeding the WHO reference (15%), suggesting deficiencies in segregation at source and the need to strengthen training for operational staff. There is no hospital wastewater treatment system, which represents an opportunity for improvement in comprehensive environmental management. It is concluded that the Dr. Ramón Carrillo Central Hospital has an organizational structure and regulatory compliance in the province, requiring the implementation of on-site treatment technologies and the optimization of segregation processes. This study provides a situational diagnosis that can serve as a reference for other health establishments in San Luis and the country, promoting responsible management of hospital waste.

CL08- PHYTOCHEMICALS FROM *Tessaria absinthioides* DECOCTION SELECTIVELY TARGET LUMINAL BREAST CANCER CELLS THROUGH S-PHASE ARREST

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Tessaria absinthioides (Hook. & Arn.) DC., known as “pájaro bobo”, is a native plant from northern and central Argentina, traditionally used in folk medicine as a hypocholesterolemic, hypoglycemic, anti-inflammatory and digestive agent. We have demonstrated the cytotoxicity of its aqueous decoction (DETa) against different cancer cell lines, as well as its antioxidant and anti-atherogenic properties, and its antitumoral activity in colorectal cancer and melanoma. More recently, we analyzed systematically its chemical composition by chromatography and quantified twenty-two compounds, with tessaric acid, rosmarinic acid, naringin, caftaric acid, quercetin-3-glucoside and chlorogenic acid being the most abundant in the four harvests studied. In this study, we evaluated the cytotoxicity of DETa against luminal breast cancer cells, focusing on proliferation, viability, and cell cycle progression. DETa was prepared by boiling 50 g of dry powdered leaves in 1 L of distilled water for 10 min. Breast adenocarcinoma MCF7 cell line was used along with non-tumorigenic MCF10A breast cells as a control, and both were treated for a duration equivalent to one and two cell doubling times (DT). DETa cytotoxicity was assessed in both cell lines using the MTT assay in a dose-response manner. Effects on cell proliferation and viability were further determined on MCF7 cells by trypan blue exclusion. Finally, the impact of DETa on MCF7 cell cycle progression was evaluated by propidium iodide staining and flow cytometry. DETa showed higher cytotoxicity against MCF7 cells with IC_{50} values of 1375 ± 473 and 1273 ± 219 µg/mL at 1DT and 2DT, compared with 3119 ± 533 and 2159 ± 83 µg/mL for MCF10A cells. At 1DT, MCF7 proliferation was reduced at concentrations ≥ 440 µg/mL (69.9-19.5% vs control) while viability decreased only at the highest dose (3520 µg/mL, 42.5%). At 2 DT, proliferation inhibition was similar, but viability was more markedly reduced, starting at 880 µg/mL (71.9-29.1%). Finally, cell cycle analysis revealed that DETa induced cell accumulation in S-phase at 440, 880 and 1760 µg/mL (48.5, 61.9%, and 48.85% respectively) compared with untreated cells (37.7%). Our findings show that DETa selectively targets luminal breast cancer cells by reducing proliferation and viability, with S-phase arrest as the key mechanism of action. This effect may be related to phytochemicals such as rosmarinic acid, quercetin-3-glucoside and chlorogenic acid, some of the most abundant in DETa and previously reported to induce S-phase arrest in cancer cells. These results highlight the potential of *T. absinthioides* aqueous decoction as a promising candidate for oncology applications.

CL09- PREVALENCE OF MUSCULOSKELETAL DISORDERS AND RISK FACTORS AMONG DENTISTS IN THE CITY OF SAN LUIS

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Dental professionals have a high incidence of musculoskeletal disorders (MSDs) mainly related to ergonomic factors, which cause mild symptoms to work disability. Objective: To determine the prevalence of musculoskeletal disorders and risk factors in dental professionals from 25 to 65 years old in the city of San Luis, Argentina, during September 2024. Methodology: Quantitative, observational, descriptive, cross-sectional study. The population selected by intentional sampling was 68 professionals who were in service in the city of San Luis, Argentina, during September 2024. A digital questionnaire was used to assess sociodemographic aspects, risk factors, and MSDs in different body regions. Results: 94.1% of the population presented MSDs; 80.9% were female, and the average age was 41.7 years. Prevalent were those with more than 20 years of seniority at work (35.3%), a daily work schedule of between 5 and 8 hours (52.9%), with 6 to 10 patients (48.5%). The most frequently used working postures were sitting (48.5%) and sitting and standing (44.1%). 48.5% did not take active breaks, and 80.9% were physically active. 95.3% presented MSDs in more than one body region, and the most affected regions were the neck (85.9%), cervical area (70.3%), lumbar region (53.1%), and shoulders (51.6%). The main symptom was pain (46.3%), followed by discomfort (33.7%). In the last 12 months, the most prevalent pathologies were neck pain (61.9%), low back pain (31.7%), and back pain and carpal tunnel syndrome (15.9%), with treatments opting for either physical therapy (35.3%), pharmacological therapy (27.8%), or both (16.3%). The age range of 25 to 35 years presented the highest percentages of MSDs in most body areas, except for the back and hips, which occurred in those over 50 years of age. Having a job seniority of more than 20 years was related to more MSDs in all body regions except the lower limbs, being statistically significant for hip MSDs. Working between 5 and 8 hours a day was associated with more MSDs in all regions except the hip, with a statistically significant relationship between the hip and neck MSDs. Sitting posture and absence of active breaks were associated with higher MSDs. Conclusion: There is a high prevalence of MSDs among dental professionals in the city of San Luis. Ergonomic postures for patient care, seniority, and the number of working hours without taking active breaks are important risk factors.

CL10- DIPHYLLOBOTHRIASIS IN MENDOZA: CASE REPORT IN A NON-ENDEMIC AREA WITH MORPHOMETRIC ANALYSIS OF EGGS IN FECES

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Diphyllobothriasis is an intestinal parasitosis caused by cestodes of the genus *Diphyllobothrium*. This disease is considered endemic in regions with lakes and cold climates, including the Andean Patagonia of Argentina and Chile. A case of diphyllobothriasis is reported in a 28-year-old male patient residing in Mendoza, a province not considered endemic for this parasitosis; therefore, accurate diagnosis is crucial for clinical management in patients with compatible symptoms. The patient presented with gastrointestinal symptoms. Hemogram results were within normal ranges, except for a mild eosinophilia of 6%, which is typically seen in some parasitic diseases, including diphyllobothriasis**.** In addition, biochemical analysis revealed elevated total, direct, and indirect bilirubin levels (14.11 mg/dL, 2.26 mg/dL, and 11.85 mg/dL, respectively), along with an abundance of faecal occult blood. Parasitological stool examination revealed the presence of *Diphyllobothrium* spp. eggs. Additionally, a morphometric analysis of the eggs was performed to identify the species. It should be noted that this is not routinely performed in clinical analysis laboratories. A morphometric analysis of 100 eggs was performed using light microscopy with a calibrated eyepiece. Results were: mean length 63.4 µm (±4.8; min 55.2–max 73.9 µm), mean width 42.1 µm (±3.6; min 35.7–max 49.8 µm), and roundness index 0.66±0.05. Based on these findings, the parasite was identified as *Diphyllobothrium latum*. Although treatment can be initiated at the genus level, this species identification refines the epidemiological diagnosis and allows for more precise management of the infection source. The patient's symptoms resolved following diagnostic confirmation and antiparasitic therapy. This case highlights the importance of training healthcare personnel in the diagnosis of both endemic and non-endemic parasitic diseases, as specialized education is essential to ensure early detection and timely treatment, thereby strengthening the health system's capacity to respond to uncommon infections.

CL11- MICROSTRUCTURAL INTERACTION OF UNIVERSAL ADHESIVES WITHOUT ACID ETCHING ON DENTAL ENAMEL OBSERVED BY SCANNING ELECTRON MICROSCOPY

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The behaviour of universal adhesives on the enamel of extracted human premolars was evaluated without acid etching, using controlled fracture and progressive wear techniques. The samples were embedded in epoxy resin, sectioned using a diamond disc, polished and examined using optical and scanning electron microscopy (SEM). Two adhesives were analyzed: Zipbond (SDI), which contains MDP but not HEMA or BPA, and Ambar Universal APS (FGM), which uses APS technology. Both adhesives were applied in accordance with the clinical protocol and without prior acid etching. Initially, total etching was observed to cause deep alterations to the enamel prisms, compromising secondary structures. In contrast, adhesives with etching acid partially preserved the prism architecture. In the second stage, universal adhesives were applied to worn enamel and then washed with xylene. SEM revealed a type II etching pattern with peripheral removal of the prism and central preservation, which is similar to that produced by phosphoric acid. These results suggest that the preparation technique affects adhesion. Progressive wear enables more precise observation and promotes chemical interaction between the adhesive and enamel. When used actively, universally applied adhesives can induce microporosities without the need for acid etching, particularly in less mineralised areas. Better adhesion was observed in the group with superficial wear, with greater prism exposure and improved continuity at the interface. It can be concluded that universal adhesives, when applied to previously worn enamel without acid etching, effectively interact with the primary and secondary enamel structures. This enables improved microretention without compromising structural integrity, which has significant implications for conservative and aesthetic dentistry.

CL12- GEOGRAPHICAL DISTRIBUTION AND EPIDEMIOLOGICAL FACTORS OF HYDATIDOSIS IN MALARGÜE, MENDOZA, 2019-2023

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Hydatidosis is an endemic zoonosis in Argentina, particularly affecting rural and peri-urban areas. This study analysed 103 cases reported at Malargüe Regional Hospital between 2019 and 2023, integrating epidemiological data with spatial analysis. Case distribution maps identified clusters in southern neighbourhoods of Malargüe city and rural zones, while remote areas showed epidemiological silence, suggesting underreporting. Demographic analysis revealed predominance in women (60.8%) and in adults aged 45–65 years (34 cases), followed by the 25–34 group (23 cases). The disease was scarce in children and young people, reflecting its chronic nature. Temporal trends showed a peak in 2019 (37 cases), a sharp decline in 2020 (7 cases, likely related to COVID-19 restrictions), stabilization in 2021–2022 (16 cases each year), and a rebound in 2023 (26 cases). Georeferenced heat maps revealed higher prevalence in peri-urban settlements with limited access to potable water and sanitation. Socioeconomic conditions such as poverty, lack of sanitary infrastructure, and deficient health education increased transmission risk. The persistence of hydatidosis reflects structural barriers: centralized diagnosis at the regional hospital, cultural practices like feeding raw viscera to dogs, and limited veterinary control. A possible underreporting of cases was identified, especially in remote rural areas, due to the centralization of diagnosis at the Malargüe Regional Hospital. This “epidemiological silence” prevents knowing the true magnitude of the problem and limits the effectiveness of control strategies. The results highlight that prevention must address both biological and social determinants. Education on hygiene, control of canine populations, and strengthening of rural healthcare access are essential to reduce the burden of hydatidosis. In conclusion, hydatidosis remains a major public health challenge in Malargüe, requiring integrated strategies that combine medical care, veterinary control, and community education.

CL13- *Candida* SPECIES IN THE ORAL CAVITY OF YOUNG INDIVIDUALS WITH RISK FACTORS FOR THE CARRIER STATE

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Species of the genus *Candida* are part of the commensal microbiota of the oral cavity, but under certain conditions, they can behave as opportunistic pathogens, leading to oral candidiasis. Several local and systemic predisposing factors may favour the establishment of the carrier state, even in apparently healthy individuals. Among these factors are the intake of estrogen-containing oral contraceptives, the use of dental prostheses or orthodontic devices, the presence of chronic metabolic diseases, and the excessive use of oral hygiene products that alter the microbial balance. The aim of this study was to detect and characterize *Candida* species in the oral cavity of young individuals with one or more risk factors associated with the carrier state. Voluntary participants aged 19–27 years, without clinical manifestations of oral candidiasis but presenting at least one of the aforementioned risk factors, were included. Oral cavity samples (mucosa and dorsal tongue) were collected using sterile swabs, cultured on Sabouraud agar with antibiotics, and incubated at 37 °C for 48 h. Colonies with morphology compatible with *Candida* were isolated and identified to species level by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF). Among the 30 individuals sampled, isolates belonging to the *Candida albicans* complex were identified in participants using estrogen-containing oral contraceptives, dental prostheses or orthodontic devices, and excessive oral hygiene products. In contrast, isolates of the *Candida parapsilosis* complex were obtained from individuals with chronic metabolic diseases, such as hypothyroidism. These findings contribute to understanding the distribution of *Candida* species in young individuals with specific predisposing factors for oral colonization. The association observed between hypothyroidism and *C. parapsilosis* isolation supports the hypothesis that endocrine dysfunction can influence the oral mycobiome, favouring the persistence of opportunistic *Candida* species in immunocompromised or metabolically altered conditions.

CL14- CORRELATION BETWEEN IODINE NUTRITIONAL STATUS AND THYROID-RELATED PARAMETERS IN WOMEN OF REPRODUCTIVE AGE

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The western side of Argentina, along the Andes, is a region naturally iodine deficient. Its main consequence for human health is the development of hypothyroidism due to dietary iodine deficiency. This is particularly important in women seeking pregnancy, since the insufficient intake of this element alters thyroid metabolism in association with poor reproductive outcomes. The nutritional status in a population is determined by urine iodine concentration (UIC). Low iodine intake alters thyroid metabolism and is inversely correlated with thyroid-stimulating hormone (TSH) and thyroglobulin (TG) concentrations. In turn, antithyroglobulin antibodies (ATG) are inversely correlated with iodine intake; their levels increase in both iodine deficiency and excess. Because of the risk associated with inadequate iodine intake, it is important to monitor iodine intake and iodine nutrition in the population. Previous studies in our laboratory demonstrate that 12% of women of reproductive age in Mendoza have iodine deficiency; however, the relationship between iodine deficiency and thyroid parameters has not been investigated in our population. Therefore, the objective of this study was to determine iodine nutritional status in women of reproductive age in Mendoza using UIC and its correlation with thyroid disease markers, including TSH, TG, and ATG. This study was carried out on a cohort of 117 women aged 18-45 years who, at the time of the study, were not under thyroid hormone treatment and attended the Instituto de Medicina Reproductiva in Mendoza province. Iodine deficiency was identified in 34.5% of patients (UIC < 100 µg/L). Thyroid dysfunction (TSH > 4UI/mL) and thyroid autoimmunity (TAG≥115 IU/mL) were present in 4.68% and 7.5% women, respectively. The correlation between UIC and thyroid parameters showed that TSH was inversely correlated with iodine status (r = -0.2089, 95% CI = -0.3768 to -0.0276, p = 0.024). The determination of UIC was directly correlated with the UIC/creatinine ratio (r=0.5032, 95% CI =0.3367 to 0.6392, p<0.0001). Conversely, UIC was not significantly correlated with TG (r=-0.04262, 95% CI=0.2782 to 0.1978, p=0.7300); as well as with ATG (r=-0.07435, 95% CI =-0.309 to 0.168, p=0.5498). Our study demonstrated that, in our population, women of reproductive age are prone to iodine deficiency, which influences thyroid stimulation that might affect the prevalence of hypothyroidism in our region. Nevertheless, the small sample size in this study did not allow for drawing conclusions about the relationship between iodine nutritional status, thyroid TG synthesis, and thyroid autoimmunity. This indicates that further studies covering a larger population should focus on the consequences of iodine deficiency on thyroid metabolism in our region.

CL15- PREGNANCY IN SYSTEMIC LUPUS ERYTHEMATOSUS (SLE): MATERNAL AND FETAL OUTCOMES AND INTERFERON α (INFα) MEASUREMENT IN THE PLACENTA

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SLE is a chronic inflammatory autoimmune disease that is common in women of chiladbearing age, making these pregnancies high-risk. The placenta is key in maternal-fetal exchange, and its proper functioning is necessary for the development of the gestational product. INFα is key in the pathogenesis of SLE and is increased in the serum of patients with SLE, particularly in active disease. The aim of this study was to evaluate maternal and fetal outcomes in patients with SLE and to compare the presence of INFα in their placentas with that of healthy pregnant women. Twenty-one patients with SLE were evaluated throughout their pregnancies. Disease activity was measured using SLEDAI (Systemic Lupus Erythematosus Disease Activity Index). Apgar scores and birth weight were recorded. Placentas were referred to the pathological anatomy. The average age of SLE patients was 29 years. Among the 21 patients analyzed, 14 were inactive and 9 were active (2 with severe activity SLEDAI > 10), 1 with moderate activity (SLEDAI > 6), and 6 with mild activity (SLEDAI < 6). Of the 9 patients with active disease, only 3 were anti-DNA+ and 8 had complement consumption. One patient had active skin disease, one patient had pleural and pericardial serositis, and five patients had renal involvement with proteinuria greater than 0.5 g/24h without renal function deterioration. Twelve deliveries were by cesarean, and 9 were vaginal. There were 7 premature deliveries, 5 of them from mothers with active disease. One had IUGR, and there were no fetal or maternal deaths. Only one newborn had a low Apgar score (3.5), from a mother with active lupus. Seven of the 22 newborns had low birth weight (six from active patients and one with preeclampsia). We performed and compared the first-time INFα immunohistochemistry (IHC) on the placenta of 20 patients with SLE and 6 healthy women. Lower INFα intensity was observed in healthy patients compared to SLE patients, and higher intensity was observed in patients with active lupus compared to inactive patients. IHC staining was observed in decidual, syncytiotrophoblast, and endothelial cells. Our findings corroborate existing evidence on the association between SLE activity and a worse maternal-fetal prognosis. Based on these results, we emphasize the importance of planning and monitoring pregnant women with SLE. We also view INFα as a potential therapeutic target in pregnant women with lupus.

CL16- DETECTION OF CHRONIC ASYMPTOMATIC CASES OF *TRYPANOSOMA CRUZI* INFECTION AND CARDIOVASCULAR ASSESSMENT IN UNIVERSITY STUDENTS: MENDOZA, ARGENTINA 2023-2025

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Chagas-Mazza disease (CD) is a triatomine-borne parasitic disease endemic in Latin America. It is estimated that between 6 and 8 million people are infected, and 65 million are at risk of contracting the parasitic disease. Of the total infected people, it is estimated that 9 out of 10 are unaware of their condition, which impedes timely access to treatment. In Mendoza, the estimated prevalence of infection in pregnant people ranges between 2 and 40%. The objective of this study was to describe the seroprevalence and cardiovascular assessment of chronic asymptomatic cases of *Trypanosoma cruzi* infection in university students from the Faculty of Medical Sciences of the National University of Cuyo, Mendoza, Argentina, during the period 2023-2025. Participants were invited to participate through informative talks about the disease, its diagnosis, and project objectives. Participants signed an informed consent form. Blood samples were collected through venous puncture in tubes without additives for serological analysis (indirect hemagglutination and indirect enzyme immunoassay). Those with a positive diagnosis underwent cardiovascular evaluation and antiparasitic treatment, followed by medical follow-up. Of the samples analized, 0.69% were reactive out of a total of 576. A total of six patients with positive serology underwent electrocardiography and Doppler echocardiography. Of these, four were female. The mean age was 25.3 ± 13.3 years. No additional cardiovascular history was reported. Electrocardiograms revealed no significant abnormalities in any of the patients. Echocardiographic assessment of cardiac chambers showed a mean left ventricular end-diastolic diameter of 4.39 ± 0.40 cm and an end-systolic diameter of 2.73 ± 0.48 cm. The mean left ventricular ejection fraction was 65.5 ± 5%. No atrial dilation or significant increase in left ventricular mass was observed. No other significant findings were observed, and no abnormalities compatible with Chagas cardiomyopathy were identified in the studies. The findings of this study highlight a relatively elevated seroprevalence of chronic asymptomatic *Trypanosoma cruzi* infection among first-year healthcare students at FCM–UNCUYO. Despite the low absolute percentage, the presence of reactive cases in a young adult population—composed of individuals from diverse regions of Mendoza province—underscores the silent persistence of Chagas disease in non-endemic urban settings. This reinforces the need for proactive screening strategies and health education campaigns targeting asymptomatic carriers, especially in populations with heterogeneous geographic backgrounds and potential exposure histories.

CL17- MORPHOMETRIC CHARACTERIZATION OF *Fasciola hepatica* EGGS OF CATTLE SAMPLES FROM USPALLATA, MENDOZA

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Fasciola hepatica is a foodborne trematode that causes a globally distributed zoonotic disease. Its transmission requires snail vectors belonging to the Lymnaeidae family. The study of this parasitic disease in cattle is particularly relevant, as it not only poses a zoonotic risk but also generates significant economic losses in the livestock industry. The disease reduces both the quality and quantity of meat, impairs growth, decreases calving rates, and results in liver condemnation at slaughter. Uspallata is a mountainous region of Argentina situated at an elevation of more than 1,900 meters above sea level, where extensive livestock farming is practiced. Morphometric analysis plays a key role in diagnosis and enables comparisons with other hosts and biotic regions. The aim of this study was to characterize the morphometry of *F. hepatica* eggs recovered from the feces of cattle from Uspallata, Mendoza, Argentina. Eggs were recovered from cattle feces using the modified sedimentation method of Lumbreras and filtration through a 140µm sieve. Measurements were performed using a calibrated eyepiece, and photographs were analized with the Fiji software of ImageJ®. A total of 169 eggs were measured, yielding the following results: mean length 134.75 µm (±11.46; min 106.36 – max 170.91 µm), mean width 69.42 µm (±6.64; min 53.64 – max 90.91 µm), and roundness index 0.52 ± 0.06. As compared to previous reports (both from South America and from other continents), the mean length we found was slightly larger; the other parameters were similar. These findings are particularly relevant, as egg morphology can vary depending on geographic location, climate, seasonality, and host species. This study contributes valuable data for parasitological diagnostics in high-altitude livestock regions and supports broader epidemiological assessments of fasciolosis under diverse environmental and host-related conditions.

CL18- ATHEROGENIC INDEXES AS PREDICTORS OF PREDIABETES

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Prediabetes, defined as impaired glucose tolerance and/or impaired fasting glucose, is a risk factor for type 2 diabetes (T2DM), dyslipidemia, cardiovascular disease, and all-cause mortality. Dyslipidemia is strongly associated with the development of prediabetes and T2DM. Atherogenic indices, used to assess lipid metabolism, have received extensive research attention in recent years. However, there are no studies exploring the relationships between atherogenic indices and the risk of prediabetes and T2DM in the population of San Luis, Argentina. Objective: To analyze the associations of atherogenic indices with the risk of prediabetes and T2DM in the population of San Luis. A descriptive, observational, and cross-sectional study was conducted, lasting 12 months, from November 2022 to November 2023, in 334 patients (65 patients in the control group, 45 in the prediabetic group, and 224 in the T2DM group) who attended Cerro de la Cruz Hospital in San Luis. Biochemical and anthropometric parameters were analyzed, and atherogenic coefficients and BMI were c9culated and evaluated. Of the 334 patients, a prevalence of prediabetes was found in 13.47% of the patients, who were unaware of having the condition. The studies showed higher BMI values in prediabetic and T2DM patients compared to the control group. In prediabetic individuals, a significant percentage of patients were obese (35.5%) and overweight. The TC/HDL-C ratio showed significant differences ($p < 0.05$) between prediabetics and controls. Significant differences were observed in the TG/HDL-C ratio between prediabetics and T2DM versus controls ($p < 0.01$). The TyG index showed significant differences between prediabetics and T2DM versus controls ($p < 0.0001$). This is the first study to evaluate the status of atherogenic markers in patients with prediabetes and T2DM attending Cerro de la Cruz Hospital in San Luis. Positive associations were found between atherogenic indices and RI with the risk of prediabetes and T2DM among participants aged < 40 years in the city of San Luis.

CL19- PREVALENCE OF THE *PALB2* PATHOGENIC VARIANT Y551· IN HEREDITARY BREAST AND OVARIAN CANCER PATIENTS FROM MENDOZA, ARGENTINA

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PALB2 (Partner and Localizer of BRCA2) has been recognized as one of the most relevant high-risk predisposing genes for breast cancer (BC) after *BRCA1/2*. PALB2 plays a key role in the homologous recombination repair pathway in response to DNA double-strand breaks. A high frequency of the Y551* variant in BC patients from Argentina has been previously reported, suggesting a possible founder effect. In this study, we describe the molecular and clinical characteristics of *PALB2* pathogenic variants identified in nineteen hereditary breast and ovarian cancer (HBOC) families from Mendoza. All participants received appropriate genetic counselling and fulfilled the criteria for HBOC testing. We detected five different *PALB2* pathogenic variants. The Tyr551* variant was present in 74% (14/19) of cases, the V989* variant in two cases (10.5%), and the R414*, T1042Nfs11, and H762Afs8 variants each in one case. All were unrelated index cases: 17/19 patients (90%) had BC, one (5%) had ovarian cancer, and one was unaffected at the time of testing but had a positive family history. The mean age at BC diagnosis was 45 years (range 35–57), and two patients (12%) had bilateral disease. Among BC cases, 70% (12/17) presented invasive ductal carcinoma, three had *in situ* ductal carcinoma, one had ductolobular carcinoma, and one had mucinous carcinoma. Molecular subtypes included 70% (12/17) luminal, 24% (4/17) triple-negative, and 6% (1/17) triple-positive tumors. Patients were of Western European ancestry, comprising 55% of individuals of Spanish descent, 28% of Italian descent and 17% of both descents. This study contributes to the characterization of the genetic landscape of hereditary breast and ovarian cancer in Mendoza and supports the relevance of considering population-specific *PALB2* variant profiling in Argentina.

CL20- TRENDS IN THE PREVALENCE OF GESTATIONAL DIABETES IN A PRIMARY HEALTH CARE CENTER

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Gestational diabetes (GD), a multifaceted metabolic disorder, is defined as any degree of glucose intolerance that manifests or is detected during pregnancy. It is the most common medical complication in pregnancy and is quite often encountered in outpatient care. DG is associated with increased risks of preeclampsia, obstetrical intervention, large-for-gestational-age neonates, shoulder dystocia, birth trauma, and neonatal hypoglycemia. There is no consensus on the most appropriate methodology for screening and diagnosing GD, so its prevalence varies depending on population characteristics and the cutoff points used. The objective of this study was to estimate the annual prevalence of GD in a Primary Care Hospital over 4 years, as well as to evaluate trends. This was a retrospective cohort study, selecting as the target population all pregnant women who attended the Laboratory Service of Hospital J.G Vivas (Juana Koslay-San Luis) between 2021 and 2024. A total of 397 women who had been ordered to perform an oral glucose tolerance test (OGTT) as part of their obstetric care were recruited. Pregnancies diagnosed with pregestational diabetes were excluded, as well as 15 patients who were unable to tolerate the testing protocol, mainly due to nausea/vomiting. Informed consent was obtained from all individual participants included in the study. The recommendations of the Latin American Diabetes Association were followed: fasting plasma glucose between 100 and 125 mg/dL, repeated twice (within the same week); or 2-hour post-stimulus plasma glucose with 75g of anhydrous glucose ≥140 mg/dL (weeks 24-28). In patients with normal OGTT at 24-28 weeks of gestation but with risk factors for GD, the OGTT was repeated at 31–33 weeks of gestation. GD was diagnosed in any of the instances in which the OGTT was altered. Plasmatic blood glucose measurement was performed using an enzymatic method (CM250 WienerLab autoanalyser). The age range was 14 to 44 years ($\bar{x}$=26.9±5.7 years), with 77.1% of pregnant women < 30 years old. The overall prevalence of GD was 15% [95% CI: 11-18%]: 10% in 2021, 12% in 2022, 19% in 2023 and 18% in 2024. GD was diagnosed in the 2nd trimester in 51 women and in the 3rd trimester in 6 women. When patients with GD were stratified by age, it was observed that the prevalence of GD was similar in older compared to younger mothers (15.5% vs 14.7%). Even though the prevalence of GD found constitutes a value that is within the range described in the literature, an upward trend in GD cases can be observed from 2021 to date. Our results can be applied to improve prenatal care programs aimed at the early diagnosis and treatment of GD. We also emphasize the recommendation of performing an OGTT between 6 and 12 weeks postpartum to reclassify women who presented GD.

CL21- PROGNOSTIC SIGNIFICANCE OF ATR AND HSPB1 (HSP27) IN PEDIATRIC BRAIN TUMORS: A TRANSCRIPTOMIC ANALYSIS

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Central nervous system (CNS) tumors are the most common solid neoplasms in children and represent the leading cause of solid cancer-related mortality in this age group. Despite advancements in neurosurgery and oncology, the prognosis for most pediatric brain tumors remains poor. There is an urgent need for detailed molecular characterization of these tumors, particularly concerning the biomolecules involved in their progression. The DNA damage response is critical for maintaining genomic stability and is mediated by sensor protein kinases such as ATR. These kinases activate DNA repair pathways or trigger cell death. In addition to ATR, the heat shock protein Hsp27 (HSPB1) has emerged as a promising therapeutic target in oncology. HSPB1 is overexpressed in various tumor types and is associated with poorer prognosis and treatment resistance. However, the prognostic significance of ATR and HSPB1 in pediatric brain tumors has not yet been investigated. In this study, we conducted a transcriptomic analysis of pediatric CNS tumor cohorts to evaluate the association of ATR and HSPB1 gene expression with overall survival (OS), disease-free survival (DFS), and CNS tumor grades and subtypes. RNA-seq and clinical data were obtained from the Clinical Proteomic Tumor Analysis Consortium (CPTAC) and the Children's Brain Tumor Tissue Consortium (CBTTC). The analysis included primary solid tumor samples from 116 patients aged 0-14 years. Univariable Cox regression analysis of continuous RNA expression data revealed that higher ATR expression levels tended to be associated with an increased risk of death (HR= 3.39, P= 0.056), whereas HSPB1 expression showed no significant association with OS. However, elevated levels of ATR and HSPB1 were associated with an increased risk of recurrence or disease progression (HR= 3.34, P= 0.0132 and HR= 1.45, P= 0.0051, respectively). When patients were dichotomized by RNA expression, Kaplan–Meier survival analysis with log-rank testing demonstrated that high ATR expression tended to worse OS (P = 0.0507), while high HSPB1 expression associated with poorer OS (P = 0.022) and with an increased risk of disease recurrence or progression (P= 0.0019). In multivariable analysis adjusted for cancer type, neither ATR nor HSPB1 expression showed independent prognostic significance for DFS. However, after adjusting for tumor grade, high HSPB1 expression remained independently associated with poor DFS (P= 0.00271), whereas ATR was not independent. Our results suggest that ATR and HSPB1 are promising prognostic markers for pediatric brain tumors.

CL22- SUSCEPTIBILITY PROFILE OF THE MOST FREQUENT MICROORGANISMS CAUSING UNCOMPLICATED LOWER URINARY TRACT INFECTIONS IN PATIENTS ATTENDING THE PROVINCIAL MATERNITY "DRA. TERESITA BAIGORRIA"

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Antimicrobial resistance (AMR) is a global threat to health and development. By 2050, it is estimated that there will be 1.91 million deaths directly attributable to AMR and 8.22 million deaths associated with AMR worldwide. The regions projected to have the highest AMR-related mortality rates across all age groups are South Asia, Latin America, and the Caribbean. Urgent multisectoral measures are required, as the World Health Organization has declared AMR to be one of the top ten public health threats facing humanity. The misuse and overuse of antimicrobials are the main drivers of the emergence of drug-resistant pathogens. Combined with the limited availability of new drugs, this results in many bacterial infections becoming increasingly difficult to treat. One of the strategies within an appropriate Antimicrobial Stewardship Program would be to restrict the number of antimicrobials reported to the medical team, based on their local susceptibility profile. The aim of this study is to determine the susceptibility profile of the most frequent microorganisms causing Uncomplicated Lower Urinary Tract Infections (ULUTI) and, based on the data obtained, to reach a consensus report—together with the Infectious Diseases Service—restricted to a few drugs to be used in ULUTI treatment. Between January 2023 and August 2024, 3,409 urine samples from patients attending the Provincial Maternity "Dra. Teresita Baigorria" with a diagnosis of ULUTI were analyzed. The most frequent pathogens and their susceptibility profiles were determined. The positivity rate was 12.5%, and the prevalent organisms were *Escherichia coli* 83.8%, *Klebsiella pneumoniae* 4.2%, *Enterococcus faecalis* 2.4%, and *Staphylococcus saprophyticus* 2.1%.The resistance profile in *Escherichia coli* was as follows: Ampicillin 60.2%, Ampicillin/Sulbactam 11.4%, Oral Cephalosporins 10.4%, Third-Generation Cephalosporins 9.3% (due to Extended-Spectrum Beta-Lactamase production), Ciprofloxacin 27.3%, Trimethoprim-Sulfamethoxazole 27.2%, Fosfomycin 1.4%, and Nitrofurantoin 0.6%. In *Klebsiella pneumoniae*: Oral Cephalosporins 11.1%, Third-Generation Cephalosporins 11.1% (due to ESBL production), Ciprofloxacin 11.2%, Trimethoprim-Sulfamethoxazole 11.1%, Nitrofurantoin 33.3%, and Fosfomycin 16.7%. In *Enterococcus faecalis*, resistance to Ciprofloxacin was 50%, and in *Staphylococcus saprophyticus*, Methicillin resistance was 22.2%.Based on these findings, it was decided to restrict the susceptibility report for patients with ULUTI to only three antimicrobials: Oral Cephalosporins, Trimethoprim-Sulfamethoxazole, and Nitrofurantoin, provided that the pathogens involved do not present intrinsic resistance to them.

AREA 5: MICROBIOLOGIA E INMUNOLOGIA

MICROBIOLOGIA E INMUNOLOGIA

MI01- DEVELOPING NANOBODIES AGAINST THE PCRV PROTEIN OF *Pseudomonas aeruginosa* AS A NOVEL THERAPEUTIC STRATEGY

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Pseudomonas aeruginosa is a highly adaptable and opportunistic pathogen and one of the leading causes of hospital-acquired infections, particularly in immunocompromised patients, burn victims, and those with chronic lung disease. The global rise of drug-resistant *P. aeruginosa* is a critical public health threat, linked to an estimated ~559,000 deaths annually with mortality rates ranging from 17–62%. Standard therapies often fail due to the pathogen's intrinsic resistance mechanisms, including efflux pumps, biofilm formation, and antibiotic-degrading enzymes. Escalating antibiotic doses is not a viable solution, as it accelerates resistance, increases toxicity, and remains ineffective against highly resistant strains. To address this urgent challenge, we developed nanobodies as a promising alternative therapeutic approach. Owing to their small size, high stability, and strong target specificity, nanobodies can overcome traditional resistance mechanisms. In addition to their therapeutic potential, they can also serve as effective detection tools and exhibit bacteriostatic effects. We identified the PcrV protein as an ideal antigenic target. The PcrV protein was cloned, expressed, and purified before being used to immunize alpacas. After three immunizations, alpaca immune response was induced, and blood samples were collected to isolate white blood cells. mRNA responsible for nanobody synthesis was extracted and processed to construct an immune nanobody library. From this library, five positive clones targeting PcrV were isolated using antigen-sensitized bead technology and identified via ELISA. A lead clone was selected for further study, and subsequent Western blot and ELISAs confirmed that the nanobody specifically recognizes PcrV on both the bacterial surface and in the culture medium. Current work is focused on evaluating its effectiveness in cell culture models using PcrV-GFP expressing cells and in bacterial growth assays, with the ultimate goal of developing a powerful new tool to identify and combat drug-resistant *P. aeruginosa* infections.

MI02- CHARACTERIZATION OF *Yersinia enterocolitica* BIOFILM CULTURED IN BROTH SUPPLEMENTED WITH MEAT JUICE

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Yersinia enterocolitica is a major cause of bacterial gastroenteritis, primarily transmitted through contaminated food or water, with pigs serving as the main reservoir. The ability of this pathogen to form robust biofilms significantly contributes to its persistence and spread in food production environments. Biofilms on food-contact surfaces are key sources of cross-contamination, but *in vitro* studies often fail to fully replicate real-world conditions. Due to technical challenges in studying biofilms in meat-processing environments, meat juice (MJ) is commonly used to simulate such conditions. The objective of this work was to evaluate the biofilm-forming ability of 28 strains of *Y. enterocolitica* cultivated in trypticase soy broth supplemented with 0.25% of glucose (TSBG), TSBG with 50% MJ (TSGB: MJ), and 100% MJ (MJ). Biofilm formation was quantified by crystal violet (CV) staining and strains were categorized into nonbiofilm-forming strains (NBF) when ODf ≤ ODn, WBF strain when ODn < ODf ≤ 2 × ODn, moderate biofilm-forming strain (MBF) when 2 × ODn < ODf ≤ 4 × ODn, or strong biofilm-forming strain (SBF) when 4 × ODn < ODf. Cell viability within the biofilm was determined using the MTT assay, while extracellular polymeric substances (EPS) were quantified by Congo red staining. We observe that culture medium that most strongly favored biofilm production was TSCG:MJ, where 26 strains (92%) were classified as SBF, while only 2 strains (8%) were MBF. In contrast, the other media supported fewer SBF strains and showed a higher proportion of WBF and NBF. A positive correlation was observed between biofilm biomass and metabolic activity, suggesting that higher biofilm formation is associated with increased cellular viability. EPS quantification, which was carried out only in TSCG, also supported this trend, reinforcing the relationship between biofilm mass, metabolic activity, and EPS production. In summary, TSCG:MJ proved to be the most suitable medium for promoting biofilm development, showing a strong correlation between biomass, metabolic activity, and EPS production, while MJ alone only supported bacterial survival without enhancing biofilm formation. These findings highlight the critical role of nutrient compositions of meat processing by-products play a decisive role in promoting robust biofilm formation.

MI03- ACTIVITY OF 2-METHOXY-1,4- NAPHTHOQUINONE AGAINST BIOFILM FORMATION OF METHICILLIN-RESISTANT *Staphylococcus aureus*

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Methicillin-resistant *Staphylococcus aureus* (MRSA) is a multidrug-resistant pathogen capable of evading the host immune system, leading to high morbidity and mortality. It has the ability to form complex biofilm communities embedded in a self-produced polysaccharide matrix that enhance bacterial persistence and complicate treatment. MRSA commonly causes skin and soft tissue infections, bacteremia, pneumonia, and surgical site infections, among others. Targeting bacterial virulence factors such as biofilm formation without affecting cell viability is a promising strategy to combat antibiotic resistance. The extraction of active compounds from plant species used as medicines has gained increasing popularity in many countries due to their reliable therapeutic effects and affordability for the general population. Naphthoquinones are naturally occurring organic compounds found in plants, animals, fungi, and bacteria. The objective of this study was to evaluate the effects of 2-methoxy-1,4-naphthoquinone on planktonic growth and biofilm formation in MRSA. The minimum inhibitory concentration (MIC) was determined in Mueller Hinton broth (MHB) according to CSLI standards, followed by MIC assessment in tryptic soy broth supplemented with 0.25% glucose (TSBG). Biofilm formation was quantified using crystal violet (CV) staining. Cell viability within the biofilm was determined using the MTT assay, while extracellular polymeric substances (EPS) were quantified by Congo red staining. We observed that MIC of 2-methoxy-1,4-naphthoquinone was 62.5 µM in both MHB and TSBG. At a sub-inhibitory concentration of 32.25 µM, biofilm formation was significantly reduced compared to the untreated control, with 56.3% inhibition as determined by crystal violet staining. Sub-inhibitory treatment did not affect cell viability, while EPS production was reduced by 24.7%, although this decrease was not statistically significant. The compound effectively inhibited more than half of biofilm formation, highlighting its potential as a natural agent for controlling MRSA biofilms without altering cell viability. These findings support further investigation into naphthoquinones as alternative or complementary therapies against multidrug-resistant pathogens.

MI04- PURIFICATION AND CHARACTERIZATION OF ANTI-*Yersinia enterocolitica* METABOLITES FROM *Bacillus velezensis* SL-6

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Yersinia enterocolitica is a foodborne pathogen associated with gastrointestinal diseases that pose a challenge to food safety and public health. Polyketides from the *Bacillus* genus are promising candidates for their broad-spectrum antibacterial activity. In our previous study, *B. velezensis* SL-6 was reported to produce conjugated triene metabolites showing antagonism against *Y. enterocolitica W1024,* although their structural characterization could not be established. Here, the chemical corroboration of these anti-*Yersinia* compounds is described. This study focuses on the chemical confirmation of the anti-*Yersinia* bioactive fraction. A cell-free supernatant was obtained by SL-6 strain batch culture, centrifugation, filtration, and subjected to acid precipitation, followed by tenfold methanolic extraction. Bioactive metabolites were separated by thin-layer chromatography (TLC) using n-butanol-methanol-water (39:20:10 *v/v/v*) as the mobile phase. The bands were visualized under UV light (254 nm), developed with Hanes reagent and evaluated by contact bioautography against *Y. enterocolitica*. Bioactive band was scraped, eluted with methanol, and subjected to High Performance Liquid Chromatography with diode-array detector (HPLC-DAD) and direct injection electrospray ionization tandem mass spectrometry (DI-ESI-MS/MS). HPLC-DAD was carried out using a Beckman C18 column (5 µm, 250×4.6 mm) and methanol-water (80:20) as the mobile phase and detection at 235 and 273 nm. For DI-ESI-MS/MS analysis, the sample was dissolved in methanol with 0.1% formic acid (70:30, *v/v*) and injected on a XEVO TQ-S micro triple quadrupole instrument (Waters, USA). MS and MS^2 data were acquired under negative ion mode. Acid precipitation proved effective in concentrating the anti-*Yersinia* activity, while no activity was detected in the aqueous phase. TLC revealed several bands under UV light, recovering a single bioactive fraction (Rf 0.51-0.56), positive with Hanes reagent, confirming the presence of phosphate groups. HPLC-chromatograph revealed a single peak at 2.5 min, with UV absorption maxima at 272.6 nm and shoulders at 263 and 283 nm, consistent with a conjugated triene chromophore. Finally, DI-ESI-MS^2 detected a predominant ion at m/z 559.33, and a minor signal at m/z 543 assigned to oxydifficidin and difficidin, respectively, representing 100% and 3% of total ion signal. Fragmentation of the precursor ion m/z 559.33 yielded characteristic fragments at m/z 78.83 (100%), 96.89 (90%), 445.11 (8%), 463.34 (10%), and 515.40 (5%). The most intense ions (m/z 78.83 and 96.89) correspond to $[O_3P^-]$ and $[H_2O_4P^-]$, confirming the reactivity observed with Hanes reagent. The fragmentation pattern matched published data, supporting the identification of oxydifficidin. These findings demonstrate that *B. velezensis* SL-6 produced oxydifficidin as the main bioactive metabolite responsible for the antagonistic activity against *Y. enterocolitica* with biotechnological potential in food safety and antimicrobial therapy.

MI05- ANTIMICROBIAL ACTIVITY OF THYMOL IN COMBINATION WITH ANIONIC AND NONIONIC DETERGENTS AGAINST METHICILLIN-RESISTANT *Staphylococcus aureus*

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Methicillin-resistant *Staphylococcus aureus* (MRSA) is an important pathogen in hospital and community acquired infections, with high morbidity and mortality. Thymol (2-isopropyl-5-methylphenol) is a phenolic monoterpene with antimicrobial activity, although its low water solubility may limit its efficacy. Anionic and nonionic detergents can improve its bioavailability and enhance its action. This study evaluates the antimicrobial activity of thymol in combination with sodium dodecyl sulfate (SDS), Triton X-100 (TX100), and Tween 20 (T20) against methicillin-resistant *S. aureus* ATCC 43300. The minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) were determined using the microdilution assay in trypticase soy broth (TSB), supplemented with 0.01% (w/v) 2,3,5-triphenyltetrazolium chloride as a visual indicator of bacterial growth. Stock solutions (20,000 µg/mL) of thymol, SDS, TX100, and T20 were prepared individually in sterile distilled water or appropriate solvents, depending on the solubility of each compound. For combination assays, 1:1 (v/v) mixtures were prepared by mixing equal volumes of thymol and each detergent stock solution. Serial twofold dilutions of individual compounds and their combinations were performed to obtain final concentrations ranging from 5000 to 2.44 µg/mL. Each well of a 96-well plate received 100 µL of TSB with the indicator, 100 µL of the compound dilution, and 5 µL of bacterial inoculum (10^6 CFU/mL). Control wells containing only TSB, bacterial inoculum, or test compounds were included. Plates were incubated at 37°C for 24 h under static conditions. MIC was defined as the lowest concentration at which no visible bacterial growth was observed (absence of red coloration). MBC was determined by subculturing from the last three wells without visible growth onto trypticase soy agar (TSA). All experiments were performed in duplicate and repeated at least twice. The fractional inhibitory concentrations (FIC) were calculated to assess potential synergistic activity. The MIC/MBC values (µg/mL) against *S. aureus* ATCC 43300 were as follows: thymol 625/1250, SDS 9.76/2500, TX100 312.5/2500, T20 >5000/>5000. Combinations: thymol-SDS, 4.88/4.88 ($FIC_{thymol\text{-}SDS}$ = 0.007, strong synergy); thymol-TX100, 312.5/625 ($FIC_{timol\text{-}TX100}$ = 0.5, additive effect); thymol-T20, >5000/>5000 (FIC >8, antagonistic effect). Anionic detergents like SDS exhibited strong synergistic effect with thymol against MRSA. In contrast, TX100 showed an additive effect, while T20 led to antagonism. The reduced efficacy of nonionic surfactants may be due to micelle formation, which encapsulates thymol and limits its bioavailability. This effect appears more pronounced with T20, likely due to its higher micellar encapsulation capacity. These findings contribute to the ongoing search for effective alternative treatments against MRSA, a major public health concern. The combination of natural antimicrobials with membrane-active agents may offer promising therapeutic strategies in the fight against multidrug-resistant bacteria.

MI06- EVALUATION OF MUTAGENIC POTENTIAL OF *Zinnia peruviana* ROOT EXTRACT USING AMES TEST

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The Ames test is widely used *in vitro* to evaluate the mutagenic potential of chemical compounds, based on the use of *Salmonella typhimurium* TA100 (indicator strain) deficient for the synthesis of the amino acid histidine (His-) and subsequent quantification of the His+ revertants induced by exposure to the substance under study. The auxotrophic (His-) strains of *Salmonella typhimurium* are capable of reversing to His+ and grow in a minimal medium after exposure to a mutagen. The validity of the test is ensured by the use *S. typhimurium* TA100, phenotypically characterized by their dependence on histidine and biotin, the presence of the *rfa* marker, the *uvr*B deletion, and the pKM101 plasmid. The objective of this study was to evaluate the mutagenic potential of *Zinnia peruviana* root extract and analyze its concentration dependence. For this purpose, a minimal glucose medium was prepared, the TA100 strain (10^8 CFU/mL) was inoculated, and paper discs with Z. *peruviana* root extract at various concentrations were placed onto the plates. Sodium azide (0.1 mg/mL) and distilled water were included as positive and negative controls respectively. The plates were incubated at 37°C for 48-72 hours, and the revertant colonies were counted. The results showed that the positive control induced an average of 600 colonies, in contrast to 30 colony forming units developed in the control medium. *Z. peruviana* root extract at 2.5 mg/mL, 1.25 mg/mL, and 0.625 mg/mL had mutagenicity indices (MI) of 2.42, 2.57, and 2.23, respectively. Extreme concentrations (10 mg/mL and 0.1 mg/mL) were also tested. MI values of 2.57 were obtained in both concentrations. With these values, no concentration dependence was observed in the range of 10 mg/mL. These findings demonstrate that although some extracts reached values close to the cutoff point (MI = 2.5), none significantly exceeded it ($p > 0.05$). Therefore, under the conditions of the Ames Test, *Z. peruviana* root extract shows no evidence of mutagenic activity. These findings are very interesting since the concentrations of *Z. peruviana* root extract tested showed very good antimicrobial activity in previous studies.

MI07- ORAL MYCOBIOME AND ITS ASSOCIATION WITH POTENTIALLY MALIGNANT ORAL LESIONS AND ORAL SQUAMOUS CELL CARCINOMA: A MOLECULAR APPROACH

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The oral microbiome, composed of bacteria, fungi, viruses, protozoa and archaea, plays a crucial role in human health, protecting against pathogens and regulating immune responses. Its imbalance (dysbiosis) has been linked to oral and systemic diseases, including oral squamous cell carcinoma (OSCC). While bacterial communities have been widely studied, the oral mycobiome remains less explored, despite evidence suggesting a potential role in carcinogenesis. *Candida albicans* is the predominant fungal species in the oral cavity and has been associated with oral infections and possibly with the progression of OSCC. However, the involvement of other fungi, such as *Candida tropicalis*, *Candida glabrata*, *Aspergillus* and *Penicillium*, in shaping the tumor microenvironment is still unclear. This study aimed to quantify the mycobiome associated with potentially malignant oral lesions (PMOL) and OSCC using real-time PCR (q-PCR). Saliva samples were collected from patients diagnosed with OSCC (n=4), PMOL (n=8) and healthy controls (n=10) at the University Hospital and the Faculty of Dentistry, National University of Cuyo. Samples were processed through DNA extraction, quality assessment and amplification of fungal 18S rRNA genes. Results showed that the control group presented significantly ($p<0.05$) higher genomic DNA concentrations (66.38 ± 16.02 ng/µL) compared with PMOL (25.13 ± 18.94 ng/µL) and OSCC (14.32 ± 7.60 ng/µL). Amplicon analysis confirmed suitable quality parameters (A260/280 and A260/230 ratios), enabling subsequent q-PCR assays. Preliminary results revealed a significantly ($p<0.05$) lower fungal load in OSCC patients (854 ± 331 copies of 18S rRNA gene) compared to PMOL patients (3399 ± 2019 copies), while no significant differences were observed between control and diseased groups. These findings suggest that fungal proliferation is reduced in OSCC, whereas PMOL maintains a higher fungal burden, possibly reflecting different stages of microbial dysbiosis during malignant transformation. The successful extraction of high-quality fungal DNA supports the feasibility of next-generation sequencing analyses to further identify fungal species involved. Understanding the dynamics of the oral mycobiome in PMOL and OSCC may contribute to novel diagnostic and preventive strategies in oral oncology.

MI08-*Yersinia enterocolitica* ISOLATED FROM BLOOD AND URINE SAMPLES IN A PATIENT FROM THE CITY OF SAN LUIS

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Yersiniosis is a zoonotic disease caused by *Yersinia enterocolitica*, transmitted to humans primarily through the consumption of contaminated food and water, especially raw or undercooked pork. Another route of transmission is through transfusions of contaminated blood products from healthy donors or those with a clinical history of diarrhea, which causes post-transfusion bacteremia with a high mortality rate. Its virulence is attributed to the presence of a highly conserved virulence plasmid, called pYV (plasmid *Yersinia* virulence) and several chromosomal genes. The predominant symptoms in humans are gastrointestinal: diarrhea, nausea, vomit, fever, and abdominal pain; and extraintestinal: reactive arthritis, myocarditis, glomerulonephritis, among others. In immunosuppressed patients or those with concomitant diseases, this species can disseminate to cause a systemic infection and/or an infection in a specific organ or tissue of the host. The objective of this study was to determine the antibacterial susceptibility of *Y. enterocolitica* strain isolated from blood and urine samples of a man who presented clinical symptoms. A 79-year-old male patient presented to the Central Hospital "Dr. Ramón Carillo", with a four-day history of gastrointestinal symptoms: diarrhea, fever, and vomit. He also had a history of rheumatoid arthritis, with regular use of methotrexate but not corticosteroids. Also reported a cholecystectomy, appendectomy, prostatic hypertrophy and inguinal hernia. He had not traveled recently. He didn't smoke, use alcohol, or use drugs. Based on the analysis of blood and urine samples using Matrix-Assisted Laser Desorption/Ionization Time-of-Flight (Maldi-Tof) mass spectrometry, *Y. entorocolitica* infection was diagnosed. The antibiogram revealed resistance to amoxicillin/clavulanate and cefazolin. Empirical treatment was started with intravenous ceftriaxone for 10 days and then oral ciprofloxacin for three weeks. His clinical evolution was favorable, and he was discharged. Although the clinical evolution is consistent with the common symptoms of the infection, The relevance of this clinical case is established by the fact that *Y. enterocolitica* is not frequently isolated from blood or urine, except in very severe cases such as septicemia or bacteremia. These findings suggest the presence of the bacterial species in our region and alert health authorities to focus on investigating different types of clinical samples and possible transmission routes to prevent its dissemination and provide effective antibiotic treatment.

MI09- THE ANTIBACTERIAL ACTIVITY OF THE TMPyP4 PORPHYRIN, UNDER LIGHT IRRADIATION, AGAINST STRAINS OF *Salmonella* spp AND *Yersinia enterocolitica*

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Porphyrins are compounds with antibacterial activity and low toxicity in eukaryotic cells, making them an alternative to conventional antibiotics. In microbiology, the 2,3,5-triphenyltetrazolium chloride (TTC) has been classically used as a redox viability indicator especially to determine minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of antimicrobial compounds. Previously, we demonstrated the antimicrobial activity of the porphyrin 5,10,15,20-tetrakis(1-methyl-4-pyridyl) porphyrin tetra(p-toluenesulfonate) (TMPyP4) using the agar diffusion method. So, the aims of this work were to determine MIC and MBC of TMPyP4 and to evaluate the survival curve of *Salmonella* sp and *Y. enterocolitica* strains. Initially, we used TTC to determine MIC and MBC, but when we performed the survival curve analysis, the results were not reproducible, so we decided to evaluate the influence of TTC on MIC/MBC. Strains of *S. enteritidis*, *S. typhimurium*, *Y. enterocolitica* B1A/O: 7.8-8-8.19 and *Y. enterocolitica* B1B/O:8 were used. MIC and MBC were determined by broth microdilution method, with the inocula adjusted to ~10^5 CFU/mL, with irradiation at a total light fluence of 13.5 J/cm². MIC/MBC values of TMPyP4 changed with and without TTC: for *Salmonella* spp MIC/MBC with TMPyP4-TTC was 0.39 µM and with TMPyP4 was 6.25 µM; for *Y. enterocolitica* MIC/MBC with TMPyP4-TTC was 0.019 µM and with TMPyP4 was 3.12 µM. So, the interaction between these compounds was evaluated by the checkerboard assay and revealed a synergistic interaction between them. In the survival curve, with *Salmonella* a decrease in Log3 cycles was observed with the CIM at 2 h of incubation with both strains, while with *Y. enterocolitica* this decrease was observed at 3 h of incubation. These results demonstrate that TMPyP4 is a suitable candidate for use in photodynamic therapy against Gram-negative strains. In addition, TTC showed toxicity under light exposure which implies that its use as dye in MIC/MBC assays could interfere with result interpretation, particularly in phototherapy-related experiments.

MI10- DETERMINATION OF THE SAFE DOSE OF POTENTIALLY PROBIOTIC YEASTS USING THE INVERTEBRATE MODEL *Galleria mellonella*

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Probiotics are live microorganisms that, when administered in adequate amounts, confer health benefits to the host. Since 2018, the Biotechnology Institute (UNSJ) has been conducting a research line focused on yeasts of vitivinicultural origin with probiotic potential. Although *in vitro* assays have demonstrated non-pathogenic behavior, it is essential to validate their safety and determine appropriate concentrations *in vivo*. The use of vertebrate animals faces ethical and regulatory restrictions; therefore, alternative models such as the greater wax moth (*Galleria mellonella*) larvae provide an initial tool to evaluate toxicity and pathogenicity, offering experimental advantages and relevant physiological similarities. The objective of this work is to evaluate the safe concentration for the administration of *Wickerhamomyces anomalus* strains with probiotic potential using the *in vivo* model *G. mellonella*. In this study, three isolates of *W. anomalus* (PB97, PB98, PB99) were evaluated. Healthy *G. mellonella* larvae (0.22 ± 0.03 g) were inoculated intralarvally with suspensions of 1×10^5, 1×10^6, and 1×10^7 cells/larva in 20 µL, using an insulin syringe. The assays were performed with 10 larvae per strain and concentration, incubated at 30 ± 1 °C for 72 h in darkness. Three types of controls were also included: (i) larvae inoculated with the commercial probiotic yeast *Saccharomyces boulardii* CNCM I-745 (probiotic control), (ii) larvae inoculated with physiological saline, at 0.9% NaCl, (negative control), and (iii) larvae inoculated with the pathogenic bacterium *Escherichia coli* ATCC 25922 (positive control). The main outcome assessed was larval survival percentage after 72 h of incubation. At 1×10^5 cells/larva, survival reached 93% for the control strain and above 80% for all *W. anomalus* strains after 72 h of incubation. In contrast, higher concentrations (1×10^6 and 1×10^7) produced significant decreases in larval viability in all yeast treatments. Specifically, *S. boulardii* showed 45% survival at 1×10^6 cells/larva and no survival at 1×10^7 cells/larva after 72 h. These findings indicate that the selected *W. anomalus* strains are safe at doses ≤1×10^5 cells/larva in the *G. mellonella* model. This correlates with the natural reduction of microbial viability during gastrointestinal transit and provides a reference value for estimating safe consumption levels. The use of *G. mellonella* proves to be a reliable and ethical tool for preliminary safety testing, supporting future validation in vertebrate models.

MI11-THERAPEUTIC EFFECTS OF PIRFENIDONE IN A TNFR1-DEFICIENT MOUSE MODEL OF *Yersinia enterocolitica*-INDUCED REACTIVE ARTHRITIS

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Reactive arthritis (ReA) is a subtype of spondyloarthritis (SpA) characterized by aseptic synovitis following gastrointestinal or genitourinary infections. We previously demonstrated that TNFR1-deficient (*TNFR1*$^{-/-}$) mice develop chronic ReA after oral infection with *Yersinia enterocolitica* (Ye) O:3, displaying key features of human SpA, including persistent inflammation and pathological new bone formation. Current treatments mainly target inflammation, but aberrant bone formation may persist. Fibrosis has been associated with new bone formation in chronic inflammatory conditions. Transforming growth factor beta (TGF-β) is a central regulator of tissue fibrosis and has been implicated in aberrant bone remodeling. However, its role in the context of chronic ReA remains poorly understood. In this study, we evaluated the therapeutic potential of pirfenidone (PFD), an anti-fibrotic agent, in Ye-induced ReA and explored its interaction with TGF-β receptors I and II (TGF-βRI/II). Male C57BL/6 *TNFR1*$^{-/-}$ mice were orally infected with Ye O:3 and randomly assigned to two groups. Group 1 received three intragastric doses of PFD (10 mg/kg on days 49, 50 and 53 post-infection), while Group 2 received vehicle control (0.2 mL DMSO). Clinical score (CS), grip strength (GS), and serum TGF-β levels were assessed by ELISA before (day 49) and after treatment (day 56). Additionally, the expression of α-SMA and Ki67 was analyzed by flow cytometry in joint cells as markers of fibrosis and cellular proliferation, respectively. PFD-treated mice showed significantly reduced CS, improved GS, and decreased expression of α-SMA and Ki67 compared to controls ($p<0.05$). However, serum TGF-β levels remained unchanged. To explore potential mechanisms of action, molecular docking analyses were performed. PFD exhibited stable binding to TGF-βRI (binding affinity: - 7.4 kcal/mol) via hydrogen bonding with LYS232 and hydrophobic interactions with VAL219, TYR249, LEU278, and LEU340. For TGF-βRII, PFD formed hydrogen bonds with LYS277 and hydrophobic interactions with LEU386, LEU305, ALA275, and VAL258 (binding affinity: - 6.8 kcal/mol). These findings suggest that TGF-β-mediated fibrosis may contribute to pathological bone remodeling in chronic ReA. Furthermore, the observed interactions between PFD and TGF-β receptors may underlie its anti-fibrotic effects in this model. Additional studies are needed to confirm these results and further elucidate the mechanisms linking fibrosis, TGF-β signaling, and new bone formation in chronic ReA.

MI12- SENSITIVITY COMPARISSON BETWEEN A qPCR AND A CULTURE METHOD TO DETECT *Yersinia enterocolitica* IN MEAT PRODUCTS

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Yersinia enterocolitica is a Gram-negative coccobacillus responsible for yersiniosis and various extra-intestinal diseases. It is classified into six biotypes and over 60 serotypes, with biotype 1A being the most common isolated in Argentina. Transmission occurs mainly through contaminated food, particularly pork. In this context, real-time polymerase chain reaction (qPCR) emerges as a rapid, specific, and sensitive tool for pathogen detection. This study aimed to establish the limit of detection (LOD) of *Y. enterocolitica* by molecular and microbiological methods and to determine its prevalence in meat products sold in San Luis city. The efficiency of different detection approaches was evaluated: a) direct qPCR from meat homogenate to detect enterotoxin *ystA/ystB* genes, and b) a conventional microbiological method with enrichment in PBS followed by isolation on CIN agar. Two *Y. enterocolitica* strains (MHC700 bio/serotype 4/O:3pYV^{+} *ystA*$^{+}$ and MEE110 1A/O:5 pYV^{-} *ystB*$^{+}$) were used for experimental inoculation. qPCR showed a LOD of 1×10^{2} CFU/25 g for strain MEE110 and 1×10^{3} CFU/25 g for strain MHC700, whereas the microbiological method showed higher sensitivity (18 and 140 CFU/25 g, respectively). Nonetheless, qPCR detected levels below the infectious dose, underscoring its complementary diagnostic value. Subsequently, 24 commercially available samples were analyzed: beef (n=8), pork (n=8), and poultry (n=8) meat, all uncontaminated. In addition to the two methods described above, these samples were also subjected to qPCR using pooled colony samples. The results showed that 29% of the samples tested positive for *Y. enterocolitica* (7/24): 1 from beef, 2 from pork, and 4 from poultry. Using microbiological methods, 7 out of 7 samples were detected; PCR analysis of colony pools identified 5 out of 7 samples, and qPCR analysis of homogenate identified 2 out of 7 positive samples. By qPCR all samples were *ystB*$^{+}$. Two of the positive samples, which came from chicken, were detected by all three tested methods. In conclusion, qPCR from meat homogenates proved to be a rapid and specific method for detecting *Y. enterocolitica*, though less sensitive than microbiological culture method. Its ability to detect bacterial loads below the infectious threshold makes it a valuable complementary surveillance tool.

MI13- ANTIMICROBIAL ACTIVITY OF *Ilex paraguariensis* HYDROETHANOLIC EXTRACTS

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Ilex paraguariensis, commonly known as Yerba mate (YM), is a South American plant traditionally consumed as an infusion, who's aqueous and hydroalcoholic extracts have shown antimicrobial activity in previous studies. However, comparative evaluations across commercial products and their efficacy against relevant foodborne pathogens remain limited. This study aimed to evaluate the antibacterial potential of hydroethanolic extracts (EtOH:H_2O 96:4) from six commercial YM products against foodborne pathogens. Extracts were obtained by 48-hour maceration (3:1 v/w) at 25 °C, monitored by thin-layer chromatography. The maceration was then followed by filtration, rotary evaporation, and drying at 55 °C on a heating plate for over 14 days, obtaining a median extraction yield of 3.56%. Antibacterial activity was tested by agar well-diffusion assay with 8 mg/well of extracts against five Gram-negative and three Gram-positive bacteria, including Shiga toxin-producing *Escherichia coli* (STEC), *Pseudomonas aeruginosa, Yersinia enterocolitica* (WAP-314), *Yersinia enterocolitica* (CLE001), *Salmonella enterica* serovar *Typhimurium* (SB3), methicillin-resistant *Staphylococcus aureus* (MRSA), methicillin-susceptible *S. aureus* (MSSA), and *Bacillus cereus*. In addition, 9 mg/well were tested against MRSA, MSSA, *Y. enterocolitica* WAP-314, and *S. Typhimurium* to further evaluate their susceptibility. Inhibition zone diameters were measured using a digital caliper, with gentamicin and DMSO as positive and negative controls, respectively. At 8 mg/well, extracts showed inhibition zones ranging from 7.10 mm to 15.56 mm against Gram-negative strains, and 12.89 mm to 15.99 mm against Gram-positive strains. When tested at 9 mg/well, inhibition zones ranged from 14.61 mm to 16.58 mm against Gram-positive strains, and 7.76 ± 0.34 mm to 10.98 ± 1.42 mm against Gram-negative strains. Overall, these results support the antimicrobial potential of YM hydroethanolic extracts, especially against Gram-positive strains, suggesting the need for further research to identify the specific bioactive compounds responsible for these effects and the associated mechanisms of action.

MI14- PRELIMINARY STUDY OF THE EXTRACELLULAR ACTIVITY OF *Yersinia enterocolitica* OUTER PROTEINS ON HUMAN LEUKOCYTES

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There are numerous studies on the intracellular cytotoxic activity of *Yersinia* outer proteins (Yops) from *Yersinia enterocolitica* (Ye) in several models. However, to date, no studies have explored the extracellular properties of Yops on human immune cells. The purpose of this study was to evaluate the extracellular activating and cytotoxic effects of Yops on peripheral blood human phagocytes. Yops were extracted from a wild-type *Y. enterocolitica* strain (Ye wt) and a *yopP* mutant strain (Ye Δ*yopP*). Leukocytes were isolated from the peripheral blood of healthy human donors and incubated for 30 minutes at 37°C in a 5% CO_2 atmosphere with Yops at concentrations of 4, 10, and 20 µg/ml. Three assays were performed to assess functional effects: 1. NBT (Nitroblue Tetrazolium) assay, both microscopically and colorimetrically, to assess respiratory burst; 2. MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay to evaluate cell viability/metabolic activity; 3. DNA laddering assay to detect apoptosis. Microscopic NBT analysis revealed a significant increase in azurophilic granules in samples treated with Ye wt Yops at 4 µg/mL ($p < 0.01$), although this was not confirmed by the colorimetric NBT results. The MTT assay showed a significant increase in metabolic activity in cells treated with 4 µg/mL of Yops from both Ye wt and Ye Δ*yopP* ($p < 0.001$). Furthermore, no apoptotic DNA fragmentation was detected at any tested concentration. Our findings suggest that Yops—especially YopP—may act extracellularly on human phagocytes, enhancing activation without inducing apoptosis; further studies are needed to confirm its relevance and applications.

MI15- EXTRACELLULAR EFFECT OF *YERSINIA* OUTER PROTEIN P (YOPP) ON MURINE MACROPHAGE ACTIVATION AND VIABILITY

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This study investigates the extracellular effects of wild-type Yops (Yops wt) and the YopP mutant strain (Ye *ΔyopP*) from *Yersinia enterocolitica* (Ye) on the activation and viability of murine macrophages. Thus, cultures of inflammatory murine peritoneal macrophages (Mi) were incubated for 30 minutes with Yops (1 and 4 ug/ml) at 37°C in a 5% CO_2 atmosphere. NO was measured by Griess assay, ROS by NBT, and apoptosis by Annexin V/PI flow cytometry. In order to compare Mi with resident ones (M), we teasted different concentrations of Yops (0.6ug/ml-20 ug/ml). Exposure of Mi to Yops from Ye wt and Ye *ΔyopP* at 1µg/ml and 4µg/ml induced a significant increase in NO production ($p < 0.01$), surprisingly Ye *ΔyopP* at 1 ug/ml showed less capacity of NO induction than Ye wt ($p < 0.05$). NBT assay revealed that Mi + Yops WT (4µg/ml) condition displayed a significantly higher percentage of positive cells/200 cells (17.5%) compared with control Mi (<5% of positive cells/200 cells) ($p < 0.01$). Yops from Ye wt induced apoptosis in Mi at 4 µg/ml, whereas M required 10 µg/ml ($p < 0.05$ and $p < 0.001$). Unexpectedly, YopP has not induced apoptosis on Mi at 1 µg/ml ($p < 0.05$), highlighting its differential role depending on macrophage activation. These results reveal the complex role of YopP in host-pathogen interactions and warrant further investigation into its underlying mechanisms.

MI16- ASSESSMENT OF THE CYTOTOXICITY OF PROTEIN FRACTIONS FROM AQUEOUS EXTRACTS OF LARREA DIVARICATA CAV. FOR FUTURE ANTIVIRAL STUDIES

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The increasing emergence of viral diseases and resistance to antiviral drugs drives the search for new plant-derived therapeutic agents, revaluing biodiversity and ancestral medicinal practices. *Larrea divaricata* Cav. (Zygophyllaceae, "jarilla"), a native species with a long-standing medicinal tradition, contains metabolites with well-documented *in vitro* antiviral activity; however, the potential effect of proteins present in aqueous extracts remains unknown. To establish safe concentrations for future antiviral assays, our objective was to evaluate the *in vitro* cytotoxicity of proteins concentrated from an aqueous extract of *L. divaricata*. Concentrated protein fractions were partially purified by centrifugation using Millipore Amicon Ultra-15 concentrator tubes with a 10 kDa molecular weight cut-off membrane. Both the retentate and permeate fractions were collected. Cytotoxicity parameters were determined in Vero cell lines using the neutral red uptake colorimetric assay. Protein fractions larger than 10 kDa showed low cytotoxicity, with a mean cytotoxic concentration (CC_{50}) of 0.10 ± 0.008 mg/mL, while fractions smaller than 10 kDa exhibited a CC_{50} of 0.021 ± 0.00016 mg/mL, indicating higher cytotoxicity. Protein fractions from *L. divaricata* showed differential cytotoxicity, allowing the definition of safe concentrations for future antiviral evaluations. These results, together with the previously reported *in vitro* activity of other metabolites, reinforce the potential of this species as a source of natural therapeutic candidates.

MI17- IMMUNE RESPONSE EVALUATION IN HEN EGGS AGAINST DIFFERENT ANTIGENIC FRACTIONS OF AN AQUEOUS EXTRACT OF *Larrea divaricata* CAV

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Larrea divaricata Cav. (jarilla) contains proteins with immunogenic potential in murine models, capable of inducing antibodies with cross-reactivity against cellular and extracellular proteins of *Pseudomonas aeruginosa* and against those involved in the opsonophagocytic process. Obtaining antibodies in mice is an invasive procedure and provides a low yield from a biotechnological point of view. An alternative model was proposed that met the "3Rs" criteria (reduction, refinement, and replacement): Hy Line Brown laying hens. From their egg yolks, it is possible to purify immunoglobulin Y (IgY). In this work, we evaluated the immunogenicity of the jarilla extract proteins and the cross-reactivity of IgY against outer membrane proteins of *P. aeruginosa* (OMP). Three 6-month-old laying hens from a hatchery were used. They were immunized with two jarilla protein fractions obtained by ultrafiltration with membranes with 10 and 30 kDa cut-offs: JP10 (>10 kDa) and JP30 (>30 kDa), respectively. An immunization protocol was carried out with increasing dose schedules (75 µg and 150 µg) in emulsion with Montanide™ ISA 71 VG adjuvant (1:1), administered intramuscularly, and boosters given every 15 days. Eggs were collected before, during, and after immunization, and anti-jarilla IgY levels were evaluated by ELISA against JP10 or OMP, as sensitizing antigens (Ag). The results showed that both fractions induce specific IgY, with IgY anti-JP30 levels being significantly higher than IgY anti-JP10 ($p \leq 0.05$) for both Ag quantities. When IgY anti-JP10 and IgY anti-JP30 were tested with OMP, high IgY levels were observed. However, there was no significant difference compared to the yolks of non-immunized hens. This would indicate, on one hand, that the presence and relative concentration of the proteins forming the antigenic preparation are important; and on the other hand, the high values of the negative controls might be due to the microbiological conditions prior to the assay. Based on the background of generating anti-jarilla IgG in mice that recognize outer membrane proteins of *P. aeruginosa*, and in order to improve the values in hens, it is proposed to test new protocols with higher Ag doses and longer immunization times. Furthermore, we propose to emphasize the characterization of the antigenic determinants responsible for this cross-reactivity. This will ensure the biotechnological potential for the design of an immunological tool to combat infections caused by *P. aeruginosa*.

MI18- PHYSICOCHEMICAL CHARACTERIZATION OF AN EXOPOLYSACCHARIDE PRODUCED BY *Cryptococcus laurentii* FOR POSSIBLE FOOD APPLICATION

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Exopolysaccharides (EPS) are carbohydrate-based biopolymers composed of carbohydrates that are secreted by the microorganisms into the surrounding environment. They have important applications in the food industry, as they can potentially serve as components for biodegradable films. The aim of this study was to determine the physicochemical characteristics of an EPS produced by the yeast *Cryptococcus laurentii* BNM 0525 for potential use in food applications. For EPS production, *Cryptococcus laurentii* BNM 0525, from the Industrial Microbiology Laboratory (UNSL), was grown in Erlenmeyer flasks with culture medium (g/L): glucose: 20; $(NH_4)_2SO_4$: 1.65; KH_2PO_4: 0.86; $MgS0_4.7H_20$: 0.3; NaCl: 0.1; $CaCl_2.2H_20$: 0.01; $MnSO_4$: 0.01; yeast extract: 0.05; pH 5. It was incubated at 25 °C for 72 h at 120 rpm. EPS was recovered from the culture supernatants by adding two volumes of 96 % ethanol at 4 °C for 24 h. The resulting EPS precipitate was dried at 30 °C to obtain a dry powder. The dry EPS powder was physicochemically characterized. 1) Fourier transform infrared spectroscopy (FTIR) was used to identify functional groups, using a Nicolet PROTEGE 460 spectrometer, USA. 2) Thermogravimetric analysis (TGA) to determine the thermal stability of the EPS, using a TG 295 analyzer, USA. 3) Intrinsic viscosity and molecular weight, using a Ubbelohde capillary viscometer (IVA, Argentina). For this purpose, solutions of different concentrations of EPS in distilled water were prepared: 0.01 % to 0.5 % w/v and left to stand at 4 °C for 24 h. This test was performed in triplicate and at 25 °C. The results showed 1) FTIR: a broad band was observed at 3400 cm^{-1} corresponding to hydroxyl groups, a medium band at 2900 cm^{-1} corresponding to methylene groups and an intense and broad band near 1000 cm^{-1} related to C-O bonds also stands out. 2) TGA: thermal stability was 183.7 °C, an effect that may be related to intrachain hydrogen bonds. 3) The intrinsic viscosity values were 362 to 395 cm^3/g (Huggins, Kraemer, Schulze-Blaschke and Martin method) and the molecular weight was 650,000 to 750,000 g/mol (Mark-Houwink equation). In conclusion, FTIR showed functional groups representative of an exopolysaccharide, thermal analysis indicated that the EPS is stable up to 183 °C, presenting good thermal resistance. The intrinsic viscosity values were similar to those of other polysaccharides, such as pectins, and the molecular weight was shown to be sufficiently high. The values obtained from the physicochemical characterization indicated that the EPS is suitable for potential food-related applications such as film molding.

MI19- FEASIBILITY STUDY OF A FORMULATION BASED ON *Kosakonia radicincitans* bSL2 FOR USE AS A LIQUID BIOINPUT

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Agroecology promotes the use of beneficial microorganisms in the management of sustainable agricultural and food systems. Sustainable food production is a key component of the "One Health" approach, which emphasizes the interconnection between food production, environmental protection, and the promotion of human health and well-being. The bacterium *Kosakonia radicincitans* bSL2 has characteristics that promote plant growth (PGP), traits making it suitable for application in agroecological cultivation systems. The aim of this study was to evaluate the long-term viability of a liquid formulation based on *K. radicincitans* bSL2 for use as a bioinput. The strain *K. radicincitans* bSL2, from the culture collection of the Industrial Microbiology Laboratory (UNSL), was grown in a minimal medium containing 35 g/L of dehydrated bagasse and 5 g/L dehydrated yeast (by-products of beer production) and incubated at 28 °C for 48 h. Biomass was obtained by centrifugation, washed, and resuspended in sterile distilled water to a concentration of 6×10^8 CFU/mL (R_0), and stored at 4 °C for the 12 months of the study. Viability of the formulation was quantified after 3 months (R_1) and 12 months (R_2) by plate count on solid medium. The bioinput was tested in germination assays using *Lactuca sativa L*. White Boston. Seeds were placed in duplicate in plastic germination trays containing a basic solid substrate. Each well received 1 mL applied by spraying of either (a) the *K. radicincitans* bSL2-based formulation or (b) sterile distilled water (control). The germination percentage (%) was determined after 7 days. The germination assay was repeated after 12 months of bioinput storage. The viability of the formulation after 3 months (R_1) was 4.5×10^7 CFU/mL, and after 12 months (R_2) it was 3.6×10^7 CFU/mL. The germination percentage for treatment (a) was 10% higher than for (b) ($p \leq 0.05$). After 12 months, the germination percentage for treatment (a) remained 6% higher than the control (b) ($p \leq 0.05$). The native bacterial strain *K. radicincitans* bSL2 maintained its viability for at least 12 months and preserved its stimulatory effect on seed germination. The simple water-based formulation, produced using a minimal medium derived from brewery by-products, shows potential for application in agroecological systems.

MI20- EVALUATION OF SOIL CHEMICAL PARAMETERS AFTER A BIOAUGMENTATION AND BIOSTIMULATION PROCESS IN A LANDFARMING SYSTEM IN THE CITY OF SAN LUIS

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Bioremediation is an effective tool for mitigating environmental pollution through the use of native microorganisms capable of degrading or transforming toxic compounds into substances that are less harmful to the environment. At the laboratory scale, three general strategies can be applied: (a) natural attenuation, (b) landfarming, and (c) landfarming assisted by bioaugmentation. The aim of this study was to evaluate the effectiveness of bioaugmentation and biostimulation techniques applied to a landfarming system by analyzing soil chemical indicators at the laboratory scale. Three treatments were carried out: bioaugmentation with strains previously isolated from the landfarming system, biostimulation with a culture medium, and a control with water only. Samples were taken at the beginning (T0) and after 30 (T1), 60 (T2), and 90 days (T3). Sulfates, phosphates, nitrogen, and organic matter were determined as soil quality indicators using the EPA 9038, NOM-021-RECNAT-2000-AS10, Kjeldahl-Arnold-Gunning, NOM-021-RECNAT-2000, and AS-07 methods, respectively. In addition, the concentrations of glycols (ethylene glycol, propylene glycol, and diethylene glycol) were analyzed using gas chromatography in samples T0 and T3, since these compounds represent the main contaminants in the treated effluent. Statistical analysis (ANOVA) showed no significant differences among treatments in terms of soil chemical parameters. However, a lower residual glycol concentration was observed in the bioaugmentation treatment compared to biostimulation and control. This suggests that both strategies enhanced glycol degradation without significantly altering soil quality parameters. In conclusion, the microorganisms present in the landfarming soil demonstrated the ability to degrade effluent glycols without significantly affecting the soil's chemical properties, with bioaugmentation proving to be the most effective strategy. These results indicate that, in the long term and in the absence of new effluent inputs, effective site bioremediation could be achieved.

MI21- AEROBIOLOGICAL EVALUATION OF INDOOR AND OUTDOOR AIR IN A UNIVERSITY LABORATORY: POLLEN AND FUNGAL SPORE DIVERSITY

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The study of aerobiological particles is highly relevant to human health and environmental quality. Aerobiological monitoring allows the evaluation of different types of pollen grains and fungal spores, which are associated with allergic respiratory diseases. The aim of this study was to evaluate biological air quality in a microbiology laboratory at the National University of San Luis. Two Hirst-Lanzoni volumetric collectors were used: one installed on the laboratory terrace and the other inside the room where samples were processed. The analysis was performed during the months of August and September. Incoming aerobiological particles were collected on a Melinex-type strip coated with liquid silicone. After 7 days, the samples were cut, placed on slides, and stained with basic glycerofuscin for subsequent visualization and quantification with an optical microscope at 400X. *Cladosporium* and *Ustilago* spores were found primarily in the indoor atmosphere at representative levels of 12.42 and 8.64 m³ of air, respectively. Additionally, *Aspergillus* and *Penicillium* spores were found in smaller amounts. These fungi are cultivated for certain tests in the laboratory, indicating their presence in the work environment. Different types of pollen grains were found in the outdoor environment. Cupresaceae was the most abundant species in the outdoor atmosphere of San Luis during August (52 pollen grains per m³ of air), while Moraceae was the most abundant during September (102 pollen grains per m³ of air), both considered moderate to high amounts. Positive associations between the indoor and outdoor atmosphere were observed for *Cladosporium* spores ($r = 0.64$; $P = 0.0013$) and *Ustilago* spores ($r = 0.70$; $P = 0.0036$). These fungal species are commonly associated with ocular and nasal infections. *Ustilago* spores can infect various plants, causing significant economic losses. *Aspergillus* and *Penicillium*, meanwhile, can cause allergic reactions such as asthma, rhinitis, and conjunctivitis. Pollen grains produce certain respiratory allergic pathologies, with harmful effects on human health. This study highlights the importance of monitoring both outdoor and indoor air quality to prevent allergic diseases and promote environmental health. Future research would include implementing indoor air purification strategies to evaluate their effectiveness in reducing allergenic and pathogenic bioaerosols, as well as extending these aerobiological studies to hospitals, schools, and other workplaces.

MI22- OPTIMIZATION, CHARACTERIZATION AND ANALYTICAL EVALUATION OF THE ACTIVITY OF *Origanum vulgare* (OREGANO) EXTRACTS AGAINST *Escherichia coli* O157:H7

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Food safety is a crucial issue for both consumers and food industries. Food products can suffer from undesirable microbial contamination that alters their properties. Additionally, some microorganisms can cause foodborne illnesses. Shiga toxin-producing *Escherichia coli* (STEC) is known to cause hemorrhagic colitis (HC) and hemolytic uremic syndrome (HUS). It is primarily considered an emerging pathogen transmitted through contaminated bovine food. The O157:H7 serotype is the most frequent strain that is involved in HUS. *Origanum vulgare* (oregano) is an aromatic plant used as a food seasoning and as an infusion in folk medicine for the treatment of gastrointestinal disorders and for its antimicrobial properties. The aim of this study was to optimize the extraction process of oregano leaf extracts to enhance its antimicrobial activity against STEC; followed by analysis of their chromatographic and spectrometric profiles in order to find the characteristics patterns (chemical compounds). Four different aqueous oregano extracts, infusion (EOI), decoction (EOD), agitation (EOA), and ultrasound (EOU) were prepared and tested against STEC. The lowest MIC and MBC values were obtained for EOA (20 µg/mL and 80 µg/mL, respectively). The effect of a sub-inhibitory concentration (MIC/2) on planktonic culture was also evaluated. A significant decrease in the count of treated viable cells compared to the untreated STEC cultures was observed. Different morphologies in the treated (coccoid forms and short bacilli) and untreated (long bacilli) cultures were visualized by light microscopy. In this study, the production of an aqueous extract of oregano with antimicrobial effect against STEC was optimized and chemically characterized. Our results may contribute to develop a new strategy to control HUS and to implement an effective food preservative method against strains of STEC.

MI23- DETECTION OF LESS PREVALENT *BLACTX-M* GENES IN ESBL-PRODUCING ISOLATES FROM HOSPITAL CENTRAL DE MENDOZA (2019 VS 2022)

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Multidrug-resistant gram-negative bacteria, frequently isolated in nosocomial infections, represent a major global public health concern. The treatment of these infections often involves β-lactam antibiotics. However, the production of β-lactamases, enzymes capable of degrading the β-lactam ring, constitutes a common resistance mechanism that limits the effectiveness of these antimicrobials. Among these mechanisms, extended-spectrum β-lactamases (ESBLs) are particularly relevant, as they confer resistance to penicillins, third- and fourth-generation cephalosporins, and monobactams. The most extensively studied ESBL families include *blaTEM*, *blaSHV*, and *blaCTX-M*, the latter being the most widely disseminated over recent decades. In collaboration with Hospital Central de Mendoza (Argentina), a total of 156 ESBL-producing isolates were analyzed, collected consecutively over two periods: 2019–2020 and 2021–2022 (78 per period). Prevalence studies of the most common ESBL genes (*blaSHV*, *blaTEM*, *blaCTX-M-1*, and *blaCTX-M-2*) revealed high frequencies of *blaSHV*, *blaTEM*, and *blaCTX-M-1* in both periods, along with a marked increase in *blaSHV* and *blaCTX-M-2* prevalence in the second period. Additionally, an upward trend in the accumulation of multiple resistance genes per strain was observed. This study expands upon previous analyses by focusing on the detection of less common *blaCTX-M* genes in Argentina: *blaCTX-M-8*, *blaCTX-M-9*, and *blaCTX-M-25*, using conventional PCR. *blaCTX-M-8* was detected in 4 out of 78 isolates from 2019–2020 and in 2 out of 78 from 2021–2022. *blaCTX-M-9* was identified in 20 and 11 isolates in the first and second periods, respectively. *blaCTX-M-25* was detected in only one isolate from the second period. Sequencing of *blaCTX-M-9*-like amplicons revealed 99% identity with the CTX-M-27 variant, which harbors the Asp240Gly (D240G) mutation, associated with a significant increase in the minimum inhibitory concentration (MIC) of ceftazidime in *Escherichia coli*. These findings underscore the need for ongoing molecular surveillance to enable early detection of emerging variants and support the development of effective therapeutic strategies.

MI24- CYTOTOXIC ACTIVITY OF METAL-ORGANIC FRAMEWORKS BASED ON BI-9 BISMUTH METAL IONS AGAINST GRAM-POSITIVE AND GRAM-NEGATIVE BACTERIAL STRAINS

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Metal–Organic Frameworks (MOFs) are crystalline and porous materials formed by the self-assembly of metal ions and organic ligands, offering a versatile modular architecture. The MOFs used were analyzed by SEM, depositing them on carbon membranes. Morphometric analysis of the MOFs showed an average Ferret diameter of 7.48 ± 1.63 µm (mean ± SD) with an extreme distribution. Furthermore, the XEDS analysis showed the presence of different elements in the compositional study. In this study, the cytotoxicity of the bismuth compound Bi-9 [Bi_2(1,4-NDC)$_3$] 2DMF was evaluated against two reference bacterial strains: one Gram-negative, *E. coli* ATCC 922, and a Gram-positive, *S. aureus* ATCC 25923. The agar diffusion test quantified the activity using Mueller-Hinton (M-H) medium, and bacterial growth in M-H broth, measuring the optical density (OD) at 600 nm. To determine cell viability, an MTT study was performed. This study included sulfamethoxazole and Vancomycin as a negative control (C-), respectively, and bismuth carbonate [$(BiO)_2CO_3$] as a control for the metal ion Bi^{+3}. The results showed that *E. coli* growth was not significantly affected according to the OD values compared to the positive control. In contrast, *S. aureus* showed a marked reduction in the OD measurement. Furthermore, the MTT results show that B-9 reduces *E. coli* cells' viability significantly at high concentrations. In *S. aureus* culture, the viability was reduced at all studied concentrations. The studies show that *S. aureus* exhibited a greater susceptibility to Bi-9, compared to *E. coli*. Therefore, although the results suggest a promising inhibitory effect of Bi-9 against *S. aureus*, additional studies (such as colony-forming unit counts) are required to determine whether its action is primarily bacteriostatic or bactericidal.

MI25- STUDY OF THE CYTOTOXICITY OF METAL-ORGANIC STRUCTURES BASED ON BISMUTH METAL IONS Bi-11, AGAINST PROKARYOTIC CELLS

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Metal–Organic Frameworks (MOFs) are crystalline and porous materials formed by the self-assembly of metal ions and organic ligands, offering a versatile modular architecture. The MOFs used were analyzed by SEM, depositing them on carbon membranes. Morphometric analysis of the MOFs showed an average Ferret diameter of 4.5 ± 0.66 µm (mean ± SD) with an extreme distribution. Furthermore, the
XEDS analysis showed the presence of carbon in the compositional study. On the other hand, the cytotoxicity of the bismuth compound Bi-11 [Bi_2(2,6-NDC)$_3$(1,10-phen)2] was evaluated against two reference strains, one Gram-negative *Escherichia coli* ATCC 922 and a Gram-positive *Staphylococcus aureus* ATCC 25923. The activity was quantified by the agar diffusion test using Mueller-Hinton (M-H) medium, and the measurement of bacterial growth in M-H broth by measuring the optical density (OD) at 600 nm. To determine cell viability, an MTT study was performed. This study included sulfamethoxazole and vancomycin as a negative control (C-), respectively, and bismuth carbonate [$(BiO)_2CO_3$] as a control for the metal ion Bi^{+3}. OD values in *E. coli* treated with Bi-11 remained high, close to the control (C+), indicating little or no effect on biomass reduction. In contrast, Bi-11 demonstrated significant activity against *S. aureus*, resulting in an important reduction in OD. Furthermore, the MTT results show that in both strains the effect was overwhelming, with a great reduction in cell viability, more noticeable for Gram-positive cells. The combined evaluation between both microorganisms denotes different behavior from B-11, being more active against *S. aureus* than *E. coli* cells. Although the results suggest a promising inhibitory effect of Bi-11 against both studied strains, additional studies (such as colony-forming unit counts) are needed to determine whether its action is primarily bacteriostatic or bactericidal.

MI26- CONSERVATION OF *Serratia* sp. BASED FORMULATIONS FOR POSSIBLE APPLICATION AS BIOFERTILIZER

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Microorganisms isolated from soil can be used as biofertilizers, a key strategy for maintaining agricultural productivity without compromising ecosystem health. The objective of this work was to study the conservation of *Serratia* sp.-based formulations with biofertilizer characteristics for application as a bioinput. The ChM90c bacterium was isolated from vine soils from a farm located in Valle de Uco, Mendoza, during the veraison period (March 2023). Biofertilizer assays (nitrogen fixation, phosphate solubilization, indoleacetic acid and siderophores production) were determined. It was molecularly characterized by DNA barcoding, based on the amplification and sequencing of the 16S rRNA gene (~1500 bp) from pure cultures, using primers 27F and 1492R. Liquid and solid formulations were prepared with a standardized suspension of the bacteria in different conservation media: A) Sterile Physiological Solution, B) Medium 1, C) Glycerol 20%, D) Lactose 10%, E)Alternative Medium, F)Vermiculite, G) Peat and H) Lyophilization. The liquids were stored at 4 and 25ºC, while the solids at 25ºC, for 90 days. Viable cell counts (Log CFU/mL) were performed at t=0, 30, and 90 days; the % reduction in viability was determined as [(Log CFU/mL t=0 - Log CFU/mL t=30 or 90)/(Log CFU/mL t=0)] x100; and the % survival rate was determined as [100 - % reduction in viability]. Statistical analysis was used using the paired t-test using a p=0.05 and n=3. The results of the BLAST and MAPSeq analysis assigned the strain to the genus *Serratia* with high identity and total coverage. The survival of liquid formulations was favored at 4°C: A (92.81% and 81.17%), B (87.33% and 78.44%), C (80.83% and 76.11%), D (87.62% and 70.24%), E (77.43% and 42.24) at 30 days and 90 days respectively, while at 25ºC the values decreased. Regarding solid formulations, a reduction of less than 40% was observed after 30 days. It was concluded that *Serratia* could be preserved over time (90 days), with liquid formulations at low temperatures showing the greatest survival, while solid formulations did not. The influence of storage time and temperature on the formulations will continue to be studied.

MI27- EVALUATION OF BACTERIAL STRAINS ISOLATED FROM RHIZOSPHERIC SOIL: GROWTH ON ALTERNATIVE MEDIA AND MOLECULAR IDENTIFICATION VIA DNA BARCODING

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Plant growth-promoting bacteria (PGPB) represent a sustainable biotechnological alternative to the intensive use of agrochemicals in modern agricultural systems. For their growth and production, the use of industrial by-products as alternative substrates offers an innovative and ecological approach that also fosters a circular economy by integrating waste into productive processes. The objective of this study was to evaluate the growth of bacterial strains with biofertilizer potential in alternative culture media formulated from corn grain cutter wash water, and to perform their identification through molecular DNA barcoding of the 16S rRNA gene. Three bacterial strains (ChM90c, ChM114c, and ChM120y), isolated from rhizospheric soil and exhibiting PGPB traits, were selected from the stock collection of the Industrial Microbiology Laboratory. Growth was assessed in conventional YGM (Yeast Glucose Medium) and two alternative media formulated with corn cutter wash water: RI (Industrial Residue) and RI+YL (Industrial Residue supplemented with yeast extract). Biomass was quantified by dry weight (g/L) and statistically analyzed by ANOVA followed by post-hoc tests. The selected strains were identified through amplification and sequencing of the 16S rRNA gene. The obtained sequences were analyzed using the NCBI and SILVA databases for taxonomic assignment. Strain ChM90c exhibited comparable biomass values between YGM (1.57 ± 0.03 g/L) and RI (1.52 ± 0.29 g/L), with an increase in RI+YL (2.15 ± 0.28 g/L), although without statistically significant differences ($p = 0.2313$). Strain ChM114c achieved the highest biomass production in RI (4.50 ± 0.11 g/L), significantly surpassing YGM (0.99 ± 0.06 g/L) and RI+YL (2.23 ± 0.44 g/L) ($p < 0.001$). In contrast, ChM120y yielded lower biomass in RI (0.55 ± 0.08 g/L) compared to YGM (1.49 ± 0.14 g/L) and RI+YL (2.13 ± 0.06 g/L), with significant differences among all treatments. Molecular analysis identified strains ChM90c and ChM114c as belonging to the genus *Serratia*, which is recognized for its plant growth-promotion and biocontrol properties. Corn grain cutter wash water constitutes a viable and economical substrate for bacterial biomass production, particularly for strains of the genus *Serratia.* These results demonstrate the potential of these microorganisms for the development of sustainable biofertilizers.

MI28- ASSESMENT OF RECOMBINANT POLYMERASE ENZYME EXPRESSION IN VARIOUS *E. coli* CULTURE CONDITIONS

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Bst polymerase is the most commonly used enzyme in Loop-mediated Isothermal Amplification assays (LAMP). Among its many advantages, this novel technique provides a valuable alternative to PCR since it does not require expensive equipment like a thermal cycler. However, enzyme acquisition is limited to a few international suppliers which restricts local access and significantly increases costs. Recombinant protein production enables the generation of specific proteins without the risk of variability associated with traditional biological sources, ensuring constant quality. *E. coli* is the most widely used host due to its numerous advantages. Although BL21 strain is heavily relied upon for large-scale industrial protein production, ER2566 also serves as a strong alternative, particularly for polymerases expression, as it allows for high recombinant protein yield. Culture medium composition is a critical factor as it directly influences both biomass yield and protein expression levels. Therefore, the assessment and selection of an optimal culture medium for this enzyme's production is a crucial first step in developing a low-cost, local diagnostic test kit. Growth of both transformed *E. coli* strains were studied in four culture mediums: LB, M9 (minimum medium) and its modified variants LBm and M9m. Bacteria were transformed with an expression vector containing the Bst gene followed by a His-Tag sequence for later purification steps. Cultures were incubated in stirred conditions (150 r.p.m) at 37°C ±0.5 and growth was evaluated by optical densities (OD) measurements at 600 nm every 30 minutes. The specific growth rate (μ) showed significant differences ($p < 0.05$) in LB and M9m cultures compared to the LBm and M9 ones, for both BL21 and ER2566. However, μ for LB and M9m cultures were statistically non-significant when comparing the two media and the individual stains. Biomass production was significantly higher for LB and M9m in both strains compared to LBm and M9. Protein expression was induced by overnight incubation at 20°C±1 with IPTG 4 mM under stirred conditions, non-induced cultures were used as control. Processed samples were analyzed performing a 10 % sodium dodecyl polyacrylamide gel electrophoresis (SDS-PAGE) and protein bands were only observed for M9m cultures. These results demonstrate that M9m may be the best option for producing recombinant *bst polymerase*, regardless of the *E.* coli strain chosen. These findings serve as a key starting point in the large-scale production of this enzyme for future use in diagnostic test kits.

MI29- A RICHWORLD OF MICROBIAL ENDOSYMBIONTS IN ONE OF THE WORLD'S WORST INVASIVE SPECIES: RICHNESS AND DIVERSITY OF GUT BACTERIA AND FUNGI

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We are carrying out a research program to study the microbiota of *Pomacea canaliculata*, an invasive snail considered by the IUCN as one of the 100 worst invasive species in the world. Four gut topological zones, crop (cr), stomach (st), digestive gland (dg), and coiled gut (cg); and a digestive gland symbiotic fraction after homogenisation (cps) were studied from three fasted lab-raised animals. After sequencing, trimming, and denoising, the overall number of reads from the ITS region was 1970958 and the total amplicon sequence variants (ASVs) found were 2496, having an average of 246 ASVs per sample. For the rRNA 16S marker, the overall number of reads was 1849455 and the total amplicon sequence variants (ASVs) found were 19899, having an average of 1347 ASVs per sample. On the other hand, the ASVs from the ITS region ranged between 307-336 (cr), 6-10 (st), 272-303 (dg), 18-438 (cg), and 331-347 (cps); whereas for rRNA 16S the ASVs ranged between 2208-2269 (cr), 250-301 (st), 2221-2346 (dg), 398-2359 (cg), and 1392-2266 (cps). The ITS region showed fungi as the most abundant group of eukaryotic organisms along the gut. However, in the stomach, the number of eukaryotes was poorly represented, more than 100 times lower/two orders of magnitude lower compared with other gut zones. The ascomycetes Dothideomycetes and Sordariomycetes were dominant in the crop, digestive gland, coiled gut, and digestive gland symbiotic fraction, with less abundance of Eurotiomycetes, Leotiomycetes, and Basidiomycota fungi. Other eukaryotes, e.g. Amoebozoa, Ichtyosporia, Heterolobosa, Cryptista, and Rhizaria were also present along the whole gut. The rRNA 16S marker showed a greater abundance and richness of eubacterial entities compared with ASVs assigned to fungi and related taxa, and, as in ITS region, richness and abundance were noticeable less in the stomach. In the crop, Gammaproteobacteria, Alphaproteobacteria, Bacilli, Bacteroidota, and Actinobacteria (in these order) were most abundant taxa, whereas Gammaproteobacteria, Bacilli, Flavobacteria, Alphaproteobacteria, Gammaproteobacteria, and Actinobacteria were dominant taxa in the stomach. In the digestive gland, the coiled gut, and the symbiotic fraction, Gammaproteobacteria, Bacilli, Bacteroidota and Actinobacteria were the main taxa, being Bacilli best represented in the coiled gut. These findings reinforce our previous hypotheses that the *P. canaliculata* has established broad symbiotic relationships with eubacterial endosymbionts, which provide new digestive capabilities for the host, and the hologenome emerging properties would explain, at least in part, the invasiveness of apple snails.

MI30- EVALUATION OF OXAZINES AS A POTENTIAL TREATMENT FOR GRAM NEGATIVE BACTERIA

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Antimicrobial resistance (AMR) is an important global health problem that demands urgent solutions. Infectious diseases remain one of the leading causes of death worldwide, with substantial implications for public health and the global economy. In 2017, the World Health Organization (WHO) issued a global alert identifying 12 bacteria in urgent need of new treatments. The alert was repeated in 2024, including almost the same bacteria. Two of the Gram-negative bacteria present in the alert were *Neisseria gonorrhoeae* and *Salmonella* spp. This study focused on the identification of molecules with biological activity over Gram-negative bacteria, using as model *N. gonorrhoeae, Salmonella enterica* and *Escherichia coli*. We analyzed the ability of oxazines to inhibit their growth or to act as adjuvants to existing antibiotics. Initially, synthetic organic molecules (sulfur-containing, oxygenated, sulfurized, and halogenated) were evaluated through in silico structural analysis using programs such as PubChem and ACD. Structural similarities and differences between the compounds were analyzed according to several parameters. These observations were subsequently validated through in vitro assays in bacterial cultures. Antimicrobial activity was determined using microdiffusion assays, in which disks soaked in solutions of the compounds were incubated in inoculated media, observing the formation of halos of bacterial growth inhibition. The results indicated that four molecules WpD, WpF, Wp55, and Wp56 (a monocyclic, two tricyclic and one tetracyclic member of the oxazines family) showed antimicrobial activity against *S. enterica* Heidelberg. In the second phase, the adjuvant effect of the molecules was evaluated in combination with antibiotics. Following the same protocol but adding the minimum bactericidal concentration (MBC) of the antibiotic, it was observed that ten molecules with a variety of compositions (3 bicyclic, 3 tricyclic, one tetracyclic and 3 modified bicyclic with chlorine, fluorine or ether functions), namely WpB, WpD, WpE, WpF, Wp3, Wp8, Wp55, Wp56, WpG40, and T10 exhibited adjuvant activity in *S. enterica* Heidelberg. Regarding N. *gonorrhoeae*, only the molecules H07 and H08, both bicyclic, showed adjuvant activity in strains L and F. These results highlight the potential of adjuvant-active molecules to enhance gonorrhea therapy efficacy while minimizing antibiotic use and the subsequent risk of resistance development.

MI31- *Larrea*-TYPE PROPOLIS FROM BAUCHACETA, SAN JUAN: OPTIMIZATION OF EXTRACTION PHENOLIC COMPOUNDS TO ENHANCE ITS ANTI-CANDIDA ACTIVITY

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Propolis is a natural product with significant health benefits owing to its rich polyphenol content. An extraction process is essential to obtain bioactive ingredients, as phenolic compounds. This study aimed to optimize the extraction of phenolic compounds from lyophilized propolis and evaluate its antifungal effect. By employing factorial design experiment, three key variables: sonication time, temperature and ethanol-water concentration, were systematically optimized to maximize the enhance its anti-candida activity. The antifungal effect was evaluated using Clinical Laboratory Standards Institute (CLSI) protocols against strains of clinical isolates of the *Candida* genus (*C. albicans*, *C. parapsilopsis*, *C. glabrata*, *C. tropicalis* C131 and *C. tropicalis* MQ1). The optimal conditions for the antifungal effect of *Larrea*-type propolis were not limited to a single extraction point; rather, several experimental combinations within the studied range —particularly those obtained at higher temperatures (≥ 50 °C), ethanol concentrations close to 100%, and sonication times between 20 and 30 minutes— resulted in the lowest MIC and MFC values (62.5 µg/mL) against *C. albicans* and *C. tropicalis* C131. The experimental analysis allowed too to describe the relationship between the extraction variables (temperature, ethanol concentration, and sonication time) and the total phenolic content. The fitted quadratic model explained 69.4% of the experimental variability and predicted an optimal extraction point at 50 °C, 100% ethanol, and 30 min of sonication, yielding a maximum phenolic content of 340.7 mg GAE/g. In conclusion, the optimization of the extraction of phenolic compounds by means of factorial design of propolis associated *Larrea nitida* Cav. from Bauchaceta San Juan, allows to enhance its antifungal activity against clinically relevant strains.

MI32- A NOVEL OIL-BASED ADJUVANT COMBINATION ENHANCES IMMUNOGENICITY AND PROTECTION IN AN INFLUENZA NUCLEOPROTEIN VACCINE

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Influenza is a respiratory disease of major global health concern due to its high mutation rate. Current vaccines often show limited efficacy and fail to induce robust and long-lasting immunity. Furthermore, the continuous emergence of new strains with pandemic potential, underscores the urgent need for more effective vaccines developed under a One Health approach. A promising strategy involves the use of conserved antigens combined with innovative adjuvants to improve the breadth and durability of immune protection. The aim of this study was to evaluate the immunogenicity and protective efficacy of an experimental vaccine based on the influenza nucleoprotein (NP) formulated with oil-based adjuvants widely used in veterinary vaccines, such as Montanides ISA, and a novel combination with the TLR3 agonist Poly(I:C). Mice (n=5) were immunized subcutaneously with the different formulations, and humoral and cellular immune responses were analyzed. Vaccine efficacy was assessed by challenge with heterosubtypic H1N1 pdm2009 virus (n=6). Formulations containing Montanide ISA 70 VG and Poly(I:C) induced significantly higher IgG titters compared to the antigen alone. Analysis of IgG subclasses revealed that Montanide promoted a Th1-biased immune response, which was further enhanced by the addition of Poly(I:C). Moreover, mice immunized with the combined Montanide ISA 70VG + Poly(I:C) formulation exhibited a significant increase in IFN-γ secretion, as demonstrated by flow cytometry and ELISPOT. Challenge experiments showed that groups vaccinated with Montanide ISA 70VG and Montanide ISA 70VG + Poly(I:C) achieved 100% protection against heterosubtypic H1N1.These results highlight the potential of adjuvants to enhance both humoral and cellular immune responses and efficacy of a NP-based vaccine.

MI33- CR3- VS CD206-MEDIATED ENTRY OF *Bordetella pertussis* DETERMINES MACROPHAGE TRAFFICKING AND SURVIVAL OUTCOMES

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During microbial infections, macrophages (MØ) display remarkable plasticity, transitioning between classically activated (M1) and alternatively activated (M2) phenotypes according to environmental cues. Our group has previously shown that *Bordetella pertussis* modulates macrophage polarization to favor intracellular persistence. The aim of this study was to evaluate the specific contribution of complement receptor 3 (CR3; CD11b/CD18) and the mannose receptor (CD206) to the adhesion, internalization, and intracellular trafficking of *Bordetella pertussis* in human monocyte-derived M0 macrophages in a non-polarized state. We also compared these processes with M2 macrophages to identify receptor-specific differences. In M0 macrophages under non-blocking conditions, 15 ± 2 bact/cell were associated, with ~50% internalized. Blocking CR3 significantly reduced adhesion to 6 ± 2 bact/cell ($p<0.01$) and phagocytosis to 25% ($p<0.01$), while CD206 blockade decreased adhesion to 4.5 ± 2 bact/cell ($p<0.01$) and internalization to 23% ($p<0.01$). Dual blockade nearly abolished adhesion (1 ± 0.2 bact/cell, $p<0.01$) and markedly reduced uptake ($p<0.01$). In M2 macrophages, higher basal interaction was observed (28 ± 3 bact/cell adhered, 80% internalized). Blocking CR3 significantly reduced adhesion to 18 ± 2 bact/cell ($p<0.01$) and internalization to 50% ($p<0.01$), whereas CD206 blockade decreased adhesion to 15 ± 2 bact/cell ($p<0.01$) and almost eliminated uptake (2%, $p<0.01$). Combined blockade abrogated both adhesion and phagocytosis (<1%, $p<0.01$). Confocal imaging at 30 min post-infection revealed CR3 and CD206 co-localizing at phagocytic cups, confirming their cooperative role in bacterial capture. In M0, colocalization with the lysosomal marker LAMP-1 showed that CR3-mediated entry resulted in higher lysosomal targeting (~82%) than CD206-mediated entry (~58%, $p<0.01$), indicating receptor-dependent intracellular routing. Together, these results demonstrate that *B. pertussis* exploits CD206-dependent uptake to evade lysosomal degradation, whereas CR3 engagement favours trafficking to bactericidal compartments, revealing a mechanism by which the pathogen modulates macrophage handling to enhance survival.

AREA 6: ECOLOGIA, ETOLOGIA Y BIODIVERSIDAD

ECOLOGIA, ETOLOGIA Y BIODIVERSIDAD

EB01- ZOOPLANKTON FROM SHALLOW LAKES IN LA PAMPA PROVINCE (ARGENTINA): RELATIONSHIP WITH SALINITY, TROPHIC STATUS AND AQUATIC VEGETATION

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The zooplankton of many aquatic ecosystems of La Pampa province is well known, and it has been found that salinity is one of the main structuring factors of this community, especially influencing the specific richness. However, little is known about the relationship between zooplankton composition and trophic status and aquatic vegetation of water bodies. The objective of the study was to evaluate how salinity, trophic state, and aquatic vegetation influence the richness and composition of zooplankton in 14 shallow lakes of La Pampa (from winter 2023 to autumn 2024). The lakes are located in Pampa and Espinal ecoregions; seven have already been studied under different hydrological conditions and seven not previously studied. Routine limnological sampling was conducted, and three zooplankton samples were collected with 40-µm mesh nets in each lake. Ecosystems ranged from freshwater to hypersaline lakes (0.28–140.9 g/L). Water transparency and phytoplanktonic chlorophyll-*a* concentration ranged from 0.03-0.95 m and 8.7-2981.2 mg/m^3 respectively, and correlation between both parameters was found (H= -0.83; p <0.05). Total phosphorus (TP) concentrations ranged from 0.09 to 47.38 mg/L, and total nitrogen (TN) concentrations ranged from 1.48 to 81.09 mg/L. No relation was found between the physicochemical characteristics and the location of the lakes. A total of 53 *taxa* were recorded: 13 cladocerans, 6 copepods, 33 rotifers, and 1 anostracan. Salinity inversely affected the number of *taxa*, since up to 22 species were found in the freshest lakes (< 7 g/L) and a maximum of 4 *taxa* at salinities > 35 g/L. Richness was also inversely related to trophic status, with only 4 to 11 *taxa* found in the highest trophic status lakes (TP = 1.96-12.25 mg/L, TN = 24.50-81.09 mg/L, chlorophyll-*a* = 301.6-2981.2 mg/m^3 and water transparency = 0.02-0.10 m). On the other hand, it was found that aquatic vegetation would favor the existence of greater richness beyond salinity, since the only two lakes that had patches of vegetation, although have different characteristics between them, showed high richness. In particular, Quetré Huitrú Lake (salinity = 0.38 g/L; transparency = 0.16 m; chlorophyll-*a* = 413.8 mg/m^3), with patches of *Schoenoplectus californicus*, presented 22 *taxa* (1 cladoceran, 3 copepods and 18 rotifers) and El Cañadón Lake (salinity = 14.7 g/L; transparency = 0.7 m; chlorophyll-*a* = 8.7 mg/m^3), with a bottom covered by *Ruppia cirrhosa*, presented 18 *taxa* (3 cladocerans, 3 copepods and 12 rotifers). The presence of aquatic vegetation generates environmental heterogeneity that increases zooplankton richness in ecosystems with different salinity or transparency, highlighting its key role in the structure and functioning of shallow lakes.

EB02- COMPARISON OF THE ZOOPLANKTON OF QUETRÉ HUITRÚ URBAN LAKE (LA PAMPA, ARGENTINA), AFTER TWENTY YEARS

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In La Pampa, there are some shallow lakes that, although of natural origin, were incorporated into cities, so they can be considered urban lakes. In general, urban lakes are of social and economic importance, as parks and promenades used by city dwellers are often established around them. However, they are highly vulnerable to anthropogenic influences such as pollution, eutrophication, and silting. Quetré Huitrú (37° 22,043´S; 64° 34,785´W) is located in General Acha, the third-largest city (in terms of population) in La Pampa. For the past ten years, its perimeter has been modified by landfilling for buildings (northern sector) and the construction of a park and coastal road (southern sector). Since its zooplankton was studied in 2002-2003, the objective is to compare that information with that obtained during the 2023-2024 annual cycle to determine if there were changes in its environmental parameters and in the zooplankton community. Limnological variables were determined and three zooplankton samples were taken (40 µm nets). The depth in 2002-2003 was 1.4 m and decreased to 0.6 m in 2023-2024. In the first period salinity and alkalinity were higher (0.81 ± 0.07 g/L and 10.08 ± 0.57 and 0.47 ± 0.16 g/L and 8.48 ± 0.39 in 2002-2003 and 2023-2024 respectively) and Kruskal-Wallis test shows that differences were significant (H = 5.33; p < 0.05 and H = 5.36; p < 0.05). Water transparency decreasing from 0.3 ± 0.05 m in 2002-2003 to 0.16 ± 0.04 m in 2023-2024 (H= 5.31; p < 0.05). Zooplankton richness prior to disturbances was greater (27 *taxa* in 2002-2003 and 21 in 2023-2024). The difference was due to a greater number of cladocerans (8 species) in 2002-2003 compared to only one, *Moina micrura*, recorded in 2023-2024. In both periods, 3 species of copepods were found and, while the cyclopoids *Microcyclops anceps* and *Metacyclops mendocinus* were found in both periods, *Notodiaptomus incompositus* was recorded only in the first and *Boeckella gracilis* in the second. Rotifer richness was 16 and 17 *taxa* in 2002-2003 and 2023-2024 respectively, with seven *taxa* found in both periods. Salinity was higher in 2023-2024, but the lake remained subsaline, so this would not be the factor causing the lower cladoceran richness, which could instead be attributed to the loss of environmental heterogeneity due to anthropogenic modifications (especially the decrease in the area covered by aquatic vegetation). On the other hand, the low richness of cladocerans in 2023-2024 (particularly the absence of the herbivorous species *Daphnia spinulata* and *Daphnia obtusa*, found in 2002-2003) could be the cause of the decrease in water transparency, indicating a loss of its quality, which makes it advisable to preserve as much vegetated area as possible.

EB03- COMPOSITION OF PHYTOPLANKTON IN SHALLOW LAKES OF DIFFERENT LOCATION AND SALINITY IN THE PAMPA (ARGENTINA)

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In La Pampa there is a significant number of water bodies with highly variable characteristics. Since the phytoplankton community composition of many of them is unknown, the objective was to characterize and compare the phytoplankton composition of shallow lakes with salinity gradients and different environmental contexts. Samples were collected and limnological parameters were determined throughout an annual cycle in the following lagoons: Chadilauquen (Cha) (35°24'S; 64°19'W), General Campos (GC) (37°28'S; 63°36'W) and Flor de Lis (FL) (37°14'S, 64°01'W), surrounded by agricultural farms; Quetré Huitrú (QH) (37°22'S; 64°34'W), an urban lake in General Acha; Utracán (Ut) (37°17´S 64°36´W), a hypersaline lake in a protected area, and La Sara 1 (LS 1) (36°49´S; 66°00´W), La Sara 2 (LS 2) (36°49´S; 66°00´W), San Eduardo Chañar (SE C) (36° 52´S; 65° 44´W), San Eduardo La Espuma (SE E) (36° 45´S; 65° 41´W), in a dune landscape with natural vegetation. Environmental parameters varied over a wide range. The minimum salinity was recorded in QH (0.24 g/l) and the maximum in Ut (212.95 g/l). Transparency ranged from 0.03 to 1 m in FL and LS 1 respectively, relative to the chlorophyll-a measured there (4.58 and 6538.9 mg.m-3). Total richness was 183 taxa, 48 from the class Cyanophyceae, 53 Chlorophyceae, 31 Bacillariophyceae, 17 Euglenophyceae, and 34 taxa from other accompanying classes, including a dinoflagellate genus that was only recorded in summer in GC. The highest algal richness was recorded in QH (93 taxa), SE E (65 taxa), and LS 2 (62 taxa). Salinity influenced specific richness since the lowest number of species was recorded in Ut (9), Cha (29), and GC (32). Clustering analysis (Gower similarity index) using environmental data and algal richness by taxonomic class revealed two large groups, the first comprising only Ut due to its low richness and high salinity. The second group included the remaining lagoons and was subdivided primarily by environmental variables (especially chlorophyll-a concentration and salinity) rather than by differences in phytoplankton composition. Phytoplankton composition was more closely associated with salinity gradient and productivity than with the type of environment (agricultural, urban, or natural), with no consistent pattern of anthropogenic impact evident. Given these results, further research is needed to obtain more conclusive findings.

EB04- LIMNOLOGICAL AND BIOTA CHARACTERIZATION OF A SHALLOW LAKE

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There are numerous shallow lakes in La Pampa province. Some have been partially studied, so aspects of their chemistry, trophic status, and biota are known, but the results have been presented separately, and the information is scattered. The objective is to present environmental and biological information on a semi-permanent lagoon at the San Fernando settlement (Utracán Department, 37°7'3.022"S, 64°22'13.233"W). Limnological parameters were determined, and water, phytoplankton, zooplankton, benthos, and bird samples were taken during the winter season in June and July 2025. pH and conductivity ranged between 8.8 and 17.6 mS/cm in June and 7.9 and 19.4 mS/cm in July, respectively. Water transparency was high, so the lagoon bottom was visible on both sampling occasions. The total phycological richness was 36 taxa, represented by diatoms (16), green algae (13), and cyanobacteria (7). Of the total, only 15 taxa were recorded in July 2025. In June 2025, potentially toxic cyanobacteria of the genus Microcystis were found. Five species were recorded in the zooplankton: a rotifer, a cladoceran, and three copepods. The specific association is typical of saline lakes in central Argentina, characterized by Daphnia menucoensis and Boeckella poopoensis. Both species predominated in both months, when the former represented 7% and 32% and the latter 71% and 53% of the total density. The high-water transparency may be due to the grazing of D. menucoensis on the phytoplankton, a situation already recorded in some lagoons in the region. The diversity of the ostracofauna present in the water body was represented in June by two species, Cypridopsis vidua and Limnocythere cusminskyae, and four species in the July sample: C. vidua and L. cusminskyae, Amphicypris argentinensis, and Heterocypris similis. In the June sample, C. vidua was very abundant, with the presence of adults and juveniles; in the July sample, however, it was the least developed species. The density in June was 2,000 ind./100 g of sediment, and in July, despite an increase in richness, the density decreased to 666 ind./100 g of sediment. Changes in the diversity and richness present would be closely related to changes in pH and salinity. The avifauna was represented in June and July by the families Anatidae, Phoenicopteridae, Rallidae, Charadriidae, and Recurvirostridae, and in July, representatives of the families Podicipedidae and Scolopacidae were also observed.

EB05- BENTHONIC OSTRACODS IN A SALINITY GRADIENT IN SHALLOW LAKES AND NEW RECORDS FOR THE PROVINCE OF LA PAMPA, ARGENTINA

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Ostracods are microcrustaceans with calcareous-chitinous shells that inhabit all types of aquatic ecosystems. In epicontinental environments, their distribution is affected by factors such as salinity, water chemistry, eutrophication, organic matter content, acidification, and turbidity. Although the composition of the ostracod fauna of several shallow lakes in La Pampa is known, given the high variability of these ecosystems in the province, the objective was to survey the benthic ostracods of water bodies with different locations and characteristics than those already studied. Between winter 2023 and autumn 2025, limnological parameters were seasonally determined, and water and benthos samples were taken from 14 shallow lakes located in the Pampa and Espinal ecoregions. Salinity was highly variable, so ecosystems ranged from freshwater to hypersaline lakes (0.28–140.9 g/L). Two species not previously recorded in La Pampa were found: *Potamocypris smaragdina* and *Herpetocypris intermedia,* and 9 species already found: *Cypridopsis vidua*, *Potamocypris unicaudata, Amphicypris argentinensis*, *Limnocythere cusminskyae*, *Limnocythere rionegrensis, Limnocythere titicaca, Heterocypris incongruens, Heterocypris similis,* and *Iliocypris ramirezi.* No correlation was found between ostracod richness and density and limnological parameters. The most frequent species were *H. similis* and *P. unicaudata*, registered in 12 and 10 lakes, respectively. On the contrary, *H. intermedia*, *H. incongruens*, and *L. titicaca* were found in a single lake each, water bodies that differ in some aspects but that coincide in their low salinity. *I. ramirezi* was also recorded in a single lake, but with very high salinity. The total density did not show significant differences and fluctuated between 32.8 and 499.3 individuals/100 g of sediment. The maximum density was reached by *L. cusminskyae*, which in Chadilauquen Lake (salinity = 16.01 g/L) reached a peak of 483.9 individuals/100 g of sediment in spring. Except for the species recorded in a single lake; the other seven species showed a wide tolerance to environmental factors and did not show a regional distribution pattern.

EB06- BIOLOGICAL QUALITY OF RIFFLES IN REGULATED REACHES OF THE RÍO GRANDE, SAN LUIS, ARGENTINA. USE OF BENTHIC MACROINVERTEBRATES AS BIOINDICATORS

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Human activities derive multiple processes that ultimately reduce the biodiversity of organisms within fluvial environments. Nowadays, flow regulation due to dams' construction is one of the main pressures affecting lotic ecosystems. Benthic macroinvertebrates are small, diverse organisms inhabiting the bottom of streams, rivers, and lakes, typically retained by a 500 µm mesh net. They include major groups, such as arthropods, mollusks, annelids, platyhelminthes, and nematodes, among others. Beyond their key role in ecosystem functioning, these organisms are also excellent bioindicators of water quality. This study, conducted as part of a research internship, aimed to analyze the composition of benthic macroinvertebrate assemblages in the riffles of a regulated river and evaluate their potential as biological indicators of environmental quality. Samples were collected downstream of the Antonio Esteban Agüero Reservoir on the Río Grande, San Luis, Argentina. Sampling was carried out using a 0.09 m^2 surber net with a 300 µm mesh size at six sites separated by 500 m: DEA2-500, DEA2-1000, DEA2-1500, DEA2-2000, DEA2-2500, and DEA2-3000. Organisms were then extracted using a stereoscopic microscope and preserved in 10 mL polypropylene tubes containing 70% alcohol. Each individual was identified to the lowest possible taxonomic level using dichotomous keys for this region. Different metrics were calculated to characterize the macroinvertebrate assemblage at each site: taxa richness, abundance, and the Biotic Index for the San Luis Sierras (BISLS). A total of 19,305 organisms, distributed among 23 taxa, were quantified. Taxa richness varied from 15 taxa at DEA2-1000, DEA2-2000, and DEA2-3000 to 17 taxa at DEA2-500 and DEA2-2500. The lowest abundance was recorded at DEA2-1000, with 1,965 individuals, whereas the highest was at DEA2-2500 with 5,376 individuals. Furthermore, taxa richness and abundance of sensitive groups, such as Ephemeroptera and Trichoptera, increased with distance from the reservoir, though a sharp decline was recorded at the most distant site. The BISLS classified all sites as "slightly polluted," indicating intermediate environmental alteration. However, this local biotic index has previously shown limitations when responding to disturbances caused by flow regulation. These findings show that flow regulation by the Antonio Esteban Agüero Reservoir negatively impacts the composition of the benthic macroinvertebrate assemblages, potentially compromising the functionality and ecosystem integrity of the Río Grande. This research internship provided the student with valuable training in Aquatic Ecology, strengthening her skills in taxonomic identification, data analysis, and the application of environmental quality bioindicators.

EB07- PHYCOREMEDIATION OF URBAN EFFLUENT USING NATIVE MICROALGAE

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Efficient removal of nitrogen, phosphorus, and organic matter prior to river discharge of urban effluent is essential to protect fluvial ecosystems, ensure safe water use, and comply with environmental regulations. Algae, due to their versatility, low cost, and adaptive capacity, represent an ecological and effective alternative to address water pollution challenges. This study was conducted at the request of the Municipality of San Luis (San Luis, Argentina) and aimed to propose a phycoremediation system as a tertiary treatment of urban effluents. Four native algal species (*Ankistrodesmus* sp., *Desmodesmus* sp., *Chlorella* sp., and *Scenedesmus* sp.) were used. Treatments included both, individual algae species and a consortium composed of equal cellular concentrations of each. Inoculants of 5 mL were applied, with a concentration of 1×10^6 cells/mL. The bioassay was conducted in triplicate using pure and 50 % (v/v) diluted effluent over 14 days, at 20 ± 2 °C, under a 16:8 h light-dark photoperiod. Evaluated parameters included biomass, growth rate, doubling time, organic matter, nitrate, and total phosphorus. Statistical comparisons were made using ANOVA followed by Tukey's post hoc test ($p < 0.05$) to determine significant differences among treatments and conditions. Monoculture trials showed limited nutrient removal and low biomass productivity, particularly in pure effluent, and were therefore considered unsatisfactory. In contrast, the microbial consortium demonstrated significant reductions in organic matter, nitrogen, and phosphorus. The 50 % dilution condition yielded the highest removal efficiencies, with reduction coefficients of 89.3 %, 99 %, and 90.1 %, respectively. These results suggest mutualistic interactions among the algal species in the consortium, with a minimum required treatment time of seven days. Phycoremediation thus emerges as a viable and scalable strategy for urban environmental sanitation.

EB08- INDIGENOUS YEAST DIVERSITY IN PARAJE HILARIO (CALINGASTA, SAN JUAN) DURING TWO CLIMATICALLY CONTRASTING VINTAGES

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Indigenous yeasts present on the grape surface represent a valuable enological resource, as they participate in the onset of fermentation and contribute to the expression of *terroir* typicity. Environmental factors, such as the climatic conditions of each harvest, can significantly alter the composition and diversity of these microbial communities. Paraje Hilario (Calingasta, San Juan) was recently recognized with a Geographical Indication (INV Resolution 37/2023), which further strengthens its value as a reservoir of agricultural and microbiological biodiversity. The objective of this work was to compare the diversity of yeasts isolated from grapes harvested in two contrasting vintages: 2022 (Max. T 34°C and Min. T 19°C, Precipitation: 1 mm, Cloudiness: 10%) and 2024 (Max. T 28°C, Min. T 22°C, Precipitation: 28 mm, Cloudiness: 88%). Sampling was carried out in February; yeasts were isolated on WLN medium and identified at the genus and species levels by sequencing ITS/26S regions. Diversity was assessed based on the number of genera recovered and the Shannon and Simpson indices. Comparisons between years were performed using alpha and beta diversity analyses. In the 2022 vintage, eight genera were identified, while only three were detected in 2024. Shannon and Simpson values were higher in 2022, indicating a richer and more heterogeneous community. From an ecological perspective, the dry conditions of 2022 favored the coexistence of a greater number of species, including minority genera such as *Cryptococcus*, *Starmerella*, and *Zygoascus*, which contributed to a more balanced and equitable community. In contrast, the rainfall in 2024 promoted the dominance of competitive fermentative genera such as *Hanseniaspora* and *Saccharomyces*, reducing total diversity and displacing less abundant species. The compositional analysis revealed marked differences between the two vintages, suggesting a direct effect of climatic conditions on the epiphytic microbiota of grapes. These results demonstrate that interannual climatic variability significantly impacts the diversity of indigenous yeasts in Paraje Hilario. Moreover, they highlight the need to consider these factors in the selection of indigenous yeasts with enological potential, contributing to the strengthening of the terroir identity of the region.

EB09- CHARACTERIZATION OF PHYTOPLANKTON AND BIRDS IN THE SHALLOW PERI-URBAN LAKE BAJO GIULIANI

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The objective of the present work is to characterize the phytoplankton and birdlife present in a shallow lake with significant anthropogenic influence as a preliminary study for an interdisciplinary project. Bajo Giuliani is a lagoon system located about 10 km south of the city of Santa Rosa, La Pampa. It receives stormwater, surface runoff, and discharge from Don Tomás Lagoon, which is located within the urban area of that city. "In September 2025, a total of 9 phytoplankton samples were collected by manual surface towing, and environmental parameters were recorded in the three basins that make up the system: a large basin (SI) and two much smaller ones (SII and SIII).Transparency ranged from 0.08 to 0.20 m; pH showed little variation between the sites (8.3–8.5); total dissolved solids (gravimetric method) were 6.4 g/L in SI, 118.6 g/L in SII, and 217.55 g/L in SIII. The total phytoplankton richness across the three sampling sites was 41 species, with representatives of green algae (21), diatoms (10), cyanobacteria (8), and euglenophytes (2). SI showed the greatest overall diversity with 39 species. At the same time, richness decreased considerably in SII (5) and SIII (5), which may be associated with the large variation in total dissolved solids present in the water. The avifauna in basin SI was represented by the families Phalacrocoracidae, Ardeidae, Phoenicopteridae, Podicipedidae, Anatidae, and Rallidae. Basin SII by Podicipedidae, and SIII by Phoenicopteridae, Laridae, and Recurvirostridae. It can be observed that in SI and SII piscivorous species are present, which would indicate a more complex system than in SIII. These preliminary results provide the foundation for understanding the system's complexity and inform future interdisciplinary studies.

EB10- NEW DISTRIBUTION RECORD FOR *POLYPSECADIUM GILLIESII* FOR THE PROVINCE OF SAN LUIS

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The genus *Polypsecadium* O.E Schulz is a South American genus, represented by six species in Argentina. Two endemic species, *P. arnottianum* and *P. gillesii*, inhabit San Luis, mainly in mountainous areas. Demaio and Chiappella defined these mountains as areas rich in endemic species, given their orography and isolation. In particular, *Polypsecadium gillesii* (Romanczuk) Al-Shehbaz has been cited by several authors for different departments of the province, especially in hilly areas. Boelcke, 1979, cites this species for the department of Pedernera, Burkart, 1940, for Pringles in the Cerros Largos, Cerana, 1995, for Pringles in the Inti Huasi cave, while Hunziker, 1956, cites it for the Junín department in El Rincón, at the summit of the western slope of the Sierra de los Comechingones, and Pastore F., 1913, for the Pedernera department in the Sierra del Morro. The aim was to study the Brassicaceae family in areas of natural and introduced vegetation in sierran environments in the province of San Luis. The study area was delimited in the western foothills of the Sierra de los Comechingones, between the Carrizalito and Papagayos streams, east of Provincial Route Nº 1. Sampling was carried out following transects parallel to the courses of the above- mentioned streams. The specimens collected of the species under study were photographed, identified, described, and documented in the VMA herbarium (number 4327) of the FICA-UNSL and the INTA San Luis VMSL. Two specimens were also deposited in the Herbarium of the Darwinion SI Institute under number 175172. As a result, this species is registered for the Ayacucho department in the locations Villa del Carmen, (32°56'03“S, 64°59'52” W) and Papagayos stream, (32°40'55“S, 64°57'49” W). These records expand the distribution of this species endemic to Argentina in the province of San Luis, taking into account the importance of confirming the presence of endemism in areas affected by various disturbances.

EB11- BIRD ASSEMBLAGES IN AQUATIC ECOSYSTEMS OF LA PAMPA PROVINCE (ARGENTINA). RELATIONSHIP WITH LIMNOLOGICAL PARAMETERS

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The aquatic ecosystems of La Pampa differ markedly in their salinity and trophic status. The birds that inhabit them are known, but the structure of their assemblages and abundance have not been related to the physical and chemical characteristics of the water bodies where they are found. The objective was to identify the birds present in shallow lakes with different characteristics and anthropogenic influences in La Pampa province. During the summer and autumn of 2024, samples were taken and aquatic birds were censused in. Quetré Huitrú (QH), Utracán (Ut), Chadilauquén (Cha), General Campos (GC), La Sara 1 (LS1), La Sara 2 (LS2), El Cañadón (ECañ) and El Bellaco (EB) shallow lakes. All are fed by rainfall, surface runoff, and groundwater inputs. Summer water temperatures ranged between 21.8 (Cha) and 26.7 ºC (EBe) and in autumn between 7.3 (LS2) to 19ºC (ECañ). The range of average salinities covered was wide, between 0.28 ± 0.01 g/L (LS1) and 111.25 ± 22.94 g/L (Ut). The mean water transparency ranged between 0.11 ± 0.04 m (Cha) and 1 ± 0.01 m (LS1) and phytoplanktonic chlorophyll-*a* concentration between 5.87 ± 0.18 mg/m^3 (LS1) and 759.5 ± 230.5 mg/m^3 (Cha). The birdlife was represented by the families Podicipedidae, Phalacrocoracidae, Ardeidae, Threskiornithidae, Phoenicopteridae, Anatidae, Rallidae, Recurvirostridae, Charadriidae, and Scolopacidae, and the richness varied between 5 to 17 species depending on the lakes. The largest number of species were recorded in QH (17) and Cha (16), characterized by a very high trophic state (high chlorophyll-*a* concentration and low water transparency) and also by the presence of fish. The most frequent species (in 7 of the 8 lakes) were *Anas georgica* and *Himantopus melanurus,* while *Chroicocephalus cirrocephalus*, *Bartramia longicauda*, *Pluvialis dominica*, *Dendrocygna viduata*, *Plegadis chihi*, *Ardea alba*, *Phalacrocorax olivaceus*, *Podilymbus podiceps, and Podiceps occipitalis* were recorded in a single lake, different according to the species. The most numerous species was *Phoenicopterus chilensis*, represented by 1015 individuals in Ut and 1369 individuals in Cha. The higher density of this species in lakes with such different salinity, transparency, and chlorophyll-*a* may be due to the fact that the food supply provided by zooplankton in both is greater than in the rest of the lakes. In Ut, the total zooplankton density was 228.95 ind/L, dominated by *Artemia persimilis* (a species that can reach 1 cm in length), and in Cha it was 7410 ind/L, dominated by the copepod *Boeckella poopoensis*, one of the species most consumed by these flamingos in South America.

EB12- FIRST COMPARISON OF MEDIUM- AND LARGE-MAMMAL ASSEMBLAGES IN NORTHERN SAN LUIS

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Large mammals are among the most threatened species in Argentina due to habitat degradation and fragmentation. The northern region of San Luis Province is mainly represented by the Dry Chaco ecoregion, which is highly threatened by the expansion of the agricultural–livestock frontier. In this study, we evaluated assemblages of medium and large sized mammals across four areas: (1) Sierra de las Quijadas National Park (PNSQ), which preserves a Chaco–Monte ecotone; (2) Estancia El Corralito Private Reserve and surroundings (RPEC), which protects a Chaco forest with low altitudinal variation; (3) Piedra del Agua Natural Reserve and its surroundings (RNPA), which conserves high-altitude grassland; and (4) Quebrada de las Higueritas Natural Reserve and surroundings (RNQH), which preserves the piedmont zone of a typical Chaco environment. At each site, we applied the RAPELD methodology (camera-trap grids spaced 1 km apart), selecting for this analysis 10 camera traps with 30 days monitoring period the summer season at each site. Differences among camera-trap assemblages (species composition and relative abundance-measured as the number of photographs-) were calculated using a Bray–Curtis dissimilarity matrix and subsequently ordinated through non-metric multidimensional scaling (NMDS). Assemblages were compared using permutational multivariate analysis of variance (PERMANOVA) with monitored sites as the grouping factor, followed by pairwise comparisons. The analysis included only wild species, both native and exotic, while excluding domestic animals (e.g., livestock). The NMDS ordination revealed a clear separation of mammal assemblages among the monitored areas (PERMANOVA: pseudo-F= 6.985, p= 0.0001). Pairwise comparisons indicated no significant differences between RPEC and RNQH, while all other assemblage comparisons were statistically significant (in increasing order of significance: PNSQ vs. RPEC; PNSQ vs. RNQH; PNSQ vs. RNPA; RPEC vs. RNPA; RNQH vs. RNPA). The RNPA assemblage proved to be markedly distinct from the others, likely because this site preserves a high-altitude Chaco grassland, a habitat clearly different from the forest environments of the other areas. The species contributing most to this variation were *Dicotyles tajacu*, *Puma concolor*, *Subulo gouazoubira*, and *Lepus europaeus*, with *D. tajacu* and *S. gouazoubira* absent from RNPA. These results indicate that the protected areas of northern San Luis conserve distinct mammal assemblages, underscoring the conservation value of each site.

EB13- DESCRIPTION OF PARTURITION IN *Dolichotis patagonum* IN SIERRA DE LAS QUIJADAS NATIONAL PARK, SAN LUIS

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In rodents, little information is available on parental care in species of the infraorder Hystricognathi, which includes the family Caviidae. *Dolichotis patagonum* (mara) is a large cavy endemic to Argentina, categorized as vulnerable. In the case of the mara, no births have been described in the wild, and the few studies of parental care behaviors in the species were conducted in Península Valdés, whose population has different reproductive behavior than populations in the center of the country. Therefore, the objective of this study was to categorize the behaviors of *D. patagonum* during birth, using photographs taken with camera traps to describe births in the wild in Sierra de las Quijadas National Park, San Luis. The data comes from two years of monitoring, during which seven births were recorded in detail, two of which were single births and five were double births (one or two calves born per birth, respectively). The behaviors of the female during calving were categorized, and the most frequent behaviors were determined. In addition, birth was defined as the sequence of behaviors exhibited by the female from her first photographic record of the day until the birth of the last juvenile. A total of thirteen behaviors were determined from the photographs. During birth, the two most frequent behaviors of the female were "sniffing" (22%) followed by "sitting alert" (15%). Meanwhile, behaviors such as 'nursing' (0.3%) and "ingesting placenta" (0.3%) were recorded at a low frequency. Despite its low frequency, it was possible to identify the behavior of "nursing" performed by the female on the first juvenile before the birth of the second. Of the behaviors described, it was possible to associate 27.3% of them with direct or indirect parental care. This is the first description of birth in the of this species in the wild, which is especially relevant given the conservation status of the species.

EB14- EFFECTS OF GRAZING ON SCORPION ASSEMBLAGES IN AREAS SURROUNDING THE SIERRA DEL GIGANTE, SAN LUIS, ARGENTINA.

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The Sierra del Gigante is part of the Protected Areas System of San Luis Province (Provincial Law IX-0309-2004) and is of great ecological interest due to its location within an ecotone between the Dry Chaco and the *Monte de Llanuras y Mesetas*. One of the main economic activities in the area is goat and cattle ranching, based on the use of natural grasslands as a forage resource. Grazing acts as a disturbance that, by altering soil vegetation cover, impacts epigean arthropod communities. With this background, the present study evaluated scorpion diversity around the Sierra del Gigante and the effect of grazing on it. Two contrasting environments were selected: one with high grazing intensity (ZP) and another with low or no grazing pressure (ZBN). In each environment, three sites approximately 3 km apart were sampled. Each site included 12 pitfall traps arranged along three 100 m linear transects, with four traps per transect. A total of 72 traps were installed and remained active for seven days in December 2018. The collected material was processed in the laboratory and identified at least to the genus level. A total of 21 individuals were recorded. ZBN showed higher abundance and richness (3 species: *Timogenes elegans*, *Brachistosternus ferrugineus*, and *Bothriurus cf. cordubensis*) than ZP (2 species: *T. elegans* and *Brachistosternus* sp). *T. elegans* was the only species shared between both environments, while *B. ferrugineus* and *B. cordubensis* were restricted to ZBN. Alpha diversity was consistently higher in ZBN ($q_0 = 3$; $q_1 = 2.98$; $q_2 = 2.96$) than in ZP ($q_0 = 2$; $q_1 = 1.98$; $q_2 = 1.96$), with non-overlapping confidence intervals, indicating a negative effect of grazing on local scorpion diversity. Beta diversity was high ($\beta_{sor} = 0.60$), mainly due to species turnover ($\beta_{sim} = 0.50$), while the nestedness component was low ($\beta_{sne} = 0.10$). These results indicate that differences between environments are mainly explained by species replacement rather than simple taxon loss. The observed patterns suggest that increased bare soil and the loss of refuges associated with grazing differentially affect scorpion species, altering community structure.

EB15- ENVIRONMENTAL VARIABLES DETERMINING THE OCCUPANCY OF *LAMA GUANICOE* IN TWO NATIONAL PARKS OF THE CUYO REGION, ARGENTINA

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The populations of *Lama guanicoe* (guanaco) of San Luis and La Rioja provinces are considered endangered, with habitat fragmentation being one of their main threats. This study was conducted in Sierra de las Quijadas National Park (SQNP), San Luis, and Talampaya National Park (TNP), La Rioja. Both parks have consolidated vehicular access roads and are near (SQNP) or crossed by (TNP) a national highway. The aim of this work was to assess the occupancy of *L. guanicoe* at both sites. We used the RAPELD methodology proposed for medium- and large-sized mammals, consisting of a 30-camera trap grid over a 5 × 6 km area. Occupancy models were applied (over 61 consecutive days during the summer season) to evaluate space use by the species, considering the following covariates: Distance to Access Road (DAR), Distance to National Highway (DNH), Percentage of Vegetation Cover (PVC), and Presence of Cattle (PC). In TNP, *L. guanicoe* occupied 43.3% of the monitored sites (Ψ Naive=0.433) with a detectability of 0.299. Of the five models evaluated in TNP, two had greater explanatory power than the Null Model (NM) and included the covariates DNH (Ψ(DNH).p(.): p=0.001, C-hat=4.260) and DAR (Ψ(DAR). p(.): p=0.001, C-hat=4.908). In TNP the relationship with the DNH covariate was negative (Ca=-1.107), while it was positive for DAR (Ca=0.375). In SQNP, *L. guanicoe* occupied 20% of the monitored sites (Ψ Naive=0.200), with a detectability of 0.258. Of the five models evaluated for SQNP, one had greater explanatory power than the NM, this model included DNH as a covariate (Ψ(DNH).p(.): p=0.216, C-hat=1.198). The second and third models with the highest weight, without being significantly different from the NM, included DAR (Ψ(DAR). p(.): p=0.222, C-hat=1.198) and PVC (Ψ(PVC). p(.): p=1.185, C-hat=1.189). In SQNP, the relationship between occupancy and covariates was positive for DNH (Ca=0.512) and DAR (Ca=0.311), whereas it was negative for PVC (Ca=-0.348). This study shows that the occupancy of *L. guanicoe* is influenced by vehicular roads, but the pattern is not as straightforward as suggested by previous studies. In TNP, the highest occupancy was recorded near the national highway, as previously reported for the species in other locations, possibly because highways create open areas with greater visibility that the species perceives as safer. In contrast, occupancy decreased near consolidated roads and the national highway in SQNP. This suggests that road type may influence the space use of *L. guanicoe* and highlights the need to pay special attention to the high occupancy along the national highway in TNP, given the risk of roadkill.

EB16- PRELIMINARY ASSESSMENT OF THE EFFECT OF LIVESTOCK GRAZING ON A WILDLIFE ASSEMBLAGE IN A HIGH-ALTITUDE GRASSLAND IN SAN LUIS PROVINCE

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Grasslands are ecosystems with limited representation within protected area networks. In San Luis Province, high-altitude grasslands have been scarcely studied, particularly regarding mammal assemblages. This study was conducted in Piedra del Agua Natural Reserve (RNPA), which implements rotational livestock grazing, whereby cattle are rotated among different paddocks to allow pasture recovery. Our aim was to complement the management policies of RNPA with systematic mammal sampling. We applied the RAPELD methodology, consisting of a grid of 30 camera traps placed 1 km apart (5 × 6 km). Here we describe the richness and detections of medium- and large-sized wild mammals and their relationship with cattle presence. We report preliminary results from 22 cameras, each operating for 24–30 days, totaling 654 camera-days. For analysis, monitoring points with fewer than five livestock records were categorized as Low Livestock Use (LLU), while those with higher records were classified as High Livestock Use (HLU). Average mammal species richness was 3.6 in LLU and 2.3 in HLU. Mean detections were higher in LLU (219.4) compared to HLU (70). Most mammal species showed reduced detections in the presence of livestock. Species-specific mean detections were as follows (LLU vs. HLU): *Lagostomus maximus* (126.53 vs. 16.43), *Lycalopex griseus* (47.2 vs. 36.7), *Lepus europaeus* (40.67 vs. 13.71), *Puma concolor* (2 vs. 0.14), *Chaetophractus villosus* (0.93 vs. 0), and *Antilope cervicapra* (0.13 vs. 0). The only exception was *Conepatus chinga*, which was more frequently detected in HLU (3) than in LLU (1.93). Overall, the mammal assemblage showed variation in both richness and detections, with a general decrease according to the intensity of the presence of livestock. These preliminary findings suggest a marked reduction in mammal richness and detections in patches with greater cattle presence, highlighting the need for further analysis to better understand how wild species use space under this grazing management system.

EB17- SMALL MAMMAL DIVERSITY OF NORTHERN SAN LUIS WITH RAPELD METHOD

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San Luis province is located at the confluence of different ecoregions in central Argentina. The territory encompasses geographic, climatic, and edaphic variations, constituting an ecological transition area characterized by high species diversity and uniqueness. Small mammals, particularly rodents, are the most diverse group among mammals, having adapted to a wide range of habits, ecological roles, and habitat conditions. In northern San Luis, five RAPELD sampling modules (parcels of 250 m long and 10m width) were installed across five sites (24 parcels in total) representing different ecoregions: Monte (M, Sierra de las Quijadas National Park), Dry Chaco- (ChS, Parque Nacional Sierra de Las Quijadas), Chaco Serrano (ChSer, San Francisco del Monte de Oro), Pastizal de Altura (PA, La Carolina) and Espinal (E, La Florida). Samplings were conducted in May during different years between 2016 and 2023. Each RAPELD parcels were sampled with 25 Sherman traps spaced 10m apart. At each site four to six parcels were sampled (during three to five nights) with a total trap effort of 2350 trap-nights across sites. We estimated species richness and total abundances, compared values between ecoregions, and calculated beta diversity indexes. We recorded a total of 14 small mammal species across all sites. The number of species per site was as follows: 7 sp. in M, 7 sp. in E, 6 sp. in ChS, 4 sp. in PA and 3 sp. in ChSer. Four of the five study sites presented regional endemic species, M being the site with the highest number of endemics (3 spp.), notably including the presence of *Salinomys delicatus* (categorized as vulnerable). Sites with the highest mean beta diversity were PA (the most dissimilar assemblage), followed by M and E. Dissimilarity was equal to or greater than 50% among all sites, being the greatest difference between PA and M, ChS and E, and between M and E. The most similar assemblages were those from Chaco seco (ChS and ChSer) and the two sites in the Chaco-Monte ecotone (ChS and M). The high richness and endemism recorded in M, E and S, correspond to their location in ecotonal areas. This study contributes to San Luis mastozoological knowledge and highlights the regional importance of small mammal diversity and conservation, particularly given the high proportion of unique endemic species, likely as a result of the great variety of ecosystems present in this transitional area of central Argentina.

EB18- CHARACTERIZATION OF THE RICHNESS AND ABUNDANCE OF SMALL MAMMALS IN THE CHACO-MONTE TRANSITIONAL ZONE OF SIERRA DE LAS QUIJADAS NATIONAL PARK

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The study of small mammals (SM) represents an excellent opportunity to understand the dynamics and structuring of communities in arid regions. Although SM from arid areas have been widely studied worldwide, information gaps remain regarding key elements of their community structure in the arid zones of the Southern Hemisphere. This study aimed to: (i) environmentally characterize and contrast two extremes of the Chaco-Monte transitional gradient in Sierra de las Quijadas National Park, using both field (in situ) and remotely sensed variables, and (ii) determine whether small mammal variables abundance and richness differ between the two ends of the transition. Capture data from November 2015 of SM were obtained from the Biodiversity Research Program (PPBio) repository. The dataset included two sites located at opposite ends of the Chaco-Monte ecotone, separated by 15 km. At each site, five plots were established 1 km apart, and 25 traps were placed in each following the RAPELD methodology. From the PPBio database, we used the response variables: small mammal richness and abundance; and the in situ environmental predictors: total vegetation cover (herbaceous, shrub, and arboreal), plant species richness per plot, and habitat complexity index. Environmental variables obtained by remote sensing were calculated using 250 m buffers around the plots. The environmental characterization revealed significant differences between the Chaco and Monte sites in both in situ and remotely sensed variables. However, no differences in SM richness or abundance were detected between sites. Nonetheless, aspects such as species identity or beta diversity indices were not considered and could provide complementary information to better understand the differences and similarities between assemblages at the ecotone extremes. This study contributes to the ecological knowledge of small mammals in Sierra de las Quijadas National Park and the Chaco-Monte ecotone, integrating field and remote sensing tools to analyze the factors influencing their richness and abundance.

EB19- ESSENTIAL OILS: AN ECOLOGICAL ALTERNATIVE AGAINST *Triatoma infestans*

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In the province of San Juan (Argentina), the persistence of *Triatoma infestans* represents an increasing public health risk. New domestic and peridomestic transmission foci have been detected, reinforcing the need for more sustainable, locally adapted control strategies. The prolonged use of chemical insecticides has led to vector resistance and adverse environmental effects. In this context, the identification of natural compounds with attractant properties becomes key for developing more efficient and environmentally friendly surveillance methods. The aim of this study was to evaluate the attractant activity of essential oils (EOs) from three native species, *Satureja parvifolia*, *Acantholippia seriphioides* and *Capparis atamisquea* collected in Zonda and Caucete. The EOs were extracted by hydrodistillation using a Clevenger-type apparatus and analyzed by GC–MS to determine their chemical composition. Chromatographic profiles revealed the presence of oxygenated monoterpenes and sesquiterpenes, including carvacrol, p-cymene, β-caryophyllene, and eugenol, compounds previously associated with behavioral effects in insects. Bioassays were conducted using fifth-instar nymphs of *T. infestans* maintained under controlled temperature and humidity conditions. Filter paper discs treated with 500 µL of EO at 0.5% (w/v) were used, and insect distribution was recorded at 1, 24, and 72 h. The essential oil of *Capparis atamisquea* (Zonda) exhibited the highest and most consistent attractant activity over time, standing out as the most promising candidate for use in monitoring traps. *Acantholippia seriphioides* and *C. atamisquea* (Caucete) showed mild attractancy that decreased with time, whereas *Satureja parvifolia* maintained a clearly repellent effect. These results demonstrate that certain essential oils from native flora contain volatile compounds with potential interest for the design of attractant traps and early detection of the vector, providing greater temporal stability compared to synthetic alternatives. The authors thank CICITCA-UNSJ-PDTS 2023 and UnOV-CeNDIE-ANLIS Malbrán (Ministry of Health, Argentina) for supplying *T. infestans* nymphs. BAS acknowledges CONICET for its support.

EB20- EFFECT OF TREATED SEWAGE EFFLUENT (TSE) ON THE ESTABLISHMENT OF TWO NATIVE TREES: *Neltuma chilensis* AND *Neltuma flexuosa*

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The reuse of treated sewage effluent (TSE) has emerged as a strategy to address water scarcity in arid regions and to promote afforestation with native species. In San Juan, where water availability limits vegetation cover expansion, the use of TSE could contribute to the reforestation of native habitats and reduce pressure on freshwater resources. This study evaluated the effect of TSE from the 9 de Julio Wastewater Treatment Plant (OSSE) on the establishment of *N. chilensis* from three provenances (Caucete, Embarcadero, and Parque Sarmiento) and *N. flexuosa*. Seeds were sown under two irrigation regimes (tap water and TSE), and once established, seedlings were evaluated for plant height, main root length, shoot biomass, and root biomass. *N. flexuosa* showed homogeneous responses between treatments, with no significant differences ($p>0.05$) in any of the variables analyzed. In *N. chilensis*, responses varied according to seed provenance. For plant height, the populations from Parque Sarmiento and Embarcadero showed no significant differences between treatments ($p>0.05$), whereas the Caucete population was negatively affected by irrigation with TSE. Regarding shoot biomass, the Caucete and Parque Sarmiento populations showed no statistical differences ($p > 0,05$), while the Embarcadero population exhibited negative effects under TSE irrigation. Finally, for root biomass, the Caucete population showed no significant differences ($p > 0.05$), the Embarcadero population showed negative effects under TSE irrigation, and the Parque Sarmiento population exhibited positive responses to TSE irrigation. These results indicate that TSE effects on establishment depend on species and germplasm origin. *N. flexuosa* demonstrated greater plasticity to irrigation type, confirming its potential for afforestation using TSE, whereas in *N. chilensis*, prior evaluation of germplasm quality is recommended before its use in saline irrigation environments. Overall, these findings support the feasibility of TSE reuse for the propagation of native species, providing local evidence for its inclusion in restoration and sustainable water management strategies.

EB21- HORMONAL MODULATION OF CARBON ALLOCATION IN POPULATIONS OF *Embothrium coccineum* FROM CONTRASTING PRECIPITATION REGIMES

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Growth is one of the main carbons (C) that sink in plants. In dry environments, C allocation may shift towards drought resistance at the expense of growth. The general hypothesis of this study is that plants adapted to humid climates should maximize growth, while plants adapted to dry climates maximize drought resistance at the cost of growth. It is expected that plants from a humid climate will be less responsive to growth stimulation than plants from a dry climate, and conversely, that plants from a humid climate will have a stronger response to a growth inhibitor than plants from a dry climate. We compared the growth responses to hormonal promoter and inhibitor in populations of *Embothrium coccineum* adapted to divergent precipitation regimes, dry populations (508 mm/year) and humid populations (2941 mm/year). A hormonal assay with three treatments was conducted for two growing seasons: a growth promoter (gibberellic acid) a growth inhibitor (prohexadione-calcium) and distilled water for the control. Measurements included height and diameter growth rate and net photosynthetic rate. Our results revealed a differential response to hormonal treatments between populations. Photosynthesis was similar between ecotypes and did not vary significantly in response to hormonal treatments. The dry ecotype exhibited an 8-fold increase in growth under the promoter compared to its control, significantly exceeding the 5.6-fold increase observed in the humid population. Conversely, growth suppression under the inhibitor was significant only in the humid ecotype (2.5-fold reduction). These findings suggest that drought adapted plants allocate C to sinks other than, and at the expense of, growth. No growth inhibition in these plants also shows that growth has a lower priority of C allocation in dry climates and plants grow already at their minimal capacity.

EB22- EPIGEIC ARTHROPODS OF THE DRY CHACO AND MONTE, PARQUE NACIONAL SIERRA DE LAS QUIJADAS, SAN LUIS, ARGENTINA

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Epigeic arthropods, including microarthropods and larger soil-dwelling species, play key roles in arid and semi-arid ecosystems such as decomposers, herbivores, granivores, and predators, contributing to nutrient cycling and energy flow. Due to their biomass dominance, conserving them is vital amid biodiversity loss. In San Luis Province, especially in Parque Nacional Sierra de las Quijadas (PNSQ), studies on this group are limited, with no prior comparisons between the Dry Chaco and Monte ecoregions. This study assessed richness, abundance, and diversity of epigeic arthropods in both environments using RAPELD sampling (250 m plots, 1 km apart, 10 pitfall traps per plot, collected after six days; five plots in Monte, three in Chaco). Diversity indices (Shannon-Weaver, Jaccard, Bray-Curtis) and statistical tests (Student's t, Mann-Whitney U). Hymenoptera, Arthropleona (Collembola), Symphypleona (Collembola), Oribatida (Acari) and Trombidiformes (Acari) as most abundant, while Lepidoptera and Mantodea were least represented. Each ecoregion hosted exclusive orders; Scutigeromorpha and Lepidoptera in Chaco; Zygentoma, Pseudoescorpionida, and Mantodea in Monte. Chaco showed significantly higher richness ($p = 0.0015$), abundance ($p = 0.00106$), and alpha diversity ($H_{Chaco} = 2.179$; $H_{Monte} = 0.662$), while beta diversity indicated over 70% similarity in shared orders and abundance ($J = 0.786$; $BC = 0.776$). These results provide one of the first detailed baselines of epigeic arthropods in PNSQ, contributing to regional biodiversity knowledge.

EB23- IDENTIFICATION OF SPECIES OF CONSERVATION INTEREST IN THE ANDEAN MOUNTAIN RANGE, SAN JUAN, ARGENTINA

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As part of environmental monitoring for extractive activities, an identification and seasonal follow-up (spring–summer) of flora and fauna species of conservation interest was carried out. Based on species surveys using the point quadrat method (flora) and pedestrian transects, scent stations, and vehicle censuses (fauna), species of particular conservation interest in the Andean mountain range, department Iglesia, San Juan, Argentina, were identified according to national and international listings. At the international level, categorizations established by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the IUCN Red List of Threatened Species were considered. At the national level, we used updated listings from the List of Endemic Plants adopted by the Secretariat of Environment and Sustainable Development. We also consulted Resolution 109/2021 of the Ministry of Environment and Sustainable Development, that lists invasive and potentially invasive alien species (EEI and EEPI, by their Spanish acronyms), classified by their current or potential impact and their possible value as economic resources. The searches were exhaustive, taking into account all species mentioned in the consulted nomenclators, not only in their latest updates but also in relatively recent previous records. During spring–summer 2024/2025, 14 plant species (one of them EEI, previously cited in the area), 28 bird species, and 3 mammal species were identified and categorized. These results highlight the high biological value of the high mountain ecosystems of the Andean range in San Juan, where endemic, threatened, and vulnerable species converge. The identification of taxa of conservation interest and the detection of invasive alien species provide key information for environmental management and the design of conservation strategies in contexts of increasing anthropogenic pressure. These environments, characterized by their ecological fragility and their role as reservoirs of biodiversity, require continuous monitoring to ensure the compatibility of productive activities with the preservation of essential ecological processes and the integrity of biological communities.

EB24- CARBON STORAGE IN SPONTANEOUS PLANT BIOMASS IN CULTIVATED AND NATURAL AREAS IN ORGANIC PRODUCTION VINEYARDS IN MENDOZA, ARGENTINA

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Vineyards are a significant source of carbon storage in arid zones, primarily through the plant biomass generated by both cultivated plants and associated vegetation. Various management practices significantly impact carbon accumulation by influencing productivity, soil cover, and species composition. The presence of spontaneous vegetation between rows and native vegetation in uncultivated areas contributes to increased aboveground and belowground biomass, increasing carbon reservoirs in the system. Furthermore, this vegetation promotes biodiversity, provides habitats for wildlife, improves soil structure, and reduces erosion and surface temperature. Together, these ecological functions enhance ecosystem services linked to climate change mitigation. In this context, interest in implementing sustainable agricultural practices has grown significantly in the vineyards of Mendoza, Argentina, a region that accounts for nearly 70% of the country's wine production. The objective of this study was to determine the carbon stored in vegetation in cultivated and uncultivated areas by analyzing the spontaneous vegetation between rows and natural vegetation on organic farms belonging to the AVINEA S.A. group in the province of Mendoza. Four estates were analyzed: Altamira (San Carlos), Cruz de Piedra (Maipú), Pedemonte (Maipú), and Ugarteche (Luján de Cuyo) in Mendoza. The vegetation in each site was surveyed in the cultivated and/or uncultivated areas, and the total aboveground and underground (radical) carbon stored was estimated. This was done using the biomass of the spontaneous vegetation present in the inter-row space (cultivated area) and the natural vegetation (sectors without agricultural activity and natural environments within the farms). To complete the carbon storage assessment, mulch was collected. In the four farms considered, the carbon accumulated in spontaneous vegetation is generally distributed between 60 and 80% in the aerial part. In Altamira, the aerial part accumulates the highest percentage (69.68%), contributed mainly by *Cynodon dactylon* (chepica) with 192.33 grams (g) of aerial C and 121.68 g of root C. In Cruz de Piedra, the highest percentage was reached with 82.70% due to the dominance of russian thistle (*Salsola kali*), an exotic, annual, herbaceous invasive plant, where 69.40 g of C were obtained in the aerial part and 1.80 g in the root. In Pedemonte, 56.92% g of aerial biomass contributed mainly by *Larrea cuneifolia* with 99.63 g of aerial C and 179.78 g in the root; while in Ugarteche the root accumulates the highest percentage with 57.42% contributed mainly by the chepica, which has abundant stoloniferous roots and contributed 97.6 g of aerial C and 82.7 g in the root. On the other hand, mulch is another important source of carbon storage, with 544 g in Ugarteche, 30 g in Altamira, 186 g in Pedemonte and 20 g in Cruz de Piedra. Carbon dioxide stored in vegetation remains in the system for relatively short periods of time (unlike carbon dioxide stored in the soil, which can be considered sequestered), so a change in vegetation management in inter-row or natural areas could easily reverse these negative results by releasing the CO2 stored by the vegetation. Therefore, it is recommended to maintain vegetation in inter-row areas in cultivated and uncultivated areas and/or natural areas. Furthermore, mulch, through its decomposition, directly contributes to soil organic carbon. It is suggested to preserve mulch and vegetation cover, especially in areas with native vegetation, which are an important source of carbon storage and plant biodiversity.

EB25- CARBON DIOXIDE PREVENTED BY C STORAGE IN SOIL AND SPONTANEOUS VEGETATION ON THE LAST ARGENTINIAN SOUTHERN FRONTIER FOR GROWING VINES IN AN ORGANIC PRODUCTION WINE FARM

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Vineyards are an important source of biodiversity in arid zones, and their management can significantly influence carbon accumulation. Spontaneous vegetation between vineyard rows contributes significantly to biodiversity and ecosystem services such as carbon storage, key elements in mitigating climate change. In recent years, interest in sustainable agricultural practices has increased, with organic wine production viewed as a model for integrating production and conservation. The objective of this study was to determine the organic carbon stored in the soil and spontaneous vegetation between rows (COSal, expressed in t/ha) and the CO2 equivalents avoided (CO2eq, expressed in t/ha) by carbon storage on a estate belonging to the AVINEA group, located in the town of Otronia, Sarmiento, Chubut Province. Soil sampling was carried out at a depth of 0-30 cm, as well as plant biomass sampling between rows of the described treatments to determine the carbon content tC. ha-1 of the sampled soil, in the aerial and radical parts of the spontaneous vegetation and in the mulch. Three treatments were considered based on the spatial variability and the experimental design of previous works: bare soil, soil with vegetation, and natural area (1 and 2). Values for some treatments are reported: in the bare soil, a value of 2.21 t/ha of COSal and 8.11 of CO2eq were recorded, while these values for the soil with spontaneous vegetation treatment were 5.80 and 21.68; for the natural area (1) 1.01 and 3.70; and for the natural area (2) 0.73 and 2.67. Regarding carbon equivalent values for vegetation, the highest values were recorded in the area with spontaneous vegetation, with values of 3.19 and 12.24, as well as for the mulch, with values of 0.98 and 3.58 in this sector. The carbon stored in the first 30 cm of soil, between rows, and in the mulch increase with spontaneous vegetation. This study demonstrates that the permanence of vegetation not only influences ecosystem biodiversity but also increases the carbon sequestered, preventing approximately 13 tons of CO2 equivalent per hectare from entering the atmosphere on this farm, which contributes to the reduction of the carbon footprint.

EB26- PLANT DIVERSITY OF THE HIGH ANDEAN VEGA “LA BALLENA” (Calingasta, San Juan): ENVIRONMENTAL CHALLENGES AND CONSERVATION PERSPECTIVES

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In the watersheds of the Central Andes, vegas (high-Andean wetlands) are key ecosystems in the hydrological cycle, regulating surface and groundwater flows and supporting high biodiversity, including endemic species adapted to arid and semi-arid environments. Plant communities are the main biological component that defines the ecological functioning of these systems. *“La Ballena”* is a high-Andean wetland located within the influence area of the Los Azules mining project (McEwen Mining) in San Juan, Argentina. Due to its geographical isolation and difficult accessibility, there were no previous descriptions of its floristic composition or plant diversity. Understanding its biodiversity is essential for guiding conservation, sustainable use, and maintaining ecosystem functionality. In this study, the plant community composition of “La Ballena” was characterized. Vegetation was recorded at 21 sampling points using 1.5 m² quadrats and the Braun-Blanquet scale to estimate cover Species richness (S) and biodiversity were estimated using the Shannon-Wiener (H) and Simpson (D) indices, while Pielou’s equitability (J) was calculated to assess species evenness. A total of 34 plant species, including both phanerogams and bryophytes, were identified. The Poaceae family was the most represented, with 10 species, and also showed the highest total cover (3,951 units), representing the largest proportion of vegetation cover in the wetland. It was followed by Juncaceae and Cyperaceae, both typical of high-Andean wet habitats. The southwestern sector (Vega SW) showed the highest values across all diversity indices (H = 1.98; D = 0.82; S = 14.6), while the southeastern (Vega SE) and northeastern (Vega NE) sectors had the lowest (H ≈ 0.87; S ≈ 4–5). The northwestern sector (Vega NW) occupied an intermediate position, with moderate diversity (H = 1.06) and good evenness (J = 0.71). *“La Ballena”* is one of the most extensive and ecologically relevant high-Andean wetlands in the Calingasta Department. This study provides baseline information on its plant structure and highlights the importance of integrating ecological knowledge into environmental planning and conservation in the Central Andes.

EB27- ANTIFUNGAL ACTIVITY OF EMBELIN DERIVATIVES

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Several antifungals available in recent decades have shown their efficacy in treating different fungal infections, such as amphotericin B; 5-fluorocytosine; terbinafine; naftifine; ketoconazole, miconazole, itraconazole, fluconazole and others; however, some of them have shown concerning levels of toxicity, resistance, and in-efficiency against certain types of fungal diseases, which provides solid support for the need to search for new natural or semi-synthetic antimicrobials. In this regard, embelin, a benzoquinone isolated from the Andean medicinal species *Oxalis erythrorhiza*, has received attention in the last decade for its antimicrobial properties. The objective of this research is the semisynthesis of methylembelin (1), dimethylembelin (2) and propylembelin (3) using as reactives embelin, methyl, ethyl, and propyl iodide and CH_2N_2. The compounds 1-3 were successively purified on a Sephadex LH-20 column, equilibrated with hexane: methanol: chloroform (2:1:1). The ^{1}H and ^{13}C NMR spectra were performed on Bruker Avance 2 (500 MHz) and AC200 (200 MHz) spectrometers, using $CDCl_3$, and CD_3OD as solvent. HRESI mass spectra were recorded using a Micro TOF QII Bruker mass spectrometer. The antifungal activity was carried out according to CLSI protocols against the embelin derivatives 1(5-O-methylembelin) and 3 (5-propylembelin) showed interesting activities against some ATCC and clinical isolates of *Trichophyton rubrum* and *T. mentagrophytes* (minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC) between 15.6 and 62.5 µg/mL). The compound 1 stands out for its strong activity against *Trichophyton mentagrophytes* ATCC 9972; equal MIC/MFC values of 15.6 µg/mL. Compound 3 also showed strong effect against two clinical isolates, with MIC/MFC values equal to 31.12µg/mL. On the other hand, compound 2 (2,5-dimethylembelin), which has two methylated OH groups, did not show antifungal activity against any of the isolated strains. The species of *Aspergillus* genus were less sensitive to compounds 1-3. Studies are currently underway to elucidate the possible mechanism of action of compounds 1 and 3.

EB28- LARREA AMEGHINOI SPEG. (ZYGOPHYLLACEAE), "JARILLA RASTRERA": UHPLC-ESI-QTOF-MS ANALYSIS, AND INHIBITION OF ENZYMES INTERESTING TO HUMAN HEALTH

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Larrea ameghinoi Speg, an endemic species of Argentine Patagonia traditionally used in folk medicine to treat fever, stomach disorders, respiratory conditions, back pain, and as an emmenagogue among others, remains still chemically and biologically underexplored compared to other members of the genus. This study aimed to perform a comprehensive metabolomic characterization of methanolic extracts from two populations (EMLaSAO and EMLaMAQ) using UHPLC–ESI–QTOF–MS and to evaluate their antioxidant, antimicrobial, and enzyme inhibitory activities of relevance to human health. The samples were collected in Rio Negro, in very close locations and do not show significant differences in relation to their botanical description. Thirty-one compounds were tentatively identified by extensive UHPLCMS analysis, including flavones, two major lignans, and oleanane-type triterpenes. High phenolic content (215–239 mg GAE/g) and strong free radical scavenging supported by in DPPH ($EC_{50} \approx 10$ µg/mL), FRAP, and TEAC assays. Also, a good inhibition of butyrylcholinesterase ($IC_{50} \approx 50$ µg/mL) and α-glucosidase, together with selective antibacterial activity against methicillin-sensitive and resistant *Staphylococcus aureus* (MIC = 125 µg/mL), were recorded. These findings suggest that *L. ameghinoi* possesses a distinctive phytochemical composition conferring multitarget bioactivity, differing from other *Larrea* species dominated by lignans. Overall, this work supports the potential of *L. ameghinoi* as a novel source of bioactive metabolites for managing oxidative stress-related disorders and opportunistic infections. This justifies the future development of *in vivo* studies of biological activities associated with oxidative stress and relevant to human health, including anti-inflammatory, cytoprotective, cytotoxic and analgesic activity, potential antimicrobial synergism among others, of ethanolic extracts and decoctions It is also necessary to establish the toxicity limits of extracts and decoctions. Currently, the bioguided process is being developed using biological partitioning and isolation assays of the compounds responsible for the antioxidant, antimicrobial and butyrylcholinesterase enzyme inhibition activities by permeation techniques in Sephadex LH-20.

EB29- COMPARISON OF THE DIETS OF *TYTO FURCATA* AND *BUBO VIRGINIANUS* THROUGH THE ANALYSIS OF OWL PELLETS IN THE SIERRA DE LAS QUIJADAS NATIONAL PARK

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The Sierras de las Quijadas National Park (PNSQ) is an ecotonal area of great value for the study of biodiversity, particularly for small mammal (SM) assemblages. Nocturnal birds of prey such as *Tyto furcata* and *Bubo virginianus*, known to be top predators, provide relevant information on SM assemblages through their owl pellets. In this study, the diets of both Strigiformes were compared based on samples collected and preserved from two sites in the PNSQ, Arroyo Andacollo (*T. furcata*) and Potrero de la Aguada (*B. virginianus*), during three consecutive sampling campaigns, one for each year (2015, 2016, 2017). Although the material corresponds to campaigns conducted between 2015 and 2017, it represents a valuable record for the PNSQ, which has very limited previous sampling, and provides an indispensable baseline for future ecological studies. A total of 663 owl pellets were analyzed, identifying 808 specimens corresponding to 12 species of SM identified in 1670 skull pieces. Among these species, *Calomys musculinus* (with 375 individuals) was the most abundant at both sites and in all years sampled; for the rest of the SM, it was observed differences in the composition and equitable distribution of abundances. Potrero de la Aguada showed higher richness (10-12) and total abundance (502-175) in all samplings, in contrast to Arroyo Andacollo, which exhibited lower richness values (6-8) and higher dominance values (0.28-0.83) in all samplings. As for similarity analyses (Jaccard and Bray-Curtis) and statistical tests (Mann-Whitney U, Student's t-test, and χ^2), no significant differences were found between the diets of the two Strigiformes, nor in the inter-seasonal comparison of SM assemblages. Although the diets of both Strigiformes are similar, differences were detected in the identity of the prey species and in some of the items found. Prey species not previously reported for the PNSQ were detected, such as chiroptera of the genera *Myotis* sp. and *Neoeptesicus* sp., arthropods of the order Coleoptera of the family Scarabaeidae (subfamily: Scarabaeinae and Melolonthinae) and individuals of Tenebrionidae (tribe Nycteliini) and of the order Blattaria. It was provided the first list of prey items consumed by *T. furcata* in the PNSQ and expanded the information on prey consumed by *B. virginianus*. Identification material was also produced in the form of a guide to the species recorded in the National Park, making the information obtained available and providing a tool for monitoring local fauna. This work highlights the usefulness of owl pellets as a long-term monitoring tool for SM biodiversity and emphasizes the value of Strigiformes for ecological and diversity studies.

EB30-DYNAMICS OF *Apis mellifera* COLONIES DURING THE PRODUCTIVE BREAK IN A SEMI-ARID REGION

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The ability of *Apis mellifera* colonies to survive during winter is determined by a complex interaction between environmental and biological factors. The most relevant elements identified were population development and food reserves. Extreme temperatures and periods of drought have a negative impact on the balance of the colony. Analysing the influence of the environment on thermoregulation and nutrient utilisation allows data on colony dynamics to be integrated based on the materials used in beekeeping. Hives are traditionally made of wood, although expanded polystyrene (EPS) is an alternative option that offers superior thermal insulation. Five standard wooden hives (hW) and five expanded polystyrene hives (hEPS) with six frames were installed in an apiary located on a farm in Tunuyán, Mendoza (33º 37' 31.079'S, 69º 11' 27.888' W). In this study, the internal temperature and weight variation of the hives were recorded. In addition, body size was analysed through the dry weight and fat body of the workers. The samples came from autumn-winter bees obtained from the frames. Monitoring was carried out during April, August, and September 2024. The internal temperature was recorded using probes every 15 minutes in the centre of the winter cluster. The weight of the hives was determined using a digital hanging scale. Dry weight was obtained by removing moisture from the body mass in a temperature-controlled oven. The abdomens were dissected to quantify body reserves using ethyl ether to extract the lipid portion of the fat body. The average daily internal temperature in hEPS was 27.52 ± 1.6 °C, which was higher than in hW at 25.85 ± 0.48 °C ($p < 0.05$, t 3.4). During the break, the weight loss of the hives was lower in hEPS 1.9 ± 0.3 kg compared to hW 6.4 ± 0.6 kg ($p < 0.001$; $F_{1;21} = 91.48$). Body size in April was hEPS (39.7 ± 6.6 mg) and hW (39.1 ± 4.7 mg), in August it was hEPS (38.9 ± 9.6 mg) and hW (28.7 ± 2.6 mg), and in September it was hEPS (45.8 ± 4.3 mg) and hW (37.6 ± 4.0 mg). Bees collected in August from EPS hives were significantly larger than those collected from wooden hives ($p = 0.006$; $F_{1;24} = 9.06$). In September, colonies in EPS hives showed greater lipid reserves than those in wooden hives ($p = 0.0005$; $F_{1;24} = 15.98$). The results suggest that colonies housed in EPS hives experience more stable thermal conditions. It is postulated that an environment with greater internal temperature regulation could provide a more efficient energy balance that would influence colony strength, longevity and tissue development.

AREA 7: BIOLOGIA DE DESARROLLO Y REPRODUCCION

BIOLOGIA DEL DESARROLLO Y REPRODUCCION

DR 01- AUTOPHAGIC AND APOPTOTIC DYNAMICS IN THE FETAL OVARY OF *LAGOSTOMUS MAXIMUS*

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The plains vizcacha (*Lagostomus maximus*) exhibits an unusually long gestation period for a rodent, lasting approximately five and a half months. At the onset of gestation, up to 12 embryos implant along both uterine horns. However, a process of embryonic resorption occurs, with only the two embryos positioned closest to the cervix surviving. Building on our previous research on autophagy in the ovaries of adult females, the aim of this study was to investigate the status of this cellular mechanism in fetal ovaries during different developmental stages. To this end, autophagic, anti-apoptotic, and pro-apoptotic markers were analyzed in oogonia, primordial follicles, and primary follicles of fetal ovaries at early (74 to 95 days, n=6), mid (102 to 119 days, n=6), and late (126 to 147 days, n=6) developmental stages. Protein expression of BECLIN1, LC3B I-II, LAMP1, SQSTM1, BCL2, and ACTIVE CASPASE-3 (C3A) was assessed using immunohistochemistry and Western blot (WB). Additionally, the ultrastructure of autophagic vacuoles was examined by transmission electron microscopy (TEM). Results are presented as mean ± standard deviation (SD). Statistical analysis was performed using analysis of variance (ANOVA) followed by Bonferroni's post hoc test for multiple comparisons. Differences were considered statistically significant at $p<0.05$. Positive expression of various autophagic markers was observed in oogonia, primordial follicles, and primary follicles across the different stages of fetal ovarian development. Expression of ACTIVE CASPASE-3 (C3A) was minimal, nearly undetectable. In contrast, BCL2 expression was positive across all stages and structures. Transmission electron microscopy (TEM) revealed preservation of ovarian structures throughout fetal development, with a low presence of autophagic vesicles and conserved morphology. Our analysis of autophagic, anti-apoptotic, and pro-apoptotic markers indicates the presence of basal autophagy, concurrent with positive BCL2 expression, suggesting autophagy associated with survival. This is supported by the structural preservation, low levels of autophagic vesicles, and minimal expression of the pro-apoptotic marker C3A. We propose that autophagy functions as a survival mechanism in the fetal ovary, maintaining homeostasis and supporting gonadal development until birth by providing the necessary nutrients for subsequent follicular maturation.

DR 02- AMMONIUM TETRATHIOMOLYBDATE INCREASES DNA FRAGMENTATION WITHOUT AFFECTING MMP-MEDIATED INVASIVE CAPACITY IN A MURINE MODEL OF ENDOMETRIOSIS

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Endometriosis (EDT) is a chronic, estrogen-dependent gynecological condition with a high prevalence (affecting roughly 190 million females of reproductive age worldwide) and a significant impact on the quality of life of those affected. It is characterized by the growth of endometrium-like tissue outside the uterine cavity, which exhibits resistance to cell death and a high invasive potential. The search for safer and more effective therapies remains a priority in research. Ammonium tetrathiomolybdate (TM), a copper (Cu) chelator, has been shown to reduce lesion volume and estradiol levels in mice with induced EDT and elevated levels of the metal. Therefore, this study aimed to investigate the effects of TM administration on estrogen receptors (ER)-α and ER-β expression and DNA fragmentation in endometriotic lesions and the activity of metalloproteinases (MMPs) in peritoneal fluid. Sixteen female C57BL/6 mice were divided into two experimental groups: EDT and EDT+TM. EDT was induced by autologous transplantation of uterine tissue into the intestinal mesentery. The EDT+TM group received 0.30 mg/day of TM in the drinking water for two weeks, starting on postoperative day 15. At the end of the treatment, lesions were collected for analysis of ER expression (ELISA) and histological assessment of DNA fragmentation (TUNEL). Peritoneal fluid was also collected to evaluate MMP-2 and MMP-9 activity (zymography). Data were statistically analyzed using Student's *t*-test ($P < 0.05$). Regarding the results, TM administration did not alter ER-α or ER-β expression, but it significantly increased the percentage of cells with DNA fragmentation ($P < 0.001$). Notably, MMP-2 and MMP-9 activity was not affected by the Cu chelator. In conclusion, our results suggest that TM affects endometriotic cell viability without inducing changes in ER-α and ER-β expression or in MMP-mediated invasive capacity. Since previous studies have shown that TM reduces estradiol levels, a key hormone in the progression of EDT, the estrogenic pathway could be attenuated primarily by the reduction of its ligand.

DR 03- AMMONIUM TETRATHIOMOLYBDATE MODULATES *Tnfr2* AND ER-β EXPRESSION, PROMOTING CELL DEATH IN ENDOMETRIOTIC LESIONS OF TNFR1-DEFICIENT MICE

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Endometriosis (EDT) is a chronic, estrogen-dependent, inflammatory gynecological disease that affects 1 in 10 females of reproductive age. It is characterized by the ectopic growth of endometrial-like tissue, resistant to cell death and hormone-responsive, within an inflammatory environment. The TNF system (TNF-α and its receptors TNFR1 and TNFR2) is known to become progressively unbalanced as the disease worsens, with an increase in TNFR2. There is currently no cure for this complex pathology, and available treatments often have adverse effects. Ammonium tetrathiomolybdate (TM) is a drug being studied in proliferative diseases, which has been shown to normalize estradiol and copper levels in EDT, reduce the volume of endometriotic lesions, and modulate the inflammatory response in mice. Further light shed on the drug's action mechanisms, this study aimed to determine whether TM alters the expression of *Tnfr2* and estrogen receptors, with potential consequences for DNA fragmentation, in endometriotic lesions of TNFR1$^{-/-}$ mice with aggravated disease. Sixteen female C57BL/6 TNFR1$^{-/-}$ mice were divided into two experimental groups: EDT and EDT+TM. EDT was induced by autologous transplantation of uterine tissue into the intestinal mesentery. The EDT+TM group received 0.30 mg/day of TM in their drinking water for two weeks, starting on postoperative day 15. At the end of treatment, lesions were collected for analysis of *Tnfr2* mRNA expression (RT-qPCR), estrogen receptors expression (ER-α and ER-β, ELISA), and histological evaluation of DNA fragmentation (TUNEL). Data were statistically analyzed using the student's *t*-test ($P < 0.05$). The results show that TM decreased *Tnfr2* and ER-β expression ($P < 0.05$) but did not affect ER-α expression compared to untreated animals. Furthermore, TM significantly increased the percentage of cells with DNA fragmentation ($P < 0.001$). In conclusion, in TNFR1$^{-/-}$ mice, TM attenuates the progression of EDT by modulating *Tnfr2* and ER-β expression, thereby impacting signaling pathways associated with proliferation and promoting cell death. This reinforces its potential as a treatment capable of acting even under conditions of imbalance in the TNF system.

DR 04- INFLUENCE OF CLIMATE FACTORS ON THE REPRODUCTIVE ENDOCRINOLOGY DURING PREGNANCY IN THE PLAINS VISCACHA (*Lagostomus maximus*)

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Climate change impacts negatively on the population dynamics of wild animals. However, its effects on their reproductive physiology have been poorly studied. The aim of this work was to investigate the reproductive physiology of the South American plains' viscacha (*Lagostomus maximus),* a hystricomorph rodent native to Argentina with seasonal reproduction, which may be affected by climatic conditions. A retrospective analysis was conducted. Plasma and brain samples of pregnant viscachas (60-120 days of gestation; n=20), collected in June and July during the years 2008 to 2024 were used. These months were selected because they correspond to the reactivation of the reproductive axis, a critical period for successful gestation. For each year, we determined the corresponding Temperature and Humidity Index (THI) using the temperature and humidity values of both months, thus generating two groups of animals with significantly different THI values: High THI and Low THI. Plasma hormone levels (estradiol, progesterone, and luteinizing hormone) were studied using ELISA and RIA, and hypothalamic heat shock protein (HSP70 and HSP90; to determine thermal stress) and gonadotropin-releasing hormone (GnRH) expression were evaluated using immunohistochemistry (IHC). Protein expression was quantified by Image Pro-Plus (IPP) software. The t-test was employed to assess statistical differences between groups ($p<0.05$). Plasma levels of estradiol (E2), progesterone (P4), and luteinizing hormone (LH) showed significant differences between groups ($p<0.0001$). The Low THI group had significantly higher levels of E2 and E2/LH ratio, and lower levels of P4, LH, and P4/LH ratio than the High THI group. On the other hand, hypothalamic immunoreactive cells for HSP70 and HSP90 were detected in scattered neurons and in the ependymal layer of the third ventricle. The Low THI group showed significantly lower optical density (OD) value for both proteins than the High THI group ($p<0.01$). Regarding GnRH, the OD level of the immunoreactive axonic varicosities distributed throughout the median eminence and arcuate nucleus of the mediobasal hypothalamus (MBH) showed a slight decrease in the Low THI group related to the High THI group ($p=0.05$). These results suggest that temperature and humidity may affect the complete reproductive axis at the three hypothalamic, pituitary, and ovarian levels. The significant differences in HSPs expression among the THI groups indicate the hypothalamic susceptibility to temperature and humidity changes. In conclusion, all these findings point to temperature and humidity as key environmental factors influencing the reproductive axis of the plains vizcacha during pregnancy, which would affect the long-term population dynamics of this species in its natural habitat.

DR 05- IMPACT OF MATERNAL HYPERTHYROIDISM ON EARLY NEONATAL DEVELOPMENT

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Mothers with hyperthyroidism (hyperT) often face challenges in establishing competent lactation. Excess thyroid hormones are understood to negatively affect the lactogenic function of prolactin leading to lactation failure and possible alterations in neonatal growth. Given this background, our study aimed to address different neonatal parameters from hyperthyroid mothers that were treated in the Perinatology Department of Hospital Lagomaggiore, Mendoza, Argentina. We conducted an exhaustive analysis of the impact of maternal hyperT on the early neonatal period. The objective was to determine whether maternal hyperT impacts early neonatal development by analyzing various biometric parameters in newborns. For this study, we included 84 women with term pregnancies admitted to Hospital Lagomaggiore. Statistical and graphical analyses were performed using the R programming language. Shapiro-Wilk test was used to evaluate normality of residuals and the Bartlett test to verify homogeneity of variance. Statistical differences between group medians were assessed using the Kruskal-Wallis test, and Dunn's test was used post-hoc. Associations between numerical variables were determined using Pearson's correlation coefficients. Associations between categorical variables were determined using Fisher's test. Our findings indicate significant differences across the groups. Birth weight, length and weight-to-length ratio were lower in neonates of mothers with HyperT compared to those of mothers with hypothyroidism ($p < 0.05$) and healthy controls ($p < 0.01$). The correlation between gestational age and both newborn length and weight were significantly stronger in the hyperthyroid and hypothyroid groups ($r > 0.67$, $p < 0.05$) than in the healthy control group ($r < 0.2$, $p > 0.05$). Additionally, the head circumference of neonates in the HyperT group was smaller compared to controls ($p < 0.05$). Notably, a high frequency of Apgar 1 score below 7 and Apgar 5 below 9 were strongly associated with maternal hyperthyroidism ($p < 0.001$). These results suggest that maternal HyperT affect different biometric parameters of their neonates. Although much work is needed to determine the precise impact of HyperT on neonates' growth, these findings underscore the importance of specialized clinical surveillance and rigorous follow-up for newborns of mothers with this condition, as it has a direct impact on their early development and overall health status.

DR 06- GESTATIONAL HEAT STRESS: A TRIPLE THREAT TO MATERNAL WELFARE, BEHAVIOR, AND FETAL DEVELOPMENT

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Climate change is causing heat waves to become more common, intense, and longer-lasting, posing a threat to animal welfare. Gestation is a particularly susceptible stage to various environmental stressors, particularly, the rise in ambient temperature can alter physiology, behavior, particularly the quality of maternal care, thereby affecting embryonic and fetal development. This study evaluated the effect of heat stress induced by simulated heat waves, in FVB/n female mice during the last week of gestation. Two experimental groups were established: a Heat Stress group (HS) (n=11) exposed to high temperatures for 7 consecutive days with 6-hour daytime heat waves (peaks of 33±0.1°C), followed by 18 hours at 29±0.1°C; and a Control (C) group (n=9) maintained at 22±0.1°C during the same period. All animals had *ad libitum* access to food and water. Physiological (peripheral body temperature, PBT, food and water intake), behavioral (nest-building and anxiety-like assessed using the open field test, OFT, and the elevated plus maze test, EPM), and fetal developmental parameters were assessed. The HS group showed significantly increased PBT ($p<0.05$), reduced food intake ($p=0.0008$), increased water intake ($p=0.0019$), and lower body weight gain ($p=0.027$) at the end of the experiment. In addition, HS females exhibited reduced incidence of nest-building behavior ($p=0.0017$) as well as an increased anxiety-like behavior in the OFT and EPM, compared to C females ($p<0.03$). At gestational day 18, fetal weight and length were significantly lower in the HS group compared to the C group ($p<0.05$), while the number of fetuses and placental weight did not differ. These results demonstrate that heat stress during late gestation compromises both maternal physiology and behavioral well-being. Moreover, the direct impact on fetal development underscores the critical vulnerability of the gestational period to extreme climate fluctuations. This work was supported by the Felipe Fiorellino Scientific Foundation and PIP-CONICET (Grant No. 11220200100036CO).

DR 07- HUMANIN PRESERVES OOCYTE QUALITY DURING POSTOVULATORY IN VITRO AGING

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Postovulatory in vitro aging (POA-IV) refers to the progressive deterioration of metaphase II (MII) oocytes maintained outside the ovarian environment, even under optimal culture conditions. This process compromises oocyte competence and represents a major challenge in assisted reproduction technologies (ART). POA-IV is characterized by increased oxidative stress, mitochondrial dysfunction, spontaneous release of cortical granules (CG) and cytoskeletal disorganization, all of which negatively affect fertilization and embryo development. Humanin is a mitochondria-derived peptide with well-documented cytoprotective and anti-apoptotic properties. We therefore hypothesized that Humanin could act as a potential modulator of oocyte quality during in vitro culture and investigated whether its supplementation could prevent the detrimental effects of POA-IV. MII oocytes from superovulated CF-1 mice were aged in vitro for 4 h at 37 °C and 5% CO_2, with or without Humanin in the culture medium. Parameters related to metabolic activity, as well as components of the cortical reaction, were analyzed. Reactive oxygen species (ROS), mitochondrial membrane potential (MMP), and intracellular ATP levels were measured in live oocytes. CG density and cortical F-actin organization were analyzed in fixed cells by fluorescence microscopy. In addition, α-SNAP and NSF, two key proteins involved in membrane fusion during CG exocytosis, were assessed by indirect immunofluorescence. Regarding metabolic activity, Humanin supplementation reduced ROS accumulation and increased MMP, but did not affect ATP levels ($p<0.05$). As for the components of the cortical reaction, Humanin prevented premature CG exocytosis, preserved the cortical F-actin network, and maintained α-SNAP and NSF expression at levels comparable to fresh oocytes ($p<0.05$). These findings suggest that Humanin protects oocvte quality, counteracting POA-IV–induced oocyte deterioration. Altogether, our results support the potential use of Humanin as a culture medium supplement to improve oocyte preservation.

DR 08- IMPACT OF DIETS ENRICHED WITH BEEF FAT ON THE HEIGHT AND MORPHOLOGY OF THE EPIDIDYMIUM EPITHELIUM IN C57BL6J MICE APPLIED FOR A SHORT PERIOD

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C57BL6J mice are a widely used model for the evaluation of fat-enriched diets. The objective of this work was to evaluate whether two percentages of beef fat have different effects on the epididymal epithelium of 12-week-old male C57BL6J mice. The mice were randomly divided into 3 groups and fed for 16 weeks with: balanced feed (C; n=2), feed enriched with 7,5% wt/wt beef fat (mB; n=2) and 24% wt/wt beef fat (B; n=2). The initial region, the caput, and the cauda of the epididymis were analyzed. Ten round tubules were selected from each of these regions, and the epithelial heights were measured at four different points within each tubule. Regarding the height of the epididymis epithelium, it was observed that in the initial region, the epithelial height of group C was greater than that of groups mB ($p<0.01$) and B ($p<0.05$), and it was also observed that the height of group mB was lower than that of group B ($p<0.01$). In the caput, the epithelial height of group C was greater than that of groups mB and B ($p<0.01$). No differences were observed between groups in the cauda. These preliminary results were analyzed using the Kruskal-Wallis test and Dunn's post hoc test. Regarding the morphology of the epididymis, it was observed that in the caput region, the presence of vacuoles in the apical zone of the epithelium of group mB and the presence of central and apical microvacuoles in the epithelium of group B were observed. These vacuoles were not observed in the epithelium of group C. In the initial region and cauda, no morphological differences were observed between the groups. Both the decrease in epithelial height and the morphological changes seem to indicate that diets enriched with bovine fat are affecting the initial region less and the head of the epididymis more. They would have no impact on the cauda epididymis.

DR 09- IMPACT OF DIETS ENRICHED WITH SATURATED FATS ON THE MORPHOMETRY AND MORPHOLOGY OF THE SEMINIFEROUS EPITHELIUM OF C57BL6J MICE APPLIED FOR A SHORT PERIOD

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C57BL6J mice are a widely used model for the evaluation of fat-enriched diets. The objective of this work was to evaluate whether two saturated fats in two different percentages had different effects on the morphometric measurements and morphology of the testis of 12-week-old male C57BL6J mice. The mice were randomly divided into 5 groups and fed for 16 weeks with: balanced feed (C; n=7), feed enriched with 7,5% wt/wt beef fat (mB; n=7), feed enriched with 24% wt/wt beef fat (B; n=7), 8% wt/wt lard (mP; n=4), and 24% wt/wt lard (P; n=4). Ten round seminiferous tubules were selected from each mouse, and the epithelial area, lumen area, and cross-sectional area were measured. Regarding morphometric measurements, it was observed that the epithelial area of group mB was smaller than the epithelial area of groups C and mP ($p < 0.01$, ANOVA test and post hoc Tukey HSD) and that the lumen area was greater for group mB compared to groups C, B, mP and P ($p < 0.01$, Kruskal test and post hoc Dunn test). No differences were observed in the cross-sectional area of the seminiferous tubules. Regarding morphology, the presence of apical basophilic granulations in groups B and mP and vacuoles in the seminiferous epithelium of groups B and P was observed. Considering that the diet enriched with the lowest percentage of beef fat alters testicular morphometric measurements and that diets enriched with the highest percentage of beef and porcine fat alter testicular morphology, we can conclude that the percentage and type of saturated fat affect the testicle differently.

DR 10- TRANSGENERATIONAL IMPACT OF *Tessaria absinthioides* INTAKE THROUGH THE REPRODUCTIVE PERIOD OF RATS

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There are many documented plants that are consumed for their medicinal properties through infusions, decoctions, or direct ingestion. Additionally, some plants are used as lactation inducers (galactagogues) for women with insufficient milk supply. Particularly, the use of *Tessaria absinthioides* (TA) has become widespread due to its antioxidant, hypoglycemic, anti-inflammatory, and digestive effects. In our laboratory, it has been proven that the aqueous extract of TA exhibits cytotoxic activity against tumor cell lines, as well as inhibitory effects on metastasis. However, there is currently no scientific evidence confirming the safety of its use during the reproductive period. Gestation and lactation are characterized by the establishment of a biological bond between the mother and the offspring. Proper maternal nutrition at this stage influences both the offspring's growth and the healthy development of the mammary gland (MG), which directly affects milk quality. During pregnancy and lactation, the MG undergoes significant morphological changes that enable it to produce and secrete milk. As a dynamic tissue, the MG is sensitive to structural and functional changes, which can be influenced by maternal diet. In this work, we examined the effects of TA decoction (DETa) intake during pregnancy and lactation on the F0 and F1 generations. We used 55-day-old Wistar rats that had undergone a gestation and lactation cycle. One group received DETa (F0-DETa, n = 7) and the other received water (F0-Ctrl, n = 6), both administered *ad libitum*. On lactation day 22, the inguinal MGs were dissected, and RNA was extracted for the expression analysis of β-casein and α-lactalbumin by RT-PCR in real time, and tissues were fixed for histological analysis. Additionally, one female and one male offspring were selected from each mother in both treatment groups (F1-Ctrl and F1-DETa) to measure growth parameters. Our results showed that DETa consumption did not affect β-casein mRNA expression, but unexpectedly reduced α-lactalbumin mRNA expression ($p < 0.05$). However, the F1-DETa group showed increased growth parameters compared to the F1-Ctrl group ($p < 0.05$). Additionally, DETa intake did not alter MG histology in the F0 generation. We conclude that DETa intake alters the expression of milk macronutrients without altering mammary gland structure or negatively affecting offspring development.

DR 11- ESTROGEN PROMOTES THE BINDING OF THE THYROID HORMONE RECEPTOR TO CIS-REGULATORY ELEMENTS IN THE *CCND1* AND *MKI67* GENES PROMOTERS

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The molecular mechanism of thyroid hormone receptor (TR) action involves the physical interaction between TRs and DNA at specific sequences known as thyroid hormone response elements (TREs). The binding of thyroid hormone (TH) to TR recruits' transcription co-activators, which are capable of either histone acetylation or DNA demethylation. The latter involves enzymes known as ten-eleven translocation enzymes (TETs). In previous studies, we showed that post-lactation hypothyroid rats exhibit elevated estrogen (E) levels, the cis-regulatory regions of the cyclin D1 (*ccnd1*) and *mKi67* genes are demethylated, and their expression is increased in the mammary gland (MG). These changes result in altered cell cycle control in the MG and induce non-malignant lesions in mammary tissue. In the present study, we evaluated the ability of TR to bind the TREs in the cis-regulatory regions of both *ccnd1* and *mKi67* genes, its dependence on TH and E, and the possible relationship with the demethylation of these genes. We used differentiated mammary gland explants cultured in the presence or absence of TH and E for 24 hours. From these explants, we performed the following assays: 1) chromatin immunoprecipitation using an anti-TRα/β antibody followed by real-time PCR targeting the cis-regulatory regions of the *ccnd1* and *mKi67* genes, and 2) real-time RT-PCR to assess the expression of the DNA demethylating enzymes TET2 and TET3. Our analysis showed that TR immunoprecipitated the cis-regulatory regions of the *ccnd1* and *mKi67* genes. However, immunoprecipitation was dependent on both TH and E, as no DNA binding was detected in the absence of TH, while the presence of E promotes the binding of the unliganded TR to these regions. We also found that the expression of TET3 enzymes was altered by TH and E, as well as the interaction between both hormones. Our results demonstrate the physical interaction between TR and the TREs in the cis-regulatory regions of two cell cycle-associated genes. Consistent with our previous work, TR-TRE binding depends on E, and under these conditions, mammary cells significantly alter the expression of TET3 enzyme ($p<0.05$). This finding could suggest the activation of epigenetic mechanisms for regulating gene expression.

DR 12- PEDF AS A DECAPACITATING FACTOR IN MOUSE EPIDIDYMAL SPERM

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Capacitation is a complex process with changes in sperm head´s biochemistry. Because of it, the sperm is capable of facing capacitation, hyperactivation, acrosome reaction and achieve the egg´s fertilization. However, there are proteins known as decapacitating factors in male reproductive system including the epididymis. Most of them belong to the serpin family. PEDF (Pigment Epithelium Derived Factor) is a serpin -serine protease - described by our group in male reproductive organs and regulated by androgens. However, the function of PEDF remains unknown. In this study we evaluate PEDF in capacitation and acrosome reaction in a mouse epididymal sperm model. We analyzed three aspects1) suppression of endogen PEDF by blocking with a specific antibody, 2) addition of exogenous recombinant PEDF to restore the activity and 3) control sperm group (standard capacitating media) without any change in endogenous PEDF activity. Different experimental -conditions before or after capacitation- were performed. Capacitation was evaluated by CTC (chlortetracycline) stain; acrosome reaction was induced with progesterone or calcium ionophore and analyzed with Coomasie blue. The results shown an enhanced capacitation and acrosome reaction when the inhibition of PEDF by the antibody was performed prior to incubation. Statistics analysis shows a decrease in the capacitated status and acrosome reaction when recombinant PEDF was added. ANOVA analysis shows differences between non capacitated and use of blocking antibody ($p<0.0000130$) and between non capacitated and use of recombinant PEDF ($p< 0.0010624$). In acrosomal reaction the differences with non-parametric Kruskall Wallis test shows a p-value <0.0001632 (non-capacitated respect PEDF addition). Our data suggests that the presence of recombinant PEDF is related to a diminish of capacitation, and their inactivation shows the opposite effect. These results indicate the possible role of endogenous PEDF as a decapacitating factor in the epididymal tract.

DR 13- HUMAN SPERM ASSESSMENT USING COMPUTER VISION AND ARTIFICIAL INTELLIGENCE

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Research and innovation in health-related technologies are producing continuous improvements in human healthcare worldwide. Image-based diagnosis and prognosis are giving rise to novel applications and methods for image interpretation. Like many other areas of human activity, in the last decades, medicine has seen a constant increase in the amount of data generated during clinical routine. Infertility is a global health issue affecting millions of people of reproductive age worldwide. Available data suggest that between 48 million couples and 186 million individuals have infertility globally. Infertility may occur due to male factors, female factors, a combination of male and female factors, or may be unexplained. Semen analysis is considered the main diagnostic source of information in the evaluation of male reproductive capacity. The nature of the spermatozoa (their vitality, motility and morphology) and the composition of seminal fluid are also important for sperm function. This analysis is routinely performed using images taken with optical microscopy devices on carefully prepared samples. Particularly, morphological analysis refers to the sperm head shape and size. Nevertheless, this analysis may involve classification errors related to subjectivity, sampling variability, the operator's training and experience, or differences among multiple operators. New methods and systems are needed to standardize, automate, and accelerate the sperm classification process. In this context, we present a framework to classify sperm heads as normal, tapered, pyriform, and amorphous using shape, intensity and texture features based on machine learning techniques. The framework extracts descriptive features to characterize the sperm head condition. Subsequently, a Random Forest classifier is trained and tested to classify each sperm head into the proposed categories. The model is trained and tested using a public dataset, the Human Sperm Head Morphology (HuSHeM), where the sperm samples were manually labeled by consensus among three specialists. The classification model achieves a 91% of accuracy in the discrimination of normal, tapered, pyriform, and amorphous spermatozoa. The use of machine learning has a good predictive performance in the classification of sperm head normality or abnormality.

DR 14- ESTROGENIC REGULATION OF LYSOSOMAL PROTEIN TRANSPORT IN RCE-1 EPIDIDYMAL CELLS

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The mammalian epididymis is essential for sperm maturation and acquisition of motility, processes that are closely dependent on hormonal regulation. Although morphological and biochemical alterations of the organ are primarily associated with androgen depletion, the mechanisms of estrogenic regulation are not well characterized. In various species, several lysosomal proteins such as cathepsin D (CatD) and prosaposin (PSAP) are acquired by spermatozoa during their transit through the epididymis, acting as modulators of sperm maturation and male fertility. However, the mechanisms of secretion of these proteins and their hormonal regulation remain largely unexplored. Since the CatD gene contains an Estrogen Response Element, it is suggested that estrogen could regulate its expression and secretion, as observed in other cellular models; similarly, PSAP is also sensitive to estrogenic regulation. The intracellular transport of CatD and PSAP could occur through complementary pathways mediated by mannose-6-phosphate receptors (MPRs: CD-MPR and CI-MPR) and sortilin (Sort). CatD binds to MPRs but can also be transported by Sort when forming complexes with PSAP. Similarly, PSAP can interact with both MPRs and Sort, facilitating its trafficking to lysosomes or secretion into the extracellular medium. Previous studies from our laboratory showed that castration, as a model of androgen depletion, increases CD-MPR expression and epididymal secretion of CatD, highlighting the hormonal influence on this lysosomal trafficking system. To investigate estrogenic regulation, RCE-1 epididymal cell cultures were treated with 20 nM 17β-estradiol, with or without 2 μM tamoxifen (Tx, an estrogen receptor antagonist), for 24 and 48 h, including untreated controls. CatD, PSAP, CD-MPR, and Sort were evaluated by immunoblot and immunofluorescence. Estradiol exposure increased Sort expression and decreased CD-MPR, effects that were reversed by Tx. An apparent increase in PSAP and CatD was also observed, reversible by Tx. Immunofluorescence revealed high colocalization between PSAP and CatD in all treatments, suggesting a possible functional interaction. These results indicate that estradiol could modulate lysosomal protein transport and secretion in epididymal cells, underscoring its relevance in sperm maturation.

DR 15- SECRETIONS OF MACROPHAGES MODIFY THE PROGESTERONE RESPONSE OF LUTEAL CELLS FROM RAT POLYCYSTIC OVARY. EFFECT OF DEXAMETHASONE

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Polycystic ovary syndrome (PCOS) is characterized by varying degrees of ovulatory dysfunction, luteal phase deficiency, and infertility. Pathophysiology is multifactorial and includes immune system dysregulation, where elevated androgens trigger pro-inflammatory responses. The beneficial effect of corticosteroid treatment in patients with ovulatory dysfunction was reported, although the mechanism underlying its beneficial effects is not precisely understood. We have previously shown that secretion from spleen macrophages (SMϕ) treated with dexamethasone (DEX) can modulate *in vitro* androstenedione release from whole rat polycystic ovary (PCO). Our aim was to study the effect of splenic macrophage-conditioned medium on progesterone (P) release by PCO rat luteal cells. PCO condition was induced by injecting 60-day-old Holtzman rats with a single 2 mg estradiol valerate. After 2 months, the rats were sacrificed. The MΦ ($1x10^6$ cells) from PCO and no-PCO (control) rats were cultured for 24 h in RPMI medium in the absence or presence of 10^{-6}M DEX. Afterwards, the medium was removed, MΦ were washed twice, and finally, the cells were cultured for an additional 24h period. The respective culture media (MΦ secretions) were collected and used to stimulate luteal cells (500,000 cells/mL) from PCO and control rats for 4 hours at 37°C, 5% CO_2. In the luteal cell supernatant, the release of P was measured by electrochemiluminescence (Cobas e411), and nitric oxide (NO, as nitrites) was quantified using the Griess reaction. The mRNA expression of tumor necrosis factor-alpha (TNF-α) and 3β-hydroxysteroid dehydrogenase (3β-HSD, enzymes of P synthesis) was assessed in MΦ and luteal cells, respectively, by RT-PCR. PCO luteal cells released more P and less NO after stimulation with secretions of PCO MΦ+DEX, compared with PCO MΦ secretions ($p<0.05$). The mRNA expression of 3β-HSD in PCO luteal cells incubated with secretions from PCO MΦ+DEX was higher than that obtained with PCO MΦ secretions ($p<0.05$). In PCO MΦ, the TNF-α release and expression were higher than in control and PCO MΦ+DEX ($p<0.01$ and 0.05, respectively). These results suggest that in a high TNF-α environment, DEX can mediate immunomodulatory effects that improve P secretion from rat PCO luteal cells. Therefore, the luteal P level may be enhanced in PCOS by decreasing TNF-α content with DEX. A better understanding of the factors affecting P production in PCOS would aid in the development of more effective therapeutic strategies for the syndrome.

DR 16- COMPARATIVE EVOLUTION OF AUTOMATED SYSTEMS FOR PIG SPERM MOTILITY ANALYSIS: COMMERCIAL CASA VS FREE SOFTWARE

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Reproduction in pig farming, as in other intensive livestock species, is carried out through artificial insemination. This involves the use of semen with optimal quality parameters to ensure the correct evolution of pregnancy and high farrowing rates, representing in this way a fundamental point that ensures the success of the production chain. In this case, sperm motility analysis is at the core of semen quality evaluation. Although there are computer-aided devices to carry out these tasks, for the most part the analyses are manual and subjectively interpreted by the operators. The objective of this project is to compare the motility of pig spermatozoa using the analysis modules of one commercial version CASA ISASv1 (ISAS) and one free version Sperm Motility Tracker (SMT). The protocol includes the analysis of 91 sperms to obtain motility parameters using the two software and a manual tracking of their trajectory in order to ensure their presence in both systems. This enabled the classification of the motility type according to Curvilinear Velocity (VCL) into the following classes: immotile (I), fast progressive (FP), medium (M), and slow (S). Preliminary results indicate that SMT identifies 90% of the spermatozoa identified by the ISAS system. The classification based on VCL provides 43.3% FP, 13.3% M, 3.3% S, and 40% I for the SMT system, while the corresponding percentages of ISAS are 40% FP, 15% M, 10% S, and 35% I. It can be seen that between classes FP, M, S and I they have an error of −3.3%, 1.7%, 6.7%, and -5% respectively. The use of free software for semen analysis provides the possibility to automate procedures, reduce human interpretation errors, and increase the reproducibility of results.

DR 17- CORTISOL AND CORTISONE MODULATE ROS, ACROSOME REACTION, AND MOTILITY IN BOAR SPERMATOZOA

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The assessment of stress markers in pigs, particularly cortisol and cortisone, represents a key tool to understand how neuroendocrine stress responses affect spermatogenesis, seminal plasma composition, and consequently, semen quality and fertilizing potential. Determination of these glucocorticoids in biological matrices such as plasma and semen doses provides a significant advantage over traditional measurements in serum, saliva, or hair, as it more directly reflects the physiological and local environment of spermatozoa, offering a more precise indicator of stress impact on reproductive function. The aim of this study was to identify stress biomarkers in porcine plasma and semen doses and to evaluate their impact on sperm physiology. Cortisol and cortisone were quantified in seminal plasma (SP), saliva (S), and semen doses (SD) from adult boars. Cortisol concentrations followed the pattern SP > SD > S, whereas cortisone concentrations showed SP > SD/S and SD ≈ S. A strong positive correlation was observed between cortisol and cortisone in SP, and a negative correlation between cortisol-SP/S and cortisone-SP/S. In functional assays, hydrocortisone (synthetic cortisol) increased reactive oxygen species (ROS) generation in capacitated spermatozoa and did not induce the acrosome reaction, but dose-dependently inhibited the progesterone-induced acrosome reaction. Under storage conditions at 17 °C, both cortisol and cortisone reduced total and progressive motility in SD. The detection and quantification of these glucocorticoids in SP and SD, together with their detrimental effects on ROS levels, acrosome reaction, and sperm motility, suggest a local modulatory role with operational implications for semen dose quality and reproductive efficiency. We propose the integration of cortisol/cortisone measurements in SP and SD as biomarkers for quality control and as an additional selection and management criterion in artificial insemination (AI) centers for swine.

DR 18- CHARACTERIZATION OF NEURONAL PROLIFERATION AND DIFFERENTIATION IN THE PLAINS VIZCACHA, *LAGOSTOMUS MAXIMUS*

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During mammalian corticogenesis, transient germinal layers composed of neural progenitors can be observed. The proliferation and differentiation of these layers arise projection neurons and interneurons. In the gyrencephalic species, neocortical expansion and folding depend on the dynamics of proliferation and maturation of these cell populations. The aim of this study was to characterize the process of neuronal differentiation of the neocortex during development in *Lagostomus maximus*, a native gyrencephalic hystricomorph rodent with a gestation of ~155 days. The brains of embryos from 43 to 133 embryonic days (e.d.) and neonates of 2 postnatal days (p.d.) (total n=60) were used. Neocortex development was evaluated using Nissl staining and immunohistochemistry for proliferation (Ki-67) and differentiation markers (β-III Tubulin and NeuN). Ki-67 revealed mitotically active progenitor cells in the proliferative germinal zones: ventricular zone (VZ), inner subventricular zone (iSVZ), and outer subventricular zone (oSVZ) from 43 to 58 e.d. Regarding β-III tubulin, at 43 e.d., immunoreactive cells were observed in the preplate (PP), indicating the beginning of the differentiation into immature neurons. By 49 e.d., positive β-III tubulin immunolabeling was detected in the marginal zone (MZ), cortical plate (CP), subplate (SP), intermediate zone (IZ), and oSVZ, and a progressive decrease until 65 e.d. Concerning NeuN, its immunoreactivity showed differences from 82 to 133 e.d. Between 80–85 e.d., NeuN+ neurons were detected in transient germinal layers and in layers IV–VI; at 95–99 e.d., NeuN expression was observed in the six definitive cortical layers (I–VI); at 100–105 e.d., NeuN+ pyramidal neurons in layer III showed immunoreactivity, weaker labeling in layer V with low cell density, and stronger granular immunoreactivity in layers II, IV, and VI, that persisted up to postnatal age. The results suggest that Ki-67+ cells in the proliferative zones during early embryonic stages may correspond to neuronal progenitors, namely radial glial cells. The detection of the postmitotic marker β-III tubulin concomitantly with the progenitor proliferation marker Ki-67 at approximately 27% of development, may suggest an early onset of neurogenesis via the direct pathway in the PP. In contrast, in the CP, IZ, and oSVZ, β-III tubulin labeling would be likely derived from neurons generated through the indirect pathway from the intermediate progenitors. On the other hand, considering that layer's V and IV get established at 68 e.d., and that NeuN showed expression in these layers, it could be considered an "inside-out" maturation pattern. In addition, variability in NeuN intensity and localization through development may reflect distinct functional and morphological states. In conclusion, this study provides the first characterization of the sequential stages of neuronal proliferation and differentiation in a non-conventional animal model.

AREA 8: BIOQUIMICA, FISIOLOGIA Y NEUROQUIMICA

BIOQUIMICA, FISIOLOGIA Y NEUROQUIMICA

BF01- RENIN-ANGIOTENSIN SYSTEM IN AN EXPERIMENTAL MODEL OF PARKINSON`S DISEASE

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The Renin-Angiotensin System (RAS) is a complex hormonal cascade with roles in both normal physiology and disease, including neurodegenerative diseases. Within the central nervous system, RAS plays a key role in processes like inflammation, oxidative stress, and neurotransmitter secretion, and its dysregulation is linked to aging and neurodegenerative conditions like Alzheimer's and Parkinson's. Specifically, the two main receptors, AT1R and AT2R, are expressed differently and regulated differently throughout the brain, influencing various neurological functions. Parkinson's disease (PD) is characterized by the loss of dopaminergic neurons in the nigrostriatal pathway, leading to a decrease in the neurotransmitter dopamine, which is crucial for motor control. This neuronal death is accompanied by inflammation, especially from activated microglia, and the formation of abnormal protein deposits called Lewy bodies that are made of aggregates of the protein α-synuclein. Previously, we evaluated the effect of the neurotoxin rotenone in rats in an experimental model of PD. Significant changes were observed on behavioral motor tests after 6 weeks of treatment and altered distribution of angiotensin II receptors were found in the midbrain of treated animals. Taking into account these findings, the aim of this work was to evaluate the precise timing when these alterations appear in the midbrain and its correlation with the motor impairments in this model. Histological and immunohistochemical (IHC) assays were performed in rotenone treated rats after 3-week and 6-week treatment. Light microscopy–IHC observations of rat midbrain evidenced a death of dopamine neurons as indicated by the decrease of immunoreactivity for tyrosine hydroxylase. Likewise, the number of AT1R and AT2R immunopositive cells were decreased in comparison with animal control. Nissl staining exhibited cells with aberrant morphology and we observed many nigral cells with α-synuclein aggregates. These findings contribute to understand the potential role of brain renin angiotensin system in neurodegenerative processes

BF02- HEMATOLOGICAL ALTERATIONS AND SYSTEMIC INFLAMMATION DRIVEN BY DESMOGLEIN-4 (*Dsg4*) DEFICIENCY IN A RAT MODEL OF IMIQUIMOD-INDUCED INFLAMMATION

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Desmoglein-4 (*Dsg4*) is a desmosome molecule involved in cell adhesion and hair follicle maintenance. Previous work of our lab demonstrated that *Dsg4* deficiency in rats has been associated with exacerbated cutaneous inflammation after topical imiquimod (IMQ, TLR7 ligand) administration. However, whether *Dsg4* deficiency impact to systemic immune response during skin inflammation remains unexplored. We aimed to determine whether *Dsg4* deficiency affects blood cell counts after IMQ administration. Hairless *Dsg4-null Oncins France Colony A* (OFA) rats and wild-type *Sprague-Dawley* (SD) rats were administrated with topical IMQ cream for 7 days consecutive days on dorsal skin. Blood samples were collected for hematological analysis, and systemic immune-inflammation index (SII), neutrophil-to-lymphocyte ratio (NLR), and platelet-to-lymphocyte ratio (PLR) were analyzed. Additionally, spleen weight and splenic index were obtained and correlated with total white blood cell counts. Statistical analyses were performed in R. No significant differences were detected in red blood cell parameters, while some alterations emerged in lymphocytes, granulocytes, and platelet values. Total cells and percentages of lymphocytes and granulocytes only showed differences between both untreated SD and OFA rat's strains. Surprisingly, IMQ challenge did not induce any increase in granulocytes, or lymphocytes as well. SII and PLR remained unchanged. By contrast, NLR was significantly increased in untreated *Dsg4-null* rats compared to untreated SD controls ($p = 0.0079$). White blood cell counts positively correlated with spleen weight across all groups of animals, with a particularly strong association in *Dsg4-null* rats exposed to IMQ. Although much work must be done, these findings suggest that *Dsg4* deficiency drives to differential white blood cell counts at basal condition. By contrast, our findings indicated that IMQ administration do not lead to an increase in any WBC subsets. Our results suggest the IMQ administration is effectively reaching other tissues as evidenced in the spleen weight increase, suggesting that epidermal adhesion molecules contribute to linking cutaneous inflammation with systemic immune modulation.

BF03-HYPERTHYROIDISM ATTENUATES HYPERGLYCEMIA AND PANCREATIC INFILTRATION IN TYPE 1 DIABETES NOD MICE

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Type 1 diabetes mellitus (T1D) is a chronic disease characterized by autoimmune processes directed against pancreatic β-cells, in which hormonal factors may play a modulatory role. Since T1D incidence shows a marked sex bias, we aimed to analyze how hyperthyroidism (HyperT) influences autoimmune development in female mice. We utilized the spontaneous T1D model in Non-Obese Diabetic (NOD) mice, with BALB/c mice serving as controls (NOD, n = 20; BALB/c, n = 20). To induce HyperT, animals received T4 (12 mg/L) in drinking water for 28 days. Body weight, water intake, general wellbeing, basal glycemia, and glucose levels after an intraperitoneal glucose tolerance test (IPGTT) were recorded. Pancreas and spleen were analyzed by flow cytometry to characterize leukocyte infiltration. Control NOD females exhibited pronounced polydipsia compared to BALB/c controls ($p<0.0001$), which was associated with hyperglycemia. HyperT animals exhibited reduced water intake and glycemia, reaching values comparable to controls ($p<0.0001$). Treated females displayed higher body weight and improved clinical condition. In the pancreas, HyperT animals showed a decrease in both the percentage and absolute number of $CD45^+$ and $CD4^+$ T lymphocytes per milligram of tissue ($p<0.05$), indicating reduced immune infiltration. An increase in spleen weight and spleen index was also observed in HyperT mice ($p<0.001$), without significant alterations in the main lymphocyte subsets. Although, underlying mechanisms are still missing, these results indicate that experimental HyperT may decrease diabetes symptoms in NOD females, suggesting a new immunomodulatory effect of high levels of T4.

BF04- ROLE OF THYROXINE IN THE MODULATION OF QUIESCENCE AND ACTIVATION OF NEURAL STEM CELLS IN THE DENTATE GYRUS OF THE HIPPOCAMPUS

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The neurogenic niche of the adult hippocampal dentate gyrus depends on the activation of neural stem cells (NSCs) that exist in a reversible state of quiescence. Although thyroid hormones are known to be key regulators of neurogenesis, their specific role in modulating the balance between NSCs quiescence and activation has been poorly explored. The objective of this study was to evaluate whether thyroxine (T4) modulates this balance through an *in silico* and *in vitro* approaches. A STRING protein–protein interaction (PPI) network was generated, including genes involved in NSC proliferation and quiescence (e.g., BDNF, Ccnd1, Bmp4, Fgf2, Mki67, Nestin, and Sox2) and thyroid hormone receptors (Thra, Thrb, Itgav and Itgb3). Then, an analysis of the promoter regions of these genes was performed to identify possible binding sites for transcription factors related to thyroid signaling. For this purpose, the sequences corresponding to 6000 bp upstream of the first exon of each gene were obtained from the Ensembl database. These sequences were analyzed using tools based on position weight matrices available in the JASPAR database, with an affinity threshold of 80%, evaluating both DNA strands. To experimentally explore some of these interactions, NSCs were isolated from 30-day-old C57BL/6J mice, cultured as neurospheres, and treated for 72 h with 1 nM or 5 nM L-T4 under either proliferative (FGF2, 20 ng/mL) or quiescent (FGF2 + BMP4, 30 ng/mL) condition. The percentages of NSCs expressing Nestin, Ki67, and Cyclin D1 were quantified. The PPI network revealed indirect interactions, via BDNF and Cyclin D1, between Thra/Thrb and regulators of NSC quiescence and activation during neurogenesis. A functional interaction was also observed between integrin receptor subunits and FGF2, as well as with Nestin. Furthermore, *in silico* promoter analysis of *Bmp4*, *Mki67*, *Nestin*, and *Ccnd1* genes revealed putative binding sites for thyroid hormone receptors. The *in vitro* results showed that under proliferative conditions, both T4 concentrations increased $Nestin^+$ cells without altering Cyclin D1, while 5 nM T4 reduced $Ki67^+$ cells. Under quiescent conditions, both doses decreased $Nestin^+$ and $Ki67^+$ cells, and 5 nM T4 increased Cyclin $D1^+$ NSCs. These findings suggest that NSCs are sensitive to T4 in both proliferative and quiescent states. T4 promotes NSC identity under proliferative conditions, but high T4 reduces proliferation, potentially preserving the NSC pool. Under quiescent conditions, T4 may either prolong the cell cycle and reinforce quiescence or induce loss of stemness and differentiation. Together with the *in-silico* analysis, our data highlight thyroid hormones as potential modulators of the quiescence–activation balance in NSCs, an essential mechanism for maintaining hippocampal neurogenesis.

BF05- THERAPEUTIC POTENTIAL OF N-(2-PHENYL-1,2,3,4-TETRAHYDROQUINOLIN-4-YL) FORMAMIDE IN TRIPLE-NEGATIVE BREAST CANCER: INHIBITION OF PI3K/AKT/MTOR AND THE REDUCTION OF THE METASTATIC POTENTIAL

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Triple-negative breast cancer (TNBC) is one of the most aggressive subtypes due to the absence of targeted therapies and the frequent hyperactivation of the PI3K/AKT/mTOR pathway, which promotes tumor growth, survival, metastasis, and therapy resistance. In this study, a series of N-[2-phenyl-1,2,3,4-tetrahydroquinolin-4-yl] formamide derivatives (AM20–27) were synthesized and evaluated in vitro by survival/proliferation assays, immunofluorescence and western blot assay. The halogenated compounds AM26 and AM27 showed the highest antitumor activity (IC50 ≈ 41–42 µM). Both derivatives inhibited the PI3K/AKT/mTOR pathway by reducing phosphorylation of PI3K, AKT, and mTOR. They also induced mitochondrial dysfunction, evidenced by cytochrome C release, Bax/Bcl-2 regulation, and activation of cleaved Caspase-3 and PARP1, confirming intrinsic apoptosis. Moreover, AM26 and AM27 decreased c-Myc, and increased p53, suggesting the inhibition of cellular proliferation. Both compounds also reduced the metalloproteinases MMP2 and MMP9, which are essentials in the extracellular matrix degradation, critical event for cellular invasion, suggesting that AM26 and AM27 diminished the metastatic potential. By Molecular modeling and dynamics analyses we demonstrated stable interactions with PI3K, particularly for AM27, displaying selectivity for specific sites. These findings indicate that halogenated tetrahydroquinoline derivatives exert a dual mechanism by suppressing PI3K/AKT/mTOR-driven survival and promoting apoptosis, highlighting AM27 as a promising candidate for TNBC therapy.

BF06- RESTORING TUMOR SUPPRESSOR PROTEIN PHOSPHATASE 2A FUNCTION: A COMPUTATIONAL AND MOLECULAR ANALYSIS TO COUNTER BREAST CANCER METASTASIS

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The tumor suppressor protein phosphatase 2A (PP2A) plays a crucial role in regulating oncogenic signaling. Its inactivation, specifically through inhibitory phosphorylation at Tyr307 by the endogenous regulatory molecules SET and CIP2A, contributes to breast cancer progression. In this study, we employed a combined computational and experimental approach to analyze these regulatory mechanisms and explore the pharmacological reactivation of PP2A. Molecular docking and dynamics simulations showed that the SET inhibitor, FTY-720, forms stable hydrogen bond networks with SET, substantially disrupting its binding to PP2A at Tyr307. Concurrently, Erlotinib (CIP2A suppressor) interacts with CIP2A predominantly via weaker hydrophobic and π-interactions. Gene expression analyses revealed significant upregulation of PP2A, SET, CIP2A, and cytoskeletal regulators (SRC, PTK2, PAK1, PXN) in tumor and metastatic breast cancer tissues. In vitro studies on MDA-MB-231 breast cancer cells, which demonstrate elevated invasive and metastatic potential, have shown that FTY-720 and Erlotinib significantly reduce the inhibitory phosphorylation of PP2A-Tyr307, thereby reactivating its function. Furthermore, Erlotinib and FTY-720 significantly decreased c-Myc expression, and the activation/phosphorylation of Src, FAK, Paxillin, PAK1, and ERK kinases, counteracting a migratory, invasive, and metastatic signaling pathway. Finally, we identified SET-CIP2A/PP2A as promising potential prognostic and predictive biomarkers for personalized treatment of breast cancer. The implementation of these biomarkers could facilitate effective patient selection, thereby minimize resistance and maximizing therapy efficacy. These findings highlight the potential of SET/CIP2A–PP2A inhibition as a promising therapeutic strategy to counteract breast cancer progression and metastasis.

BF07- COMPUTATIONAL DISCOVERY OF THE FAK-STAT3 NUCLEAR INTERACTION: IMPLICATIONS FOR BREAST CANCER PROGRESSION AND INHIBITOR EVASION

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Focal Adhesion Kinase (FAK) plays a pivotal role in breast cancer progression, with its overexpression and hyperphosphorylation being strongly associated with tumor growth, invasion, metastasis, and resistance to therapy. Beyond its well-established cytoplasmic functions in integrin and growth factor signaling, recent evidence indicates that stress signals or pharmacological inhibition can induce FAK nuclear translocation enabling tumor cells to evade the action of inhibitors. The most well-known function of FAK in the nucleus is the modulation of transcription factors. Specifically, nuclear FAK has been observed to interact with p53, thereby modulating its degradation. We hypothesize that treatments that inhibit FAK result in its translocation to the nucleus, where it regulates oncogenic transcription factors that contribute to tumor development and progression. To investigate potential nuclear interaction partners of FAK, we employed molecular docking and molecular dynamics (MD) studies. Initially, protein-ligand docking with FAK inhibitors (FAKi) Defactinib and PF-562271, known to promote FAK nuclear translocation, was performed to assess conformational changes potentially associated with translocation. Docking revealed binding affinities of -4.15kcal/mol and -6.66 kcal/mol, respectively, validated through MD simulations, which showed optimal stabilization mediated by hydrogen bond formation. Subsequently, protein-protein docking screening against 46 nuclear proteins or transcription factors implicated in tumorigenesis and therapy resistance was conducted, using the FAK-p53 complex (-34.781 kcal/mol), a previously reported strong nuclear interaction, as a reference. A total of seven candidates, including β-Catenina, CHIP, ETS1, MYC, NOTCH, Sam68 and STAT3, were identified as possible partners of FAK's nuclear interactors. These candidates were then subjected to further evaluation via MD to assess their stabilization profiles. In the present study, STAT3 demonstrated the most favourable stabilisation profile in comparison to FAK-p53, thus suggesting a potential nuclear FAK-STAT3 interaction that would be capable of modulating the transcription of STAT3 target genes, which are involved in tumour progression.

BF08- THE PROGNOSTIC AND THERAPEUTIC POTENTIAL OF αV/β3 INTEGRIN-T3 AXIS IN BREAST CANCER

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Breast cancer (BC) represents the most frequent neoplasm in women, with metastasis being the principal cause of mortality. In recent years, it has been reported that the thyroid hormone triiodothyronine (T3) can exert rapid non-genomic effects through its interaction with the αV/β3 integrin, modulating signaling pathways associated with cell proliferation, migration, and invasion. This work aims to dilucidate the role of T3 and integrin αV/β3, in cell adhesion and migration, as well as the association of this integrin with BC progression, patient survival, and its potential prognostic value. *In silico* analysis of gene and protein expression of *ITGAV* and *ITGB3*, the genes that encode α and β integrin subunits respectively, were performed in normal, tumor, and metastatic BC tissue, as well as in different cancer types. Correlation analysis for *ITGAV* and *ITGB3* with survival of BC patients was performed. Integrin αV/β3 expression was evaluated by western blot in different BC cell lines. Additionally, *in vitro* assays were conducted in MDA-MB-231 and T-47D BC cells, treated with T3 and integrin αV/β3 inhibitors (Cilengitide and Tetrac), analyzing cell viability, adhesion and migration. The analysis of public databases showed that *ITGAV* is overexpressed in multiple tumors, including BC. *ITGAV* overexpression is significantly higher in metastatic tissues, indicating its potential involvement in BC progression and aggressiveness. By western blot we demonstrated that the αV/β3 integrin is increased in MDA-MB-231 vs. T-47D BC cells. By viability assays, both BC cells exhibited increased sensitivity to Cilengitide versus Tetrac. The luminal T-47D subtype showed greater sensitivity to Cilengitide than the triple-negative MDA-MB-231 subtype. In functional assays, we find that T3 promoted cell adhesion and migration, effects that were reversed by the specific inhibitors Tetrac and Cilengitide, confirming the involvement of integrin αV/β3 in T3 induce BC motility. Finally, survival analyses evidenced that the overexpression of *ITGAV* is associated with lower relapse-free survival in BC patients, while overexpression of *ITGB3* is associated with worse overall survival. Taken together, these results indicate that αV/β3 integrin is overexpressed in various cancers, including BC. This overexpression is associated with worse clinical prognosis. Likewise, T3 promotes key processes for tumor dissemination, such as cell adhesion and migration, effects that are dependent on integrin αV/β3 signaling and reversible by its inhibitors. These findings support the prognostic value of integrin αV/β3 in BC and suggest the use of specific inhibitors, such as Tetrac and Cilengitide, as a therapeutic target to prevent breast cancer progression.

BF09- MILD HYPERTHYROIDISM REGULATES THE ACUTE STRESS RESPONSE IN VIRGIN RATS

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Hormonal imbalances are frequently associated with psychiatric disorders such as anxiety and depression. Since thyroid hormones are involved in stress mechanisms, we evaluated the neuroendocrine stress response in a mild hyperthyroidism (HyperT) model in sexually mature female rats. We analyzed key endocrine and limbic areas involved in stress regulation, including the mediobasal hypothalamus (MBH) and hippocampus (HpC). We assessed whether mild HyperT affects the hormonal response to acute stress induced by inhalation of ether vapour in virgin female Wistar rats. HyperT was induced with T4 (0.1 mg/kg/day, s.c.). Control (Con) and HyperT rats were bled from the tail vein during the 2 min ether exposure (s1) and 5 min after exposure (s2). Serum corticosterone, progesterone, and glycemia were measured. To explore possible neuroendocrine mechanisms underlying this stress response, we determined by RT-qPCR the expression of thyroid receptor (TR), the long isoform of the prolactin receptor (PRLRL), PRL signaling components (STAT5b, CIS, SOCS), progesterone receptor (PR), estrogen receptor (ER), and glucocorticoid receptor (GR) in MBH and HpC from Con and HyperT virgin rats. Acute stress induced a significant increase in corticosterone at s1 in both groups; however, 5 min post-stress (s2), corticosterone levels were lower in HyperT than in Con rats. Progesterone levels were similar between groups and increased at s2. Basal glycemia was higher in HyperT rats compared to Con; both groups increased glycemia at s1, but HyperT rats returned to basal levels at s2, whereas Con rats maintained elevated values. In MBH, TRβ1 expression tended to decrease in HyperT rats, while GR and STAT5b expression increased. Conversely, the PRB/PRA ratio decreased. In HpC, HyperT rats showed increased expression of TRα2, TRβ2, PRLRL, and STAT5b compared to Con. Differences between means were considered significant at $p<0.05$. These results indicate that mild HyperT modulates the hormonal stress response and that this regulation is tissue-specific within the CNS.

BF10- UNPRECEDENTED MULTIENDOGENOUS NANOFORMULATED APPROACH DEMONSTRATES CARDIOVASCULAR PROTECTION IN A MODEL OF HYPERTENSION AND ARRHYTHMIA RISK

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Vitamin D, anandamide, and melatonin are well-known endogenous substances recognized for their promising anti-inflammatory and cardioprotective properties. However, their active components are highly lipophilic and unstable in their free form, making them prone to enzymatic and oxidative degradation. Consequently, the simultaneous administration of anandamide, vitamin D, and melatonin through nanoformulated products represents a potential synergistic treatment for cardioprotection, particularly against ischemia/reperfusion arrhythmias. This study aims to demonstrate the safety and antiarrhythmic efficacy of a triple nanoformulated combination in hypertrophic hearts isolated from hypertensive rats subjected to ischemia/reperfusion injury. For this research, we used 8-week-old male spontaneously hypertensive rats (SHR) and Wistar Kyoto rats (WKY), following CICUAL approval. Blood pressure was measured using a non-invasive method (CODA®). The study groups were as follows: a) controls: WKY n=11, SHR n=10; b) empty nanoparticles: WKY n=6, SHR n=7; c) nanoformulated triple combination: WKY n=6, SHR n=8. Isolated hearts were perfused using the Langendorff technique and were subjected to 13 minutes of regional ischemia. During reperfusion, the protection and safety of bolus administration of the different treatments at the start of reperfusion were evaluated. Electrophysiological function was assessed using electrocardiograms. Incidence was compared using the χ^2 test. A sample size of 6 to 11 hearts per group was calculated, ensuring a power of 80% and an error rate of 0.05. In the study, SHR hearts exhibited a 90% incidence of ventricular fibrillation (VF) during reperfusion, while WKY hearts showed a 0% incidence. Empty nanoparticles did not prevent arrhythmias, resulting in an 86% incidence of VF in SHR hearts. However, the triple nanoformulated combination significantly reduced the incidence of VF from 90% to 12.5% in SHR hearts. In WKY hearts, both empty nanoparticles and the triple nanoformulated combination demonstrated no proarrhythmic effects, with both groups exhibiting 0% incidence of VF. Thus, we conclude, for the first time, that the triple nanoformulated nanoparticles were both safe and effective in providing antiarrhythmic and cardioprotective effects.

BF11- UNTARGETED METABOLOMIC APPROACH TO CARDIOVASCULAR HEALTH: EFFECTS OF A BIOACTIVE COMPOUND-RICH DIET ON HYPERTENSION

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Brassica vegetables are recognized for their bioactive effects on cardiovascular diseases (CVD), yet further investigation is needed to evaluate the efficacy of dietary interventions on the metabolic processes underlying chronic disorders. Metabolomics represents a powerful approach to assess the fate of bioactive compounds after ingestion and to explore their associations with physiological or pathological phenotypes. This study aimed to investigate the impact of a Brassica-rich diet on the hypertensive phenotype using an untargeted metabolomic strategy to elucidate the metabolic processes influencing CVD. Normotensive and hypertensive rats were fed Brassica microgreens (BMG) for 24 hours or 4 weeks (acute and chronic treatments, respectively, N=6 per group) versus a non-intervention control. Plasma and urine samples were analyzed by RP-UHPLC-ESI-QTOF in ESI− and ESI+ modes (50–1500 m/z). Data were processed with MZmine v2.53 for peak selection, deconvolution, and alignment, and with NOTAME v0.1.2 (R) for filtering non-biological variables. Multivariate analyses (ANOVA, Fold Change, PCA, PLS-DA, hierarchical clustering) were applied to identify biologically relevant features, which were annotated based on exact mass, MS/MS fragmentation, and isotopic pattern using online databases and in silico tools (SIRIUS 5.6.2). Chronic SHR rats showed a 30-mmHg reduction in blood pressure ($p<0.01$) compared with controls. Plasma and urine metabolomes clustered distinctly among treatments, with more than 50 discriminant features (PLS-DA VIP >2.5). Metabolites associated with Brassica intake, including sinigrin-derived and indolic compounds, were linked to antihypertensive modulation, while alterations in lipid metabolism (glycerophospholipids, cardiolipins, lysophospholipids) emerged as key contributors. Overall, metabolomics enabled a robust molecular characterization of normotensive and hypertensive rats, supporting the notion that hypertension involves not only vascular dysfunction but also metabolic alterations modulated by phytochemical-rich diets.

BF12- INSULIN TRIGGERS POST-TRANSCRIPTIONAL SUPPRESSION OF 14-3-3β IN A DOSE-DEPENDENT MANNER

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14-3-3 proteins play diverse roles in adipogenesis by regulating transcription factors, cell cycle progression, signal transduction pathways, protein localization, and interaction with adipogenic proteins. Their exact role may vary depending on the specific context and stage of adipocyte differentiation, highlighting their importance in the regulation of adipogenesis. Initial investigations into the adipogenic differentiation process indicated that insulin had an effect on the mRNA levels of the 14-3-3γ (YWHAG) and 14-3-3β (YWHAB) paralogs. To precisely isolate the direct effect of insulin from the complex transcriptional reprogramming of differentiation, we designed a simplified model using undifferentiated 3T3-L1 preadipocytes. This approach allowed us to interrogate post-transcriptional events in a controlled setting. Cells were maintained in DMEM supplemented with FBS 10% and treated for 6 hours with a range of insulin concentrations typical for *in vitro* differentiation models (5, 10, and 15 µg/mL). Subsequent quantitative Western blot analysis showed an evident and dichotomic response at the protein level. The 14-3-3β paralog showed dose-dependent suppression. Its protein levels decreased strongly and progressively with increasing insulin, culminating in the protein being nearly undetectable under our experimental conditions at the highest dose. In contrast, the 14-3-3γ paralog displayed stability, with its abundance remaining relatively constant across the lower insulin doses and showing only a moderate increase at the 15 µg/mL concentration. This work identifies a quick post-transcriptional regulatory mechanism whereby insulin signaling selectively depletes the 14-3-3β paralog while leaving 14-3-3γ largely unaffected. These findings significantly advance our understanding of 14-3-3 biology by revealing an unappreciated layer of paralog-specific regulation directly at the interface of metabolic hormone signaling.

BF13- GENETIC AND METABOLIC RISK FACTORS OF ESSENTIAL HYPERTENSION

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Arterial hypertension (HTA) is a complex, polygenic disorder, a primary risk factor for cardiovascular disease and one of the leading causes of mortality and morbidity worldwide. Its etiology is multifactorial, resulting from the interaction of environmental, behavioral, and genetic factors. Among the latter, polymorphisms in genes of the renin-angiotensin system (RAS) and endothelial function have been widely studied for their role in blood pressure regulation and the development of cardiovascular complications. The objective of this study was to analyze the association of the insertion/deletion of angiotensin-converting enzyme (ACE I/D), angiotensinogen (AGT) M235T, the angiotensin II type 1 receptor (AT1R) A1166C and the endothelial nitric oxide synthase (eNOS) G894T polymorphisms with clinical, anthropometric and biochemical parameters in a population from San Luis. A case-control study was conducted, including 397 individuals (230 hypertensive and 167 normotensive). Written informed consent was obtained from all participants. Anthropometric, clinical, and biochemical data were recorded; in addition, genomic DNA extraction and genotyping by Polymerase Chain Reaction combined with Restriction Fragment Length Polymorphism (PCR-RFLP) were performed for each of the study participants. We analyzed traditional cardiovascular risk factors in the population. The Odds Ratio (OR) analysis revealed that the age ($p < 0.001$), the overweight ($p < 0.001$), the elevated fasting glucose (p 0.005) and elevated triglycerides ($p < 0.001$) as significant predictors of HTA. The polymorphisms studied were not associated with an increased risk of hypertension in this population, but showed significant differences in relevant metabolic parameters. Associations were identified between certain genotypes and higher body mass index (BMI), fasting glucose, triglycerides, and total cholesterol levels. Furthermore, the sex-stratified analysis showed that hypertensive women presented more marked differences compared to hypertensive men. This study highlights obesity/overweight as one of the main determinants of hypertension risk in the total population. In conclusion, the findings reinforce the importance of genetic factors in the predisposition to hypertension and associated metabolic disorders, and provide local and regional evidence that could contribute to the development of more appropriate and effective prevention and treatment strategies for populations in San Luis and the region.

AREA 9: VETERINARIA, ANATOMIA, HISTOLOGIA Y FISIOLOGIA ANIMAL

VETERINARIA, ANATOMIA, HISTOLOGIA y FISIOLOGIA ANIMAL

VAH01- DRY SHAMPOO FORMULATION WITH ESSENTIAL OILS FROM CHILEAN NATIVE PLANTS FOR THE TREATMENT OF CANINE PYODERMA CAUSED BY *STAPHYLOCOCCUS PSEUDINTERMEDIUS*

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Canine pyoderma is a common and often chronic skin infection in dogs, mainly caused by *Staphylococcus pseudintermedius*, responsible for up to 92% of cases. Methicillin-resistant strains (MRSP), with resistance rates up to 59%, compromise antibiotic efficacy and underscore the urgency of novel therapeutic approaches. This study, supported by FONDEF IDEA ID24I10250, focuses on formulating a topical dry shampoo with essential oils (EOs) from two Chilean native plants, aiming to provide a natural and sustainable alternative for canine pyoderma and resistant infections. Three prototypes were prepared: S-CA (EO from p1), S-LP (EO from p2), and S-V (control, without EO), with cornstarch as the base. Organoleptic properties (appearance, texture, pH) were evaluated, and stability was tested under accelerated conditions (50 °C, 24–120 h; centrifugation at 13.000 rpm) and six-month storage. Safety was assessed in 18 mice through daily topical application on shaved skin for five days, followed by clinical and histopathological evaluation. No signs of toxicity or irritation were observed, and prototypes remained stable. Clinical evaluation is ongoing in 32 dogs diagnosed with pyoderma under controlled conditions. Findings indicate that these formulations may offer an effective and safe tool against canine pyoderma and antimicrobial resistance, with clear benefits for veterinary practice and public health.

VAH02- *Cannabis sativa*–BASED DIETARY ADDITIVE FOR POULTRY: IMPACT ON INTESTINAL HEALTH INDICATORS AND PRODUCTIVE PERFORMANCE IN QUAILS

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The use of phytobiotics as natural alternatives to antibiotic growth promoters has gained attention in poultry production due to their potential to improve productive efficiency and gut health. Cannabidiol (CBD), a non-psychoactive phytocannabinoid from *Cannabis sativa*, has been associated with anti-inflammatory, antioxidant and immunomodulatory effects, although its application in poultry nutrition remains incipient. Relative intestinal weight (RIW) has been proposed as a practical biomarker of gut health, where lower values may indicate reduced inflammation or edema and greater absorptive efficiency. This study evaluated the effect of a dietary additive based on bentonite and *Cannabis sativa* (variety Lupin 2010, Green Lady S.A.), on productive and intestinal parameters in quails. The leaves and cotyledons of the plants used for the additive contain up to 2 mg/g of CBD. Forty-five quails were distributed into three groups (n=15 each): a control group without additive (CG) and two treatment groups supplemented with diets containing 400 ppm (TG1) and 800 ppm (TG2) of cannabis extract from day 10 to day 36 of rearing. At the end of the cycle, body weight, carcass yield, intestinal weight and RIW, as well as serum albumin concentration, were measured. Although no significant differences were observed, certain trends could be identified. TG2 showed the highest final body and carcass weights, the best carcass yields a 7% lower RIW compared to the CG, which may suggest a more efficient intestine with reduced physiopathological compromise. Serum albumin was also higher in TG2 (1.20 g/dl vs 1.03 g/dl in CG), supporting the hypothesis of an apparently improved metabolic-protein status at the higher additive dosage. These preliminary results are consistent with previous studies indicating that greater intestinal weight does not necessarily translate into improved digestibility but rather into better functionality, and highlight RIW as a practical indicator of gut health. The cannabis–bentonite additive may constitute a potential phytobiotic alternative for improving intestinal health and productivity in poultry, thereby warranting further investigation through histological and microbiota analyses.

VAH03- FREE RANGING DOGS AND THEIR PARASITES IN THE RURAL-NATURAL ECOTONE OF MENDOZA

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As part of the project "Human-fauna intersections in dryland socio-ecological systems: free-ranging dogs as a socio-environmental issue", we aimed to evaluate the parasites infecting dogs from rural settlements (*Puestos*) situated in the foothills of the Mendoza Metropolitan Area. We worked in three *Puestos* located in western Godoy Cruz and Luján, where subsistence livestock farming is carried out. In the winter of 2024, we collected a total of 19 feces from dogs living in these *Puestos*. The feces were processed using an adaptation of the Teuscher´s technique (double sedimentation-centrifugation-flotation) with a saturated solution of sucrose (density 1300), which allows us to diagnose parasitic forms of protozoa, nematodes, and cestodes. We used a sedimentation technique to detect trematode eggs. The observed parasitic forms were measured using an ocular micrometer and photographed with a digital camera attached to an optical microscope. Parasite structures were evident in 36.8% of the samples. The evolutionary stages corresponded to at least six parasite species. Among them, we detected non-sporulated coccidia oocysts and sporulated oocysts of *Cystoisospora* (syn. *Isospora*); eggs of *Trichuris* sp., *Toxascaris leonina*, *Toxocara canis*, and unidentified cestode eggs (tapeworm-like eggs). The average measurements of the helminth eggs were: *Trichuris* sp. 62.80µm x 29.80µm (n=6), *Toxascaris leonina* 87.32µm x 70.41µm (n=23), *Toxocara canis* 90.31µm x 78.38µm (n=14) and tapeworm-like eggs 32.00µm x 28.80µm (n=11). When analyzing the parasite richness, we found that the most frequent observation were coinfections by 2 parasites species (21.1%). The maximum richness was found in 5.3% of the samples (n=1), parasitized by 4 species. Regarding parasite prevalence and intensity, the species with the highest apparent prevalence were *Toxascaris leonina* (31.6%) and *Toxocara canis* (21.1%), while the highest parasite intensity was detected with tapeworm-like eggs (123 eggs per gram of feces). Although these results are preliminary, they highlight the occurrence of domestic animal parasite species that are important for public health, as their transmission can cause disease in humans. Furthermore, all diagnosed parasitic species would have the potential to infect native mammals such as gray foxes, wild cats, guanacos, and pumas (among others) that inhabit the sampling area.

VAH04- MORPHOLOGICAL AND HISTOCHEMICAL CHARACTERISTICS OF VISCACHA HARDERIAN GLAND (*Lagostomus maximus*) DURING PREGNANCY

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The Harderian gland (HG) is a predominantly exocrine gland located within the ocular orbit in a wide variety of terrestrial vertebrates. The exact location of HG, its shape, size, morphological characteristics, kind of secretion, functions and regulatory pathways are species-specific. The objective of the present work was to study the morphological and histochemical characteristics of HG in non-pregnant and pregnant viscachas, a native rodent with seasonal reproduction and nocturnal habits. Females are characterized by being natural poly-ovulators (200-800 oocytes per estrous cycle). Adult female viscachas were captured in their natural habitat and divided in two groups: Non-pregnant (NP) (n=3) and Pregnant (P) (n=3). Serum estradiol and progesterone levels were quantified using the RIA. The HGs were extracted and processed for light microscopy. Estradiol (75 ± 2.89pg/ml) and progesterone (53.75 ± 2.39ng/ml) serum concentration was higher in pregnant than in non-pregnant (18 ± 3.19pog/ml, 0.72 ± 0.11ng/ml, respectively). In non-pregnant, the gland is surrounded by a thin connective capsule that compartmentalizes the parenchyma into lobules. Each one, constituted by adenomeres lined by a simple cuboidal epithelium with nucleus located basally. Two kinds of adenomeres constituted the parenchyma: large ones with wide lumen (123.22±1.57µm), lower epithelium (22.57±0.63µm) and cytoplasm intensely acidophilic and small adenomeres with reduced lumen (52.40±1.03µm), higher epithelium (35.23±0.55µm) and pale cytoplasm. In pregnant, morphological organization was similar to what described in non-pregnant. The main differences were a lower distribution of large adenomeres (Luminal Diameter (LD): 119.22±1.59µm, Epithelial Height (EH): 22.47±0.61µm) and a predominance of small ones (LD: 51.25±1.25µm, EH: 37.25±0.40µm) in relation to non-pregnant. Furthermore, an increased number of adenomeres with lumen PAS-positive (+) was observed, suggesting a greater secretory activity. According to our results, pregnancy produces changes in the HG morphological organization, probably due to sex hormones effects, with the increase in serum progesterone level during this stage. However, future studies are necessary to establish the HG functions in viscacha during the pregnancy.

VAH05- POSTNATAL MORPHOLOGICAL DEVELOPMENT OF THE PROSTATE AND SEMINAL VESICLES IN *Lagostomus maximus:* A COMPARISON BETWEEN PREPUBERAL AND IMPUBERAL STAGES

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Our experimental model, viscacha (*Lagostomus maximus*), is a seasonally breeding rodent that exhibits pronounced photoperiodic and androgen-dependent regulation of its reproductive activity. Seasonal changes in the reproductive physiology of the adult male are evident in its natural habitat, where gonadal activity intensifies during the summer and early autumn, followed by a marked decline during the winter period. Accessory sex glands have been previously studied, and these studies revealed that seminal vesicles (SV) of prepuberal and adult animals were radially organized into three well defined histological layers: mucosa with a pseudostratified epithelium and a thin lamina propria, a muscular layer, and an adventitia. Prostate (P) of adult animals was lined with pseudostratified columnar epithelium and displayed two distinct regions: the central and peripheral zones, differing in epithelial height and degree of folding, and in luminal diameter. The objective of this work was to examine the postnatal morphological maturation of the prostate and seminal vesicles, with emphasis on the differences observed in comparison to the impuberal and prepuberal stages. Eight males were captured in their habitat and divided in 2 groups according to their weight and microscopic observation of the testes: 4 impuberal (1-2 kg) and 4 prepuberal animals (3-4 kg). Serum testosterone levels were quantified using a total testosterone assay, and accessory sex glands were removed and processed for light microscopy. Serum testosterone levels of immature animals were below the detection limit (<0.20 ng/dl) while in pre-puberal they were 139 ± 30.77 ng/dl. Hematoxylin-Eosin, Masson's trichrome and PAS histochemical stains were performed. In the impuberal stage, SV exhibited a simple low columnar to cuboidal epithelium and a fibromuscular stroma with abundant collagen fibers and smooth muscle cells. Unlike the prepuberal and adult animals, no clear arrangement between lamina propria and muscular layer was observed. The prostate of impuberal viscachas showed few large adenomeres with a highly convoluted lumen, and there was no organization into central and peripheral zones. Epithelial folds of a pseudostratified epithelium were surrounded by a thin layer of fibromuscular stroma. The periphery of the glandular adenomeres consisted of a large amount of irregularly arranged dense connective tissue. These differences observed among the studied groups highlight that morphological changes occur gradually, and point to the regulatory role of androgen levels in organ development.

VAH06- EVALUATION OF ULTRASONOGRAPHIC PREDICTION OF RIBEYE AREA IN LAMBS

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The rib-eye area (REA) is a widely used parameter in meat production, providing individual valuable information regarding the carcass quality expected to exhibit post-slaughter. It allows the prediction of the animal's muscularity and is associated with the proportion of retail cuts. Moreover, as it can be measured in the live animal, REA offers pre-slaughter information that aids in evaluating the animal not only as a meat producer but also as a potential breeder. Previous studies have reported a correlation of approximately 0.70 between in vivo REA measurements and postmortem determinations. The objective of this study was to evaluate the predictive accuracy of ultra-sonographic measurements of the rib-eye area in heavy Highlander lambs. Thirteen lambs with an average pre-slaughter weight of 35.92 ± 4.41 kg were evaluated. Ultra-sonographic measurements of REA were performed on July 22, 2021, using an Aquila Pro Vet ultrasound device, four days prior to slaughter. The images were obtained by a certified technician and analyzed by specialists. Results indicated mean REA values of 9.12 ± 1.08 cm² measured by ultrasound and 13 ± 1.64 cm² determined by planimetry on carcasses. These measurements showed a statistically significant correlation ($p = 0.02$) between ultra-sonographic REA (REA us) and postmortem REA (REA_pm), with a correlation coefficient of 0.74, indicating a linear relationship between variables. Linear regression analysis demonstrated that ultra-sonographic measurements explained 55% of the variation observed postmortem ($R^2 = 0.55$) with statistical significance ($p = 0.02$). The estimated root mean square error of prediction (RMSEP) was 2.33, indicating an average difference of 2.33 cm² between predicted and measured REA values. A little part of this discrepancy may be attributed to the four-day interval between ultrasound assessment and slaughter date, and partly due to an interpretation technique error by interpreters with more experience in bovine determinations, that owns larger rib-areas. Additionally, both ultra-sonographic and carcass REA values were correlated with the subjective carcass conformation score (0.81 and 0.86, respectively) and, to a lesser extent, with cold carcass weight (0.40 and 0.50, respectively). It is concluded that the ultra-sonographic measurements obtained in this study were representative of the actual rib-eye area measured postmortem, and carcass conformation, confirming that ultrasound imaging is an effective predictive tool. However, increasing the sample size (n) and performing additional measurements, in live animal or post-slaughter, could allow the inclusion of other variables and further refinement of the prediction model.

VAH07- COMPARISON OF LOCAL AND NATIONAL OVINE SLAUGHTER DURING 2023–2024

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When referring to ovine meat, the development of regulations, work protocols, and commercial strategies are generally based on national information. However, in Argentina, the distribution of sheep stocks is highly unbalanced, only 7.5% of production units (P.U.)—that is, 6689 establishments, mostly located in the Patagonian region—hold 72% of the national sheep population, with flocks exceeding 250 animals. The remaining 92.5% of establishments (approximately 84000 P.U.) have fewer than 250 head, representing the remaining 28% of the national ovine stock. Consequently, national decision-making and policies provide limited benefits to small-scale sheep producers, who constitute the majority in the central region of the country. The objective of this study was to analyze ovine slaughter records from 2023-2024 at a local slaughterhouse in Río Cuarto and to compare them with national records. Descriptive analysis revealed that, at the national level, ovine slaughter shows a marked decline from June to September, along with a decrease in the percentage of lambs (15–30%), determined by the species reproductive seasonality. The national minimum remained around 20000 animals, with higher carcass weights, indicating that most were adults. At the local level, the period with the lowest slaughter (zero) occurred between May and July. This earlier decline may be due to an earlier breeding season associated with the breeds raised in the area. The national slaughter peak occurred from December to February, with an increase in the proportion of lambs (up to 86% in December) and a decrease in carcass weight (13 kg), reflecting the slaughter of younger animals. Locally, the slaughter peak was observed in September, consisting entirely of lambs (100%) and with carcass weights lower than the national average. This earlier slaughter of lambs can be explained by the prevalence of meat-type breeds in the region, which allow an early breeding season and the possibility of two breeding cycles per year, resulting in earlier availability of lambs. In addition, the quality and abundance of feed in the region promote faster lamb growth. An increase in the number of lambs was observed between February and April, corresponding to the selling of late-born lambs aged 4–6 months. At the local level, carcass weights were higher than the national averages throughout the year (18–28 kg vs. 13–20 kg), except in September, when average weights were 12 and 16 kg (in 2023 and 2024, respectively). This difference is explained by the higher proportion of lambs (72–100%), showing that younger but heavier and better-finished animals are sent to slaughter. This finding reflects the region's favorable climatic and nutritional conditions. Another remarkable feature is the irregularity of local slaughter curves, with months showing no recorded activity. This variability suggests that the number of animals reaching the slaughterhouse fluctuates significantly, possibly due to the production focus on the farms of origin, the diversion of animals to informal slaughter, transportation difficulties, or depletion of lamb stocks. Including data from additional slaughterhouses would allow less variability and more regionally representative analysis. It is concluded that lamb production in the central region of Argentina occurs earlier due to the breeds used, greater forage availability, and the type of product destined for this slaughterhouse. As a result, locally produced lambs achieve higher carcass weights than the national average.

VAH08- MORPHOMETRIC ASSESSMENT OF RENAL ALTERATIONS IN *Zenaida auriculata* Induced BY DICLOFENAC, AN EMERGING CONTAMINANT

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Diclofenac (DFC) is an emerging contaminant recently detected in central Argentinean rivers. The drug is known to impair renal function in birds, leading to population collapses like those reported in South Asia. However, studies in this geographic region are lacking. Therefore, it is crucial to evaluate the DFC's effects on local avifauna. This study aimed to evaluate the histopathological effects of DFC on the kidneys of the eared dove (*Zenaida auriculata*). Four groups of animals (n = 7) were exposed for 10 days to different DFC concentrations: 0.005 mg/kg (G1), 0.25 mg/kg (G2), and 2.5 mg/kg (G3), administered by gavage at the same time each day. A control group (G0) received only water. At the end of the exposure period, birds were euthanized and kidneys were collected and processed for light microscopy. Histological sections were prepared and stained with hematoxylin-eosin. These sections were then used for image analysis. We quantified renal damage by measuring the area of Bowman's space, calculated as the glomerular corpuscle area minus the glomerular tuft area. Statistical analyses were subsequently performed. Histological analysis revealed alterations in renal structure, with a significant dilation of Bowman's capsule in DFC-treated birds from G3 compared to controls ($P < 0.005$). Mild cortical hemorrhage was also observed, suggesting microvascular damage. These findings demonstrate the nephrotoxic effect of DFC in eared doves. The observed damage is likely caused by prostaglandin inhibition and subsequent ischemia, which disrupt the filtration barrier and endothelium, thus explaining both blood extravasation and glomerular capsule distension. In conclusion, these results indicate that a 2.5 mg/kg dose of DFC induces structural damage to the kidneys of this species. Supported by UNSL-PROICO 2-0820 and CONICET- PIP 163- 2023 to F.D. Cid.

VAH09- PRESENCE OF HORN FLIES (*HAEMATOBIA IRRITANS*) IN RED DEER (*CERVUS ELAPHUS*)

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The red deer (*Cervus elaphus*) is a mammal that was introduced to the province of La Pampa for sport hunting. The horn fly (*Haematobia irritans*) is a small, blood-sucking dipteran that frequently parasitizes cattle and, to a lesser extent, horses. Its presence is seasonal, with peak populations typically occurring during the warmer seasons of the year, peaking in late spring and early autumnwhile populations decline dramatically with the first frosts. In cattle with a high insfestation of red deer fly, milk production or weight gain may be affected. The objective of this study was to determine whether red deer carry external parasites. In the province of La Pampa, 116 red deer were sampled between 2020 and 2025, of which 60 were hunted during the fall-winter period and 56 during the spring-summer period. The presence of *Haematobia irritans* (horn fly) was observed in two individuals. The parasitized deer were hunted in late winter and spring. The presence of Haematobia irritans in red deer raises the possibility of its geographic expansion to areas where cattle are scarce.

VAH10- PHYSIOLOGICAL AND OVARIAN RESPONSE TO EXPERIMENTAL HEAT STRESS IN A WILD RODENT (*Lagostomus maximus*)

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Heat stress (HS), derived from extreme weather events intensified by climate change, represents a critical threat to animal survival and welfare. In mammals, elevated ambient temperatures push individuals beyond their thermal comfort zone, triggering HS and impairing biological processes that are non-essential for immediate survival. The South American plains vizcacha (Lagostomus maximus) is a wild semi-fossorial rodent with key ecological functions, whose habitat spans a wide climatic gradient across its range. In this study, three thermal protocols were tested over seven consecutive days: (i) a fluctuating high-temperature regime resembling the summer thermal profile (HSi, n=8); (ii) a constant high-temperature protocol simulating a heat wave (HSc, n=6); and (iii) a thermoneutral condition maintained at 22°C (TN, n=9). We evaluated the impact of HS on vizcacha's peripheral body temperature (PBT), metabolic variables, and follicular maturation. Both HS protocols significantly increased PBT compared to TN (HSi, $p<0.05$; HSc, $p<0.001$), with a more pronounced effect under constant heat exposure (HSc vs. HSi, $p<0.05$). Two metabolic indicators, alkaline phosphatase and glutamic-pyruvic transaminase, suggested hepatic function alterations in HSc and HSi ($p<0.05$). Comparative ovarian morphometry revealed no significant differences in ovary-to-body weight ratio among groups. However, females in the HSc group showed a significant increase in atretic follicles and a reduction in viable follicles per area ($p < 0.001$), resulting in a lower viable-to-atretic follicle ratio. Specifically, HSc females exhibited a higher number of atretic preantral follicles. Immunohistochemical analysis of anti-Müllerian hormone (AMH) and proliferating cell nuclear antigen (PCNA), markers of follicular progression, revealed distinct staining patterns among treatments. Overall, our results demonstrate that exposure of vizcachas to high environmental temperatures induces physiological strain, reflected in changes in PBT and liver function. Moreover, heat stress altered follicular recruitment, proliferation, and atresia levels. Although HS negatively affected ovarian function, the response in vizcachas was milder than that described for other taxa, primarily domestic species, which typically exhibit pronounced follicular disruption under similar conditions. This attenuated ovarian response may reflect the vizcacha's physiological adaptability, consistent with its ability to inhabit diverse ecoregions with contrasting climates. In conclusion, the tested thermal stress protocols elicited measurable physiological and ovarian responses, yet more extreme climatic conditions could potentially compromise follicular integrity and reproductive success in this species. This work was funded by CONICET (PIP#11220200100036CO) and the Fundación Científica Felipe Fiorellino.

VAH11-EFFECT OF MELATONIN ADMINISTRATION ON TESTICULAR AUTOPHAGY IN *LAGOSTOMUS MAXIMUS*

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In several studies, it has been observed that the melatonin rhythm plays a key role in the regulation of gonadal morphology and physiology according to the specific reproductive season of each species. The viscacha (Lagostomus maximus) is a wild South American rodent with nocturnal habits and seasonal reproduction. The main objective of this work was to use the viscacha (Lagostomus maximus) as an experimental model to analize the administration effects of melatonin on testicular histology and the immunohistochemical expression of autophagy specific proteins: LC3B (ABCAM) y P62 (ABCAM). The adult animals were captured during the period of maximal gonadal activity in their habitat near San Luis city. The adult males were divided in two groups: 1) Experimental Group (EG) (n=3) received two daily subcutaneous injections of melatonin (Sigma, 100µg/kg body weight in aqueous solution) at 09:00 h and 17:00 h for 9 weeks, and 2) Control Group (CG) (n=3) received only the diluent. The blood samples were obtained from anesthetized animals. Serum testosterone levels were determined by a solid phase competitive chemiluminescent enzyme immunoassay. Testicular samples were surgically removed and processed for optical microscopy. Serum testosterone levels were significantly lower in EG (159±36.43) than CG (487.50±45.35). The seminiferous tubules diameter was similar in CG (523.50 ± 8.18) and EG (556.88 ± 3.00). However, it was observed germinal epithelium disorganization with loss of contiguity between the germinal and Sertoli cells, epithelial vacuolation and germ cell desquamation within seminiferous lumen in EG. These observations were contrary to what was observed in CG. LC3B expression in CG was limited to spermatids, while in EG intense expression was detected in all germinal stages, mainly in spermatids. P62 expression was negative in both studied groups. According to our results, melatonin administration produces changes in testicular morphological organization and autophagic activity to recycle damaged or unnecessary cellular components in our experimental model. The male gonad could develop cellular rearrangement mechanisms to preserve homeostasis in a particular situation of exacerbated exposure to melatonin. Further studies are needed to establish the mechanisms of action developed by this hormone.

VAH12-RHOGOCYTES, TELOCYTES AND RELATED INTERSTITIAL CELLS IN THE DIGESTIVE GLAND OF THE INVASIVE SNAIL *SINOTAIA QUADRATA* (VIVIPARIDAE)

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Sinotaia quadrata is an invasive gastropod native to Southeast Asia and currently the only representative of the architaenioglossan family Viviparidae in Argentina (see the companion abstract by the same authors 10.11646/mr.32.3.1). Its digestive gland is tubular, with epithelial tubes embedded in a complex interstitium rich in hemocoelic spaces containing hemocytes, rhogocytes, and storage cells. Hemocytes do not appear to diverge markedly from those found in ampullariids, which are considered the sister taxon of Viviparidae. Rhogocytes are widespread molluscan cells involved in hemocyanin synthesis and metal metabolism, characterized by large, pleomorphic, apparently polyploid nuclei, extensive rough endoplasmic reticulum, and conspicuous cytoplasmic granules. Metals, particularly copper, accumulate in these cells for both hemocyanin biosynthesis and, apparently, detoxification. A hallmark of rhogocytes is the slit apparatus, a unique membrane structure thought to function as a molecular sieve; we have also observed this structure in the rhogocytes of the ampullariid *Pomacea canaliculata.* In *S. quadrata,* rhogocytes with similar characteristics are arranged more loosely in the interstitium, often free in hemocoelic spaces and surrounded by a delicate network of telocytes. Telocytes are interstitial cells with small bodies and extremely long, thin cytoplasmic extensions (telopods) that envelop rhogocytes; although they have been reported for various species and tissues their biological role remains uncertain. Another type of interstitial cell resembles the urate cells we previously described in *P. canaliculata,* containing cytoplasmic urate crystalloids. In this amphibious snail, urate functions as an important antioxidant during seasonal periods of hypometabolism and arousal. Morphologically similar cells have also been observed in aquatic marine and freshwater gastropods, and analogous cells are often referred to as Leydig cells in bivalves. Storage cells from bivalves are probably the best-studied type and have long been considered potential glycogen reserves—a point particularly relevant given the central role of glycogen as an energy store and the absence of adipocytes in molluscs, the classical energy-storage cells in other animals.

VAH13- THE DIGESTIVE GLAND EPITHELIUM OF THE INVASIVE SNAIL *Sinotaia quadrata* (VIVIPARIDAE) AND A NEW TYPE OF A BIOSYNTHETICALLY ACTIVE CELLULAR ASSOCIATION

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Sinotaia quadrata was first reported in Córdoba (central Argentina) by Ovando and Cuezzo in 2009. Native to Southeast Asia (China, Korea, and Taiwan), this finding is noteworthy because viviparids have been absent from the South American fossil record since the Tertiary, and *S. quadrata* is currently the only representative of Viviparidae in Argentina. Its digestive gland consists of tubules lined by two intermingled cell types opening into the glandular lumen: digestive–excretory (DE) cells and biosynthetically active (BA) cells. DE cells rise vertically from the basal lamina, most containing a large brown corpuscle above an inconspicuous nucleus, approximately at the junction of the lower and middle thirds of the cell height. Their apical domain mediates both endocytosis of tubular contents and exocytosis of intracellularly digested materials, even though many DE cells bear a well-developed ciliary apparatus. In contrast, BA cells form bundle-like associations initially resting on the basal lamina but bending toward the tubular lumen, with large pleomorphic nuclei containing heavy chromatin granules and abundant rough endoplasmic reticulum. BA cells are distinctly more electron-dense than DE cells, allowing clear distinction between the two. The basal domain of BA cells shows irregular plasma membrane digitations, while the lateral domain exhibits rows of concatenated lacunae within the intercellular space. It is unclear whether the basal mat formed by BA cells represents a syncytium or a mere aggregation of similar cells. Projections from this basal mat thin as they follow a J-shaped course toward the lumen, often splitting into smaller bundles that may expand into cup-shaped microvillar structures crowned with abundant cilia. The remainder of the luminal surface is formed by DE cell apices, which are less electron-dense and bear fewer microvilli due to their phagocytic and exocytic activity. Beneath the epithelium lies a basal lamina with patches of characteristic periodicity, and immediately below, myoid cells provide a contractile and supportive component. The occurrence of such a complex cellular array within and around the digestive tubules (see also the companion abstract) raises questions about the functional significance of these structures and their potential role in the invasive success of this species.

VAH14-EXPLORATION OF THE BIOACTIVITY OF PLANT EXTRACTS FROM THE VALDIVIAN FOREST FOR THE PREVENTION AND TREATMENT OF BOVINE MASTITIS: AN INTERDISCIPLINARY COLLABORATION BETWEEN INSTITUTIONS IN ARGENTINA AND CHILE

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Bovine mastitis is one of the most significant infectious diseases in the dairy industry. It is an inflammation of the mammary gland mainly caused by microorganisms that disrupt the mammary epithelium, reducing its secretory capacity either temporarily or permanently, and leading to inflammation, pain, and functional alterations. This condition affects the animal's health and welfare and, at the same time, causes substantial economic losses to the dairy sector. In the prevention and treatment of bovine mastitis, antimicrobial drug therapies are commonly employed; however, their prolonged or improper use promotes the emergence of resistant strains and compromises the quality and safety of dairy products. In response to this issue, the aim of this study was to evaluate the antifungal activity of essential oils obtained from *Laureliopsis philippiana* and *Drimys winteri*, two native plant species from the Valdivian Forest, against *Candida albicans* and *Candida krusei*, opportunistic etiological agents associated with bovine mastitis. Both *L. philippiana* and *D. winteri* are native plants whose essential oils have previously demonstrated antioxidant, antiproliferative, and antimicrobial properties. In this study, *in vitro* susceptibility tests were performed against *C. albicans* and *C. krusei* using agar diffusion assays and determination of minimum inhibitory concentrations (MICs). Preliminary results showed that the essential oils produced inhibition zones comparable to or greater than those of conventional antimicrobials, exhibiting inhibitory activity that varied depending on the type of essential oil evaluated. These findings are crucial for projecting the potential application of these plant extracts as sources of bioactive compounds for the development of new pharmacological treatments in veterinary medicine, offering a sustainable approach that contributes to reducing the use of synthetic drugs and the risk of antimicrobial resistance.

VAH15- SUBLETHAL EFFECTS OF THE IMIDACLOPRID ON HEPATIC ARCHITECTURE OF EARED DOVES (*Zenaida auriculata*)

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The extensive agricultural use of neonicotinoid insecticides in Argentina has raised growing concern about their environmental persistence and unintended effects on non-target species. Among these compounds, imidacloprid (IMI) is widely applied as a seed coating in major crops, posing a potential risk to granivorous birds that feed on treated seeds. This study evaluated the chronic sublethal effects of IMI on hepatic histological biomarkers in the eared dove (*Zenaida auriculata*). Eighteen adult doves were randomly assigned to three groups and orally dosed by gavage once daily for 21 days. The control group (Co) received only water, while the low-dose (LD) and high-dose (HD) groups were exposed to 3.93 mg/kg body mass/day (1/15 LD_{50}) and 11.8 mg/kg/day (1/5 LD_{50}) of formulated IMI, respectively. After exposure, birds were euthanized, and liver samples were processed for light microscopy. Histological sections were stained using techniques for subsequent image analysis and statistical evaluation of morphometric parameters. The size of hepatocytes, central veins, and portal areas was quantified (using hematoxylin-eosin staining). Additionally, the area occupied by collagen fibers (using Masson's Trichrome) and the amount of iron deposits (using Perl's Prussian Blue) were measured. The Co group exhibited normal hepatic architecture, while the LD group showed mild alterations such as steatosis, sparse inflammatory foci, and discrete iron deposits, with no significant morphometric differences from controls. In contrast, the HD group displayed pronounced histopathological lesions, including hepatocellular atrophy, necrotic areas, leukocytic infiltration, sinusoidal dilation, and bile duct epithelial alterations. Quantitatively, significant increases were observed in the size of portal areas and central veins. Morphometric analysis revealed decreased cytoplasmic and nuclear size of hepatocytes in Zone 1 (periportal zone) and a reduction in nuclear size in hepatocytes of Zone 3 (centrilobular zone). Additionally, a greater amount of collagen deposition forming portal-portal bridges and increased iron accumulation were observed. These results demonstrate that chronic exposure to environmentally relevant doses of IMI induces dose-dependent hepatic alterations in *Zenaida auriculata*. Although low-dose exposure produced subtle, potentially reversible effects, the high dose caused structural and metabolic impairment of the liver, revealing its high sensitivity to neonicotinoid toxicity. The histological and morphometric changes identified here constitute sensitive biomarkers for assessing sublethal pesticide exposure in wild birds and reinforce the ecological risk associated with the widespread agricultural use of imidacloprid. Supported by UNSL-PROIPRO 02-3723 (V.P. Filippa), UNSL-PROICO 02-0820 (F.D. Cid), and CONICET PIP 163-2023 (F.D. Cid).

VAH16- COMPREHENSIVE APPROACH APPLIED TO THE BASIC KNOWLEDGE OF THE FLUKE-SNAIL CONSORTIA: HUMAN-ANIMAL HEALTH AND ECOLOGICAL IMPLICATIONS WHEN CONSISTENTLY IDENTIFYING HOSTS AND LARVAE

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We are developing a research program that explores the parasitic symbiotic relationship between aquatic snails, molluscs belonging to the class Gastropoda, and their digenean trematode parasites. The main issue found in the identification of both snails and helminths is the lack of enough morphological characters to encode in a data matrix. By a multidisciplinary approach (molecular, microscopic/histological, and epidemiological survey tools), we advance in the taxonomy, phylogeny, and epidemiological aspects of snails and their parasitic flukes, which are usually established in the snail's digestive gland. The mitochondrial COXI, together with the nuclear rRNA 28S and the whole ITS region, was demonstrated to be useful for the identification of the larvae of the flukes *Echinochasmus* sp., *Phaneropsolus* sp., *Stomylotrema vicarium*, and *Nasusbilharzia* sp., which parasitised caenogastropods (apple snails; fam. Ampullariidae) and heterobranch (the endemic snail *Chilina* sp.). Molecular trees were useful to elucidate unknown information about other intermediate hosts and epidemiological aspects of the life cycle. Consequently, we could close the life cycle of S. vicarium after 100 years of its first description, with ampullariid snails as the first host, an aquatic insect the second host, and a warm-blooded vertebrate the final host. On the other hand, larvae of *Nasusbilharzhia* in Southern Mendoza, which parasitised *Chilina* snails, were the causal agent of a cercarial dermatitis, a Neglected Infectious Disease (NID). The epidemiological survey showed that these furcocercariae caused intense itching in 83% of recreational bathers upon entering the lake water. Positive cases were mainly recorded after recreational swimming (94.3%) in the afternoon (60.4%) on hot summer days (81.1%), with an exposure of more than 5 minutes in the water (92.5%). The 'bites' resulted in isolated and rounded lesions (35%) with moderate to severe itching (80.5%) and skin colour changes with localised swelling (52%). These symptoms lasted for several hours (56.5%). Forty per cent of respondents reported fatigue, tiredness, and general malaise. Recently, we have refined our approach using specific primers to amplify, sequence, and perform bioinformatic assays (based on sequencing and modelling of the RNA product) for the ITS2 gene of snails and their parasite flukes. The preliminary results showed a noteworthy capacity for the amplification of ITS2 in furcocercariae and echinocercariae of wild snails, and also identified tiny and restricted terrestrial snail populations, which appeared to be promising as a molecular tool to study these amazing symbiotic snail-fluke consortia.

VAH17- IDENTIFICATION AND CHARACTERIZATION OF TICK PARASITIC BURDEN IN DOGS FROM URBAN AND PERI-URBAN AREAS OF GUAYMALLÉN, MENDOZA

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Historically used for protection and labor, dogs have strengthened their bond with humans, complicating the landscape of zoonotic diseases. Tick-borne vector diseases are expanding, driven by factors such as climate change. In Mendoza, cases of ehrlichiosis, anaplasmosis, hepatozoonosis, babesiosis, and mycoplasmosis have been diagnosed, associated with *Rhipicephalus sanguineus* and *Amblyomma tigrinum*. This study aimed to identify tick species and quantify their parasitic load and stage distribution in dogs from Guaymallén. Tick samples were collected from dogs between 2023 and 2025. Specimens were preserved in 70% alcohol until analysis. Identification was performed using taxonomic keys. Statistical tests (Chi-square, Fisher's exact test, and z-test) were applied with a 5% significance level ($\alpha = 0.05$) using R 4.3.1. A total of 38 dogs were sampled—21 (55.2%) males and 17 (44.7%) females—ranging from 2 months to 16 years old, all attending a private veterinary clinic in Guaymallén. Of the ticks collected, 93.54% were *Rhipicephalus sanguineus* and 6.45% *Amblyomma tigrinum*. The average parasitic load was 13.8 ticks per dog (min. 1; max. 72; n=542). Only one dog presented co-infection. The proportions of *R. sanguineus* were: 52% (μ=7) adult females; 28.9% (μ=3.8) adult males; 17.16% (μ=2.3) female nymphs; 0.99% (μ=0.13) male nymphs; and 0.19% (μ=0.02) female larvae, with 0% male larvae. For *A. tigrinum*, the distribution was 25.7% (μ=0.23) adult females and 74.3% (μ=38) adult males, with no nymphs of either sex detected. Females were more prevalent across all developmental stages, particularly among nymphs (94.6%) and adults (64.5%) ($\chi^2 = 34.97$, df = 2, $p < 0.0001$). A significantly higher proportion of female nymphs compared to adults were confirmed ($p < 0.0001$). A specific comparison between adult females and males revealed a significant difference ($z = 5.82$, $p < 0.0001$), indicating a predominance of females in the adult population. The results demonstrate a higher parasitic load of *Rhipicephalus sanguineus* in dogs from Guaymallén, with female predominance across all stages, especially nymphs. The lower proportion of *Amblyomma tigrinum* and the detection of co-infection in only one individual reinforce the role of *R. sanguineus* as the primary vector in the area. Significant differences in sex distribution by developmental stage, confirmed through statistical analysis, suggest biological or ecological patterns that may influence tick population dynamics. In the context of a growing human-dog bond and the expansion of vector-borne diseases, these findings provide relevant information for veterinary public health surveillance and control strategies.

VAH18- MORPHOLOGICAL STUDY OF SEXUAL DIMORPHISM IN THE HARDERIAN GLAND OF THE VIZCACHA (*Lagostomus maximus*)

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The Harderian gland (HG) is a predominantly exocrine gland located in the posterior region of the eyeball in most terrestrial vertebrates. Its precise location, shape, size, morphophysiological characteristics, and intrinsic and extrinsic regulatory factors are species-specific. Moreover, in certain species such as the Syrian hamster, a marked sexual dimorphism has been observed in this gland, both in morphological and biochemical parameters. Considering that, our experimental model, the vizcacha (*Lagostomus maximus*), is an autochthonous rodent with seasonal reproduction and nocturnal habits, the aim of the present study was to describe the morphological organization of the Harderian gland in both males and females, in order to determine the possible existence of sexual dimorphism in this species. Harderian glands extracted from adult male (n = 3) and female (n = 3) vizcachas captured in their natural habitat during the summer were processed using routine histological techniques for light microscopy. Histological analysis revealed that, in male vizcachas, the gland is surrounded by a thin connective capsule that internally divides the parenchyma into lobules, each consisting of adenomeres lined by a simple cuboidal epithelium with basally located nuclei. Within the parenchyma, two distinct zones were identified: one composed of large adenomeres with wide lumen (161.27 ± 2.17 µm), a lower epithelium (21 ± 0.47 µm), and intensely stained cytoplasm; and another, more peripheral zone composed mainly of small adenomeres with narrow lumen (88.69 ± 1.31 µm), taller epithelium (37.3 ± 0.68 µm), and less intensely stained cytoplasm. In non-pregnant female vizcachas, the morphological organization was similar to that described for males, showing large adenomeres with wide lumen (160.88 ± 1.39 µm) and lower epithelium (20.40 ± 0.34 µm), whereas the smaller adenomeres displayed reduced lumen (78.75 ± 1.34 µm) and taller epithelium (40 ± 0.41 µm). Our findings indicate that no morphological differences were detected in the Harderian gland of male and non-pregnant females vizcachas that would suggest the absence of sexual dimorphism. Additional morphological and biochemical investigations are needed to clarify whether dimorphism exists in other glandular characteristics, such as the nature of the secretion and the specific functional roles of this gland in males and females.

AREA 10: FARMACOLOGIA Y TOXICOLOGIA

FARMACOLOGIA Y TOXICOLOGIA

FT01- DETERMINATION OF TRACES ANTIMONY BY SOLID SURFASE FLUORESCENCE PRIOR TO A SURFACTANT-SENSITIZED CHEMOFILTRATION STAGE

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Antimony is a metal nonessential to life and is currently considered an emerging contaminant due to its increasing presence in the environment and its toxic effects on humans, plants, and animals. Human activities such as mining, smelting, and burning of fossil fuels, along with the erosion of minerals and waste, release antimony into soil and water, posing a serious threat to ecosystems and public health. The objective of this study was to evaluate trace levels of antimony (Sb (III)) in water samples from the northern and central regions of Argentina using a novel methodology with 1,4-dihydroxy-9,10-anthraquinone (quinizarin, QZ) as the fluorophore. Sb (III) was determined by complex formation with QZ, followed by solid-phase extraction using filter paper pretreated with hexadecyltrimethylammonium bromide (HTAB). The analysis was subsequently quantified by solid-phase fluorescence (λ_{em} = 575, λ_{exc} = 490) with a detection limit of 1.22 ng L^{-1} and a quantification limit of 2.69 µg L^{-1}. The calibration curve was linear from 2.22 to 4.6 x 10 ^{3} ng L^{-1} of Sb (III) (R^2 = 0.9983). Samples of mains, natural and bottled (untreated) water from 10 Argentine provinces were successfully analyzed, with an average recovery close to 100%. Solid-phase extraction demonstrated efficacy in removing potential interfering ions. Reproducibility (inter-day precision) was evaluated over 5 days, performing five daily determinations, and the CV% obtained was 0.37. The results were validated using electrothermal atomic absorption spectrometry (ETAAS) with good agreement. The new methodology has a low operating cost, is easy to implement, and does not require organic solvents. The sensitivity and selectivity achieved through chemofiltration make it a suitable alternative to conventional techniques for determining traces of Sb (III).

FT02-QUANTIFICATION OF CADMIUM IN *CHAMAEMELUM NOBILE* BY SURFANT- MOLECULAR FLUORESCENCE ASSOCIATION

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Cadmium is a known human carcinogen and is commonly found in air, soil, and water. Due to its long biological half-life, it accumulates in plants and animals. The main sources of cadmium exposure are industrial work environments, tobacco, and food. Cadmium toxicity is associated with various clinical complications: cancer, liver and kidney dysfunction, increased risk of bone fractures, hypertension, arteriosclerosis, and severe anemia. Current evidence suggests that cadmium exposure induces genomic instability through complex and multifactorial mechanisms; there are no proven effective treatments for chronic cadmium poisoning. Due to consumer demand for more natural treatments, traditional medicine, with regard to the leaves and flowers of *Chamaemelum nobile*, can be considered in modern pharmacological contexts. Because it exhibits soothing, anti-inflammatory, and digestive properties, it is used to relieve stomach problems such as indigestion and heartburn, as well as to reduce inflammation. Furthermore, it can help with insomnia and skin irritations, and is useful for decongesting the respiratory tract. However, *Chamaemelum nobile* plants possess the ability to absorb cadmium from the soil and accumulate it at unusually high concentrations in their leaves. The objective of this study was to develop a new methodology for the quantification of Cd (II) in leaves and flowers of *Chamaemelum nobile* of known commercial brands using luminescent methods. Cadmium was determined by the intensification of the fluorescent signal of rhodamine B (RhB) on a nylon membrane filter pretreated with the anionic surfactant SDS. The method showed good sensitivity, adequate selectivity, and good tolerance to foreign ions, and was applied to the determination of traces of Cd (II) with satisfactory results, representing a novel alternative to conventional analytical methods. Working under optimal conditions, quantitative recovery of Cd (II) (≥99.9%) was achieved, with a detection limit of 0.3 ng L^{-1} and a quantification limit of 1.1 ng L^{-1}. Calibration of the new methodology showed linearity over four orders of magnitude. It was applied to the determination of Cd (II) in 10 samples of *Chamaemelum nobile* infusions marketed in Argentina with satisfactory results, representing a novel alternative to conventional methods for trace metal analysis.

FT03-PHARMACOEPIDEMIOLOGICAL STUDY IN NURSING HOMES IN THE CITY OF SAN LUIS

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Evaluating medication use, particularly among older adults, is essential because they help to improve pharmacological therapy in this patient population. An association exists between age and drug consumption, attributable to the increased prevalence of chronic conditions and comorbidities among the elderly. Polypharmacy—defined as the use of five or more medications—increases the risk of drug interactions and adverse events, therefore, pharmacoepidemiologic studies are essential. Objective: To assess drug prescription in nursing homes in the city of San Luis. A descriptive, cross-sectional observational study was conducted in three nursing homes in San Luis during January 2025. The prescribed medications classified according to the Anatomical Therapeutic Chemical (ATC) Classification System were analyzed. A total of 37 patients were included, 32% male and 68% female. The age distribution was as follows: 60–69 years: 15%; 70–79 years: 30%; 80–89 years: 38%; 90–99 years: 15%; and one patient aged 102 years. Out of a total of 260 prescribed drugs, the main ATC groups were as follows**:** N: 42.7%**;** C: 25.7%**;** A: 10.3%**;** Other groups: 21.3%**.** Within group N: N05 (Psycholeptics): 28% and N06 (Psychoanaleptics): 28%**;** N03 (Antiepileptics): 24.3%**;** Other: 19.7%. Within group C: C09 (ACE inhibitors): 37.3%; C07 (Beta-blockers): 17.9%; C10 (Lipid-lowering agents): 16.4%**;** C08 (Calcium channel blockers): 12%**;** Other: 16.4%**.** Within group A: A02 (Antacids and antiulcer agents): 50%; A10 (Antidiabetics): 50%. Among psycholeptics, quetiapine was the most frequently prescribed drug. Under the psychoanaleptic group, memantine was the most prescribed drug. Among antiepileptics, clonazepam was the most prescribed drug. In the C09 group**,** losartan and enalapril were the main drugs prescribed; in C07, bisoprolol**;** and in C10, atorvastatin. Among antacids, omeprazole was the most prescribed, and among antidiabetic medications, insulin and metformin were predominant. Polypharmacy was observed in all individuals, with the majority receiving five or more medications daily. The most frequently prescribed medications targeted the nervous, cardiovascular, and digestive systems, reflecting the most common conditions in this age group, such as dementia, depression, hypertension, dyslipidemia, and diabetes mellitus**.** It is essential to continue conducting studies of this kind to promote the appropriate use of medications in the elderly, aiming to avoid polypharmacy whenever possible and ensure that drug use in this population improves their quality of life**.**

FT04-PHARMACOEPIDEMIOLOGICAL STUDY. PRESCRIPTION OF MEDICINES AT THE SAN LUIS MENTAL HEALTH HOSPITAL

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The prescription of drugs that act on the central nervous system (CNS) is a central part of the approach to mental disorders. Advances in the conceptualization and treatment of these diseases have led to the increasing medicalization of mental health, with a significant impact on people's daily lives, making them among the most commonly prescribed drugs today. To evaluate the prescription of medications at the time of admission of patients to the San Luis Mental Health Hospital from May to August 2025. An observational, descriptive, cross-sectional, and prospective study was conducted. Prescribed drugs classified as group N according to the Anatomical Therapeutic Chemical Classification System (ATC) were analyzed, as were diagnoses recorded according to the International Classification of Diseases (ICD). A total of 165 patients were included. Of the total number of patients, 52% were women, 46% were men, and 3% identified with another gender. The predominant age group was 20 to 39 years (68%). Five therapeutic subgroups were identified: N05 (psycholeptics, n = 345; most prescribed drug: Lorazepam), N06 (psychoanaleptics, n = 96; Sertraline), N03 (antiepileptics, n = 94; Valproic acid), N02 (analgesics, n = 4; Paracetamol), and N04 (antiparkinsonian drugs; Biperiden). The most frequent diagnoses were: suicidal ideation, suicide attempt, psychoactive substance abuse, psychotic disorder, schizophrenia, depression, and psychotic decompensation. The most common diagnosis-treatment combinations included: Sertraline and Lorazepam for suicidal ideation, Diazepam and Sertraline for substance abuse, and Haloperidol and Olanzapine for psychotic disorders. The highest proportion of patients was concentrated between the ages of 20 and 40, which is an unfortunate fact that must be taken into account. Suicidal ideation was the most prevalent diagnosis. Psycholeptics were the most commonly prescribed pharmacological group, with a high use of benzodiazepines and antidepressants. These findings suggest reflection on prescribing criteria and the need for comprehensive mental health strategies.

FT05-STUDY OF GASTROPROTECTIVE ACTIVITY OF THE ARGENTINE MISTLETOES: *Ligaria cuneifolia* (Ruiz & Pav.) Tiegh. AND *Tripodanthus flagellaris* (Cham. & Schlecht.) Tiegh. (Loranthaceae) IN RATS

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Ligaria cuneifolia (Ruiz & Pav.) Tiegh. ("liga roja", "liga", "muérdago criollo") is an hemiparasite species used in Argentine folk medicine as a substitute for the European mistletoe (*Viscum album* L.). *Viscum album* (Loranthaceae) decoction showed a remarkable gastroprotective activity against ethanol model of ulcerogenesis. *Tripodanthus flagellaris* (Cham. & Schlecht.) Tiegh., popularly known as "liga blanca", "liguilla", is used in folk medicine for therapeutic on circulatory system and as antihypertensive. *L. cuneifolia* is employed for the treatment of headaches, stomach and throat aches. Both species belong to the Loranthaceae family. Studies of flavonoid demonstrated that the only detected flavonol is quercetin, in both species. Others phytochemical analysis revealed quercetin-3-O-rhamnosylglucoside and proanthocyanidins in *T. flagellaris*. Besides, leucoanthocyanidins and proanthocyanidins were detected in *L. cuneifolia.* The aim of this study was to evaluate and compare the gastroprotective effect in rats, of both species. Infusions of the plant materials: *L. cuneifolia* (10%, Del Vitto LA; EM Petenatti & MR Fusco 9245, UNSL) and *T. flagellaris* (10%, Del Vitto LA & EM Petenatti 8553, UNSL), were prepared according to Argentinean Pharmacopoeia, separated by filtration and the aqueous extracts were concentrated and lyophilized to preserve it. We examined the effect on gastric damage induced by oral administration of absolute ethanol (EtOH). *L. cuneifolia* and *T. flagellaris* (125, 250 and 500 mg/kg, *p.o.*) were administered before EtOH to rats (n=6-8). By the other hand, we evaluated the role of sulfhydryl groups, prostaglandins and nitric oxide, which seem to play a mechanistic role in gastroprotection. The rats were then euthanized with CO_2, their stomachs were removed, and the damage (mm^2) was quantified. The scanned images of stomach were analized by using a program developed by National Institutes of Health. EtOH produced gastric ulcers in all the animals treated. *L. cuneifolia* (250 and 500 mg/kg) prevents the formation of gastric lesions induced by EtOH (mm^2 damage: 13.66±5.8 ($p<0.01$), 7.55±3.46 ($p<0.001$), respectively, vs. EtOH: 134.11±9.13 mm^2). The effect elicited by *L. cuneifolia* at 500 mg/kg was not attenuated by pretreatment with N-ethylmaleimide (10 mg/kg, s.c.), a blocker of sulfhydryl groups; LNNA (40 mg/kg, i.p.), a nitric oxide synthase inhibitor and indomethacin (10 mg/kg, i.p.), a prostaglandins synthesis inhibitor. This suggests that the gastroprotective mechanism of action of *L. cuneifolia* does not involve sulfhydryl groups, nitric oxide and prostaglandins, at the dose assayed. *T. flagellaris* (125, 250 and 500 mg/kg) was not prevent the formation of EtOH-induced gastric lesions. Several reports have shown that flavonoids protect against experimental ulcer. The anti-ulcerogenic effect of *L. cuneifolia* could be due, in part, to the presence of flavonoid fraction in this plant. Although, both species possess quercetin, a gastric protector, *T. flagellaris* did not show gastroprotection. These findings suggest a potential beneficial use of *Ligaria cuneifolia,* while *Tripodanthus flagellaris* does not, on gastric protection.

FT06-ACUTE ORAL TOXICITY AND PHARMACOLOGICAL EFFECTS ON INTESTINAL MOTILITY AND SECRETION OF *Jodina rhombifolia* FRUIT AQUEOUS EXTRACT

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Jodina rhombifolia (Hook. & Arn.) Reissek (Santalaceae) is a small, perennial, hemi-parasitic tree native and endemic to South America. Its fruits are traditionally consumed as food and source and bibliographic records from Argentine folk medicine report their use as an antidiarrheal remedy. The objective of the present study was twofold: to assess the impact of a lyophilized aqueous extract of *J. rhombifolia* fruits (JRFE) on intestinal motility and secretion and to evaluate its acute oral toxicity. The pharmacological activity of JRFE on intestinal function was evaluated *in vivo* at oral doses of 0, 125, 250, and 500 mg/kg using three experimental models: the intestinal transit test in mice, intestinal fluid accumulation (enteropooling) test in rats, and the castor oil-induced diarrhea model in mice. Acute oral toxicity was evaluated in mice at doses of 0, 5, 50, 300, and 2000 mg/kg, in accordance with OECD Guideline Nº 423. Wistar rats (180–200 g) and Balb/c mice (25–30 g) of both sexes were obtained from the Bioterium of the National University of San Luis. All the data were expressed as the Mean ± S.E.M. The probability value of $p<0.05$ was considered statistically significant. Small intestinal transit was delayed by JRFE in a dose-dependent manner, with inhibition percentages reaching 26.63% at the highest dose (500 mg/kg; $p<0.001$ vs. negative control) (Doses: 125 mg/kg, 1.19%; 250 mg/kg, 13.24%). The severity of castor oil-induced diarrhea was not statistically modified by JRFE; only the 250 and 500 mg/kg doses exhibited a low protection percentage (12.5% and 18.75%, respectively). In the intestinal fluid accumulation test, both the enteropooling value (mg/cm) and the weight of intestinal content (mg) were significantly increased at the two highest doses ($p<0.05$ vs. negative control). Though, the volume of intestinal content (ml) was not statistically modified. Oral administration of JRFE produced neither mortality, nor visible signs of toxicity. Body weight gain and food intake did not differ statistically from the control group. Furthermore, One-way ANOVA revealed no statistically significant differences in the relative organ weights (liver, kidney, spleen, heart, lungs, and gonads) between male and female mice treated with different JRFE doses and the vehicle-administered negative control group. The results demonstrate that the JRFE interferes with normal intestinal physiology, primarily by reducing intestinal motility in mice. This delay suggests JRFE may contain compounds that act as antispasmodics or antimotility agents. However, the JRFE showed no significant protective effect against castor oil-induced diarrhea nor intestinal fluid accumulation, so the JRFE cannot be classified as an antisecretory agent according to these models. The acute oral toxicity assessment confirms the extract's safety profile. The absence of mortality, visible clinical signs, and statistical changes in body weight, food intake, and relative organ weights up to the highest dose tested (2000 mg/kg). These results support the extract's safety and suggest potential applications in modulating intestinal motility.

FT07-EFFECT OF *Prosopanche americana* ON DIURETIC ACTIVITY IN WISTAR RATS

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The main advantages of using herbal medicines are the low cost, affordability and usually fewer side effects. *Prosopanche americana* (R. Br.) Baillon is a perennial hemiparasitic native plant distributed in Argentina (Córdoba, Santiago del Estero, Mendoza, La Rioja, San Luis), belonging to the family Hydnoraceae. Commonly known as "guaycurú santiagueño", "huaycurú", "huáchar", "guacharo", "flor de fierro", "flor de la tierra" o "espinazo de lagarto". The fruit is edible, and rhizome are used in folk medicine as vulnerary, homeostatic, expectorant, anti-inflammatory, cardiac disorders, antidiabetic and diuretic. Specimens were deposited in the Herbarium of the Universidad Nacional de San Luis under registration UNSL#560 (Del Vitto LA & EM Petenatti). Infusion to 10% was prepared following the methodology outlined in the VII Ed Argentine National Pharmacopoeia and then lyophilized to preserve it. This study was aimed to investigate the effect of *P. americana* rhizome lyophilized aqueous extract (PALE) on diuretic activity in rats. *P. americana* was administered, *p.o.*, in concentrations: 0 (control group), 500 mg/kg and 750 mg/kg. The proposed method used adult Wistar rats with a body weight range from 150-180 g in a randomized manner and assigned into groups (n=6-8). All experiments were conducted in accordance with ANMAT No. 9236/2023. Experimental protocols approved by the Committee for Animal Care and Laboratory Use (CICUAL) of the Faculty of Chemistry, Biochemistry and Pharmacy, Universidad Nacional de San Luis (Protocol F-386/21). Lipschitz *et al*. method was used, and control (saline solution), furosemide and hydrochlorothiazide (reference drugs) groups were established. Urinary volume was measured at 15 min intervals for 3 hours to determine urinary volumetric excretion (UVE). The urine samples showed normal chemical parameters in all the cases. Urine Na+ and K+ contents were analysed. Urinary density and pH were measured. Rats treated with 750 mg/kg infusion showed a significant diuretic effect (UVE: 81.84 ± 4.11, $p < 0.01$) respect the control (57.74 ± 1.49). Excretion followed values from 41.73% compared with control group. Urinary sodium excretion was not significant at doses 750 mg/kg, while urinary potassium excretion was significantly increased (3.44 ± 0.29 mEq/Kg, $p<0.001$) vs negative control (0.44 ± 0.04 mEq/Kg). Urinary density and pH were similar to controls. Further phytochemical investigations will be necessary for analysis of involucre metabolites. The diuretic activity value is an indicator for evaluating efficacy compared to standard diuretics. These preliminary results, in this model, are a contribution to its medicinal use as a diuretic.

FT08-*Artemisia douglasiana* Besser GASTROPROTECTION: A HISTOLOGICAL STUDY

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The habitats of different Artemisia ssp. differ from one another and are widely distributed. Natural habitats of these species are found in Europe, Asia, North Africa, North and South America, and Australia. *Artemisia* ssp. has been considered effective in various ailments, e.g., parasitic disease, digestive ailments, irritation, and allergic rashes; moreover, in the treatment of menopause, premenstrual syndrome, and dysmenorrhea. *Artemisia douglasiana* Besser, popularly known as "ajenjo dulce", "ajenjo", "matico", is cultivated (medicinal) and adventitious in Cuyo region. It has been used in folk medicine as a digestive, carminative, and protective agent against the development of peptic ulcers. The proposed method used adult Wistar rats with a body weight range from 200-250 g in a randomized manner and assigned into groups (n=6-8). All experiments were conducted in accordance with ANMAT No. 9236/2023. Experimental protocols approved by the Committee for Animal Care and Laboratory Use (CICUAL) of the Faculty of Chemistry, Biochemistry and Pharmacy, Universidad Nacional de San Luis (Protocol F-482/25). The aim of the study was to evaluate the effects of *A. douglasiana* lyophilized extract (ADLE) in ethanol-induced gastric ulcer in Wistar rats by histological study. 10% infusion of aerial parts of the plant (Del Vitto & Petenatti EM 11058, UNSL) was prepared according to Argentinean Pharmacopoeia, separated by filtration and the aqueous extracts were concentrated and lyophilized to preserve it. ADLE (500 mg/kg) was administered *p.o.* before absolute EtOH. The rats were euthanized with CO_2; their stomachs were removed and opened along the greater curvature. We performed a macroscopic and histological analysis of the stomach. The scanned images of the stomach were analyzed, and the damage (mm^2) was quantified by using a program developed by NIH. For the histological study, the samples were fixed in Bouin's solution, dehydrated in an increasing ethanol series, embedded in paraffin and sectioned at 3–4 µm thickness. The sections were stained with Haematoxylin and Eosin. Ethanol provoked evident macroscopic damage. The stomachs of rats pretreated with ADLE (before ethanol) showed a significant reduction in the severity of the lesions (3.44 ± 0.99 mm^2, $p<0.001$ vs EtOH 136.73 ± 9.15 mm^2). Ethanol provoked large lesions in the apical region and smaller lesions located in the middle region of gastric mucosa in rats after oral administration. In each lesion, disorganization of the normal histoarchitecture of the gastric mucosa is observed, with accumulation of blood into gastric parenchyma. In animals pretreated with ADLE, a significant reduction in both number and size of stomach lesions was observed, with most of them restricted to the mucosa apical region. Histological evidence shows that ADLE limits formation of gastric lesions induced by EtOH. *A. douglasiana* extract has significant antioxidant and free radical scavenging activity *in vitro*. The effect of ADLE could be due, in part, to its ability to scavenge oxygen free radicals, which are implicated in gastric ulcers. It can be suggested that these results provide pharmacological and scientific evidence that supports its folkloric use as protective agent against peptic ulcer.

FT09-DIURETIC ACTIVITY OF THE AQUEOUS AND METHANOL EXTRACT OF *Jungia polita* Griseb. IN RATS

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Jungia polita Griseb. (Asteraceae–Multisieae) is popularly known as "zarzaparrilla" or "viña". This shrub species is used in Argentine folk medicine as a diuretic, anti-sclerotic, hypotensive, for skin affections; antihyperlipidemic, bradycardic, and depurative. Infusion (10%) of the aerial parts prepared, separated by filtration, and the aqueous extract was concentrated and lyophilized to preserve it. Material was macerated in methanol (80%), then it was filtered through Whatman filter paper and evaporated by using rotary evaporator. This study was designed to compare the diuretic and natriuretic activity of the *J. polita* lyophilized extract (JPLE) and methanol extract (JPME). The test was performed as described by Lipschitz *et al*. and the experiments were approved by CICUAL (Protocol F-405/22; F-466/24). Wistar rats (150–180 g) were employed. The animals, randomly assigned into groups (n = 6–8), were deprived of food for 18 h before starting the experiments and had free access to water. The test groups were administered with different doses of JPLE (250 and 500 mg/kg, orally) and JPME (125 and 250 mg/kg). The reference group received Furosemide (10 mg/kg, intra-peritoneal). The control group received only the vehicle (50 mL/kg, orally). Immediately after administration, the rats were paired and placed in metabolism cages. At the end of the experiments, the animals were euthanized by inhalation of CO_2. Urinary volumetric excretion (UVE), urine chemical parameters, urine Na^+ and urine K^+ were measured in 3-hour diuresis. All values were expressed as the mean ± SEM. Student's *t*-test was performed to evaluate the differences between the control and the experimental samples for each time point. The group treated with JPLE (500 mg/kg) showed diuretic activity between 45 min (UVE: 20.06 ± 8.04 *vs*. control: 4.84 ± 1.69; $p<0.01$) and 180 min (UVE: 82.95 ± 8.92 *vs*. control: 52.74 ± 6.03; $p<0.001$). While the group treated with JPME (250 mg/kg) showed diuretic activity between 150 min (UVE: 72.96 ± 6.13 vs. control: 51.55 ± 2.44; $p<0.05$) and 180 min (UVE: 79.63 ± 3.64 vs control: 55.41 ± 1.05; $p<0.01$). The lot treated with JPME (125 mg/kg) did not show diuretic activity at any of the observed times. The urine samples presented normal chemical parameters in all cases: urinary density and pH were similar to controls. Group treated with JPLE showed natriuretic activity: 250 mg/kg doses (urine Na^+ (mEq/L): 17.13±5.52 vs. control: 9.01± 2.65; $p<0.05$) and 500 mg/kg doses (urine Na^+ (mEq/L): 14.91±4.67 vs. control: 9.01±2.65; $p<0.05$). The urinary K^+ showed significant differences for the group treated with 500 mg/kg JPLE [urine K^+ (mEq/L): 66.79±9.25 vs. control: 50.30±10.23; $p<0.05$]. On the other hand, JPME (250 mg/kg) showed significant differences vs. control, for both Na^+ ($p<0.001$) and K^+ ($p<0.01$) values. This diuretic activity could be due, in part, to the presence of flavonoids in this plant. These results provide scientific support for the traditional use of this plant species.

FT10-TOXICOLOGICAL AND REPRODUCTIVE IMPACT OF GLYPHOSATE ON THE FRESHWATER SNAIL *Pomacea canaliculata*

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Glyphosate is one of the most widely used herbicides worldwide and which can reach freshwater ecosystems and bioaccumulate in different living organisms and foods for human consumption. The species *Pomacea canaliculata* has been reported to exhibit high tolerance to glyphosate exposure. At low concentrations, this herbicide stimulates oviposition, whereas at high concentrations, both oviposition and clutch fertility decrease after 28 days of exposure, attributed to morphological alterations in the ovary. The apple snail *P. canaliculata* has been proposed as a bioindicator of environmental contamination due to its high survival rate and successful reproductive strategy. In this study, we aimed to determine the toxicity induced by acute glyphosate exposure administered as a single dose and to evaluate its impact on reproductive parameters. Adult individuals (4 months old) of both sexes were initially exposed to increasing concentrations of glyphosate to study the toxicity of the compound and to determine LD50 and no observed effect concentration on lethality ($NOECL_{48hs}$). Glyphosate exposure was performed via intramuscular injection with concentrations ranging from 55.6 to 7120 µg/g of the animal's body weight and mortality was recorded after 48 hours of exposure. Replicates of the exposed groups were performed at intermediate curve points. Subsequently, to determine effects on reproduction after acute exposure, 4 couples were exposed to the $NOECL_{48hs}$, and different parameters were monitored for 7 days pre- and 7 days post- glyphosate exposure. During both weeks, we monitoring the oviposition frequency, copulation frequency, clutch weight, and egg fertility in each pair of snails. All measurements were taken twice daily, and the experiment was replicated (N= 8 couples). As expected, *P. canaliculata* showed low sensitivity to glyphosate, tolerating high concentrations with an LD50 of 2659 µg/g and a NOECL of 1557.5 µg/g. Among the reproductive parameters evaluated, no significant differences were observed when comparing pre- and post-exposure data, but oviposition frequency appeared to be partially affected by glyphosate. Acute single-dose exposure, as could occur in accidental spills, seemingly does not significantly affect this species. Further studies are needed to verify previously described effects under laboratory conditions and to elucidate potential mechanisms, aiding the use of this species as a contamination biomarker of glyphosate in water.

FT11-GASTROINTESTINAL ACTIVITY OF *Tessaria absinthioides* (Hook. & Arn.) DC, (Asteraceae); "PÁJARO BOBO" IN RATS

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The decoction of *Tessaria absinthioides* is used in traditional medicine of South America as hypocholesterolemic, digestive, balsamic, and expectorant; but it is also useful for the prevention of hepatitis, and renal insufficiency. A lyophilized decoctions at 10% from the aerial parts of this plant (TLD) collected in San Juan (TLDSJ) and Mendoza (TLDM) were evaluated regarding the gastroprotective activity *in vivo*; together with an chemical characterization by UHPLC/MS. Wistar rats (180-200 g; n=6-8) were used. They were housed in standard environmental conditions and fed with rodent diet and water ad libitum. The animals were randomly assigned to different groups. All experiments were conducted in accordance with ANMAT Nº. 9236/2023. Experimental protocols were approved by the Institutional Committee on the Care and Use of Laboratory Animals (CICUAL) of the Chemistry, Biochemistry and Pharmacy Faculty, National University of San Luis (Prot. F-458/24). Gastric lesions were produced by the administration of the necrotizing agent, absolute ethanol. All rats were housed in wire mesh-bottom cages throughout the study to prevent coprophagy and fasting for 24 h. The rats were grouped into an ulcer control group that was administered orally (1 mL/animal) of absolute ethanol, and experimental groups that were administered the lyophilized of *T. absinthioides* (500 and 750 mg/kg), 60 min. before absolute ethanol; and 1 h later the animals were euthanized by inhalation of carbon dioxide. The stomachs were removed, opened along the greater curvature and washed gently with ice-cold saline solution. The scanned images of the stomachs were analyzed by using a program developed by NIH (injuries measured in mm^2). Absolute ethanol produced gastric ulcers in all the animals treated, while pretreatment with the lyophilized of *T. absinthioides* (500 and 750 mg/kg) from San Juan and Mendoza, prevents the formation of gastric lesions induced by absolute ethanol ($p<0.001$ vs. absolute ethanol). The damage inhibition percentages were: 72.8% and 83.2% for the 500 and 750 mg/kg doses, respectively. Regarding the metabolomic analysis, in this work, several phenolic compounds, including sesquiterpenes, flavonoids, and phenolic acids, were rapidly identified in *T. absinthioides*, extracts by means UHPLC–PDA–OT-MS/MS, which at least in part support the evaluated activity. The results support that the medicinal decoction of *Tessaria absinthiodes* is a valuable natural product with gastroprotective effects and potential to improve human health that opens a pathway for the development of important phytomedicine products.

FT12-USE OF NEBULIZABLE IBUPROFEN-ARGININE FOR THE PREVENTION AND TREATMENT OF RADIATION-INDUCED CHRONIC PULMONARY FIBROSIS

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Ibuprofen arginate (Ibu-AR) provides, in a single preparation, a COX-2 (cyclooxygenase-2) enzyme inhibitor and a substrate for the NOS (nitric oxide synthase) enzyme. This new formulation is highly soluble because L-arginine makes ibuprofen more soluble in water and facilitates its rapid absorption through the mucous membranes. This combination, administered via the lungs, is a highly effective formulation that results in a faster onset of action compared to ibuprofen administered orally, and could be a novel therapeutic strategy with the potential to prevent and treat radiation-induced lung injury (RILI), a serious complication of radiotherapy in thoracic neoplasms. The objective of this study was to examine the impact of this mobilizable pharmaceutical compound on irradiated C57BL/6 mice. RILI was induced by a single dose of whole-body irradiation (5 Gy γ-ray). Following administration of Ibu-AR (10 mg/mL) or a physiological solution via nebulization for a period of 30 days, functional analyses were performed. The radiation did not modify the biochemical parameters measured in mice serum. Histological analysis of lung tissue, using Masson's trichrome staining, revealed an increase in collagen fibers in the irradiated animals ($p=0.001$). It is important to note that this increase was mitigated in animals treated with Ibu-AR, which exhibited a significant reduction in pulmonary fibrosis. It is evident that oxidative stress increased substantially in the irradiated animals. However, this stress decreased significantly following Ibu-AR treatment. Assessment of cell senescence in lung sections revealed a notable proportion of senescent cells in the irradiated group. However, this proportion was substantially decreased in mice treated with Ibu-AR. Research findings show that the expression of TNF-alpha, IL-6 and iNOS was significantly reduced by Ibu-Ar in the lung tissue of irradiated mice. Inhaled IBU-Ar has the potential to become an effective therapeutic tool for the prevention and treatment of radiation-induced pulmonary fibrosis, with the result that patients undergoing thoracic radiotherapy will experience an improvement in quality of life.

FT13- GASTRIC CYTOPROTECTIVE AND ANTIOXIDANT ACTIVITIES OF *Azorella cryptantha*

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Azorella cryptantha (Clos) Reiche, Apiaceae, "yerba del soldado or cuerno de cabra" is used in infusion or decoction as gastroprotective, cholagogue and digestive, in Andean medicine. A lyophilized decoctions at 10% from the aerial parts of this plant (ALD) collected in San Juan was evaluated regarding the gastroprotective activity *in vivo*; and antioxidant *in vivo*, together with an chemical characterization by UHPLC/MS and spectrophotometric methods. All experiments were conducted in accordance with ANMAT No. 9236/2023. Experimental protocols were approved by the Institutional Committee on the Care and Use of Laboratory Animals (CICUAL) of Facultad de Química, Bioquímica y Farmacia, Universidad Nacional San Luis (Prot. F-458/24). Gastric lesions were produced according standardized methods. Wistar rats (180-200 g; n=6-8) in standard environmental conditions and fed with rodent diet and water ad libitum were housed in wire mesh-bottom cages throughout the study to prevent coprophagy. The absolute ethanol was administered orally as necrotizing agent (1 mL/animal), and 1 h later the animals were euthanized by inhalation of carbon dioxide. The stomachs were removed, opened along the greater curvature and washed gently with ice-cold saline solution. The scanned images of the stomachs were analyzed by using a program developed by NIH. Absolute ethanol produced gastric ulcers in all the animals treated. ALD (500 and 750 mg/kg) prevents the formation of gastric lesions induced by absolute ethanol ($p<0.001$ vs. absolute ethanol). Additionally, The ALD showed moderate free radical scavenging activity in DPPH assay (EC_{50}= 300µg ALD/ml) and a interesting inhibition of lipoperoxidation in erythrocytes (InLP=75% at 250µg ALD/ml). Also, the ALD showed 120 mg gallic acid equivalents/g ALD. The results support, at least in part, the use of this species in traditional Andean medicine as a gastroprotector. Studies to elucidate its potential mechanisms of action are currently underway.

FT14- ACUTE ORAL TOXICITY STUDY OF AN AQUEOUS EXTRACT OF *SPIROGYRA SP.* IN A MURINE MODEL FOR ITS APPLICATION IN FUNCTIONAL FOODS

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The growing demand for sustainable foods generates an increased interest in algae due to their high nutritional value. Charophytes, which are rich in proteins, carbohydrates, and fibers, have emerged as promising ingredients for functional food development. *Spirogyra sp*., a filamentous green alga isolated from a river in San Luis (Argentina), represents a potential source for such applications; however, its safety must be verified before recommending consumption. Toxicological evaluation in animal models is crucial for identifying potential risks and establishing safe dosage ranges. Owing to the lack of toxicological data on *Spirogyra sp*., studies confirming its safety are warranted. This study aimed to assess the potential acute oral toxicity of *Spirogyra sp*. aqueous extract in mice. Balb/c mice of both sexes (20–30 g), obtained from the UNSL animal facility, were used under controlled conditions with CICUAL approval. Following a three-day acclimatization period and a 4-hour fast, acute toxicity was evaluated according to OECD Guideline 423. Animals received a single oral dose by intragastric gavage: saline solution (vehicle) for the control group and 5, 50, 300, or 2000 mg/kg of the *Spirogyra sp*. extract for the experimental groups (three males and three females per dose). Clinical signs, body weight, and food intake were monitored for 14 days. At the end of the observation period, animals were euthanized for macroscopic examination of vital organs. Data was analyzed using GraphPad Prism (one-way ANOVA followed by Bonferroni's multiple comparison test), with statistical significance set at $p < 0.05$. A single oral administration of the aqueous *Spirogyra sp*. extract (5–2000 mg/kg) produced no mortality or observable signs of toxicity during the 14-day observation period. Body weight gain, food intake, and relative organ weights (liver, kidneys, spleen, heart, lungs, and gonads) showed no statistically significant differences compared with the control group ($p > 0.05$). No macroscopic alterations were observed in any organ, and normal behavioral patterns were maintained throughout the study. These results demonstrate the absence of acute oral toxicity even at the highest dose tested, indicating a wide safety margin for the extract. The findings provide preliminary yet consistent evidence supporting further toxicological evaluation and potential application of *Spirogyra sp*. as a safe ingredient in the formulation of functional foods.

FT15- PROTEOMIC ANALYSIS OF THE ALBUMEN GLAND OF THE BIOINDICATOR *Pomacea canaliculata* AFTER ACUTE EXPOSURE TO CADMIUM

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The vulnerability of aquatic ecosystems to cadmium contamination is a major concern for public and environmental health. Some aquatic organisms can act as temporary reservoirs of chemical pollutants and, consequently, serve as indicators for predicting toxicological effects across different trophic levels. Over the past decade, *Pomacea canaliculata* has been studied as a potential bioindicator of environmental contamination due to its remarkable ability to bioconcentrate toxic trace elements. Among these contaminants, cadmium is of particular concern because it has been shown to adversely effects on the reproductive biology of this species. In this study, we conducted a proteomic analysis of the albumen gland, a key reproductive organ involved in gamete union and calcareous egg formation, following acute exposure (96 h) to an environmentally relevant concentration of cadmium (100 µg/L). After exposure, both exposed and control females were sacrificed. Albumen glands were dissected, homogenized, and lysed in UTC buffer (Urea, Tris, CHAPS) using bead-beating and sonication. Proteins were denatured, reduced and alkylated, followed by enzymatic digestion with trypsin using the FASP (Filter-Aided Sample Preparation) protocol. The resulting peptides were analyzed using a ZenoTOF 7600 (SCIEX) mass spectrometer operated in SWATH-MS data-independent acquisition mode. Data processing and protein quantification were performed using DIA-NN software. Differentially abundant proteins were related to reproductive biological functions of *P. canaliculata*, including perivitellins and ovorubins, as well as immune-responsive proteins, antioxidant defense enzymes, signaling and binding proteins, protein degradation and energy metabolism, and transcription- and translation-related proteins. Specifically, we observed a decrease in the relative abundances of two subunits of perivitellin-2, a specific protein produced in the albumen gland that participates in embryonic development and functions as a neurotoxin, conferring antinutritional properties against wild predators. In addition, we detected an increase in the levels of heat shock protein 70 (HSP70), a member of a chaperone protein family widely recognized for its role in responding to diverse cellular stress conditions. These findings contribute to understanding the reproductive impacts of cadmium on *P. canaliculata* populations and provide valuable tools for environmental pollution monitoring.

FT16- CAN SPIRULINA COUNTERACT CADMIUM TOXICITY? SEARCHING FOR SAFER ALTERNATIVES: SPIRULINA AS A NUTRACEUTICAL AGENT AGAINST CADMIUM INTOXICATION

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It is dramatic that the global decline of amphibians is due to their ecosystem's destruction caused by urbanization, climate change, and extensive aquatic pollution. These animals are highly susceptible during their developmental stages, which makes them an excellent research model to assess the environment influence on growth, while also serving as highly sensitive bioindicators of environmental health. Remarkably, they can establish survival strategies in response to unfavorable or advantageous environments by modifying their metamorphosis to either leave or remain in the water, taking advantage of their aquatic larval stage and terrestrial adulthood. Over the years, our laboratory has extensively studied cadmium (Cd) intoxication. Cd exerts its action mainly through the induction of oxidative stress, among other mechanisms. In search of protective strategies, we explore Spirulina, a high nutritional value microalga as a potential nutraceutical agent. Amphibians are a sensitive bioindicator model, given their complex ontogeny and high susceptibility to environmental contaminants. In this study, we investigated the effects of Spirulina supplementation on Cd-induced toxicity in *Rhinella arenarum* tadpoles. Larvae (Gosner 1-18) were collected from a controlled university pond, and larvae were exposed to acute and chronic toxicity assays (Gosner 25-30). In the first case, we fed one group with spinach and another one with Spirulina. After a week, we determined the LD_{50} (Lethal Dose 50%). In chronic assays we exposed the tadpoles for 15-30 days to sublethal Cd concentrations (0.25 and 0.5 mg/L) or to diets enriched with Spirulina (5–100%). Growth parameters (weight and total length) and developmental progression profile were assessed. These preliminary results showed that Cd exposure accelerated larval growth and metamorphosis in a dose-dependent manner while Spirulina supplementation reduced growth and delay development. Interestingly, Spirulina-fed tadpoles showed increased resistance to acute Cd toxicity and exacerbated Cd effects on growing and development also in a dose's dependent manner. These results suggest that while Cd accelerates metamorphosis as an adaptive survival strategy, Spirulina may act as a protective agent, accelerating development under toxic conditions and enhancing survival. Although preliminary, our findings suggest that Spirulina could represent a safe, accessible, and cost-effective nutritional strategy to mitigate cadmium toxicity. Given that Cd exerts its effects through oxidative stress—mechanisms conserved across species—Spirulina supplementation may offer translational benefits for human populations chronically exposed to this heavy metal. These results support further investigation into Spirulina as a potential protective agent in environmental and clinical toxicology.

AREA 11: NUTRICION Y SALUD

NUTRICION Y SALUD

NS01-NEW LUMINESCENT METHODOLOGY FOR THE DETERMINATION OF Co(II) IN FOODS CONSUMED IN VEGETARIAN AND VEGAN DIETS

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Cobalt is an essential trace element for human and animal metabolism, including red blood cell production and the synthesis of DNA and fatty acids. Cobalt deficiency can cause megaloblastic anemia and affect the development of the nervous system and immune response. High intakes can cause polycythemia, hypothyroidism, and thyroid and heart failure. The determination of cobalt traces is of interest in clinical, biochemical, and toxicological analysis, especially in restrictive diets. For these reasons, the development of analytical methodologies with high sensitivity and precision for its quantification is necessary. The objective of this work was to develop a new methodology for the quantification of Co(II) in food samples using solid-phase fluorescence. The metal was determined by complex formation with 8-hydroxyquinoline (8-HQ), followed by solid-phase extraction with a nylon membrane in the presence of the anionic surfactant sodium dodecyl sulfate (SDS). Cobalt was subsequently quantified by solid-phase fluorescence (λ_{em} = 460, λ_{exc} = 390) with a detection limit of 4.3 10^{-2} ng L^{-1} and a quantification limit of 0.14 ng L^{-1}. The calibration curve was linear from 0.14 to 4.6 x 10^{3} ng L^{-1} of Co (II) (R^2 = 0.9992). Cobalt is found in foods of animal origin, as well as in dairy products, brewer's yeast, and certain nuts and green leafy vegetables. In this case, only those consumed in vegan and vegetarian diets will be selected. The samples were successfully analyzed, with an average recovery close to 100%. Reproducibility (inter-day precision) was evaluated over 5 days, performing five daily determinations, and the coefficient variance CV% obtained was 0.243. The solid-phase extraction method was used for the selective retention/preconcentration of Co (II), which is an effective tool for the sensitive determination of the analyzed samples. The good tolerance to high concentrations of regular foreign constituents demonstrates the high selectivity and versatility of the new methodology. Precision and accuracy were tested and validated by ETAAS with good agreement.

NS02-DETERMINATION OF ZINC BY SOLID SURFASE FLUORESCENCE IN NATURAL ADAPTOGEN SAMPLES

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Zinc is an essential element for living organisms which plays an important role in the metabolism of proteins and nucleic acids, participating in the activity of approximately 100 enzymes and collaborating in the proper functioning of the immune system. Deficiency of Zn (II) is associated with growth retardation, impaired immune response, premature birth, weight loss and anorexia. On the other hand, adaptogens are a unique group of herbal ingredients used to improve the health of the adrenal system, which is responsible for managing the body's hormonal response to stress. Dietary supplements are often combined in clinical practice to achieve synergistic effects and consequently greater health benefits. The objective of this study was to develop a new method for monitoring zinc (II) in natural adaptogens and to demonstrate a potential magnifying effect on health benefits. The determination of zinc is proposed from the exaltation of the fluorescent metal complex o-phenanthroline (o-phen) and the dye eosin (eo), using filter paper as a solid supported (without pretreatment) by solid-phase fluorescence at λ_{em} = 440 nm (emission), using λ_{ex}t = 370 nm (excitation). Under optimal experimental conditions, selective and quantitative retention of the metal was achieved, with a detection limit of 0.12 ng L^{-1} and a linearity range from 0.43 to 7.55 x10^{5} ng L^{-1}.The methodology showed high sensitivity, good selectivity and adequate tolerance to possible interferents. It was applied to the determination of Zn (II) in a natural adaptogens samples with satisfactory results, representing a novel alternative to conventional methods for analysis of trace metals.

NS03-PHYSIOLOGICAL REGULATION OF ACADEMIC STRESS: THE ROLE OF MINDFULNESS IN EXAM ANXIETY

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Mindfulness has established itself as an effective strategy for modulating the stress response by promoting an attitude of conscious, non-judgmental acceptance of the present moment, which fosters adaptive physiological and emotional self-regulation. This study aimed to analyse the correlation between exam anxiety (EA) and mindfulness (M) abilities in university students to provide evidence of the role of M in regulating academic stress. A quantitative, cross-sectional, descriptive, and correlational design was employed. The sample consisted of 81 students (85.1% women; 14.9% men; $\bar{x}$=25.06 years). The University Exam Anxiety Questionnaire (CAFEU), which assesses physiological, cognitive, and behavioural dimensions, and the Five Facet Mindfulness
4Questionnaire (FFMQ), which assesses five facets of M, were administered. Data collection was performed using electronic forms. Most common symptoms were gastric discomfort (70%) and insomnia (54%), which indicate a high prevalence of physiological stress activation, as well as negative anticipatory thoughts (65%). Seventy-four percent (74%) of participants reported moderate anxiety levels, 15% high levels, and 11% low levels. The highest-scoring dimensions of EA were physiological ($\bar{x}$=41.09) and cognitive ($\bar{x}$=34.14), followed by behavioural ($\bar{x}$ =17.33). The three EA dimensions were positively correlated with one another (r=.709, p<.001). Regarding M, the highest-scoring facets were Describing ($\bar{x}$=25.9), Observing ($\bar{x}$=25.35), and Acting with Awareness ($\bar{x}$=24.14). Correlations showed that the Acting with Awareness and Non-judging of Inner Experience facets were inversely related to anxiety levels across all three dimensions (p<.001), while Observing was positively associated with EA. Women presented higher levels of physiological and cognitive anxiety, and students who performed regular physical activity showed higher scores in Describing and Non-reactivity to Inner Experience. These AP dimensions can be considered adaptive coping mechanisms and protective factors that modulate the physiological response to stress. This supports the implementation of M training programs as a preventative health and wellness-promoting strategy.

NS04-VALORIZATION OF NADES EXTRACTS FROM MALBEC GRAPE POMACE: ANTIPROLIFERATIVE EFFECTS ON PROSTATE CANCER CELLS

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Viticulture is the main agro-industrial activity in Mendoza, Argentina, producing large amounts of grape pomace waste rich in polyphenols with antioxidant and potential antitumor properties. This study evaluated the biological effects of Malbec grape pomace extracts (from organic and conventional crops) obtained with natural deep eutectic solvents (NADES, citric acid:glycerol:water, 1:3:9) on prostate cancer (PCa) cell lines with different aggressiveness and hormonal dependence (LNCaP, PC3, DU145), compared with aqueous extracts. Phenolic compounds were characterized by HPLC-UV. Cell proliferation (MTT), viability (Trypan Blue), and migration (wound healing) were assessed. NADES extracts contained higher levels of anthocyanins and total phenolic compounds (particularly gallic acid, quercetin, quercetin-glucoside, and myricetin) than aqueous extracts. NADES extracts exhibited stronger antiproliferative and cytotoxic effects across all PCa cell lines ($p < 0.05$). The NADES-extract from organic crops was more potent than conventional in DU145 and PC3 (IC50: 3.197 vs. 4.859 mg/mL and 3.649 vs. 7.339 mg/mL, respectively), while differences in LNCaP were not significant. Aqueous extracts displayed a similar trend, extracts from organic crops being more effective than conventional ones in DU145 and PC3, whereas the extract from conventional crops was more active in LNCaP. None of the extracts significantly affected cell migration. In conclusion, grape pomace extracts exerted antiproliferative and cytotoxic effects in PCa cells. While agronomic management (organic vs. conventional) produced modest differences, the extraction method was decisive, with NADES-derived extracts consistently outperforming aqueous ones. These results highlight the value of green extraction technologies to enhance bioactive metabolite recovery, and they support grape pomace as a sustainable source for functional food development and cancer prevention research.

NS05-PROTECTIVE EFFECT OF GLUTAMINE AGAINST CADMIUM-INDUCED TOXICITY ON SERUM PARAMETERS AND INTESTINAL MORPHOLOGY

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Cadmium (Cd) is a toxic heavy metal that accumulates in several organs, causing severe health effects in humans and animals. However, its impact on intestinal structure and metabolism remains poorly understood. This study aimed to evaluate whether dietary glutamine could mitigate the adverse effects of Cd exposure. Adult male Wistar rats (180–200 g) were divided into four groups: (1) control (standard diet + drinking water); (2) control diet + Cd (50 ppm) in drinking water; (3) diet supplemented with glutamine micronized 3%g/l; and (4) diet with glutamine micronized 3% g/l + Cd (50 ppm) in drinking water. Feeding was ad libitum for 30 days. Before sacrifice, animals were fasted, and duodenal samples were collected and fixed for histological analysis. The samples were stained with haematoxylin–eosin and morphometry were performed with ImageJ software. Serum triglycerides (TG), total cholesterol (TC), HDL-C, and glucose were determined using Wiener kits. Cd exposure caused significant disruption of intestinal mucosal architecture. The simple columnar epithelium with microvilli exhibited cytoplasmic vacuolization in enterocytes, some resembling goblet cells, suggesting increased secretory activity or vacuolar degeneration associated with Cd treatment. Mononuclear inflammatory cell infiltration indicated a local inflammatory response. Disruption of the apical villus pole and loss of structural continuity were also observed, compromising absorptive function. In animals receiving glutamine along with Cd exposure, these histological alterations were markedly reduced, showing significant improvement in morphometric analyses. Cd exposure led to decreased serum TG and glucose levels, whereas glutamine supplementation prevented glucose reduction. HDL-C values remained unchanged across groups. Serum changes are consistent with intestinal morphological damage and may also suggest liver damage due to altered lipid profile. In conclusion, Cd exposure induces degenerative and inflammatory intestinal damage and alters serum parameters. Glutamine supplementation exerts a protective effect, improving both morphological and biochemical outcomes. Future studies should address whether these metabolic disturbances are primarily of intestinal or hepatic origin and confirm the observed trend toward increased total cholesterol in Cd + glutamine-treated animals. In conclusion findings could have implications for dietary recommendations in populations exposed to environmental pollutants.

NS06-PRETREATMENT OF BREWER'S SPENT GRAIN TO REDUCE DRYING TIME FOR ADEQUATE PRESERVATION

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Brewer's spent grain, a byproduct of the beer production process, has high nutritional potential due to its high protein and dietary fiber content. However, its current use is mainly limited to animal feed, while a considerable proportion is discarded. This byproduct of the brewing industry has a high moisture content (79 ± 2%), making it highly perishable and requiring rapid stabilization to prevent degradation. Therefore, this study focused on the preservation, recovery, and processing of this subproduct by evaluating the impact of different pretreatments on drying conditions. The following pretreatments were tested: (i) pressing to reduce initial moisture content; (ii) milling to decrease particle size and increase surface area; and (iii) a combination of pressing and milling. Drying was carried out in a convection oven at 60, 70, 80, and 90 °C using trays with a surface area of 0.117 m² until a final moisture content of 3.75 ± 0.25% (w/w) was reached. Results were compared with untreated control samples. Drying times for untreated samples were: (i) 165 ± 5 min at 60 °C; (ii) 150 ± 4 min at 70 °C; (iii) 120 ± 5 min at 80 °C; and (iv) 90 ± 4 min at 90 °C. Samples subjected to a pressing treatment showed significantly shorter drying times compared with the control ($p < 0.01$): (i) 110 ± 6 min at 60 °C; (ii) 90 ± 4 min at 70 °C; (iii) 70 ± 5 min at 80 °C; and (iv) 75 ± 5 min at 90 °C. No statistical difference was observed between 80 °C and 90 °C ($p > 0.05$). For milled samples, drying times were: (i) 170 ± 7 min at 60 °C; (ii) 135 ± 5 min at 70 °C; (iii) 95 ± 4 min at 80 °C; and (iv) 80 ± 5 min at 90 °C. Milling significantly reduced drying time at 70 °C and 80 °C compared with the control ($p < 0.01$), but was higher than samples with a pressing process. Samples subjected to both pressing and milling showed drying times of: (i) 165 ± 4 min at 60 °C; (ii) 115 ± 4 min at 70 °C; (iii) 70 ± 5 min at 80 °C; and (iv) 80 ± 6 min at 90 °C. The combined pretreatment did not further reduce drying time at higher temperatures (80 °C and 90 °C) compared with samples that were only pressing ($p > 0.05$). At 60 °C, the results did not differ from the control ($p > 0.05$). In contrast, a reduced drying time at 70 °C compared with the control and milled samples was obtained, but longer than the samples with the pressed treatment. In conclusion, pressing was the most effective pretreatment for reducing drying time, particularly at 80 °C, providing a practical strategy to enhance the preservation and valorization of brewer's spent grain.

NS07-EFFECTS OF INTERMITTENT FASTING AS A NON-PHARMACOLOGICAL STRATEGY IN A D-GALACTOSE-INDUCED AGING MODEL

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Intermittent fasting (IF) is a non-pharmacological strategy capable of modulating energy metabolism, reducing oxidative stress, and promoting cellular longevity. The D-galactose-induced aging model reproduces oxidative, metabolic, and functional alterations similar to those observed during physiological aging. Several molecular pathways, including AMPK, SIRT1, NAMPT, mTOR, and NRF2, are involved in the regulation of energy homeostasis and antioxidant responses, and may be modulated by IF. Here, we investigated the effect of IF on enzyme activity and gene expressions in the heart in a D-galactose-induced aging model in rats. Wistar rats were randomly divided into three groups receiving daily: 1) physiological saline solution (CTL) via intraperitoneal injection (IP), 2) D-galactose 150 mg/kg (GAL) via IP and, 3) D-galactose 150 mg/kg via IP + IF protocol (GAL+IF) for eight weeks. The IF protocol consisted of alternating 24-hour feeding and 24-hour fasting cycles during D-galactose treatment. In heart tissue samples, gene expressions of *ampk1*, *mtor*, *sirt1*, *nampt*, and *nrf2* were assessed by RT-PCR, and catalase enzymatic activity was determined spectrophotometrically. The GAL+IF group showed a trend towards higher expression of *nampt* and *ampk1* and decreased *nrf2* compared with the other groups, while no significant differences were observed in *mtor* and *sirt1* expression or in cardiac catalase activity among groups. Previous results from the same model revealed notable metabolic improvements in the GAL+IF group, including reductions in body and liver weight, lower glucose and triglyceride levels, and higher HDL-c, as well as differential modulation of gene expression and enzymatic activity in liver and hippocampus. Intermittent fasting may exert modulatory effects on metabolic and antioxidant pathways in the heart. Although the changes observed were not statistically significant, the results, together with previous findings, suggest an organ-specific response to fasting. Overall, these data support the potential of intermittent fasting as a non-pharmacological protective strategy against D-galactose-induced aging and highlight the need for further studies integrating molecular and functional analyses across different tissues.

NS08-METABOLIC AND ENDOCRINE CHANGES ASSOCIATED WITH LIFESTYLE IN STUDENTS: PRELIMINARY REPORT

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University students often adopt unhealthy habits (poor sleep habits, inadequate diet, low physical activity levels, and long study hours), which can trigger oxidative stress and metabolic imbalance, increasing the risk of chronic diseases such as metabolic syndrome, obesity, diabetes, and cardiovascular disorders. Evaluate the impact of the diet on college students in terms of oxidative stress, pro-inflammatory responses, and biochemical and endocrine markers. A validated nutritional survey, anthropometric data, and a standardized physical activity assessment were used. Blood samples were analyzed for metabolic, endocrine, and inflammatory markers. A total of 31 students participated in the study (77% female), of whom 71% reported following an omnivorous diet. No significant differences in BMI, % body fat, % muscle mass, or visceral fat ($p>0.05$), though vegetarians showed a trend toward healthier body composition. Physical activity levels were moderate. Biochemical analyses revealed values within the reference range for proteinemia, albuminemia, glycemia (GL), insulinemia, HbA1c, uric acid, and thyroid hormones. There was no anemia or leukocytosis. However, 77.3% had estimated GL (eGL) (108.3±5.3 mg/dL), indicating a tendency towards prediabetes and insulin resistance (IR). (HOMA, QUICKI, and TyG indexes). Additional findings included moderate vitamin B12 (B12) deficiency (32.2%), hyperhomocysteine [12.9% (>16 µmol/L), 16.1% (>13.9 µmol/L)], and grade 1 subclinical hypothyroidism (25.8%). High-sensitivity C-reactive protein revealed low-grade inflammation [32.2% (1–3 mg/L),19.3% (>3 mg/L)]. No significant differences were observed between the different dietary groups. However, a healthier body profile was observed in vegetarians. Preliminary findings suggest that metabolic and endocrine alterations, such as IR, B12 deficiency, subclinical hypothyroidism, and inflammation, support the hypothesis that lifestyle factors significantly impact biochemical-endocrine homeostasis.

NS09-EVALUATION OF A HIGH-FAT DIET ON METABOLIC ALTERATIONS AND ITS POSSIBLE RELATIONSHIP WITH COGNITIVE PERFORMANCE

Alfonso JO, Lopez M, Delgado SM, Braeckman CD, Coria-Lucero C, Ledezma C, Toledo F, Perez Chaca MV, Ciminari ME, Biaggio VS, Salinas E, Gomez NN, Navigatore Fonzo L and Anzulovich AC.
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Previously, we established a nutritional model of adult obesity and characterized it anthropometrically, nutritionally, and metabolically. Some studies associate obesity and insulin resistance with cognitive impairments. Here, we analysed the effects of a high-fat diet from oleo-margarine on biomarkers of insulin resistance and spatial memory. To this end, two-month-old male Wistar rats were fed a high-fat margarine purified diet (HFM, n=12) for 14 weeks, while another group was fed a normocaloric (NC) purified diet (AIN-93M, NC group, n=12). All animals were maintained under 12h-light:12h-dark conditions and 22-24°C, with water and food ad libitum. Among the metabolic parameters we determined: body weight (BW), BMI, glucose (G) and insulin (Ins) levels, and the HOMA-IR index. For spatial learning studies, a modified version of the Barnes maze test was used. Our results showed that BW, BMI, G and Ins levels, and the HOMA-IR index increased significantly in the HFM group (all $p<0.01$). When we evaluated cognitive functions, we observed that in tests (T)1 and 2, which evaluate long-term, recent, and remote spatial memory, respectively, the HFM group: (a) made a greater number of errors ($p<0.05$); (b) exhibited a longer latency to the goal box during T2 ($p<0.05$); (c) explored the target sector less frequently in T1 and 2 ($p<0.05$ and $p<0.01$, respectively); (d) explored less frequently during T1 ($p<0.05$); (e) travelled a shorter distance during T1 and 2 ($p<0.05$ and $p<0.01$), compared to NC. In conclusion, it is possible that the effect of the high-fat diet, and the insulin resistance associated with obesity, may be able to induce alterations in the spatial memory of the animals.

NS10-SOCIODEMOGRAPHIC, ANTHROPOMETRIC, AND LIFESTYLE CHARACTERISTICS AND ZINC CONSUMPTION AMONG UNIVERSITY STAFF

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Zinc deficiencies are very common worldwide, especially in the most disadvantaged and developing populations, and can have negative effects on health. This study evaluated the consumption patterns of zinc-containing foods among university teaching and non-teaching staff and older adults to estimate the risk of zinc deficiency. The population was previously characterized according to demographic, socioeconomic, anthropometric, and lifestyle variables. The study's methodological design was descriptive and cross-sectional, with simple random sampling during the years 2018 and 2021. A validated and pilot-tested survey was used to determine reliability. From a sample of n = 679, n=394 belongs to teaching staff and n=285 to non-teaching staff. Most of them (79.3%), were adults, compared to 20.7%, of older adults. Concerning to sex, 62 % were female, versus 38% of male. 70.5% of adults and 90.8% of older adults reported some pathology, where the most prevalent in both groups were: high blood pressure, high cholesterol, hypertriglyceridemia and thyroid disorders. Regarding medication use: 55.4% of adults and 63.1% of older adults reported using them. In relation to nutritional status, more than half of adults (139) (56.3%) were overweight and only 1.5% were underweight; in contrast, among older adults, 25.5% were overweight and 18.4% were underweight. Referring to physical activity, 77.7% of adults and 81.6% of older adults practiced mostly 3-4 days a week. 22.3% of adults currently smoke; this percentage increases to 50.4% among older adults. On the other hand, 91.1% of adults and 95.8% of older adults reported psychological stress. Regarding zinc consumption, a higher percentage of zinc deficiency was observed in the older adult group (61%) compared to adults (24%). This deficiency was observed mostly in men, both in adult and older adult groups. Considering the importance of zinc in the human body and the impact of its deficiency on health, especially in old age, interdisciplinary actions, supported by scientific evidence, are required to propose, implement, and evaluate different public health policies and programs to prevent and reduce zinc deficiency in the population and thus contribute to promoting healthy aging.

NS11-ANTI-INFLAMMATORY DIETARY PATTERN EFFECT COMBINED WITH 16/8 INTERMITTENT FASTING ON ANTHROPOMETRIC AND CLINICAL PARAMETERS IN OVERWEIGHT ADULTS

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Nutritional interventions based on anti-inflammatory dietary patterns and intermittent fasting (IF) strategies are positioned as integral tools in the prevention and management of chronic metabolic diseases. The objective of this study was to evaluate the impact of a time-restricted eating (16/8) protocol, combined with a low-carbohydrate diet rich in healthy fats and high biological value proteins, on anthropometric and clinical parameters in overweight or obese adults. Sixty adults (30 women and 30 men) participated over a period of six consecutive months, under personalized functional nutritional follow-up. The dietary pattern was based on natural foods, minimizing ultra-processed foods, refined sugars, and industrial vegetable oils, prioritizing anti-inflammatory sources such as fish, olive oil, avocado, nuts, and low-glycemic index vegetables. Significant reductions ($p<0.05$) were observed in body weight, fat percentage, and abdominal circumference, along with improvements in blood glucose, triglycerides, cholesterol, and LDL cholesterol levels. Average pre- and post-treatment values were: blood glucose 130 mg/dl to 95 mg/dl, triglycerides 170 mg/dl to 98 mg/dl, total cholesterol 240 mg/dl to 195 mg/dl, and LDL cholesterol 110 mg/dl to 90 mg/dl. Adherence to the protocol was high (82%), with good tolerance to the schedule and a subjective perception of greater energy and satiety. The results suggest that combining intermittent fasting with an anti-inflammatory diet may promote metabolic homeostasis and contribute to a reduction in cardiometabolic risk, representing a sustainable and accessible therapeutic strategy in the current clinical context.

AREA 12: EDUCACION EN BIOLOGIA

EDUCACION EN BIOLOGIA

ED01-EVOLUCIÓN EN LAS PRÁCTICAS DE LABORATORIO DE FARMACOLOGÍA DE LA LICENCIATURA EN BIOQUÍMICA. DESAFÍOS PARA EL FUTURO

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La enseñanza de la Farmacología en la carrera de Licenciatura en Bioquímica ha estado históricamente vinculada al uso de animales de experimentación en los trabajos prácticos de laboratorio. La observación del efecto de los fármacos en varios modelos biológicos ya sea tejidos aislados o en animal entero, es un componente fundamental de la formación práctica, ya que permite a los estudiantes comprender la farmacodinamia en sistemas biológicos complejos. Sin embargo, a partir de una reflexión e introspección de la propia práctica docente del equipo de farmacología hemos identificado oportunidades para enriquecer la enseñanza y transmitir a nuestros estudiantes una visión integral de la conducta humana y científica.

Los animales de experimentación que son utilizados en los trabajos prácticos son provistos por el Bioterio que funciona en la unidad académica. Desde su creación, en los años '70 existió una Comisión que informaba el financiamiento del mismo y las necesidades básicas para su funcionamiento. En el año 2004 se estableció la creación de un Comité Institucional de Cuidado y Uso de Animales en la FQByF. Desde ese año se presentan protocolos que son autorizados por el CICUAL de la FQByF, para todos los trabajos prácticos en los cuales se utilizan animales de laboratorio.

La tendencia mundial es ir hacia una disminución gradual del uso de animales de laboratorio debido a presiones tanto económicas como sociales; teniendo en cuenta fundamentalmente los aspectos éticos. En 1959, los científicos Russell y Burch, en sus Principios de Técnicas de Experimentación Humanitarias sostenían que la excelencia científica y el uso humanitario de los animales de laboratorio estaban fuertemente ligados. Allí describieron por primera vez el hoy conocido lema de las tres "R" en el uso de animales de experimentación: reducción, refinamiento y reemplazo. La reducción del número de animales, mediante el uso de una estadística apropiada; el refinamiento de los ensayos destinado a disminuir al sufrimiento de los mismos, el anestesiado del animal con fármacos adecuadas, para evitar el dolor y el reemplazo de los ensayos *in vivo* por métodos *in vitro* han sido incorporados progresivamente a las prácticas de laboratorio.

A partir de los años 2000, se introdujeron en la práctica docente de laboratorio de Farmacología, algunos métodos alternativos, que perfeccionaron los experimentos existentes para minimizar el estrés animal, reducir el número de animales para un experimento o reemplazar el uso de animal entero con ensayos *in vitro* u otros.

Se incorporaron programas de computadora interactivos tutoriales, lo cual constituyó un método de reemplazo de animales de experimentación. Se reemplazó en un primer momento el trabajo práctico correspondiente a "Farmacología del Sistema Nervioso Autónomo: Fármacos con efecto Adrenérgico", donde se medía la presión arterial en rata anestesiada, lo que permitió ampliar el uso de numerosos fármacos, obteniéndose las gráficas del efecto de estos. Progresivamente fueron sustituidos los trabajos prácticos "Bloqueantes de placa motora terminal", donde se realizaba una "Miografía de batracio" y el de "Perfusión de corazón por vena abdominal de batracio", reemplazado por un programa tutorial con cuestionario interactivo. Luego se reemplazó el trabajo práctico "Farmacología del Sistema Nervioso Autónomo: Fármacos con efecto Colinérgico", donde se empleaba "Baño de órgano con duodeno de conejo aislado" que fue sustituido por un programa tutorial. También se incorporó un programa de simulación farmacocinética mediante el uso de PharmaCalc.

El refinamiento de los ensayos que se llevan a cabo involucra que los docentes estén en continuo entrenamiento, como así también optimizar el procedimiento de anestesia en los animales, con fármacos apropiados. Se ha reemplazado el uso de anestésicos volátiles como éter y cloroformo, que también resultaban inapropiados para los docentes, por la siguiente anestesia: Ketamina/Xilacina/Acepromazina, 50/5/1 mg/kg, intraperitoneal o intramuscular. Es fundamental que se evite el dolor, estrés y sufrimiento del animal y se preserve la seguridad tanto del animal como la del operador.

La investigación, que es uno de los pilares fundamentales que impulsa el avance del conocimiento, nos ha permitido incorporar técnicas que son puestas a punto a través del proyecto de investigación, donde participan los docentes de la asignatura, entre ellos el trabajo práctico: "Efecto adverso de indometacina sobre mucosa gástrica de rata" y "Cultivo de linfocitos".

Se implementaron talleres, destinados a estudiantes, para propiciar un enfoque de la Farmacología en especial relación con el "Monitoreo terapéutico de fármacos" para aportar, cuando no se pueden utilizar criterios clínicos, a individualizar el tratamiento, como un aspecto más del control de la farmacoterapia. Otro taller se refiere a las "Interferencias que producen los fármacos sobre las pruebas de laboratorio", que generalmente son reacciones adversas, y tienen una gran influencia en el trabajo diario en los laboratorios. Los responsables de los laboratorios de bioquímica clínica, sus colaboradores, así como los clínicos se enfrentan diariamente a un problema del que no siempre tienen suficiente información: la interferencia de los medicamentos en los resultados de los análisis de numerosos componentes biológicos. Esto se incluye en el amplio contexto de todos aquellos factores que perturban la investigación biológica de los pacientes, y cuyo desconocimiento puede tener consecuencias clínicas imprevisibles, frecuentemente muy graves.

La integración de elementos multimedia como videos, animaciones y cuestionarios interactivos enriquece el proceso de aprendizaje al hacer más atractivos los conceptos complejos. Por otro lado, se resalta la enseñanza práctica como un medio para fomentar habilidades esenciales.

El uso de la inteligencia artificial, la cual tiene un potencial de generar importantes beneficios, es un desafío relevante que se plantea actualmente en cuanto al papel que puede desempeñar en las disciplinas de salud, entre ellas la farmacología. La inteligencia artificial impactará muchos aspectos de la farmacología, incluido el descubrimiento y desarrollo de fármacos, los ensayos clínicos, la medicina personalizada, la farmacogenómica y la farmacovigilancia, además será importante para abordar los desafíos asociados con la predicción de la toxicidad de los fármacos. Esperamos que la inteligencia artificial influya positivamente en el panorama de la educación para los profesionales de la salud.

Todas estas acciones tienen el propósito de generar y mantener en constante revisión crítica las metodologías, de modo que contribuyan a solucionar problemas de la realidad y que se alcancen los máximos niveles de logro posible en los diversos aspectos que configuren una formación de calidad.

ED02-LA MAESTRIA EN EDUCACION SUPERIOR COMO CATALIZADOR DE LA PROFESIONALIZACION DOCENTE: UN ENFOQUE INOVADOR

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La educación superior en la actualidad enfrenta desafíos significativos en términos de calidad y pertinencia, lo que requiere una transformación profunda en las instituciones formadoras de recursos humanos. En este contexto, la Maestría en Educación Superior se presenta como un espacio de profesionalización docente que promueve el mejoramiento de la calidad de la educación superior, a través de la formación de docentes críticos y reflexivos. La maestría se enfoca en la educación basada en competencias, el aprendizaje significativo y la enseñanza centrada en el estudiante, lo que permite a los docentes desarrollar habilidades y competencias necesarias para enfrentar los desafíos de la educación superior en la actualidad. En la actualidad, la educación superior se enfrenta a desafíos significativos en términos de calidad y pertinencia. La formación de profesionales en distintas áreas de la salud requiere una transformación profunda que implique una práctica educacional innovadora y crítica. La Facultad de Odontología, en este sentido, ha venido trabajando en la implementación de un modelo educativo que promueva la integración entre la institución formadora, la comunidad y los servicios. La Maestría en Educación Superior se presenta como un espacio de profesionalización docente que promueve el mejoramiento de la calidad de la educación superior, a través de la formación de docentes críticos y reflexivos. La necesidad de una transformación en la práctica educacional tradicional y repetitiva ha sido objeto de críticas debido a su falta de interdisciplinariedad y compromiso crítico-científico. La producción del conocimiento, su transmisión y aplicación de conocimiento han estado aisladas, lo que ha incidido en la formación de un profesional fuera de la realidad. La transformación educativa requiere una práctica innovadora y crítica que promueva la integración entre la institución formadora, la comunidad y los servicios. La evaluación formativa y la retroalimentación continua son fundamentales para garantizar la calidad de la educación superior. La Maestría en Educación Superior como Espacio de Profesionalización se presenta como un espacio de profesionalización docente que brinda a los docentes una formación multidisciplinaria en las áreas de conocimiento. Los aspectos pedagógicos-didácticos se integran con las estrategias planteadas en cuanto a salud, ambas articuladas con la formación en investigación y preparación para el desarrollo de proyectos de extensión. Esto contribuye a la profesionalización de la tarea docente, apuntando a mejorar la calidad de la Educación Superior. La maestría se enfoca en la educación basada en competencias, el aprendizaje significativo y la enseñanza centrada en el estudiante, lo que permite a los docentes desarrollar habilidades y competencias necesarias para enfrentar los desafíos de la educación superior en la actualidad. La educación basada en competencias se enfoca en la formación de profesionales capaces de aplicar conocimientos y habilidades en contextos reales. Esto requiere una práctica educacional innovadora y crítica que promueva la integración entre la teoría y la práctica. La Maestría en Educación Superior se enfoca en la formación de docentes que puedan diseñar e implementar programas educativos basados en competencias, lo que permite a los estudiantes desarrollar habilidades y competencias necesarias para enfrentar los desafíos de la profesión. La enseñanza centrada en el estudiante se enfoca en la formación de profesionales autónomos y críticos. Esto requiere una práctica educacional innovadora y crítica que promueva la activa participación del estudiante en el proceso de aprendizaje. La Maestría en Educación Superior se enfoca en la formación de docentes que puedan diseñar e implementar programas educativos centrados en el estudiante, lo que permite a los jóvenes desarrollar habilidades y competencias necesarias para enfrentar los desafíos de la profesión.

La Maestría en Educación Superior se constituye en un catalizador de la profesionalización docente en la Facultad de Odontología. La implementación de este programa académico contribuye a la formación de docentes críticos y activos, capaces de promover el mejoramiento de la calidad de la educación superior. En la actualidad, la maestría se presenta como un espacio de reflexión y análisis que permite a los docentes desarrollar habilidades y competencias necesarias para enfrentar los desafíos de la educación superior. La educación superior en la actualidad requiere una transformación profunda que implique una práctica educacional innovadora y crítica. La Maestría en Educación Superior se enfoca en la formación de docentes que puedan promover esta transformación y mejorar la calidad de la educación superior.

ED03-EL MEJORAMIENTO GENÉTICO DEL MAÍZ COMO FORMADOR DE RECURSOS HUMANOS

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El mejoramiento genético vegetal es el arte, la ciencia y el negocio de producir genotipos superiores para satisfacer las necesidades humanas. En el sector agroindustrial, el esquema de mejoramiento de maíz (*Zea mays* L.) consta principalmente de dos etapas. La primera consiste en el desarrollo y mejoramiento de líneas endocriadas. La segunda etapa involucra su evaluación y la selección de líneas que originan las mejores combinaciones y permiten obtener cultivares híbridos de mejor comportamiento agronómico, producción y calidad. Estas etapas demandan la intervención de profesionales altamente calificados para garantizar la calidad y eficacia del proceso. El mejoramiento incluye actividades como siembra y seguimiento de ensayos experimentales, autofecundación y cruzamiento de líneas, registro de datos fenotípicos y genotípicos, análisis estadístico de los datos colectados, entre otras. El objetivo del presente trabajo fue poner en valor la utilización de un esquema de mejoramiento genético de maíz para formar recursos humanos altamente calificados. La Facultad de Agronomía y Veterinaria de la Universidad Nacional de Río Cuarto (UNRC) promueve actividades formativas que involucran a estudiantes, becarios de investigación, ayudantes de segunda, tesistas de grado y de posgrado. En la asignatura Mejoramiento Genético I, de la carrera Ingeniería Agronómica, las actividades teórico-prácticas de estudiantes y docentes contemplan la intervención en las distintas etapas de un programa de mejoramiento genético de maíz. Las tareas consisten en el mantenimiento, la multiplicación, la evaluación *per se* y mediante pruebas de progenie o descendencia de líneas endocriadas. Estas líneas integran un conjunto diverso de germoplasma tanto exótico (CIMMyT), como localmente adaptado. La mejora genética vegetal tradicional es un proceso que requiere entre 10 y 15 años de trabajo, por lo que, durante este período, los estudiantes acompañan a los docentes en las distintas etapas del programa de mejora de maíz. Los ensayos de campo realizados en la zona de influencia de la UNRC (sur de la provincia de Córdoba, Argentina), en los últimos diez años, permitieron a los estudiantes de grado y posgrado asimilar conocimientos disciplinares y adquirir habilidades profesionales requeridas para la inserción y el desempeño exitoso en distintas empresas de Investigación y Desarrollo (I+D). Entre los principales resultados mensurables del proceso enseñanza-aprendizaje se contabilizan 17 tesis de grado, de las cuales 14 ya están finalizadas y tres están en etapa de ejecución. A nivel de posgrado son dos las tesis de maestría y dos las tesis de doctorado finalizadas. Como consecuencia de la formación de los recursos humanos mencionados existen siete publicaciones en revistas con referato, cinco informes técnicos, numerosas presentaciones en Jornadas como las que organiza la Sociedad de Biología de Cuyo y en Congresos Nacionales e Internacionales como los que organiza la Sociedad Argentina de Genética. A su vez, es importante destacar también la generación de ejemplos ilustrativos para retroalimentar la docencia universitaria. Finalmente, es posible contabilizar a tres estudiantes de grado y a dos de posgrado, que luego de finalizar sus carreras trabajan en áreas específicas de mejoramiento genético y/o de ensayos a campo en el sector público y/o privado. El programa de mejoramiento genético de maíz en el ámbito universitario permite formar recursos humanos, egresados de la carrera Ingeniería Agronómica y de posgrado afines. Estos recursos especializados en investigación y desarrollo, resultan cada vez más necesarios y valorados por el sector agroindustrial argentino.

ED04-OPORTUNIDADES DE LOS ESTUDIANTES SECUNDARIOS PARA ENFRENTAR LOS DESAFÍOS EDUCATIVOS, EN LA TRANSICIÓN HACIA LA UNIVERSIDAD

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Desde la Facultad de Química, Bioquímica y Farmacia (FQByF) de la Universidad Nacional de San Luis (UNSL) se impulsó, en el año 2024, la creación de un programa destinado a promover la interacción entre docentes de la escuela secundaria y de la universidad (Programa para la articulación del ingreso al nivel superior-PAINSU, Resolución CD 02-191/2024). A partir de esta iniciativa, estudiantes de escuelas de la ciudad capital y del interior de la provincia de San Luis pudieron recibir en sus instituciones los contenidos curriculares del módulo de ingreso de Biología y Química durante el semestre anterior al ingreso a la universidad. Previo al dictado de las clases, el programa contempla la realización de un taller de intercambio entre docentes de ambos niveles, con el propósito de discutir las problemáticas y desafíos que enfrenta la formación en los primeros años universitarios. Entre sus objetivos se destacan evitar frustraciones que puedan derivar en el abandono temprano y fortalecer la articulación de los contenidos requeridos para el ingreso, valorando al mismo tiempo los saberes propios del profesorado de nivel secundario. El desarrollo del programa se llevó a cabo durante ocho semanas, entre los meses de agosto y septiembre, para el caso de Biología. Los estudiantes se distribuyeron en seis grupos (uno virtual y cinco presenciales). Durante este período, los docentes de la facultad dictaron encuentros teórico-prácticos semanales, junto con la revisión de las actividades incluidas en la guía de ingreso (ISBN 978-987-733-454-8). De esta manera, se logró un trabajo intensivo centrado exclusivamente en la Biología, que permitió a los participantes rendir el examen de ingreso antes de iniciar el módulo de Química. Los grupos se conformaron considerando la integración de estudiantes de escuelas con diferentes gestiones educativas (públicas, privadas, autogestionadas, generativas y digitales), priorizando la cercanía geográfica entre los establecimientos. Esto permitió abordar diversas problemáticas manifestadas por los estudiantes en relación con los contenidos impartidos en cada escuela, promoviendo así una integración no solo académica, sino también socioeconómica, aspecto clave en la educación universitaria. Como resultado de esta experiencia, durante dos primeros años de implementación se logró duplicar la cantidad de escuelas participantes y aumentar el porcentaje de aprobación, alcanzando valores cercanos al 95% entre los estudiantes involucrados. En síntesis, consideramos que el programa está cumpliendo con los objetivos propuestos para el ingreso universitario: promover nuevos desafíos para la enseñanza y el aprendizaje, impulsando una reflexión y un análisis multidimensional acordes con la complejidad de la problemática educativa actual.

ED05-DESCUBRE TU VOCACIÓN: TALLER DE PROMOCIÓN, ORIENTACIÓN Y ESTÍMULO PARA LA CARRERA DE FARMACIA

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La elección de una carrera universitaria es muchas veces una de las decisiones más cruciales y difíciles a la que los jóvenes se enfrentan, siendo una decisión que se encuentra influenciada por una multiplicidad de factores. En esta elección, muchas carreras pueden no ser tenidas en cuenta debido al desconocimiento de los alcances, incumbencias y la diversidad de actividades profesionales que las caracterizan. En este sentido, la promoción activa, la orientación vocacional y la implementación de actividades diversas se configuran como herramientas fundamentales para contrarrestar este desconocimiento. Farmacia es una carrera que frecuentemente pasa desapercibida, debiéndose en gran medida a una percepción pública limitada que no refleja la amplitud de las incumbencias del Farmacéutico y que van más allá de la dispensación de medicamentos. Esta falta de conocimiento genera un vacío de información que impide a los potenciales estudiantes valorar el alcance multidisciplinario y la alta demanda laboral de la profesión. El presente trabajo tiene como objetivo principal describir y analizar nuestra experiencia en la implementación de un taller denominado “Farmacéuticos por un día” en el contexto de actividades de promoción de carreras, proyectos de extensión universitaria y jornadas educativas. El propósito principal del taller radica en estimular el interés por la carrera de Farmacia e introducir a los participantes en el conocimiento integral de la profesión, destacando su amplio campo de acción, alcances y oportunidades de desarrollo. Inicialmente fue diseñado para su ejecución en el marco de las jornadas de la oferta educativa de la Universidad Nacional de San Luis (UNSL) con el fin de ofrecer a los estudiantes de el/los último/s año/s del nivel secundario una visión integral, práctica y dinámica de la profesión. Subsiguientemente y como consecuencia del atractivo generado, el destino del taller se hizo extensivo a alumnos del nivel inicial y primario al ser incorporado como anexo a las actividades de eventos lúdico-científicos organizados por la Facultad de Química, Bioquímica y Farmacia de la UNSL y de Proyectos de Extensión Universitaria. El taller se comienza con una breve introducción teórica didáctica e interactiva referente a la carrera de Farmacia y a la profesión farmacéutica. Posteriormente, los participantes se dividen en subgrupos de hasta cuatro integrantes y a cada uno de ellos se le coloca un camisolín y una cofia, fundamentando la necesidad de utilizar los elementos de protección personal. A cada subgrupo se le distribuyen los materiales necesarios para que ellos mismos, bajo nuestra orientación y supervisión, elaboren una fórmula magistral sencilla en base de cuatro ingredientes. Se motiva a los subgrupos a organizarse en la asignación de roles y tareas, potenciando la colaboración y el trabajo en equipo. Dependiendo del contexto de implementación del taller, los participantes pueden responsabilizarse de la pesada de los ingredientes; ello nos permite, además, recalcar y analizar la criticidad de esta etapa dentro de la formulación. A continuación, se los introduce en el uso del mortero como instrumento clave en la formulación, resaltando que el objetivo no es solo reducir el tamaño de partícula de los ingredientes, sino también asegurar una mezcla íntima y homogénea de los mismos para optimizar la biodisponibilidad de los componentes. Finalizada la elaboración, se le solicita a cada equipo que proceda a la autoevaluación del producto y a la posterior presentación de su formulación ante los asistentes que no participaron en la elaboración para que cada uno experimente (huela y aplique) la preparación y asigne una calificación. La implementación del taller aborda directamente el problema de la baja visibilidad y la limitada percepción que tiene la carrera de Farmacia entre los estudiantes preuniversitarios. La experiencia ha demostrado que la intervención práctica y vivencial resultó ser una vía efectiva para estimular el interés, proveer un conocimiento integral de la carrera de Farmacia y, además, ser una herramienta altamente efectiva para la transformación de la imagen del Farmacéutico. El hecho de permitir que los participantes asuman roles y realicen tareas críticas ilustra la complejidad, el rigor y la precisión que son requeridos, y además muestran que las incumbencias del farmacéutico van mucho más allá del acto de dispensación de medicamentos, logrando superar la percepción pública limitada. Dividir a los participantes en pequeños subgrupos y fomentar el trabajo en equipo resultaron fundamentales para potenciar las habilidades colaborativas. Un aspecto considerado clave, es la capacidad de adaptabilidad que hemos logrado con el taller, dado que se ha podido extender con éxito desde estudiantes del nivel secundario hasta estudiantes de niveles iniciales y primarios (en el marco de la Extensión Universitaria y de eventos lúdico-científicos). Los proyectos de extensión universitaria nos permitieron desarrollar el taller en escuelas rurales (o con características de escuelas rurales) de diversas localidades del interior de la provincia de San Luis, lo que no solo motivó el acercar de la universidad a la comunidad, sino que también generó un interés por la ciencia y, específicamente, por la carrera de Farmacia. En conclusión, consideramos que el taller "Farmacéuticos por un día" se consolida como una estrategia de aprendizaje activo exitosa y replicable de promoción, orientación y estímulo para la carrera de Farmacia. La promoción activa a través de metodologías innovadoras como esta es esencial para garantizar la visibilidad de la Farmacia e incentivar a nuevas generaciones a formarse en dicha profesión y atraer a futuros profesionales comprometidos con la salud y la ciencia.

ED06-APRENDIZAJE COLABORATIVO INTERNACIONAL EN LÍNEA COMO ESTRATEGIA FORMATIVA EN CIENCIAS BIOLÓGICAS PARA EL DESARROLLO DE COMPETENCIAS GLOBALES

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En la educación superior, las competencias globales se han consolidado como un eje esencial para preparar a los estudiantes para afrontar los desafíos de un mundo interconectado. Estas competencias—interculturales, comunicativas, de colaboración, de pensamiento crítico e investigación—favorecen no solo la resolución de problemas complejos, sino también la interacción respetuosa y efectiva con personas de distintas culturas. Sin embargo, su desarrollo enfrenta limitaciones derivadas de la falta de marcos pedagógicos homogéneos y de la variabilidad en su evaluación. En este escenario, la internacionalización del currículo en áreas como las ciencias biológicas se convierte en una estrategia clave, ya que permite integrar perspectivas globales en el aprendizaje disciplinar y potenciar experiencias colaborativas, como las promovidas por proyectos de aprendizaje colaborativo internacional en línea denominados COIL (siglas en inglés de *collaborative online international learning*). Con este propósito, se diseñó e implementó un taller COIL entre la Universidad Nacional Autónoma de México (UNAM) y la Universidad Nacional de Cuyo (UNCUYO), proyectado para brindar a las y los estudiantes una experiencia educativa internacionalizada en el campo de las ciencias biológicas. Los principales objetivos del taller fueron fortalecer los conocimientos disciplinares adquiridos en sus respectivos cursos; fomentar la colaboración interdisciplinaria e internacional; promover la comparación y valoración de la diversidad cultural y lingüística; resaltar el papel de la investigación y sus aplicaciones y profundizar en la comprensión de los principios de las ciencias básicas y su relevancia en la práctica forense. La colaboración involucró a estudiantes de grado del curso de Hematología y Serología Forense de la Escuela Nacional de Ciencias Forenses de la UNAM y del curso de Introducción a las Ciencias Forenses de la Facultad de Ciencias Exactas y Naturales de la UNCUYO. Durante un período de tres semanas (del 21 de febrero al 14 de marzo de 2025), un total de 18 estudiantes (9 de cada institución) participaron en actividades de intercambio cultural, de creación colaborativa e interdisciplinaria de material educativo y de reflexión sobre la importancia de la internacionalización en la educación superior. A través de esta experiencia, los participantes no solo avanzaron en su formación académica mediante la adquisición de aprendizajes significativos, sino que también potenciaron sus competencias globales, habilidades comunicativas y conciencia intercultural, atributos clave para su futuro desarrollo profesional. De esta forma, los estudiantes no solo fortalecen su formación académica y científica, sino que también adquieren herramientas para desempeñarse en comunidades profesionales diversas, inclusivas y sostenibles a nivel internacional.

ED07-INTEGRACIÓN CÍRCULO-VIRTUOSO: DE LA BIOLOGÍA HUMANA A LA INNOVACIÓN SOCIO-TECNOLÓGICA ARGENTINA MEDIANTE LA COMUNICACIÓN PÚBLICA DE LA CIENCIA

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La formación universitaria en Ciencias Biológicas requiere el desarrollo de competencias transversales que excedan el conocimiento disciplinar, incluyendo la comunicación pública de la ciencia (CPC) y la comprensión de los procesos de innovación. El objetivo de esta propuesta pedagógica fue promover la participación crítica y activa de estudiantes de Profesorados y Licenciaturas en Ciencias Básicas (FCEN-UNCUYO) en instancias de divulgación científica, vinculando contenidos curriculares de Biología Humana con el avance científico-tecnológico argentino. La actividad se implementó por segundo año consecutivo en el marco del espacio curricular Biología Humana de 4º año. Se propuso a los estudiantes un ejercicio de investigación y síntesis para vincular un avance o desarrollo tecnológico nacional (proveniente de empresas de base científica-tecnológica o desarrolladores argentinos) con relevancia para la salud o la Biología Humana, analizando su historia y el contexto socioeconómico de su producción. La instancia de evaluación y comunicación se concretó mediante la participación de los estudiantes en las Jornadas de Estudiantes de Ciencias Exactas y Naturales (JECEN) de la Facultad. Tres grupos de estudiantes presentaron sus trabajos en formato de presentaciones orales o posters, favoreciendo el intercambio con pares y la práctica de habilidades de comunicación. Logrando una ejecución exitosa en ambas modalidades de presentación. Entre los desarrollos abordados se incluyen la vacuna argentina ARVAC Cecilia Grierson; el desarrollo de Mamoref, un mamógrafo basado en luz infrarroja; el desarrollo de una terapia innovadora para el tratamiento del síndrome urémico hemolítico por parte de la empresa de base científica Inmunova; y el test rápido CHEMSTRIP que permite detectar anticuerpos de COVID-19. La iniciativa resultó ser una propuesta pedagógica innovadora y fue ampliamente valorada por el grupo de estudiantes por su carácter práctico y su conexión con el impacto socio-productivo que genera el conocimiento de la biología humana en el país. Los principales resultados se centraron en la reafirmación de vocaciones científicas, ya que el ejercicio de divulgar y debatir sus hallazgos reafirmó el interés de los estudiantes en la carrera de investigación; la práctica de competencias transversales, dado que se fomentó activamente la oralidad, la capacidad de síntesis, la organización gráfica y la comunicación pública de temas complejos; y el impacto en la comunidad académica, ya que la propuesta generó gran interés entre los asistentes de la jornada, destacando la necesidad de integrar la historia de la ciencia y el impacto tecnológico en los planes de estudio. Esta actividad demuestra ser una estrategia efectiva para la curricularización de la vinculación científico-tecnológica y la CPC. La iniciativa se institucionalizó y se reconoció formalmente como una de las instancias requeridas para la regularidad y promoción de la asignatura. Se concluye que la inserción de instancias de comunicación científica en congresos y jornadas estudiantiles, con foco en la innovación nacional, enriquece la formación de futuros docentes e investigadores, preparándolos como profesionales con una visión integral y un fuerte compromiso con el ecosistema de C&T local.

ED08-EDUCACIÓN EN CIENCIAS NATURALES DESDE UN MODELO BASADO EN LA NATURALEZA DE LA CIENCIA

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La educación en ciencias naturales (ECN) debe promover la enseñanza y aprendizaje de los contenidos de las diferentes disciplinas (biología, física, química), así como también una visión de ciencia contemporánea a fin de que el estudiantado logre una mejor comprensión de su naturaleza (NdC) y de las interrelaciones con la tecnología, la sociedad y el ambiente (CTSA). Esta perspectiva integral conceptualiza a la NdC como una metaciencia en la que se entrelazan los aspectos epistemológicos, históricos, sociológicos, psicológicos y antropológicos que moldean todo conocimiento científico. Se hace necesario realizar modificaciones en la ECN tradicional fundamentadas en un modelo educativo que abarque acciones y estrategias, como la indagación, la modelización y la contextualización del conocimiento, que favorezcan a la vez la comprensión de la NdC y la CTSA.

El objetivo del trabajo es revisar las propuestas de enseñanza en CN (PROENCIEN) presentadas, según el modelo didáctico mencionado, por nueve docentes en formación de la asignatura Laboratorio de Enseñanza de CN del Profesorado de la Universidad Juan Agustín Maza.

Los resultados obtenidos sobre la indagación muestran que las nueve propuestas presentan experimentos modificados por los docentes para responder a las características de una investigación científica. La indagación involucra hacer observaciones y preguntas, consultar libros y otras fuentes, planear investigaciones, realizar experimentos y revisar la evidencia, realizar cálculos numéricos, utilizar herramientas para reunir, analizar e interpretar datos, proponer respuestas, explicaciones y predicciones, discutir resultados y comunicarlos.

En cuanto a la modelización se encontraron solo modelos simbólicos como son las ecuaciones de reacciones químicas: formación de dióxido de azufre, de sales minerales y cationes en el agua; transformación de glúcidos en etanol. Conviene aclarar que la elaboración de modelos didácticos o escolares se realiza en el contexto de la indagación experimental o en la resolución de problemas teóricos a partir de la elaboración y puesta a prueba de los modelos mentales del estudiantado.

Respecto de la contextualización, la enseñanza-aprendizaje debe abordar algún aspecto de CTSA o situaciones cotidianas o domésticas; permite destacar el aspecto humano en la ECN y poner de manifiesto las consideraciones sociales y éticas junto a las explicaciones racionales de la ciencia. Se encontraron en siete propuestas los siguientes tópicos:

-Problemas de contaminación ambiental generados por los óxidos y la combustión
-Problemas industriales y domésticos con los minerales contenidos en el agua (dureza)
-Evaluación del carácter ácido-básico de sustancias de uso cotidiano
-Niveles permitidos de ácidos en la leche para consumo humano
-Importancia de las levaduras en la fabricación de pan y de bebidas alcohólicas
-Descripción de aplicaciones y usos diversos del extracto de ADN
-Importancia del conteo y viabilidad de las levaduras para la fermentación del vino.

En cuanto a los aspectos de la NdC, estos permiten conocer los procesos científicos, la naturaleza empírica de la ciencia, el papel de la observación y la inferencia, el contexto de los descubrimientos, la construcción de conceptos, etc. Se explicitaron en siete propuestas:

-Historia de los investigadores químicos que investigaron sobre los óxidos
-Historia de los estudios sobre el agua y los minerales contenidos (dureza)
-Historia del procedimiento de la titulación e invención de la bureta
-Episodio del descubrimiento de la fermentación alcohólica debido a las levaduras
-Historia de la identificación de la estructura molecular del ácido desoxirribonucleico (ADN)
-Historia del descubrimiento de la estructura de la clorofila y de la cromatografía
-Episodio de la publicación de la primera observación de una célula a través del microscopio.

Como conclusión general se puede afirmar que la mayoría de las propuestas PROENCIEN presentadas por los docentes cumplen con las premisas del modelo educativo para la ECN que involucra la indagación, modelización, contextualización y explicitación de aspectos de la NdC. De este modo se contribuye con la educación y alfabetización científicas de los futuros profesores.

AREA 13: EXTENSION

EXTENSION

EXT01- COMUNICACIÓN ACCESIBLE EN SALUD: LA IMPORTANCIA DE LA LENGUA DE SEÑAS ARGENTINA EN LA FORMACIÓN DE PROFESIONALES DE LA SALUD

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En el marco del proyecto de extensión "Recuperando tu sonrisa" parte 5, enfocado en la prevención de enfermedades bucales en personas con discapacidad, se ha identificado la necesidad de brindar educación para la salud a la población beneficiaria. La misma está conformada por personas con diversos grados de discapacidad, incluyendo discapacidad mental, motriz y sensitiva, de un amplio rango etario, que asisten a centros de día en La Plata y Ensenada. Los desafíos y barreras en la comunicación que enfrentan los profesionales y pacientes discapacitados son notables. Por lo que el objetivos fue incorporar herramientas de comunicación accesibles para personas con discapacidad para lograr educar para la salud en prevención odontológica. Para abordar las dificultades de comunicación que enfrentan las personas con discapacidad, como la sordera; el equipo de trabajo ha recibido capacitaciones en cultura sorda y Lengua de Señas Argentinas (LSA). Esto ha permitido implementar estrategias de comunicación inclusivas y optimizar la atención. El proyecto ha incorporado el curso de Comunicación Verbal y No Verbal (CVYNV) en Odontología, que proporciona herramientas básicas para una comunicación efectiva. Además, incluye estrategias de comunicación para personas con discapacidad, como: Sistema Braille y audiotextos para personas ciegas o disminuidas visuales; SAAC para trastornos del espectro autista y LSA. A partir del año 2023, el proyecto mencionado de la Facultad de Odontología de la Universidad Nacional de La Plata se ha articulado con docentes de la Facultad de Química Bioquímica y Farmacia, de la Universidad Nacional de San Luis, quienes desarrollan el proyecto "Enseñando Biología". Ambas universidades han trabajado juntas para desarrollar el curso de CVYNV junto a LSA desde 2024. El número de estudiantes de odontología que han tomado el curso ha aumentado significativamente, pasando de 200 en 2024 a 570 en 2025. Además, residentes del Hospital Odontológico Bollini de La Plata, al enterarse de esta propuesta se han sumado, lo que refleja el interés e importancia de la comunicación inclusiva en la atención odontológica. El proyecto planea continuar y expandir sus actividades, fortaleciendo la articulación interinstitucional y multidisciplinaria, promoviendo la inclusión y accesibilidad en la atención odontológica para personas con discapacidad.

EXT02-TRABAJO DE TALLER DE ANATOMÍA: CONFECCIÓN DE MODELOS 3D DEL CRÁNEO HUMANO COMO ESTRATEGIA DIDÁCTICA PARA LA COMPRENSIÓN MORFOLÓGICA

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El trabajo de taller de anatomía se centró en el estudio práctico de los huesos del cráneo y la cara**,** asignados a los grupos de estudiantes mediante un sorteo. La actividad central fue la confección de modelos tridimensionales (3D) de estos huesos, con el objetivo de lograr una comprensión profunda de su morfología y función. Esta metodología buscó facilitar un aprendizaje dinámico y colaborativo**.** Los estudiantes se enfocaron en la identificación y el marcado preciso de características anatómicas cruciales, como accidentes óseos, bordes, suturas, articulaciones e inserciones musculares. La investigación se apoyó en bibliografía clave, incluyendo el *Tratado de Anatomía Testut-Latarjet* (Tomo I) y la *Anatomía Odontológica Figún-Garino*, complementados con recursos digitales como Anatomy Learning. La actividad se estructuró en una serie de sesiones, generalmente entre seis o siete, con tareas progresivas. Los huesos Parietal, Etmoides y Vómer (frecuentemente juntos), Palatino, Malar, Unguis (Lagrimal), Huesos Propios y Cornete Inferior fueron asignados con mayor frecuencia (a 7 grupos). En contraste, la Mandíbula, el Occipital y el Frontal fueron asignados a 5 grupos, y el Temporal y Maxilar Superior a 6 grupos. Las sesiones progresaron desde la formación de grupos y asignación del hueso (Sesión 1) hasta la confección inicial del modelo 3D, identificación de caras y bordes, y pintado con acrílicos (Sesión 2). Posteriormente, se realizó una actividad incógnita o se continuó con la identificación de accidentes (Sesión 3). Las sesiones intermedias (4 y 5) se dedicaron a la síntesis de información bibliográfica y la finalización de los modelos 3D, detallando inserciones musculares y trayectos vasculonerviosos. Los materiales empleados para la confección y detalle fueron diversos: acrílicos y pinturas (en colores como celeste, rojo, verde, violeta, amarillo, etc.) se usaron para diferenciar caras, bordes o porciones específicas. Se utilizaron fibrones, marcadores y microfibras para rotular los accidentes óseos, bordes y articulaciones. La plastilina y porcelana fría sirvieron para construir los modelos y representar músculos y sitios de inserción, mientras que hilos y lanas se usaron para marcar conductos y la trayectoria de vasos y nervios. Los contenidos anatómicos abordados fueron exhaustivos, incluyendo las generalidades y ubicación del hueso, su clasificación, la identificación precisa de accidentes anatómicos (eminencias, fosas, orificios) y sus articulaciones con otros huesos. Además, se representaron las inserciones musculares y los paquetes vasculonerviosos asociados. La evaluación fue continua, incluyendo actividades sorpresa, cuestionarios interactivos (Kahoot o Quizziz) en la sesión 5 o 6, cuyas puntuaciones fueron generalmente "buenas". Finalmente, los grupos realizaron presentaciones orales, en PowerPoint o en video (Sesión 6 o 7). Los comentarios de los docentes fueron predominantemente positivos, destacando la creatividad, la organización y el compromiso de los grupos en la integración del conocimiento teórico con la práctica. Los estudiantes percibieron la actividad como dinámica, útil y enriquecedora, subrayando que la creación y manipulación de modelos 3D mejoró significativamente la memoria visual **y** la comprensión espacial de las estructuras. Aunque la metodología fortaleció el trabajo en equipo y la colaboración, algunos estudiantes señalaron dificultades con huesos complejos como el esfenoides o el palatino, y criticaron que el enfoque intensivo en el hueso asignado dejaba "inconcluso" el conocimiento de los demás huesos del cráneo**.** No obstante, la actividad fue considerada una experiencia inolvidable que promovió la aplicación práctica de los conocimientos anatómicos.

EXT03- COMO QUIERES QUE ME CALLE. 2° ETAPA. EL DERECHO A LA SALUD Y A ELEVAR LA CALIDAD DE VIDA DE PERSONAS EN SITUACIÓN DE CALLE

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Desde hace varias décadas se observan personas y grupos familiares que pernoctan en plazas, autos abandonados, guardias de hospitales, debajo de puentes, estaciones de tren, cajeros automáticos, asentamientos precarios y transitorios y otros espacios públicos. La situación de calle no es un fenómeno local y las dificultades que atraviesan son una problemática social compleja que manifiestan el proceso de exclusión más grave que se da en los núcleos urbanos. Además de la falta de vivienda, se ven involucradas otras vulneraciones respecto del acceso a derechos como salud, educación, trabajo, identidad, entre otros. Por tal motivo y ante esta problemática no resuelta, un grupo de docentes y alumnos de la Facultad de Odontología de la Universidad Nacional de La Plata, comprometidos con la necesidades manifiestas de la comunidad y ante la necesidad de contribuir a mejorar la salud de dichas personas, desarrollan tareas sociales, comunitarias y de educación para la salud en la cual se interactúa con docentes de otras unidades académicas y la Asociación sin fines de lucro "Noches Solidarias La Plata" desarrollando actividades en conjunto a fin de generar espacios de inclusión e interacción de los integrantes en escenarios reales y formar alumnos extensionistas. En nuestra sociedad muchas son las personas que debido a problemas socio económicos, de salud mental u otras situaciones familiares o sociales ven afectada su situación emocional y social y al no tener posibilidades de inclusión en el ámbito del trabajo, ingresan a una situación de alta complejidad que se denomina personas en situación de calle, es decir, personas marginadas que carecen de una vivienda y deambulan por la calle y viven en forma precaria, a veces sola/os o a veces madres con hijos o familias enteras, incluso personas de la tercera edad. Al desarrollar su hábitat y su vida expuesta a muchas patologías, sufren peligro de afecciones de distinto tipo. Sin duda constituye un verdadero problema social que debería ser resuelto desde Instituciones Gubernamentales con políticas más eficientes, teniendo en cuenta es una problemática que ha crecido de manera sostenida y se agrava con el paso del tiempo, que hace necesario la ayuda y el compromiso de la comunidad en general interviniendo o advirtiendo sobre personas en esta condición para brindarles la posibilidad de recibir ropa limpia y una vianda de comida caliente que contribuyan a mejorar su realidad. Otra ayuda muy importante la realizan organizaciones no gubernamentales como es el caso de Asociación civil sin fines de lucro "Noches solidarias La Plata" que desarrolla actividades teniendo como base la sede Social "Acción Católica" en 51 entre 11 y 12 de la ciudad de La Plata; a quienes acompañamos en sus recorridas y entrega de viandas, desarrollando nuestras actividades, persiguiendo el objetivo general de este proyecto, el cual es: *Contribuir a la salud General, bucal y emocional de niños, adolescentes, mujeres y hombres en situación de calle que se alojan en el albergue Municipal de la Ciudad de La Plata y ambulatorios que no asisten a estos centros.* Esta Asociación nuclea gran cantidad de gente en situación de riesgo. La Universidad Nacional de La Plata, a través de uno de sus pilares, la extensión universitaria, interviene en diferentes problemas sociales volcando todo su potencial fuera de los edificios, con actividades extramuros, y es por lo que es menester abordar también dicha problemática social para poder aportar los saberes y conocimientos, realizando una transferencia a la sociedad que lo requiere, que han de mejorar la calidad de vida de estas personas que merecen una oportunidad. Surge así la necesidad de los alumnos de la Asignatura Dimensión Psicológica de la Atención Odontológica y la Asignatura Odontología Preventiva y Social de la Facultad de Odontología de la UNLP y la Facultad de Periodismo y Comunicación Social, que desarrollan tareas preventivas en el ámbito de la ciudad de La Plata, de tener un sentido de pertenencia, involucrándose en las necesidades manifiestas de la gente, motivación impartida por los docentes avezados, que se replica en acciones en pos de la salud integral de la población problema, por ello creemos positivamente que se debe realizar un trabajo interdisciplinario con compromiso social, y contribuir a fortalecer la educación en salud, para mejorar la vida en sociedad y la relación de estos individuos con los profesionales de la salud como punto de partida para la asimilación de conductas de educación para la salud en general y odontológica en particular. Los niños, adolescentes, hombres y mujeres en situación de calle son atravesados por cuestiones de salud por lo cual debemos intervenir antes que las enfermedades aparezcan, pregonando la consigna EDUCACION PARA LA SALUD, y la clave, SALUD PARA TODOS. La asociación Noches Solidarias generara espacios en puntos estratégicos con gazebos. Los participantes de este proyecto de extensión cooperan activamente en los talleres y encuentros con la población siendo estos el centro de dichos encuentros, pues ellos conocen la realidad que les toca vivir y cuáles serían los lineamientos a realizar para producir una verdadera mejoría en la calidad de vida, tomando y reconociendo a LA SALUD como el verdadero paradigma a tratar y resolver utilizando diferentes indicadores odontológicos. Las actividades realizadas en primera instancia fueron la capacitación del equipo extensionista en el trabajo en terreno y las temáticas a desarrollar según las edades del grupo etario. Se realizaron entrevistas a diferentes referentes de Asociaciones que trabajan en pos de mejorar la calidad de vida de personas en situación de calle y observación del desarrollo de actividades y estrategias. Se diseñó folletería para niños con juegos relacionados a salud, láminas y videos. Se recorrió junto a los integrantes de la Asociación Noches Solidarias distintos puntos estratégicos donde se nuclean personas en situación de calle y hacen entregas de viandas de comida caliente, aportando el equipo, Educación para la Salud y elementos de higiene bucal y personal. En segunda instancia se ha logrado hacerlos participes responsables de su salud, logrando que concurran a la atención Odontológica a Centros Operativos Extramuros. Se realizó a los concurrentes la Historia clínica con su registro bucodental y registro de índices epidemiológicos elaborando y desarrollando un plan de tratamiento individualizado según sus patologías, que ha incluido hasta la instalación de prótesis dental, devolviendo con ello, anatomía, función y estética. Creemos que el éxito de este proyecto radica en el alcance de las metas propuestas y que superan incluso las expectativas previstas. Se ha promovido entre los extensionistas y la población problema el vínculo y la colaboración a través de tareas interdisciplinarias en todas las etapas del proyecto. Se construyen lazos interpersonales con miembros de la Asociación Noches Solidarias para establecer una conexión con los individuos durante todas las etapas del proyecto. Se está logrando promover entre los integrantes y la población diana el vínculo y la colaboración a través de tareas interdisciplinarias durante todo el desarrollo del proyecto y motivar a la población a reconocer la importancia de estar en salud y recomponer el estado emocional de los individuos desdramatizando la situación a través de charlas y talleres a partir de esta segunda etapa, desarrollando conductas educativas en salud a fin de disminuir la predisposición a enfermedades generales y bucodentales en dicha población. Concluimos que es trascendental generar estrategias de intervención, inclusión y acompañamiento de las personas en esta situación, configurando un ámbito específico de acción, brindando las herramientas necesarias, teniendo en cuenta el aspecto social y comunitario a fin de mejorar su calidad de vida y fortalecer la educación en salud general y bucal a través de la prevención y autocuidado.

EXT04-CORRILLOS Y ESCUELA ACTIVA

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Tradicionalmente la base de la "buena enseñanza" descansaba en el saber del docente y en la claridad de su exposición. Esto estaría enmarcado en la pedagogía tradicional El "constructivismo" se basa en el rol activo del sujeto en la construcción de conocimiento. Esta construcción de conocimiento se produce a partir de integrar los procesos operacionales del sujeto y los elementos provenientes de la experiencia en el contexto social en el cual se halla inserto. Entre las corrientes educativas, posterior al conductismo y al cognitivismo, emerge una nueva corriente de enfoque sociocultural. Efectivamente, en la década del XX, nace el constructivismo con los importantes aportes de Lev Vygotsky y Jean Piaget. Se comienza a concebir el aprendizaje como una construcción social apoyada en la experiencia y en la interacción social. Este enfoque sociocultural se focaliza en entender los procesos de desarrollo humano que emergen como formas implícitas y explícitas de símbolos compartidos, conceptos, prácticas y significaciones que se generan en el marco de la cultura, a través de unidades culturales como son la familia, una comunidad, etc. Aquí se ponen en juego, acciones y expresiones humanas significativas, históricamente contextualizadas y socialmente transmitidas. Actualmente aquella perspectiva educativa basada en la transmisión de información y fundamentada en la clase expositiva no parece dar respuestas a las demandas de la sociedad y no se ajusta a los principios de la construcción del conocimiento. Entonces, se produce un corrimiento desde la figura del docente, principal actor de la situación hasta la del alumno. De esta manera, comenzó a concebirse la participación activa del estudiante como sujeto de su propio aprendizaje. En ello se sustenta la denominada Escuela Activa, especialmente en los últimos años en que ha aumentado la participación activa del alumno en el ámbito universitario
Se pueden distinguir tres niveles de actividad:
1)la actividad que no compromete a la personalidad en su conjunto y que pertenece más a lo "mecánico" que a lo "biológico"; parece gratuita, sin objetivos definidos previamente; es más una gesticulación que una actividad propiamente dicha.
2)la actividad real pero impuesta desde el exterior, ya sea por las condiciones del medio, ya por las circunstancias, o bien por el adulto organizador de la situación de educación. Ejemplo: ejecutar correctamente una orden dada por un docente.
3)la actividad auténtica que pone en práctica todas las fuerzas vivas, creadoras del individuo, y que hacen de él un verdadero agente de su propia formación.
Una actividad auténtica lleva al individuo a responder personalmente a los estímulos del educador y a ir más allá de ellos, a encontrar, inventar caminos en los procesos psíquicos que conducen a la adquisición de los conocimientos o a la solución de los problemas. Así, el educador debería preguntarse constantemente cual es el tipo de actividad que provoca el método pedagógico utilizado. Una verdadera y auténtica actividad pone en juego todo el sistema nervioso y la totalidad de la personalidad del individuo.
Teniendo presente estas concepciones, como práctica hemos ejecutado en nuestro medio la Técnica de Reunión en Corrillo, llamada así porque constituye una estrategia secuencial. Los objetivos de esta técnica son: obtener una visión general de las opiniones de los alumnos; fomentar la participación, el diálogo y la integración.
Pasos de la Reunión en corrillos:
1) el grupo de clase total se divide en 4 /5 grupos, de 4 o 5 estudiantes cada grupo.
2) los estudiantes se numeran de 1 a 4 o de 1 a 5 según corresponda.
3) el docente reparte el tema en 4 o 5 subtemas, dependiendo de la cantidad de grupos.
4) los alumnos desarrollan el subtema entre 20 y 25 minutos dentro del grupo.
5) se reúnen todos los estudiantes número 1 en un grupo, los número 2 forman otro grupo, los número 3 constituyen otro grupo y así sucesivamente.
6) se vuelve a tener 4 o 5 grupos, donde cada integrante aporta sobre el subtema que el docente asignó a su grupo.
7) Después de 20 minutos de debate, cada estudiante vuelve a su grupo original y se realiza la puesta en común.
Cuando los estudiantes están organizados de manera adecuada, en grupos donde se da la interacción cooperativa, cada estudiante trabaja con sus compañeros debatiendo, discutiendo, asegurándose que todos lleguen a dominar lo que están aprendiendo. Este tipo de aprendizaje incrementa los saberes de los estudiantes, pero no llega a reemplazar la enseñanza del docente. La enseñanza universitaria debe estar dirigida a la adquisición de autonomía por parte de los estudiantes y el desarrollo de la capacidad de reflexión.
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EXT05-REDESCUBRIENDO LA CIENCIA EN LO COTIDIANO: UNA OPORTUNIDAD DE EXTENSIÓN UNIVERSITARIA PARA ADOLESCENTES EN SU ÚLTIMO AÑO DE SECUNDARIA

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La Jornada de Puertas Abiertas de la Facultad de Ciencias Exactas y Naturales (UNLPam) se realiza anualmente desde 2011, en el marco de la Semana de la Ciencia y la Tecnología, con el objetivo de difundir y acercar el conocimiento científico a estudiantes de los últimos años del nivel secundario.
La actividad involucra a docentes y estudiantes universitarios que, además de brindar información sobre las carreras que se dictan en la institución, buscan generar un espacio de apropiación social del conocimiento, al mismo tiempo promover la formación científica en áreas estratégicas para el desarrollo del país. En esta edición, nuestra propuesta se centró en explorar el mundo de los microorganismos en la vida cotidiana.
Aunque suelen pasar desapercibidos, los microorganismos cumplen un rol esencial en numerosos productos de uso diario, y al mismo tiempo, algunos de ellos también son de gran importancia por su capacidad de provocar enfermedades.
La XII Jornada de Puertas Abiertas se realizó el 13 de agosto de 2025 y convocó a aproximadamente 550 estudiantes de colegios secundarios de distintas localidades de la provincia de La Pampa. Para la ocasión, se organizó un stand con diversas propuestas orientadas a evidenciar la presencia de los microorganismos en nuestro entorno, fomentando el intercambio y la reflexión a través de preguntas y actividades interactivas.
El objetivo de nuestra propuesta fue brindar experiencias de intercambio que vinculan el mundo de los microorganismos con situaciones concretas de la vida diaria. Para ello, invitamos a los y las estudiantes a explorar el mundo microscópico a través de cinco estaciones:
● Se presentó un prototipo en impresión 3D de estas microalgas, destacando la forma de sus frústulos de sílice, su gran diversidad de diseños y se relacionó su estructura con productos de uso cotidiano, como filtros de piletas, abrasivos industriales y arena para gatos, evidenciando cómo estos organismos microscópicos tienen aplicaciones prácticas.
● Se explicó el empleo de un polisacárido extraído de algas rojas (agar), esencial en los laboratorios para preparar medios de cultivo de bacterias y hongos, y su uso en la vida diaria, por ejemplo en gelatinas, gomitas y ciertos postres, resaltando cómo un mismo material conecta el ámbito científico con la cocina.
● Se invitó a las y los estudiantes a reconocer, mediante el uso de imágenes, virus, bacterias y hongos. Esta dinámica permitió aclarar sus principales diferencias en tamaño, estructura y forma de vida, fomentando el aprendizaje activo a través de la observación y el debate grupal.
● Se exhibieron un tomate y un zapallo contaminados con moho, invitando a los y las estudiantes a describir lo observado. Luego, se explicó que el hongo desarrolla un micelio que invade todo el alimento, por lo que no basta con cortar la parte visible. También se abordaron las formas de reproducción de los hongos.
● Se mostró el resultado de la inoculación de un medio de cultivo generalista (Agar Nutritivo) con las manos sin higienizar de un niño y una niña, a partir de la cual desarrollaron colonias bacterianas y fúngicas.
● Con el uso de una lupa estereoscópica se observaron foraminíferos en una muestra de arena de playa, con el objetivo de mostrar estos pequeños protozoos, describir sus estructuras, conocer su hábitat, así como también su composición e importancia ecológica.

Síntesis de la experiencia
Estas actividades combinaron observación, experimentación y juego, promoviendo que los y las adolescentes descubran la ciencia en su entorno cotidiano, desarrollen pensamiento crítico y se motiven a seguir explorando el mundo microscópico.

Conclusiones
La mayoría de los y las estudiantes no suele considerar a los microorganismos como parte relevante de su vida diaria. A su vez, muy pocas personas desechaban los alimentos contaminados por hongos, optando por cortar la parte “fea” y consumiendo lo que restaba. Se evidenció un gran desconocimiento acerca del uso de las algas en productos cotidianos, como el agar (empleado tanto en alimentos como en laboratorios) y la diatomita (utilizada en distintos procesos industriales). Por otro lado, si bien muchos recordaron las medidas de higiene adoptadas durante la pandemia (como el lavado de manos), la mayoría no las asocia con la presencia constante de microorganismos en sus manos y en el entorno inmediato.

EXT06-SALUD SEXUAL EN LA ADOLESCENCIA: UN ABORDAJE PSICOBIOLÓGICO PARA LA PREVENCIÓN DE ITS/ETS

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Este proyecto de extensión se presenta por segundo año consecutivo como respuesta a la persistente preocupación de un equipo interdisciplinario de profesionales de la salud, educadores y organizaciones comunitarias de San Luis ante la elevada incidencia de Infecciones y Enfermedades de Transmisión Sexual (ITS/ETS) en la población adolescente. Además de la falta de información y del acceso limitado a servicios de salud sexual, se reconocen obstáculos vinculados a estigmas y prejuicios que dificultan la prevención y el tratamiento oportuno, generando discriminación y silenciamiento en ámbitos familiares, escolares y comunitarios. El objetivo principal consiste en implementar un programa integral que difunda información científica actualizada y promueva la reflexión crítica en torno a las prácticas de cuidado, favoreciendo la toma de decisiones responsables y el respeto hacia quienes viven con ITS/ETS. Para ello, se llevan a cabo talleres educativos interactivos, charlas con profesionales de la salud sexual y mental, así como dinámicas grupales con análisis de casos y materiales audiovisuales. La estrategia combina aspectos biológicos, psicobiológicos y socioculturales, reconociendo la complejidad de la salud sexual en la adolescencia. Este enfoque permite visibilizar desigualdades en el acceso a la información y a los recursos sanitarios, al tiempo que posibilita problematizar cómo los estereotipos impactan en la prevención, el diagnóstico y el tratamiento de ITS/ETS. Los resultados alcanzados muestran una mayor apertura al diálogo sobre sexualidad, reducción de estigmas y mejor disposición para acceder a controles médicos y métodos de prevención.

Esta experiencia confirma la relevancia de un enfoque participativo y comunitario para avanzar hacia una salud sexual basada en derechos, con impacto directo en la calidad de vida y el bienestar de las y los adolescentes de la provincia de San Luis.

EXT07-ESTRATEGIA MEDIADORA PARA LA PROMOCIÓN DE SALUD BUCAL EN NIÑOS Y ADOLESCENTES CON CAPACIDADES DIFERENTES

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La salud bucal es un componente fundamental de la salud general y el bienestar de los niños y adolescentes, especialmente aquellos con capacidades diferentes que enfrentan desafíos adicionales para mantener una buena higiene bucal debido a barreras físicas, cognitivas o sensoriales. Según la Organización Mundial de la Salud (OMS), más de mil millones de personas padecen alguna forma de discapacidad, y estas personas enfrentan barreras significativas para acceder a servicios de salud adecuados, incluyendo la atención odontológica. Los niños y adolescentes con discapacidad intelectual, en particular, están expuestos a desarrollar patologías bucales debido a una higiene bucal deficiente, niveles más altos de placa dental, inflamación gingival, caries y enfermedad periodontal. Esta situación se agrava por la falta de acceso a servicios de salud bucal especializados y la escasez de profesionales capacitados para atender las necesidades específicas de esta población.
El objetivo principal de este estudio fue diseñar, implementar y evaluar juegos colectivos como ponente didáctico adaptados a los intereses y potencialidades de personas con capacidades diferentes como estrategias mediadoras para la promoción de la salud bucal. Además, se buscó fomentar la colaboración entre los profesionales de la odontología, los cuidadores y los agentes educativos para promover la salud bucal en niños y adolescentes con capacidades diferentes. La hipótesis subyacente es que la implementación de estrategias mediadoras adaptadas a las necesidades y potencialidades de esta población puede ser una herramienta efectiva para mejorar la salud bucal y la calidad de vida de los niños y adolescentes con capacidades diferentes. Participaron en el estudio 30 niños y adolescentes con capacidades diferentes de 4 a 19 años, cuidadores y docentes, integrantes de la institución 501, de la ciudad de Berisso (Argentina). Se diseñaron juegos colectivos con componente didáctico de acuerdo con el diagnóstico psico-pedagógico y los aportes de los docentes. Dichos juegos se incluyeron en las actividades del aula y fuera del aula con la participación de otros mediadores: padres, hermanos, abuelos. Los juegos fueron evaluados por parte de los mediadores (maestros y personal auxiliar) a través de encuestas. La evaluación se centró en la efectividad de los juegos para promover la salud bucal y la adopción de conductas saludables en los niños y adolescentes.

La evaluación de las estrategias implementadas resultó positiva. Los mediadores expresaron que hubo cambio de conducta en los niños y adolescentes respecto al cuidado de su salud; observándose en la incorporación de la técnica de cepillado luego del almuerzo, lo que evidenciaría la toma de conciencia y movilización de la familia con respecto a la necesidad de consulta e intervención del profesional odontólogo. En relación con los hábitos de higiene, se observó aumento del uso del cepillo y una mejora sustancial en la calidad del cepillado. Estos resultados sugieren que la implementación de estrategias mediadoras adaptadas a las necesidades y potencialidades de los niños y adolescentes con capacidades diferentes puede ser una herramienta efectiva para promover la salud bucal y mejorar la calidad de vida de esta población vulnerable.

Como conclusión; los juegos con contenidos de salud bucal dotaron a los mediadores de una herramienta apropiada para que los niños y adolescentes lograran la apropiación de conductas saludables, dado que el diseño de estas respeta el diagnóstico de sus potencialidades. La implementación de estrategias mediadoras adaptadas a las necesidades y potencialidades de los niños y adolescentes con capacidades diferentes puede ser una herramienta efectiva para promover la salud bucal y mejorar la calidad de vida de esta población vulnerable. Estos hallazgos tienen implicaciones importantes para la práctica clínica y la educación en salud bucal.

Este estudio destaca la importancia de la colaboración entre los profesionales de la odontología, los cuidadores y los agentes educativos para promover la salud bucal en niños y adolescentes con capacidades diferentes. La implementación de estrategias mediadoras adaptadas a las necesidades y potencialidades de esta población puede ser una herramienta valiosa para mejorar la salud bucal y la calidad de vida de los niños y adolescentes con capacidades diferentes. Se recomienda que los profesionales de la odontología y los educadores trabajen juntos para desarrollar e implementar estrategias mediadoras efectivas para promover la salud bucal en esta población vulnerable.

EXT08-SALUD BUCAL EN LA CANCHA: PREVENCIÓN Y DEPORTE

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Introducción: El presente trabajo se realizó en el Club Villa Lenci, ubicado en el barrio Altos de San Lorenzo de La Plata, una zona de bajos recursos. Este club es un espacio de contención, educación y deporte para niños y jóvenes de 5 a 15 años. El objetivo principal fue explicarles la importancia de una buena salud bucodental y cómo esta se relaciona con el deporte que practican.
Objetivos: El objetivo de este trabajo fue promover el cuidado dental preventivo y educar sobre la importancia de la atención odontológica para restablecer la salud bucal. Se buscó lograr esto a través del conocimiento de las estructuras dentarias para fomentar la prevención de enfermedades.
Actividades realizadas: Para la charla, se usaron herramientas interactivas como una maqueta de la cavidad bucal, macromodelos y macrocepillos. Se empleó una PC portátil y un proyector para mostrar una presentación de PowerPoint con diagramas de una pieza dentaria y sus partes, así como imágenes de microscopía de los tejidos duros dentarios. También se les explicó sobre enfermedades bucales prevalentes en odontología, como la caries y la enfermedad periodontal. Para motivar a los asistentes, se usó un microscopio óptico para acercar la ciencia a la comunidad. Se observaron preparaciones dentales por desgaste para que pudieran identificar los diferentes tejidos del diente. Al finalizar la charla, se entregaron kits con elementos de higiene como cepillos y pastas dentales.
Resultados: Se logró captar la atención de los concurrentes, particularmente a la hora de utilizar el microscopio y la interacción durante la enseñanza de la técnica de cepillado. También se interesaron cuando se les habló de la salud bucal relacionada con la práctica deportiva.
Conclusión: El acercamiento del grupo de extensión fue muy positivo, demostrando el entusiasmo y la activa participación de los niños en todas las actividades. Este proyecto ha probado que la educación y la concientización sobre el cuidado bucal pueden generar un impacto positivo no solo en la salud bucal, sino también en la salud general de niños y jóvenes que viven en barrios vulnerables.

EXT09-PRODUCCIÓN DE HONGOS COMESTIBLES COMO ALTERNATIVA PRODUCTIVA: FORTALECIENDO VÍNCULOS ENTRE LA ESCUELA AGROTÉCNICA Y LA UNIVERSIDAD A TRAVÉS DE LA BIOTECNOLOGÍA APLICADA

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El Proyecto de Desarrollo Tecnológico y Social (PDTS) "Producción de hongos comestibles como alternativa productiva. Constitución de una nueva cadena de valor con impacto económico, social y ambiental" se propone desarrollar un bioproceso de fermentación en estado sólido para la producción de hongos comestibles del género *Pleurotus*, utilizando residuos agroindustriales de la región de Cuyo como sustrato. La iniciativa se ejecuta de manera conjunta entre el Instituto de Biotecnología (FI-UNSJ) y la Escuela Agrotécnica "Prof. Ana Pérez Ciani" del departamento 9 de Julio, San Juan, integrando investigación aplicada, extensión universitaria y formación técnica en el ámbito rural.

Durante los dos años de ejecución, se llevaron a cabo múltiples instancias de capacitación teórica y práctica orientadas a los estudiantes de 7° año de la escuela. En las capacitaciones teóricas, se abordaron contenidos sobre biología y fisiología fúngica, ciclos de vida, requerimientos nutricionales, potencial alimentario y mercado actual de los hongos comestibles. Las capacitaciones prácticas, realizadas en el Laboratorio Tecnológico y de Microbiología del Instituto de Biotecnología, incluyeron la preparación de medios de cultivo, inoculación de cepas, pasteurización y armado de bloques de cultivo, promoviendo un aprendizaje experiencial y el desarrollo de competencias técnicas vinculadas a la biotecnología de hongos.

Estas actividades no solo fortalecieron el vínculo entre la escuela y la universidad, sino que también representaron instancias de formación para los alumnos de grado y becarios de CONICET integrantes del proyecto, quienes participaron activamente en las capacitaciones, brindando asistencia técnica, acompañamiento y tutorías a los estudiantes de la escuela. De este modo, el proyecto se constituyó en un espacio de aprendizaje intergeneracional, donde la transferencia de conocimientos circuló en ambos sentidos, articulando docencia, investigación y extensión.

Como cierre del segundo año, los estudiantes participaron en la Feria Agroproductiva Anual de la escuela, donde expusieron los resultados de sus experiencias y los primeros cultivos obtenidos, consolidando el proceso de aprendizaje y transferencia tecnológica.

El proyecto promueve la valoración de los residuos agroindustriales como recurso, la producción sustentable de alimentos y la formación de jóvenes en biotecnología con compromiso social y ambiental. Asimismo, sienta las bases para la creación de microemprendimientos rurales, fortaleciendo la economía circular y el desarrollo local en zonas de alta vulnerabilidad social.

EXT10-SEMBRANDO CONCIENCIA: LA UNIVERSIDAD Y LA ESCUELA COMO MULTIPLICADORES DE PREVENCIÓN DEL CHAGAS

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El Chagas es una de las enfermedades endémicas más críticas de la Argentina, afectando a más de 1,6 millones de personas y presentando complejas dimensiones biomédicas, epidemiológicas y socioculturales. Es causada por el parásito *Trypanosoma cruzi* y transmitida principalmente por la vinchuca (*Triatoma infestans*). Aunque su origen es parasitario, su impacto es profundamente social. La educación se vuelve esencial, ya que la falta de información incrementa la vulnerabilidad de las comunidades rurales. Intervenciones educativas oportunas permiten a los habitantes comprender los riesgos y las vías de contagio, empoderándolos para adoptar medidas efectivas de prevención y control. Este trabajo se enmarca en el proyecto de extensión universitaria "Multiplicando Voces: Chagas, la Universidad y la Escuela", desarrollado por la Universidad Nacional de San Juan junto a la Escuela de Nivel Secundario República Argentina de Bermejo (Caucete). Su objetivo principal fue indagar los conocimientos, percepciones y representaciones sociales que estudiantes y docentes poseen sobre la enfermedad de Chagas y su vector antes del inicio de las actividades de sensibilización y talleres educativos. Se aplicó una encuesta diagnóstica denominada "Conociendo y Previniendo la Enfermedad de Chagas – Tu Opinión es Importante", compuesta por 28 preguntas organizadas en tres ejes: (1) reconocimiento del vector y percepción del riesgo, con ítems sobre identificación, comportamiento y peligrosidad atribuida a la vinchuca; (2) fuentes de información y transmisión de saberes, explorando los ámbitos donde los participantes habían oído hablar del Chagas (escuela, familia, vecinos, amigos); y (3) percepción ambiental y medidas preventivas, con preguntas sobre sitios posibles del hogar donde pueden encontrarse vinchucas y modos de prevenir la enfermedad. Los resultados evidenciaron vacíos conceptuales importantes, especialmente en la comprensión del rol del vector, las vías de transmisión y la relación entre condiciones ambientales y riesgo sanitario. De los 45 encuestados (estudiantes y docentes), solo el 42 % reconoció correctamente a la vinchuca entre otras especies, y un 60 % desconocía que puede habitar dentro de las viviendas. Además, más del 70 % asoció la transmisión exclusivamente con la picadura del insecto, sin mencionar otras vías, como la congénita o transfusional. Estos hallazgos reflejan la persistencia de creencias parciales y la ausencia de información actualizada en el ámbito escolar, lo que refuerza la necesidad de intervenciones educativas situadas. En conclusión, los resultados confirman que la vulnerabilidad frente al Chagas está estrechamente vinculada a carencias informativas sobre el vector y las formas de infección. Este diagnóstico inicial permitió identificar el terreno sobre el cual cultivar la sensibilización desde la acción del conocimiento, sembrando conciencia en la comunidad. La colaboración entre Universidad y Escuela se reafirma así como una estrategia indispensable para multiplicar la prevención, base fundamental para abordar una enfermedad desatendida como el Chagas. Los datos de línea de base obtenidos orientarán futuras acciones y talleres educativos contextualizados. Al fortalecer el conocimiento de estudiantes y docentes, se promueve la educación en salud ambiental, transformando el desconocimiento en comprensión y acción. De este modo, la Universidad y la Escuela cumplen su rol esencial: asegurar que la semilla de la prevención germine y se propague en la comunidad. Agradecimientos: Escuela República Argentina (Bermejo, Caucete, San Juan), CONICET, CICITCA, y proyectos de extensión CONEX-UNSJ (Resolución CS 332).

EXT11-VOLVER A CONOCIMIENTOS ANCESTRALES CON LA EDUCACIÓN AMBIENTAL

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La educación ambiental es un espacio curricular que permite relacionar distintas áreas del conocimiento, incentivar el interés y aprecio por los recursos naturales, desarrollar nuevas aptitudes y destrezas, y generar cambios actitudinales tanto en los docentes como en los estudiantes. No se pueden valorar, usar y conservar recursos vegetales que no se conocen. Entre los variados atributos y servicios ecosistémicos que poseen las especies nativas se encuentra la posibilidad de obtención de tintes de sus tejidos vegetales. Los colorantes naturales poseen propiedades estéticas únicas e inocuas, cuando su uso se combina con una producción artesanal sustentada en el respeto por la naturaleza y el ambiente, aportan un valor agregado significativo a la elaboración textil. También, generan nuevas oportunidades laborales para artesanos y productores locales, favoreciendo la continuidad de los saberes tradicionales. El conocimiento adquirido por comunidades rurales a lo largo de la historia, a través de la experiencia directa y el contacto con el medio ambiente, ha permitido recopilar un cuerpo de conocimientos, prácticas y creencias que evoluciona por procesos adaptativos y se mantiene por transmisión cultural.

Mediante actividades de extensión y educación ambiental, en el marco del PI 14- 1923, se han desarrollado talleres y cursos de capacitación con el objetivo de introducir a los participantes en el conocimiento de las especies vegetales tintóreas, la práctica de tinción de lana con sus principales etapas y la diversidad de sus usos en artesanías de papel, tela, lana y cuero. Estas capacitaciones estuvieron dirigidas a docentes y estudiantes de distintos niveles educativos transmitiendo saberes ancestrales y proponiendo la participando activa en los diversos procesos para la obtención de tintes y el teñido de distintos materiales. Además de propender a la inquietud de investigación y creatividad para el uso de los tintes vegetales.

En primer lugar, se trabajó en identificar y describir las especies nativas con propiedades tintóreas, su ubicación geográfica en la provincia de San Luis y su uso sostenible y ético ambiental. También se trabajó con ejemplos de especies nativas características de otras regiones del país. Para cada especie se presentó el color del tinte que produce en sus distintas tonalidades: verde, marrón, amarillo, naranja, rojo, azul, gris, negro, entre otros.

Como etapa siguiente, se transmitieron las técnicas para la extracción de los tintes vegetales y se describieron los fijadores del color que permiten mantener la tonalidad en el tiempo y lavados de las lanas y telas. Se analizaron los colores obtenidos de la extracción de tintes de distintos órganos vegetales de cada especie recolectada. Estás técnicas fueron desarrolladas en el laboratorio. Luego se trabajó en la preparación de las telas y fibras de origen vegetal y animal: especificaciones de los lavados, maceraciones, morteado para facilitar el teñido de las fibras, fijado del color y secado de las telas y lanas. Con la finalidad de estimular la creatividad se explicaron técnicas de postmorteado para experimentar la modificación de los colores de las fibras teñidas. Se aplicaron estas técnicas en telas de algodón y fibras de origen animal (lana de ovejas) experimentando con los tintes extraídos y sus variantes de tonalidades obtenidos con el postmorteado y material vegetal utilizado (flores, hojas, corteza, frutos, semillas) y productos vegetales como las resinas.

Los resultados obtenidos se expresaron mediante exposiciones de los trabajos realizados en lanas y telas teñidas, pinturas en papel y artefactos decorativos. También mediante la generación de proyectos de investigación y desarrollo para su presentación en ferias de ciencias escolares y regionales, proponiendo la investigación sobre especies nativas potencialmente con atributos tintóreos. La tarea de evaluación de los docentes que participaron en las capacitaciones fue presentar trabajos realizados por sus estudiantes, con la finalidad de lograr la transmisión de los saberes sobre la revalorización de las especies nativas.

Las experiencias desarrolladas permitieron que la educación ambiental sea un espacio curricular que logró relacionar distintas áreas del conocimiento, incentivar el interés y aprecio por los recursos naturales, desarrollar nuevas aptitudes y destrezas, incentivar la creatividad y espíritu de curiosidad creativa, además de generar cambios actitudinales tanto en los docentes como en los estudiantes. Se logró transmitir que las propiedades de los colorantes son esenciales para comprender su comportamiento, aplicaciones e interacciones con diversos sustratos. Especialmente se resaltó la inocuidad de los tintes vegetales respecto de los tintes sintéticos, con aplicación en diversas aplicaciones industriales: cosmética, textiles, papeleras, jugueterías, librería (tintes para marcadores, crayones, acuarelas), mobiliarios, gastronomía.

Las actividades de extensión desarrolladas se fundamentan en entender que la diversidad biológica y cultural de un país, se constituye en el patrimonio de la sociedad que lo integra, y es la razón por la cual para poder seguir ejerciendo su identidad se debe conservarla, resguardarla y mejorarla.

EXT12-LA CIENCIA Y LA EDUCACIÓN COMO DERECHOS HUMANOS

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La profundización de la crisis económica y social de los últimos años ha llevado a una situación en la que una proporción importante de jóvenes e infancias, no sean contenidas dentro de la institucionalidad educativa, principalmente para los sectores más vulnerables de la sociedad. En este contexto, la ciencia pasa a ser un "objeto" cada vez más alejado de la cotidianidad, inalcanzable y sin utilidad práctica. Es por ello, que es importante abordar esta problemática en vínculo directo entre la Universidad Pública y otros sectores de la sociedad, para favorecer una apropiación de la educación y de la ciencia desde una perspectiva de los derechos humanos. En un contexto económico de creciente empobrecimiento y exclusión, es un desafío de toda la sociedad, pero una obligación fundamental para docentes y el conjunto de comunidad educativa y de las ciencias, fortalecer vínculos que favorezcan la defensa de la educación y las ciencias, y que al mismo tiempo se fomente la apropiación y la participación del conjunto de la sociedad en la educación y las ciencias. El objetivo de este trabajo es promover desde la Universidad Pública-el acercamiento de la ciencia y la educación a instituciones escolares y comunidades populares, con el fin de fomentar su incorporación e integración como derecho humano fundamental en el ámbito educativo. Se trabajó con una línea del tiempo que resaltaba diferentes hitos de la historia de las Universidades Públicas Nacionales, comenzando con la creación de la Universidad de Córdoba en el siglo XVII hasta la actualidad. Se realizó una recolección de documentos e imágenes sobre hitos universitarios tales como la Reforma Universitaria de 1918, la expansión de las universidades en el siglo XX y las políticas de inclusión del siglo XXI. Los destinatarios fueron estudiantes de cuarto y quinto año de las escuelas secundarias pertenecientes a diferentes establecimientos educativos de la provincia de San Luis. Se realizaron diversas actividades, entre ellas, talleres, juegos y se crearon espacios de debate que estuvieron orientadas a reflexionar sobre el derecho a la educación superior y a la ciencia y su papel como herramienta de transformación social. Los y las estudiantes participaron activamente y reflexionaron acerca del carácter de la educación y la ciencia como derecho humano. En el debate, destacaron que el acceso equitativo al conocimiento es una responsabilidad del Estado y reconocieron la educación como una acción colectiva atravesada por dimensiones históricas, culturales y políticas. Por otro lado, se hizo hincapié en que el acceso a la educación superior con igualdad de oportunidades constituye una responsabilidad del Estado y que la educación es una acción colectiva atravesada por dimensiones históricas, culturales y políticas. Las actividades propuestas nos permitieron identificar las percepciones que tienen los y las estudiantes sobre la ciencia y la educación, y si estas son concebidas como un derecho fundamental para todas las personas. A partir de los debates, surgieron diversos interrogantes, así como fortalezas y debilidades vinculadas a la manera en que se conciben la ciencia y la educación superior. En conclusión, si bien los y las estudiantes reconocieron que la universidad pública argentina facilita el ingreso de diversos sectores sociales, se perciben barreras culturales y estructurales que alejan a muchos jóvenes del mundo universitario y científico. Por ello, resulta esencial continuar generando vínculos genuinos entre la universidad, la ciencia y las escuelas, que permitan construir sentidos de pertenencia, fomentar el reconocimiento de la educación y la ciencia como derecho humano y habilitar nuevas trayectorias posibles para las y los estudiantes en condiciones de mayor equidad.

EXT13-“CIENCIA EN CASA”: UN PUENTE ENTRE LA ALEGRÍA, EL APRENDIZAJE Y LA SALUD

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Con motivo del Día del Niño, el equipo de *Ciencia en Casa, perteneciente al programa MiniMentes* llevó sus experimentos científicos al Hospital Pediátrico San Luis (Servicio de Niñez, Adolescencias y Familias) y al Hospital de Día Sur, transformando una jornada cotidiana en una experiencia de encuentro, descubrimiento y alegría. La propuesta, surgida en el marco de la extensión universitaria, tuvo como objetivo acercar la ciencia a los niños y niñas que asisten a los mismos, generando un espacio lúdico, participativo y emocionalmente significativo donde la curiosidad y el aprendizaje se combinaron con la empatía y el juego.

Durante la actividad, se desarrollaron pequeños experimentos caseros con materiales simples y seguros, cuidadosamente adaptados al contexto hospitalario. Entre las experiencias interactivas se incluyeron los “maíces saltarines”, donde granos de maíz ascienden y descienden en agua coloreada, ilustrando de forma divertida principios fisicoquímicos; los “remolinos de colores” donde la leche reacciona con detergente y colorantes, generando círculos en movimiento con múltiples colores y la explosiva pasta dental para elefantes, una demostración de reacción catalítica que despierta asombro y risas por su carácter espectacular. Cada experimento fue acompañado de explicaciones simples y preguntas abiertas, promoviendo el diálogo y el pensamiento crítico incluso en los más pequeños.

Los niños participaron activamente, observando, formulando hipótesis, realizando predicciones y compartiendo sus propias interpretaciones. Esta dinámica, centrada en la exploración y el asombro, permitió que cada participante se sintiera protagonista de su propio aprendizaje, reforzando el vínculo entre el conocimiento y la experiencia cotidiana. Asimismo, la propuesta promovió el trabajo colaborativo entre los integrantes del equipo, los profesionales de la salud y las familias, generando un ambiente de confianza y cooperación.

Más allá del valor educativo, la experiencia tuvo beneficios psicológicos y emocionales significativos. El juego con la ciencia actuó como un factor de distracción positiva, reduciendo la ansiedad y el estrés vinculados al contexto hospitalario. Al lograr resultados visibles y sorprendentes, los niños experimentaron una sensación de logro, curiosidad y control, fortaleciendo su autoestima y su confianza. A su vez, el intercambio con docentes, estudiantes y personal de salud generó un clima de cercanía y contención afectiva, donde la curiosidad científica se transformó en una herramienta terapéutica y de expresión emocional.

Las familias destacaron el entusiasmo que despertó la propuesta y el modo, por un momento, el hospital se transformó en un lugar de juego, risa y vínculo humano. También remarcaron la importancia de que la universidad se acerque a estos espacios, brindando experiencias significativas que combinan aprendizaje, acompañamiento y bienestar. El equipo de salud valoró especialmente la iniciativa por su impacto en la comunicación con los pacientes, su capacidad para humanizar los entornos médicos y su contribución a una atención más integral, que incluye lo emocional además de lo físico.

En síntesis, *Ciencia en casa y MiniMentes en el Hospital* demostró que la ciencia, presentada de forma lúdica y accesible, puede ser mucho más que un contenido escolar: puede convertirse en un puente emocional, un estímulo cognitivo y una herramienta de bienestar en contextos de vulnerabilidad. Este tipo de actividades evidencian el valor de la extensión universitaria como espacio de transformación social, donde el conocimiento científico se pone al servicio de la comunidad, promoviendo inclusión, empatía y alegría a través del juego y la curiosidad.

EXT14-AVIFAUNA DEL "JARDÍN BOTÁNICO AGROFICA UNSL" Y PREDIO DE CIENCIAS AGROPECUARIAS DE LA UNIVERSIDAD NACIONAL DE SAN LUIS EN VILLA MERCEDES (SAN LUIS, ARGENTINA)

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El predio de Ciencias Agropecuarias de la Universidad de San Luis, ruta prov. 55 extremo Norte fue el primer edificio propio del Centro Universitario Villa Mercedes de la UNSL. En este edificio desde sus comienzos se ubica el campo experimental de la carrera de Agronomía. Desde un principio se implantaron especies arbóreas, arbustivas y herbáceas con distintos fines principalmente parcelas de investigación agronómica. El área es parte de un bajo salitroso con vegetación adaptada a la concentración de sales en los perfiles de suelo. En 1998 se inicia el jardín botánico en su lugar definitivo en un principio para docencia y luego se extendió a la investigación y a la extensión. Con el objeto de listar las especies de aves de San Luis, docentes y estudiantes Amigos del Jardín conjuntamente con el Club de Observadores de Aves Ñandú de Aves Argentinas realizaron censos en distintos puntos de observación ubicados en el Jardín Botánico y en el campus de Ciencias Agropecuarias en el período 2023 - 2025. Se realizaron avistajes, se grabaron sonidos, se fotografiaron y se incorporaron a bases de Cornell Lab así como de eBird. Como resultado se verificó un total de 49 especies pertenecientes a los siguienres géneros: Rhynchotus, Nothoprocta, Nothura, Patagioenas, Zenaida, Columbina, Guira, Chlorostilbon, Sappho, Athene, Tyto, Colaptes, Veniliornis ,Caracara, Falco, Rupornis, Myiopsitta, Thectocercus, Furnarius, Elaenia, Pitangus, Tyrannus,Troglodytes, Molothrus, Sicalis, Spinus, Sporophila,Tachuris, Mimus, Paroaria,Pyrrhocoma, Coccyzus, Geranoaetus, Syrigma, Vanellus, Pyrocephalus, Xolmis, Zonotrichia, Nannopterum, Megaceryle, Egretta, Asio, agrupados en 23 familias de aves de acuerdo a Aves Argentinas (2015) y las actualizaciones del Cornell Lab (2024). La diversidad observada refleja una composición representativa de la avifauna del Departamento Pedernera, San Luis, incluyendo especies residentes, migratorias y ocasionales que abarcan los principales órdenes de aves terrestres e incluso acuáticas de avistaje ocasional. La diversidad de aves observadas pone en evidencia la importancia del jardín botánico y el predio de Ciencias Agropecuarias, cuya composición de especies de plantas brindan ambientes apropiados para la alimentacion, nidificación o refugio permanente u ocasional para distintas especies de aves.

EXT15- HERRAMIENTAS PARA DOMINAR TU EXAMEN ORAL

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El estrés académico que enfrentan los estudiantes, particularmente en la instancia de los exámenes finales, trae aparejado la necesidad de dominar hábitos de estudio y la ansiedad académica. Todas las instancias de evaluación generan algún grado de tensión, comunes entre los estudiantes que van desde el insomnio la noche anterior al examen, hasta la sensación de parálisis en el cuerpo. Para algunos estudiantes la ansiedad se vivencia como motivación y para otros como un obstáculo insuperable. El temor por no saber estudiar, el miedo al fracaso, a hablar y a exponerse se encuentran en el origen de esta dificultad. El objetivo de esta propuesta fue evaluar la diversidad de emociones que atraviesan los estudiantes universitarios cuando afrontan las instancias de exámenes y brindar herramientas que permitan sortear estas dificultades. Se organizaron Jornadas desde el Centro de Salud Estudiantil Universitaria de la Secretaría de Asuntos Estudiantiles y Bienestar Universitario (SAEBU) de la Universidad Nacional de San Luis, en la ciudad de San Luis y en Villa Mercedes (San Luis) con la finalidad de abordar desde lo psicológico la implicancia que tiene comprender las causas de estas emociones, identificar las estrategias de afrontamiento que resulten más efectivas para cada individuo y, en algunos casos, buscar ayuda profesional; y desde el punto de vista de la fonoaudiología mejorar la fluidez, la claridad y la comunicación efectiva, lo que es crucial para rendir bien en un examen oral. El abordaje de estas problemáticas estuvo a cargo de dos Licenciados en Fonoaudiología pertenecientes a la Facultad de Ciencias Humanas y una Licenciada en Psicología que desempeña su función en el Centro de Salud Estudiantil. Se realizaron disertaciones que incluyeron presentaciones multimedia, y una dinámica lúdica (eutonía muscular, respiración, articulación de la palabra, deglución, atención focalizada). Concurrieron a las jornadas un total de 70 estudiantes universitarios. Para evaluar el impacto de estas, los participantes tuvieron que completar una encuesta, que incluyó las siguientes preguntas: *¿Cómo es la comprensión de texto?, ¿Cómo es la pronunciación?, ¿Cómo es la capacidad para expresar verbalmente el contenido a evaluar?, ¿Cómo califican el grado de ansiedad antes del examen?, ¿Qué les pareció la jornada y qué fue lo que más les gustó?*
El análisis de las encuestas arrojó diversidad de respuestas. En lo que respecta a la "*Comprensión de texto*": el 54.54% de los estudiantes manifestaron como BUENO, el 23,37% respondió SATISFACTORIO, y el resto del porcentaje se distribuyó entre DEFICIENTE y MUY BUENO; en la "*Pronunciación*", el 36.36% y 45.45% expresó como SATISFACTORIO y BUENO, respectivamente; en la "*Capacidad para expresar verbalmente el contenido a evaluar"* se observaron resultados similares en las respuestas de DEFICIENTE, SATISFACTORIO Y BUENO, arrojando porcentajes del 35.06%, 32.46% y 27.27%, respectivamente, y solo 1,81% expresó como MUY BUENO. Otro punto que se evaluó fue el "*Grado de ansiedad*" que manifestaron los estudiantes antes del examen, en el cual el 49.35% marcó la opción MUY ALTO, mientras que el 29.87% y el 15.58% correspondió a la opción ALTO e INTERMEDIO, respectivamente. Se observó que solo el 1.29% marcó el ítem BAJO. En referencia a la última pregunta "*¿Qué les pareció la jornada y qué fue lo que más les gustó?*, los datos revelaron que al 80.51% de los estudiantes calificaron la Jornada como MUY INTERESANTE y el 14.28% como RELEVANTE. Los estudiantes expresaron que lo que más les gustó de la Jornada fue la dinámica aplicada a las técnicas y herramientas que se brindaron para sobrellevar ciertas problemáticas relacionadas con la vida universitaria y lo académico. Otros datos que evidenciaron las encuestas fue que el "*predominio de las carreras"* de la UNSL que transitaban los estudiantes que participaron de las mismas, corresponde al 33.33% de la carrera de Licenciatura en Psicología, mientras que porcentajes menores se obtuvieron para diversas carreras que ofrece la Institución. En cuanto al "*año de cursada"* de los participantes, se observó que el 28.88% se encuentran en 2° y 3° año, mientras que el 22.22% correspondió al 4° año, seguido del 17.77% para el 1° año, y sólo el 2.22 % se encontraba en la finalización de la cursada.

La realidad es que la ansiedad en los exámenes finales es un problema que ha existido siempre. Es una condición que se presenta con frecuencia en los estudiantes, manifestando ansiedad en los exámenes antes, durante y después de los mismos, lo que provoca diversos síntomas mentales y físicos, que afectan negativamente tanto el rendimiento académico como la salud general. De hecho, en algunas situaciones puede ser realmente útil, ya que mantiene la mente alerta y lista para enfrentar los retos que se presentan. En algunos casos, se trata de un proceso completamente normal. Sin embargo, hay casos en que la ansiedad se presenta como una condición psicológica, en la que las personas experimentan una angustia extrema. Por ende, es necesario prestar atención, ya que esta condición puede afectar el aprendizaje y perjudicar el rendimiento de los estudiantes. Los hallazgos que se observaron en este trabajo refuerzan la necesidad de adoptar estrategias integrales para gestionar eficazmente la ansiedad ante los exámenes y apoyar el bienestar mental de los estudiantes de la UNSL. Mediante la implementación de intervenciones específicas que permitan la regulación de las emociones y el fomento de un entorno educativo propicio, se pueden mejorar los resultados académicos, trabajando con herramientas para sobrellevar estas instancias.