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In memoriam

Dra. Ana María Valentina Teresa Stefanini de Guzmán

(1935- 2021)

Profesora Emérita

Área Microbiología e Inmunología - Facultad de Química, Bioquímica y Farmacia

Universidad Nacional de San Luis

Nacida en San Luis, se graduó como Farmacéutica Nacional, Lic. en Bioquímica y Dra. en Bioquímica en nuestra UNSL, donde trabajó toda su vida con gran vocación como docente-investigadora en el área Microbiología. Formó innumerables alumnos de grado y dirigió becarios y tesistas de posgrado de la UNSL y CONICET en temas vinculados a *Yersinia enterocolitica* y anaerobios, en cuyo estudio fue pionera en la región. Desarrolló diversas actividades en extensión, servicios y gestión, siendo directora de la Escuela de Bioquímica en el período 1987-1989. Reconocida por su vasta producción científica, en 1999 se le asignó la Categoría I del Incentivo a la Investigación, y en 2001, la de Profesor Emérito. Fundadora del Laboratorio de Microbiología de la FQBF-UNSL junto a la Dra. Olga P. de Centorbi y prestigiosos colegas, cumplió su sueño de verlo en las nuevas instalaciones y con moderno equipamiento para continuar las investigaciones en aspectos moleculares de Microbiología, con aplicación al área de la salud humana y animal.

Su ejemplo nos acompaña siempre, ¡muchas gracias por su legado querida Dra. Guzmán!

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CONFERENCIAS Y SIMPOSIOS

CONFERENCIA INAUGURAL:

HISTORY OF THE CUYO BIOLOGY SOCIETY

Dr. Ramón Piezzi / Dr. Alfredo Castro Vázquez
Universidad Nacional de Cuyo

History of the last 40 years of the scientific meetings of the Cuyo Biology Society, from the refoundation of the society in 1973 to the present day.

SIMPOSIO I: Aplicaciones de la química de Productos Naturales, para la salud y el ambiente

S1.1 MICROPROPAGATION AS A STRATEGY FOR THE SUSTAINABLE PRODUCTION OF THERAPEUTIC ACTIVE PRINCIPLES: THE AMARYLLIDACEAE ALKALOIDS AS AN EXAMPLE

Bastida, J
Grup de Productes Naturals. Departament de Biologia, Sanitat i Medi Ambient. Facultat de Farmàcia i Ciències de l'Alimentació, Av. Joan XXIII #27-31, 08028-Barcelon, España
email: jaumebastida@ub.edu

The conservation of biodiversity currently rests on two well-established pillars: the United Nations Convention on Biological Diversity (1993), an outcome of the Earth Summit in Rio de Janeiro (1992), and the subsequent Nagoya Protocol (2010), which was ratified by the signatory states in 2020. The study of plant diversity, an inexhaustible source of bioactive molecules, has had to find ways of adapting to these agreements to ensure the available therapeutic arsenal can continue to grow. Plant chemists have modified their methodologies and reduced plant batch size by an order of magnitude. Playing a key role in this process of adaptation is plant micropropagation, which allows the generation of sufficient biomass for research from very small quantities of starting material.

We discuss the strategies employed in the study of a monocotyledonous family of bulbous plants, the Amaryllidaceae, producers of an exclusive group of alkaloids, most notably galanthamine, which is used for the palliative treatment of Alzheimer's disease. We describe the GC-MS (compound library) and LC-SPE-NMR techniques for the separation and identification of compounds and the use of molecular docking to simulate compound inhibitory activity against various enzymatic targets. Special focus is given to the micropopagation of species of high therapeutic interest, an approach that avoids the depletion of plant biodiversity and can provide enough plant material for the complete characterization of bioactive components and *in vitro* assessment of their neuroprotective activity.

This study is part of a thematic network subsidized by CYTED (Programa Iberoamericano de Ciencia y Tecnología para el Desarrollo), in the area of Sustainable Development.

S1.2 CHEMISTRY AND BIOLOGY: NATURAL PRODUCTS INVOLVED IN CHEMICAL ECOLOGY AND ITS APPLICATIONS

Borges, WS
Universidade Federal do Espírito Santo, Brasil. warley.borges@ufes.br

According to data published in the Journal of the natural products more than half of all drugs approved by the FDA in the last 40 years are natural products or natural products derivatives. To exemplify the importance of these compounds to current society in 2015 the Nobel Prize in Medicine was ceded to researchers for their discoveries concerning novel therapy based on natural products against infections caused by roundworm parasites and the discoveries concerning novel therapy against Malaria.

Recent studies have demonstrated that chemical compounds involved in ecological relationships have the capacity to present different biological activities and some examples of these types of studies will be presented.

MESA DE INNOVACIÓN Y DESARROLLO

HOW TO INCREASE THE IMPACT OF SCIENCE IN SOCIETY: THE UNIVERSITY THIRD MISSION

Tarolli, P., Silva, F. and Estrella Orrego, J.
University of Padova, Dept. of Land Environment Agriculture and Forestry, paolo.tarolli@unipd.it, Universidad Nacional de Cuyo y Conicet msilva@fca.uncu.edu.ar, Universidad Nacional de Cuyo, Facultad de Ciencias Agrarias, jestrella@fca.uncu.edu.ar

As key actors in the social scenario, universities fulfill their mission by offering academic courses, undertaking research, and developing outreach activities. This last role requires understanding universities as transforming institutions with the knowledge to generate impact on different stakeholders. Intense debate arose after the pandemic on how these outreach activities must occur. While the pandemic has increased science´s popularity, it has generated intense debate about how universities perform their role and interact with different stakeholders.

There are countless ways to promote this interaction. Entrepreneurship is one of the most developed ones, looking to generate companies based on students and researchers with distinctive skills matched with market opportunities. These so-called spin-off companies offer the community intense knowledge of products or services and help universities financing activities. The way to generate companies requires training programs for researchers and students on entrepreneurship skills, generating contests, enabling direct dialogue with successful entrepreneurs, and helping them get financial aid. Intellectual property issues play a central role in this and must be assessed strategically.

Technical services are another way to do outreach and offer external organizations knowledge and equipment on a certain subject. Public governments widely use these technical services when certain issues need to be assessed, and an impartial view is required. These services were traditionally focused on one specific subject, but they have changed to be more interdisciplinary for a while. Researchers normally generate a group of students to carry out these services, enabling them to get real contact with public agencies or companies, increasing their skills and their employability rate.

A step forward in carrying out outreach is through an innovation strategy. To develop this, universities must put social and productive needs on a central role, understanding and defining the challenges organizations face and conveying researchers and students to propose solutions. These solutions must help organizations create value and not only solve a technical issue. The substantial difference with previous approaches is the centrality of society. Superior communication skills are required on both sides to fulfill a successful innovation strategy and therefore achieve social-economic and environmental impact.

Lastly, one key aspect of outreach is creating special public events, workshops, and scientific café for citizens. In such circumstances, adapting communication skills is necessary to better disseminate the results. This is the key point to raise awareness among citizens and stimulates policymakers to better adopt solutions according to scientific results. Adequate use of social media is necessary to maximize the impact of science.

SIMPOSIO II: Microbioma en la salud y la enfermedad

S2.1 MODULATION OF THE INTESTINAL MICROBIOTA THROUGH FERMENTED FOODS, PROBIOTICS AND PREBIOTICS

Vinderola G
Instituto de Lactología Industrial (INLAIN, UNL-CONICET), Facultad de Ingeniería Química, Universidad Nacional del Litoral, Santa Fe. Email gvinde@fiq.unl.edu.ar

The human intestinal microbiota, the set of microorganisms that colonize the intestinal tract, has become relevant because of its fundamental role as an interface between our diet and the immune system, but also as a modulator of the gut-brain or gut-skin axis. The COVID19 pandemic further directed our attention to the gut microbiota as a key factor in the susceptibility to infection and its resolution: association studies showed that countries with higher per capita consumption rates of fermented plant foods had lower rates of coronavirus infection and lower severity of infection. The combination of factors such as cesarean section, limited breastfeeding, consumption of antibiotics antimicrobial compounds in the diet that, in many cases, is also deficient in fibers, has progressively impoverished the taxonomic composition of our intestinal ecosystem, decreasing its diversity and abundance, and leading to a progressive increase in chronic diseases, developmental and functional gastrointestinal disorders. In a context of a "microbiota in extinction", fermented foods, probiotics and prebiotics have gained attention as nutritional strategies to address this issue. Fermented foods are a very heterogeneous family of foods, with asymmetric scientific evidence on their effects on microbiota and health. Some fermented foods are a source of live microorganisms (yogurt, cheeses, kefir, kombucha, sauerkraut, kimchi), while in other cases the microorganisms are inactivated by cooking processes (sourdough bread) or removed in the final processing of the food (beer, wine). Some fermented foods may also contain varying amounts of alcohol (kefir, kombucha). Probiotics, on the other hand, are live microorganisms, with microbiological identity at the strain level and beneficial effects demonstrated in scientific studies. Modification of the structure and/or function of the microbiota is not a condition for the efficacy of fermented foods or probiotics, but it is for prebiotics (Inulin, FOS, GOS), for which evidence shows that they are able to selectively stimulate the development of the indigenous bifidobacteria of the intestine. Recent intervention studies show that the progressive incorporation of fermented foods in the diet is able to decrease several biological parameters related to chronic low-grade inflammation. The knowledge of the microbiological particularities of fermented foods and probiotics, and of the presence of prebiotics in foods or in supplements, allows a rational approach for their use, with the aim of providing viable microorganisms, or not, and their metabolites, to temporarily colonize the intestine, to contribute to the diversification and abundance of microorganisms in this ecosystem, for a better functioning of the digestive and immune system, for the management of chronic conditions and for the prevention of intestinal or respiratory tract infections. Fermented foods, probiotics and prebiotics are gaining popular interest, but also they attract the interest of the medical community and the industry, although much more slowly by the regulatory agencies. A proper regulatory framework necessary is needed for rational and scientifically based management. The incorporation of fermented foods, probiotics and prebiotics in dietary guidelines of the population is the next challenge.

S2.2 NEW MECHANISMS IN THE ETIOPATHOGENESIS OF ARTERIAL HYPERTENSION: ROLE OF THE INTESTINAL MICROBIOME

Choi MR
Cátedra de Anatomía e Histología, Facultad de Farmacia y Bioquímica, UBA. Instituto Alberto C. Taquini de Investigaciones en Medicina Traslacional, UBA-CONICET. e-mail: marcelinkchoi@yahoo.com.ar

The gut microbiota comprises approximately one trillion microorganisms with 150-fold more genes than the human genome. Considered an essential part of the human body, a healthy gut microbiota that generates bioactive metabolites can benefit the host in multiple organs and systems. The term dysbiosis involves an imbalance in gut microbiota composition and its metabolic capacity and is associate with the development of several chronic diseases including hypertension. In addition to the harmful impact caused by hypertension on different target organs, gut dysbiosis is capable of causing direct damage to critical organs such as the brain, heart, blood vessels, and kidneys. The role of gut microbiota and its metabolites in cardiovascular disease has become a topic of great interest in recent years. Several metabolic pathways involving a wide range of metabolites from the gut microbiota may be implicated in the link between gut dysbiosis and critical cardiovascular disease risk factors. Therefore, the comprehension of the complex interactions between the gut microbiota and the cardiovascular system results of a great importance to develop improved pharmacological therapies for hypertension prevention and treatment.

S2.3 OBESIDAD Y MICROBIOTA INTESTINAL: DE LA INVESTIGACIÓN A LA ACCIÓN

Quesada IM
iquesada@mendoza-conicet.gob.ar
Instituto de Bioquímica y Biotecnología, Facultad de Ciencias Médicas UNCUYO e IMBECU-CONICET

La obesidad es un trastorno metabólico complejo causado por una variedad de factores genéticos y no genéticos (como los factores ambientales), su incidencia aumenta cada año y es considerada un problema de salud pública. A pesar de que la pandemia por COVID-19 ocupó lugares prioritarios de lineamientos durante el 2020-2021 en la agenda nacional de investigación en salud pública (ANISP) del Ministerio de Salud de Argentina, las enfermedades crónicas no transmisibles como la obesidad y sus enfermedades relacionadas siguen ocupando los primeros lugares de prioridad. La obesidad no solo se manifiesta como cambios en la apariencia, sino que también se asocia con trastornos del metabolismo de los lípidos y la glucosa, inflamación crónica, estrés oxidativo y un mayor riesgo de enfermedades cardiovasculares, diabetes y cáncer. La microbiota intestinal puede ser un factor ambiental relevante en la obesidad y puede ser modulada positiva o negativamente por diferentes estilos de vida y factores dietéticos. Además, los metabolitos microbianos pueden inducir modificaciones epigenéticas, lo que implicaría una susceptibilidad a la obesidad. Dada la importancia de la nutrición en la modulación del ambiente intestinal y su relación con la obesidad, el objetivo de esta conferencia es dar a conocer cómo el manejo de la microbiota intestinal puede ser utilizado como prevención o método de tratamiento de la obesidad en el contexto de nuestro país. En esta charla se presentarán resultados de nuestro grupo de investigación que está enfocado en el estudio de la relación entre la disfunción, disbiosis intestinal y la obesidad tanto en modelos *in vitro*, *ex vivo*, e *in vivo* utilizando modelos animales de obesidad/síndrome metabólico y con pacientes con sobrepeso/obesidad y diabetes tipo 1. Es importante dirigir los esfuerzos de la investigación científica para poder dar respuesta a problemas de salud pública prioritarios como es la obesidad y sus enfermedades relacionadas.

CONFERENCIA 2

BIOREMEDIATION OF ENVIRONMENTS WITH MIXED CONTAMINATION: CHALLENGES AND ADVANCES

Polti MA[1,2], Aparicio JD[1,3], Saez JM[1,2], Benimeli CS[1,4]
[1]Planta Piloto de Procesos Industriales Microbiológicos (PROIMI-CONICET), S. M. de Tucumán, Argentina.
[2]Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad Nacional de Tucumán (UNT), Argentina.
[3]Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán (UNT), S. M. de Tucumán, Argentina.
[4]Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Catamarca (UNCA), Argentina.
e-mail:marta.polti@conicet.gov.ar

In the last decades, the growing industrial activities, rapid urbanization, highest consumption rates, and non-safe human practices have greatly increased soil pollution with different contaminants, being pesticides, heavy metals, hydrocarbons, chlorophenols, and polychlorinated biphenyls the most frequently found. Therefore, it is important to device eco-friendly remediation technologies to restore the ecosystems affected by inappropriate anthropogenic action. Gentle Remediation Options such as bioaugmentation, phytoremediation, vermiremediation, and biostimulation have received considerable attention in recent years as effective risk-management strategies to reduce the transfer of contaminants to local receptors, through *in-situ* stabilization or extraction of pollutants. These treatments can provide a cost-effective, environmentally friendly solution to soil co-pollution and are increasingly employed in place of the traditional remediation technologies. Each biological technology for soil remediation has certain limitations, and the simultaneous presence of inorganic and organic pollutants poses its own particular problems. These restrictions could be counteracted by a combination of technologies to remediate soil pollution, together with recovery of soil health. Moreover, the selection of the appropriate remediation technique/s to effectively reduce contaminant concentrations to acceptable levels will depend on the costs, type and concentration of pollutants, edapho-climatic characteristics, and requirements of the soil. Principles, advantages, disadvantages, and applications of the main bioremediation technology employed for polluted soil will be discussed. Later, case studies will be presented, to evaluate the efficiency and safety of bioremediation process of soil polluted with Cr(VI) and lindane. In this sense, it is essential to have tools of ecological relevance to assess the biological impact of pollutants on the environment. Bioassays to evaluate the effectiveness of a bioremediation process of co-contaminated soils were applied, using five model species: four plant species (*Lactuca sativa*, *Raphanus sativus*, *Lycopersicon esculentum*, and *Zea mays*) and one animal species (*Eisenia fetida*). The biomarkers showed different sensitivity levels. However, two key species: *L. esculentum* and *E. fetida*, were the most sensitive to evaluate the toxic impact of Cr(VI) and lindane. On the other hand, single and combined bioremediation strategies were evaluated: phytoremediation (*Brassica napus*), microbial remediation (actinobacteria consortium), phytoremediation (*E. fetida*), an biostimulation. The combination of all strategies was the most successful treatment and would be a suitable strategy to reduce contamination and improve the health of soils co-polluted with hexavalent chromium and lindane.

CONFERENCIA 3

PRENATAL STRESS AND NEURODEVELOPMENT: SEARCHING FOR NOVEL MEDIATORS AND BIOMARKERS.

Sánchez M, Nardocci G, Corvalán D, Méndez-Ruette M, Oyarce S, Monteiro L, Wyneken U, Tenorio M, Arango P, Godoy MI, Illanes S, Bátiz LF

Center for Biomedical Research and Innovation (CiiB), Universidad de los Andes, Santiago, Chile. lbatiz@uandes.cl

Maternal psychological distress during pregnancy, also known as prenatal stress (PS) increases the risk of poor neurodevelopmental outcomes in the offspring. However, the mechanisms and mediators by which maternal stress is communicated to the fetus remain poorly understood. In addition, there are no early biomarkers to predict neurodevelopmental outcomes in the context of PS. Our group is investigating a novel mother-to-fetus (placenta) communication pathway mediated by small extracellular vesicles (sEVs) that might regulate fetal neurodevelopment under PS conditions. sEVs are a heterogeneous population of membrane-bound vesicles of varying biogenesis, size, content, and bioactivity. sEVS are specifically packaged with a complex cargo of molecules of different types, comprising lipids, proteins, and RNAs; they are actively released into biofluid compartments, such as the bloodstream, and can regulate the physiology of distal target cells. Thus, sEVs represents a complex integral signaling pathway mediating intercellular communication. Moreover, most of the cargo of EVs is composed by products from the donor cell and is cell-type and cell-status specific. Thus, the content of EVs is considered a "fingerprint" of the releasing cell that reflects its physiological or pathophysiological status and, as such, sEVs have been proposed as useful biomarkers for different conditions and pathologies. We have developed a rat model of PS by repetitive movement restraint, and we are studying the consequences on fetal neurogenic process. In addition, we are investigating whether maternal sEVS can mediate these changes. These studies are being complemented by in vitro assays using primary cultures of neural stem/progenitor cells. On the other hand, we have studied the consequences of the exposure to a high magnitude earthquake and the COVID-19 pandemic on maternal psychological distress (depressive symptoms and perceived stress) during pregnancy and changes in neurodevelopmental outcomes in the offspring at different postnatal stages. Our results strongly suggest that sEVs can mediate stress-related signals and have the potential to be used as biomarkers of PS-induced neurodevelopmental changes.

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CONFERENCIA 4

CARDIOVASCULAR RISK ASSESSMENT: ATHEROGENIC AND CARDIOPROTECTIVE LIPOPROTEINS.

Brites FD.

Departamento de Bioquímica Clínica, Facultad de Farmacia y Bioquímica, UBA. CONICET. fdbrites@hotmail.com

Atherosclerotic cardiovascular disease (ACVD) is one of the leading causes of death worldwide, and the main strategy for primary prevention is the identification of asymptomatic individuals at high risk of developing this pathology. This is how risk assessment tables have been prepared, built using regression equations in population samples, which give value to the various known risk factors. Currently, we have the guidelines published by different American (2018 AHA/ACC Guideline on the Management of Blood Cholesterol) and European (2019 ESC/EAS Guidelines for the management of dyslipidemias: Lipid modification to reduce cardiovascular risk) organizations, as well as with the recommendations of the Lipid National Association (2021). In turn, there are specific recommendations regarding the parameters that must be evaluated to validate a cardiac marker. Among the criteria to be evaluated, it is expected that they have clinical utility, that they discriminate between people who have the disease of interest and those who do not, and that they help to reclassify subjects, especially those at intermediate risk. The results, for their part, must be easy to interpret and use in a primary prevention care system, must be internationally standardized, and involve reasonable costs. In the literature, mention is made of a wide variety of ASCVD risk factors and biomarkers, for many of which there are commercial kits. These include the lipid and lipoprotein basic profile, with LDL-C being the primary target for treatment, apo A-I and B, Lp(a), lipoprotein remnants, high-sensitivity C-reactive protein, interleukins 1ß and 6, lipoprotein-associated phospholipase A_2, metalloproteases, endothelial adhesion molecules, etc. However, few of them meet the aforementioned requirements, which highlights the need for a more in-depth analysis regarding the specific clinical utility of each one and the limitations of their measurement methods. In particular, the determination or estimation of LDL-C deserves particular attention due to its clinical relevance and the limitations of both the chemical methods used for its measurement, as well as the equations

proposed for its calculation (Friedewald, Martin-Hopkins and Sampson formulas). On the other hand, the aforementioned parameters, to a greater or lesser extent, have pro-atherogenic and/or proinflammatory properties, being in opposition to HDL, the only lipoproteins with antiatherogenic functions. In recent years, some controversy has arisen regarding its cardioprotective role, based, among other reasons, on evidence showing that the relationship between HDL-C levels and ECVA follows a U-shape, thus showing that not only low values but also very high ones are associated with a high rate of cardiovascular events. However, the aforementioned controversy could be related to the parameter used to evaluate HDL (HDL-C) and with alterations in the ability of HDL to uptake free cholesterol from lipolysis of triglyceride rich lipoproteins, a recently developed hypothesis. Finally, a crucial aspect deals with the conditions that patients must present to undergo a lipid study, among which fasting must be considered. These conditions are decisive for the reliability and clinical value of the risk factors and biomarkers used in the estimation of the risk of developing ACVD.

SIMPOSIO III: Sociedades de Biología de la Argentina Invitadas. *One Health: una salud óptima para las personas, los animales y nuestro planeta*

S3.1 AIR POLLUTION AND UNDERNUTRITION: TWO SYNERGISTIC RISK FACTORS ON CARDIOVASCULAR AND PULMONARY HEALTH.

Kurtz ML
Laboratorio de Bio-Toxicología Ambiental, Instituto de Tecnologías Emergentes y Ciencias Aplicadas, ECyT, UNSAM – CONICET.
mkurtz@unsam.edu.ar

Children encompass a highly susceptible subpopulation to the adverse effect of environmental pollutants and malnutrition. Air pollution (gases and particulate matter-PM) has a negative impact on lung, inducing oxidative stress and pro-inflammatory processes. Systemic translocation of PM and/or oxidative/inflammatory mediators resulting from the interaction PM-lung cells, can also cause adverse biological effects on remote organs. Therefore, we investigated the effects of ROFA (Residual Oil Fly Ash, a surrogate of air PM) exposure on the lung, heart and vasculature, in a nutritional growth retardation (NGR) rat model *in vivo* and *ex vivo*. In order to achieve NGR animals, male weanling rats were fed a restricted 20% diet compared to *ad libitum* intake (control-C) for 4 weeks. NGR and C rats were intranasally instilled with either 1 mg/kg BW of ROFA or its vehicle. Alveolar macrophages (AM) were isolated and cultured 24 h post-exposure and cell viability, antioxidant response, and pro-inflammatory cytokine release were evaluated. Furthermore, histological and biochemical parameters such as oxidative metabolism and inflammation were assayed on lung, heart and thoracic aorta tissues obtained from both animal groups. The aorta contractile function and vascular biomarkers were also analyzed. Cultured AM from NGR rats exposed to ROFA show diminished antioxidant response (Nrf2) and inflammatory mediators production (TNF-α and IL-6). Histopathologically ROFA induced changes in the lung and was able to cause a rise in reactive oxygen species, always higher in C than in NGR animals. Even though ROFA exposure altered heart oxidative metabolism in NGR animals leading to lipid oxidative damage, no histological or biochemical changes were observed. Following ROFA exposure, the contractile capacity of the aorta declined, and worsened in NGR animals. In addition, NGR rats presented reduction in eNOS and the L-type calcium channel levels, proteins involved in the regulation of the vascular tone. In summary, our *in vivo* and *ex vivo* studies showed that undernutrition affects the lung immune responsiveness to air pollutants and the cardiovascular homeostasis. Therefore, we hypothesized that undernourished children subpopulation in scenarios of environmental pollution would have a higher risk of cardiovascular diseases.

S3.2 ANIMAL HEALTH PROMOTES HUMAN HEALTH IN A FRIENDLY ENVIRONMENT

Vintiñi E O
Facultad de Agronomía y Zootecnia - LARIVENOA – UNT - eovintini14@yahoo.com.ar

The close relationship between animal and human health is defined in One Health, which is an approximation to the understanding that there is an interconnection between humans, animals, plants and the environment. Animal production cannot be considered in isolation from the environment. Regular evaluation is necessary to achieve an ecologically friendly use of the available resources and therefore it is essential to apply a holistic approach to prevent infectious and zoonotic diseases. In this sense, it is a priority to respect ecosystems, biodiversity, animal health and human health in order to create a balance and safeguard the health of the planet. There are biological and chemical threats that affect our health by affecting the environment and highlight the problems caused by climate change to crops and animals, which has a direct impact on human health through the appearance of emerging infectious diseases. According to the United Nations, the world population will reach 9.6 billion in 2050, which will lead to an increase in the demand for food and, as a consequence, there will be a significant increase in the number of production animals to guarantee supply. In this respect, Animal Health will be a critical element in preventing zoonotic diseases, thus ensuring human health and safety, as 60% of human infectious diseases are of animal origin. Animal health is an essential component of animal welfare, which shows how the conditions of the environment in which animals are kept directly influence their physiology, behaviour and affective states. This is why animal welfare within a friendly environment in a production chain is considered a fundamental part of a successful sustainable system. The identification by molecular techniques of pathogens that influence the health of livestock production animals such as: *S. gallinarum, S. pullorum, S. enteritidis, S. typhimurium, E. coli, Clostridium dificile, B. abortus, Mycobacterium bovis, S. suis, S. aureus, S. agalactiae, S. uberis and S. dysgalactiae*, which can have serious consequences for human health, represent a valuable strategy to implement surveillance and control of these infectious agents and facilitate efficient decision making to apply holistic methodologies for zoonotic diseases. These bacteria are involved in outbreaks of foodborne diseases (FBD), through the consumption of pork, chicken, partially cooked eggs or milk and dairy products. In the case of brucellosis and tuberculosis, both zoonoses, are found in our country within the National Control and Eradication Plan. The work must be responsible and committed, integrating specialists from different fields, with a real political commitment at local, regional, national and international levels. The goal is to achieve a more environmentally friendly production, taking care of animal welfare and natural resources; to highlight that Animal Health promotes human health in a friendly environment because we all share the same world, we all share the same health.

S3.3 BIOTECHNOLOGICAL STRATEGIES APPLIED TO ANIMAL PRODUCTION AND HEALTH

Liaudat AC[1], Capella V[1], Bonino R[1], Sosa E[1], Sommaro A[1], Gonzalez MA[1], Opizzo BA[1], Blois D[1], Morilla G[1], Fili A[1], Barbero C[2], Rivarola C[2], Bosch P[1], Rodriguez N[1].
[1]Instituto de Biotecnología Ambiental y Salud (INBIAS), [2]Instituto en Tecnologías Energéticas y Materiales Avanzados (IITEMA) Facultad de Ciencias Exactas, Físico Químicas y Naturales, Universidad Nacional de Río Cuarto –Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). Mail: aliaudat@exa.unrc.edu.ar

Tissue engineering is an emerging interdisciplinary field which purpose is to replace or regenerate a damaged organ through the use of biomaterials. Poly-N-isopropylacrylamide (PNIPAM) hydrogels are synthetic polymeric materials with innate chemical and mechanical similarity to the extracellular matrix. Due to this, these scaffolds are being studied to be applied in tissue regeneration to support the growth of different cell types. Studies carried out in our laboratory evaluated the effects that PNIPAM and PNIPAM copolymers produce on of immunological, fibroblastic, renal and pulmonary cells biocompatibility. The results showed that hydrogels are biocompatible with all cell lines analyzed without activating an inflammatory immune response. In addition, PNIPAM hydrogels were used as sperm selection surfaces for livestock species, where it was possible to obtain a bovine and swine sperm selection system with high percentages of viability and motility. A new research area showed in preliminary results that the addition of calcitriol to sperm medium acts as a natural capacitation agent. The analysis of biological characterization of bovine oocytes from slaughterhouse is also an important step to define its use in assisted reproduction techniques.

CONFERENCIA 5

PUBLIC PERCEPTION AND COMMUNICATION OF SCIENCE AND TECHNOLOGY IN ARGENTINA: THE ROLE OF UNIVERSITIES AND RESEARCH CENTERS

Cortassa C G
Facultad de Ciencias de la Educación. Universidad Nacional de Entre Ríos
carina.cortassa@uner.edu.ar

Long after it happened in other contexts, the public perception and communication of science and technology (S&T) have become topics of increasing political and institutional prominence in Argentina during the last two decades. Three milestones of this ongoing process are addressed in this talking: firstly, the inclusion of the issue in the agenda of S&T public policies; secondly, the role the scientific communities and institutions are expected to play towards the promotion of a general scientific culture; finally, the evolution of some trends related with the people's knowledges, interests and attitudes over the course of the five National Surveys undertaken in our country since 2003. Policies devoted to improving scientific literacy were consolidated in developed countries during the second half of the 20th century, as a means of highlighting governmental efforts in S&T in order to ensure civil society's support to its expansion. This original purpose has been significantly broadened during recent decades to foster new goals. Among others, these include: to democratise access to knowledge, stimulate the development of an innovative culture, promote scientific vocations and extend public participation in controversial issues. In Argentina, the earliest initiatives in this sense were the launch of the National Science Week and of the first Public Perception of Science National Survey, both in 2003. With the creation of the Ministry of Science and Technology, in 2007, the issue adquired a progressively higher profile, not only at the level of concrete actions but also in the frame of the latests National Plans of S&T –*Argentina 2020* and the brand new *Argentina 2030*–. On its part, local scientific communities and research institutions are following a slow but steady path into what has been called 'the communicative turn' in S&T organizations. This shift, which began to emerge in the 1990 decade and tended to widen and deepen since then, results from two different grounds: on the one hand, scientists and institutions are compelled to enhance their strategies of public communication due to intrinsic interests –the competition for credit, reputation and public prominence which, in turn, lead to ensure the flow of resources–; on the other hand, they must do so to accomplish the requests of public policies and supporting agencies, which strongly encourages a more active commitment on their part with the strengthening of the relationships between science and society. Even though some positive advances in this direction have been achieved during the last years, in fact the communicative turn remains a major challenge for national scientific organizations –a task that needs to be tackled in a systematic, comprehensive and sustained manner. Only in this way, Universities and research centers will be in position to perform their duties in the expansion and consolidation of a critical scientific culture among the Argentinean population.

CONFERENCIA DE CIERRE

EXTRACELLULAR VESICLES IN REGENERATIVE MEDICINE

Dr. Marcelo Ezquer
Facultad De Medicina, Instituto De Ciencias. Universidad Del Desarrollo. Santiago, Chile.

SESION I DE POSTERS

BIOLOGIA GENERAL, CELULAR Y MOLECULAR (BM)

BIOLOGIA GENERAL, CELULAR Y MOLECULAR

001 - CLOCK'S DIFFERENTIAL TRANSCRIPTIONAL CONTROL ON OGG1 AND APE1 CIRCADIAN EXPRESSION

Castro Pascual IC[1], das Neves Oliveira A[2], Melendez M[2], Cargnelutti E[1,3], Altamirano FG[1], Ferramola ML[3], Lacoste MG[1], Delgado M[3], Anzulovich AC[1,3]

1 Laboratorio de Cronobiología, IMIBIO-SL, CONICET-UNSL, San Luis, Argentina. 2 Centro de Pesquisa em Oncologia Molecular, Hospital de Câncer de Barretos, São Paulo, Brasil. 3 Facultad de Química, Bioquímica y Farmacia, UNSL, San Luis, Argentina

Presenting author: ***Ivanna Castro Pascual, ivannacastropascual@gmail.com***

The circadian clock integrates external environmental changes with the internal physiology. Different studies have described a role of clock molecular machinery on the regulation of DNA repair mechanisms. In this sense, other authors reported a clock controlled modulation of DNA nucleotide excision repair. Accordingly, we previously reported evidence of circadian rhythmicity in the expression of genes involved in DNA base excision repair (BER) system, in 22-mo-old rats. BER is a key mechanism to avoid oxidative and alkylative DNA damage, which predisposes to different diseases such as cancer or neurodegenerative disorders. Our objective was to elucidate the molecular mechanisms involved in the control of the circadian expression of the enzymes involved in the BER system. Through *in vitro* transient transfection studies in NIH-3T3 cells, we assayed the response of the regulatory regions of *Ogg1* and *Ape1* genes to de BMAL1:CLOCK heterodimer. Previously, our bioinformatics studies revealed 13 E-box-like (CANNTG) and 5 perfect (CACGTG) E-box sites in regulatory regions of *Ogg1* and *Ape1*, respectively. Subsequently, the bioluminescence assays showed that the BMAL1:CLOCK heterodimer exerted a differential regulation, activating the *Luc* expression driven by the regulatory region of *Ogg1* ($p<0.001$), and repressing the *Luc* expression driven by the regulatory region of *Ape1* ($p<0.01$). The ability to anticipate and repair cyclical DNA damage is essential for protective functions of tissues, especially during aging, thus, our results would contribute to the growing evidence that circadian clocks may regulate the cellular response to DNA damage.

002- TRANSCRIPTIONAL CHARACTERIZATION OF RIBOTOXINS HORIZONTALLY ACQUIRED IN *Trialeurodes vaporarorium*

Cañadas G[1], Lapadula WJ[1,2], Juri Ayub M[1,2]

[1]Laboratorio de Biología Molecular y Laboratorio de Zoología, Facultad de Química Bioquímica y Farmacia. Universidad Nacional de San Luis (UNSL). [2]Instituto Multidisciplinario de Investigaciones Biológicas San Luis.

guadalupe.canadas3@gmail.com

Ribosome Inactivating Proteins (RIPs) are RNA N-glycosidase that depurinate a specific adenine residue in the conserved sarcin/ricin loop of 28S rRNA. RIP encoding genes are found in plant, bacterial and fungal lineages. Recently, we reported the presence of these genes in some species of mosquitos and whiteflies belonging to Culicidae and Aleyrodidae families, respectively. Evolutionary analysis confirmed that both groups of genes were acquired by two independent horizontal gene transfer events and are evolving under purifying (negative) selection. This evidence indicates that these foreign genes have a positive impact on the fitness of the host organism. Recently, we have demonstrated that RIP genes present in *A. aegypti* are expressed and their transcripts are polyadenylated. Most importantly, the expression levels of RIP genes are modulated across the developmental stage of mosquito. Based on these results, we hypothesized that RIP genes have a functional role in insects. In order to test this postulate, we performed a transcriptional characterization of RIP genes in one species of Aleyrodidae family. For this purpose, we established a colony of whiteflies, confirmed its taxonomic identity by DNA barcoding sequencing, and quantified the transcript levels of RIP genes by RT-qPCR. As result of this work, we found that the colony's individuals belong to *T. vaporarorium*. Moreover, we experimentally confirmed the presence of three RIP genes in the genome of this species. Interestingly, two of the three RIP genes were expressed and their transcription levels are modulated during ontogeny. In conclusion, we showed evidence of expression for these foreign genes in a second lineage of insects. Similar to *A. aegypti*, these results suggest that RIP genes are functional in Aleyrodidae family, supporting the main hypothesis of this work.

003- EFFECTS OF HEAT STRESS ON THE MORPHOLOGY OF THE MAMMARY GLAND OF THE WILD RODENT *Lagostomus maximus*

Halperin J[1,2], Beraldo Pissinis SP[1,2], Caram D[1,2], Leopardo NP[1,2], Inserra PIF[1,2], Corso MC[1,2], Vitullo AD[1,2], Dorfman VB[1,2].
[1]Laboratorio de Endocrinología Reproductiva, Centro de Estudios Biomédicos Básicos, Aplicados y Desarrollo (CEBBAD), Universidad Maimónides. CABA, Argentina.
[2]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET).
Email: **halperin.julia@maimonides.edu**

The impact of heat stress (HS) on mammary gland development and milk production has been extensively studied in cattle due to the economic losses for the dairy industry. Yet, little is known about the effect of HS on the mammary development of wildlife species. This work is a preliminary study on the effects of HS on the mammary gland of the South American plains vizcacha, *Lagostomus maximus*. For this, morphology and cell viability were evaluated in mammary gland explants obtained from term-pregnant females and incubated at 37°C (control, CT) or 42°C (HS) for 1, 2 and 4 hours. The CT-explants preserved their tissue structure regardless of the incubation period: mammary acini morphology remained intact and mammary stromal cells also showed normal cytology. Furthermore, pyknotic nuclei of mammary epithelial cells were very scarce, which is indicative of a low apoptosis rate ~~for~~ in the CT group. In contrast, HS-explants exhibited a time-dependent disorganization of the mammary gland microstructure. Specifically, the heat stress stimulus induced loss of mammary epithelial cell-cell adhesion, as well as cell-extracellular matrix adhesion, all evidenced by the altered expression of cadherin, collagen I, and laminin compared to that of CT-explants. The significant increase in pyknotic nuclei in the mammary parenchyma of the HS-explants indicated higher levels of apoptosis also in a time-dependent fashion. Strikingly, HS-explants incubated for 2 and 4 hours showed a large percentage of the mammary epithelial cell nuclei with all their chromatin condensed in a particular "wagon wheel" perinuclear arrangement. Yet, more in-depth studies are needed to understand the physiological meaning of this. These results are relevant to understand the effects that climate change related-heat stress has on the function of the gland on which nothing less than the nutrition of the wildlife offspring relies. Grants PIP N°11220200100036CO & Intramuros Fundación Científica Felipe Fiorellino/UMAI.

004- NOREPINEPHRINE MODULATES DAILY CLOCK EXPRESSION IN *EX VIVO* SPLENIC MACROPHAGES

Cargnelutti E[1,2], Anzulovich AC[1,2]
[1]Laboratorio de Cronobiología (LABCRON), IMIBIO-SL-Universidad Nacional de San Luis-CONICET. [2]Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis.
Contact: ***ecargnel@unsl.edu.ar***

The time of day is critical to define the nature of the immune response, since a dysregulation of this mechanism can lead to inflammatory diseases or immunodeficiencies. In mammals, the central clock in the suprachiasmatic nucleus (SCN) synchronizes cell-autonomous clocks to the sunlight. The splenic macrophages (MΦ) phagocytes and eliminates circulating pathogens, and orchestrate the development of the specific acquired immune response. However, the central circadian regulation of these splenic cells has not been completely elucidated yet. Communication between SCN and spleen occurs by the sympathetic nervous system (SNS), through nerves that release norepinephrine (NE) in areas of MΦ cells. Previously, other authors reported daily oscillation of NE in spleen. In order to study the role of NE on the regulation of the molecular clock of spleen MΦ, we have developed a rat model of local sympathetic denervation by guanethidine administration. Animals were maintaining under 12h-light: 12h-dark conditions and *ad-libitum* food/water intake until the experiment. To analyze the NE temporal impact on molecular clock of splenic MΦ, ten days after injection of saline solution or guanethidine, control (N=4/ZT) and sympathectomized rats (N=3/ZT) were euthanized at different times during a 24 h period (ZT2, ZT6, ZT10, ZT14, ZT18 and ZT22) and spleen was aseptically removed for *ex vivo* cultures. The BMAL1 and ACTIN protein level, were analyzed by Western blot from splenic adherent cells. Time point data were compute by 1-way analysis of variance (ANOVA) and followed by Tukey post hoc test. Further, chronobiologic statistics were used for validating temporal changes as rhythms. Thus, each series of data were analyzed by Cosinor method. Since BMAL-1 modulates some MΦ's functions through the direct control of *Rev-Erb α*, which in turns represses *Bmal-1* expression through the accessory loop of the molecular clock, the relative quantification of this gene was evaluated by q-PCR, using *s28* as reference gene. In this case, cDNA was obtained from *ex vivo* splenic adherents cells cultivated from control and sympathectomized rats, at ZT6, ZT14 and ZT 18. The Student *t* test was used for comparison of data between both groups. The splenic MΦ from control rats showed a daily oscillation of BMAL1 (% rhythm: 71.8), with its acrophase occurring at the middle of the light period. Noteworthy, the *ex vivo* splenic MΦ from guanethidine-treated animals lost the 24h-oscillation of BMAL1 and showed significant lower levels of this clock factor, compared to control. On the order hand, sympathectomized rats show a significant higher *Rev-Erbα* expression, at the three analyzed ZTs ($p > 0.05$), compared to control group. Our results would indicate that exists a SCN regulation on the molecular clock in splenic adherent cells, through the NE sympathetic pathway.

005- DESIGN AND OPTIMIZATION OF A REAL TIME PCR FOR DETECTION OF VIRULENCE GENES ENCODING SHIGA TOXINS 1 AND 2 (STX1 AND STX2) FROM ENTEROHEMORRAGIC *Escherichia coli* STRAINS

Garraza R[1], Salinas G[2], Juri Ayub M[1], Manzur J[1] (*)

[1] Laboratorio de Desarrollo de Diagnósticos Moleculares, Área Biología Molecular. [2] Área de Microbiología e Inmunología. FQByF. Universidad Nacional de San Luis. (*) Contacto: jimemanzur80@gmail.com

Shiga toxin-producing *Escherichia coli* (STEC) are zoonotic pathogens that cause food-borne disease outbreaks associated with contaminated beef or fresh products, resulting in diarrhea, hemorrhagic colitis, and/or hemolytic uremic syndrome. The pathogenicity of different STEC strains is associated to their ability to secret shiga toxins (Stx) 1 and/or 2. Therefore, specific and sensitive detection of Stx 1 and Stx 2 encoding genes is a useful tool for simple detection of STEC food contamination. In Argentina, a common source of STEC infections are meat-containing foods, as well as sausages. In this work, we show the setting of a multiplex real time PCR protocol for simultaneous detection and discrimination of Stx 1, Stx 2. In addition, in the same reaction a bovine sequence is detected in order to avoid false negative results arisen from sample degradation or PCR inhibition. The protocol was validated using genomic DNA purified from three reference strains provided by the Instituto Nacional de Enfermedades Infecciosas (INEI-ANLIS) "Dr. Carlos G. Malbrán". The protocol described in this work is proposed as a cost effective approach for detecting food contamination with STEC.

006- DEVELOPMENT OF IN HOUSE OPEN AND MODULAR RT-qPCR PROTOCOL FOR SIMULTANEOUS DETECTION OF RESPIRATORY VIRUSES

Carrillo A[1], Braeckman C[2], Manzur J[1], Juri Ayub M[1 (*)]

[1] Laboratorio de Desarrollo de Diagnósticos Moleculares, Área Biología Molecular. FQByF. Universidad Nacional de San Luis. [2] Laboratorio BioMAv, San Luis. [*]Contacto: mjuriayub@hotmail.com

During the COVID19 pandemic, social distancing required for avoiding the collapse of sanitary systems drastically reduced the circulation of respiratory viruses other than SARS Cov2. Currently, due to the successful of massive vaccination campaign, social connectivity is virtually at pre pandemic levels. Therefore, in addition to SARS Cov2, other respiratory viruses are currently circulating in the population. Therefore, simple and cost effective tools for diagnostic and epidemiology of respiratory pathogens are desirable. In our lab, we have modified, adapted and optimized previously validated singleplex RT-qPCR assays in a multiplex format. In this way, we developed a quadruplex assay detecting and identifying three pathogens; namely SARS Cov 2, Influenza A and Sincitial Respiratory Virus, along with a human gen as sample integrity control. The quadruplex reaction was able to detect every virus in anonymized samples, even when mixed infections were simulated.

007- DAILY PATTERNS OF CLOCK NEGATIVE FACTORS ARE MODIFIED IN THE HIPPOCAMPUS OF Aβ-INJECTED RAT

Cortez M, Castro A, Cangiano B, Sanchez M, Alba M, Anzulovich AC, Gomez-Mejiba S, Navigatore Fonzo L
Laboratorio de Cronobiología, IMIBIO-SL, CONICET-UNSL, SL. E-mail: lorenavigfz@yahoo.com.ar.

Circadian disruption is prevalent in Alzheimer's disease (AD) and may contribute to cognitive impairment. At the molecular level, cellular oscillators consist of a network of interlocking transcriptional-translational feedback loops. The positive limb of the loop is represented by transcription factors, CLOCK, and BMAL1, which heterodimerize and bind to E-box sites in the promoters of the clock negative factors, period (PER1-3) and cryptochrome (CRY1-2) genes. A negative feedback loop is achieved when the PERs and CRYs form heterocomplexes that translocate back to the nucleus and inhibit their own and other clock-controlled genes' transcription. RevErbα and RORα transcription factors, members of the retinoic acid related orphan receptor (ROR) family, complete the molecular clock machinery. Previously, we found that an intracerebroventricular (i.c.v) injection of Aβ(1-42) modified the daily rhythms of BMAL1 and RORα expression and cognition-related factors in the rat hippocampus. Taking into account those observations, the objective of this work was to investigate the effects of an i.c.v injection of amyloid beta peptide (1-42) on daily rhythms of PER1, PER2, CRY1 and CRY2 expression, as well as Aβ protein levels, in the rat hippocampus. In this study, Holtzman male rats from control and Aβ-injected groups were sacrificed throughout a 24-h period and hippocampus samples were isolated every 6 h. Daily rhythms of clock genes expression were analyzed by RT-PCR and Aβ protein levels were analyzed by immunoblotting. Regulatory regions of clock PER1, PER2, CRY1, and CRY2 genes were scanned for E-box and RORE sites. We found that clock genes expression and Aβ levels displayed daily oscillations in the rat hippocampus. We found E-box and RORE sites on regulatory regions of clock genes. An i.c.v. injection of Aβ(1-42) modified daily rhythms of clock genes expression and Aβ levels. Therefore, elevated levels of Aβ peptides could modify the temporal patterns of clock negative factors and consequently could affect the transcription of genes related to cognition in AD.

008- EFFECT OF AN I.C.V. INJECTION OF AGREGATED BETA-AMYLOID (1-42) ON DAILY PROFILES OF Aβ-DEGRADING ENZYMES IN THE RAT HIPPOCAMPUS

Cangiano B, Cortez M, Sanchez M, Alba M, Anzulovich AC, Delgado M, Navigatore Fonzo L
Laboratorio de Cronobiología, IMIBIO-SL, CONICET-UNSL, SL. E-mail: lorenavigfz@yahoo.com.ar.

Alzheimer's disease (AD), a progressive neurodegenerative disorder, is the most common form of irreversible dementia, among the elderly people. The accumulation of amyloid-β (Aβ) peptides in the brain of Alzheimer disease patients is associated to cognitive deficit, loss of memory and alterations in the circadian rhythms. Enzymes with Aβ-degrading activity include members of the zinc metalloendopeptidase family. Among them, the ones with the most physiological relevance in the brain are endothelin-converting enzymes (ECE) and insulindegrading enzyme (IDE). Brain-derived neurotrophic factor (BDNF) and its receptor (TrkB), play an important role in the synaptic plasticity underlying memory and learning. Previously, we observed Aβ and BMAL1 expression follow a daily rhythmic pattern in the prefrontal cortex of Aβ-injected rat. The objective of this work was to investigate the effects of an i.c.v. injection of aggregated beta amyloid (1-42) on daily patterns of ECE and IDE expression, as well as on oscillating BDNF and TrkB mRNA levels, throughout a 24 h period, in the rat prefrontal cortex. Four-month-old males Holtzman rats were divided into two groups defined as: control (CO) and Aβ-injected (Aβ) groups. Tissues samples were isolated every 6 h during a 24h. IDE, ECE, BDNF and TrkB mRNA levels were determined by RT-PCR. We found that expression of Aβ-degrading enzymes and cognition-related factors varies on a daily basis in the prefrontal cortex and that an i.c.v. injection of Aβ aggregates modified these daily rhythms. Therefore, elevated levels of Aβ peptides could modify the temporal patterns of Aβ-degrading enzymes and consequently could affect the transcriptional activity of the endogenous cellular clock.

009- EFFECT OF PTP1B PHOSPHATASE INHIBITION IN HER2-POSITIVE BREAST CANCER CELL LINES

Cordoba ME[1], Nadin SB[2], Cuello-Carrión FD[1], Fanelli MA[1].
[1]Laboratorio de Oncología, IMBECU-CCT-CONICET-Mendoza, UNCuyo.[2]Laboratorio de Biología Tumoral, IMBECU-CCT-CONICET-Mendoza, UNCuyo.
e-mail: ***mcordoba@mendoza-conicet.gob.ar***

The interference of the HER2 signaling pathway through monoclonal antibodies and tyrosine-kinase inhibitors constitutes a strategy in the treatment of HER2-positive (HER2+) breast cancer (BC). Our previous studies showed that HER2+ tumors with plasma membrane–associated β-catenin expression and without monoclonal antibody therapy (Trastuzumab, Tzb) had significantly better overall survival. The protein tyrosine phosphatase PTP1B plays an important role in BC and is also required for HER2/Neu-driven BC in mice. PTP1B binds to β-catenin keeping it located in the plasma membrane. We observed by copy number variation (CNV) analysis of β-catenin (CTNNB1) and PTP1B (PTPN1) from HER2 enriched BC patients using the TCGA database, that PTPN1 tended to be amplified in HER2+ patients while CTNNB1was downregulated. Also, these genetic changes were associated with PTPN1 expression levels. This study aimed to evaluate PTP1B role in cell migration, and spheroid growth in SKBR3 and MCF7 HER2+ cell lines treated with Tzb, heregulin (Hrg growth factor), and α-Bromo-4-hydroxyacetophenone (PTP1B inhibitor). Cell migration was evaluated by wound healing assay and cell growth by 3D cultured spheroids. Concerning viability, SKBR3 cells overexpressing HER2 were more sensitive to Tzb than MCF7 cells in 2D cultures. For MCF7, the viability of 2D and 3D cultures with Tzb were similar while SKBR3 3D culture was more resistant than 2D culture. In SKBR3 cells, Hrg treatment promoted 3D culture growth and migration, while Tzb and the PTP1B inhibitor stopped the spheroids growth and decreased cell migration. On the contrary, in MCF7 cells, none of the treatments affected spheroids growth and cell migration. Cell growth arrest and decreased cell migration in SKBR3 cells by inhibition of PTP1B and blocking of HER2 signaling pathway was observed. We conclude that PTP1B can be an interesting molecular target for HER2+ human breast cancer.

010- HSP27 DOWNREGULATION THROUGH ATR/CHK1 PATHWAY INCREASES CISPLATIN SENSITIVITY IN HUMAN COLON CANCER CELLS

Cayado-Gutiérrez N[1], Redondo A[2], Cuello-Carrión FD[1], Lossino A[3], Fanelli MA[1], Vargas Roig LM[2], Nadin, SB[2].
[1]Laboratorio de Oncología, IMBECU-CCT-CONICET-Mendoza, UNCuyo.[2]Laboratorio de Biología Tumoral, IMBECU-CCT-CONICET-Mendoza, UNCuyo. [3]Laboratorio de Bioquímica e Inmunidad, IMBECU-CCT-CONICET-Mendoza, UNCuyo.
e-mail: ***snadin@mendoza-conicet.gob.ar***

Hsp27 is a molecular chaperone with a widely described anti-apoptotic role. Hsp27 is overexpressed in many types of cancer and has been related to cisplatin (cPt) resistance. The heat shock proteins have also been implicated in DNA repair pathways. Previously, we reported that Hsp27 interacts with DNA mismatch repair (MMR) proteins in colorectal cancer cells. cPt has been reported to induce DNA damage response (DDR) through activation of ATR/CHK1 pathway, whose function is to regulate cell cycle progression, to promote DNA repair and apoptosis. Accordingly, Hsp27 has become an attractive therapeutic target. This study aims to investigate Hsp27 and ATR/CHK1 pathway relationship in cPt-exposed human colon cancer cell lines: HCT116+ch2 (MMR deficient, MMR-) and HCT116+ch3 (MMR proficient, MMR+). Hsp27 was downregulated with OGX427 before cPt treatment and ATR was inhibited by VE-821 (VE). Cells were incubated with 10 μM cPt for 24 h and collected at time 0 (immediately after cPt treatment, T0), 3 (T3), 9 (T9) and 24 (T24) h post-treatments. DNA damage was evaluated by comet assay and the expression of Hsp27, pHsp27 (Ser78) pCHK1 (Ser345), γH2AX (Ser139) using western blot. Hsp27 nuclear colocalization with CHK1 was demonstrated in cPt-treated MMR-/+ cells. Combined therapy with cPt+OGX427 or cPt+VE reduced cell viability (CCK8), particularly after cPt+VE in MMR- cells ($p<0.01$). High pHsp27 levels were detected in MMR- cells at T3. Interestingly, cPt+VE augmented γH2AX expression in both cell lines (T0), but it decreased during recovery ($p<0.01$). Cleaved PARP1 and activated caspase-3 were upregulated by cPt+VE, particularly in MMR+ cells, showing elevated DNA damage ($p<0.01$). Conversely, DNA damage decreased ($p<0.05$) and senescence was induced (T9, $p<0.001$) specially in MMR- cells. Hsp27 modulation through VE combining with cPt could be a promising tool to improve cPt-chemosensitivity in MMR- tumors.

011- APPLICATION AND MODIFICATION OF THE COMET ASSAY TO EVALUATE GENOTOXIC EFFECTS IN NATIVE FISH (*Cnesterodon decemmaculatus* AND *Jenynsia multidentata*)

Giménez, Santobuono S[1]; Pérez-Iglesias, JM[1]; Cortez, A[2]; Jorquera, MA[2]; Gonzalez P[1]; Almeida, CA[1]
[1]*Laboratorio de Química Analítica Ambiental (LAQAA) – INQUISAL – UNSL*
[2]*Facultad de Química, Bioquímica y Farmacia, UNSL*. santobuonosol@gmail.com

The comet assay is a widely used test to detect *in vitro* or *in vivo* DNA damage caused by genotoxic agents in single cells. It is characterized by being a sensitive, fast, simple, low-cost method applicable to various types of eukaryotic cells. this technique, described allows the magnitude of the damage to be analyzed according to the number of affected cells, the length of the tail and the intensity of the fluorescence of the fragments. The objective of the following work was to fine-tune the kite assay methodology to be used in native bioindicator fish, making small modifications with respect to the original protocols in order to adjust them to each local species. In addition to this, the methodology was compared in two autochthonous species, *Cnesterodon decemmaculatus* (whose kite assay methodology is standardized) and *Jenynsia multidentata* (methodology fine-tuned). The methodology consisted in the extraction of blood in 10 individuals of each species. The samples were centrifuged to then prepare 3 layers of 1% agarose, with the 2nd layer containing 10ul of sample, at this point modifications were made by diluting agarose in water or phosphate buffer. Then the lysis period was carried out where we modified the times between 1 to 24h. Subsequently, the unwinding of the DNA and the electrophoresis run were carried out where the times were adjusted according to the species. Finally, as a last modification, different concentrations of DAPI were placed to make effective and reduce operating costs. The results were expressed as a percentage of the analyzed nucleoid category (type 0 and I, type II, type III and type IV), as the mean number of damaged cells (sum of classes II, III, and IV) and the Genetic Damage Index (GDI) for each treatment carried out following the recommendations. The results were analyzed with t-test for comparison between species and one-way ANOVA for comparison between cells. The same showed that the modifications in both species allow the correct visualization of the nucleoids. On the other hand, approximately 85% of healthy cells were observed for basal genetic damage in both species ($p < 0.05$) and no differences were observed in the modifications of the technique regarding the percentage of healthy/damaged cells ($p = 0.05$). In addition, the modifications were effective in demonstrating their application and utility for bioindicator species in the region, which suggests that this tool is important to apply in environmental biomonitoring. We emphasize that these studies provide important information to know the basal state of genetic damage in local species and protocolize this novel biomarker.

012- EFFECT OF QUERCETIN ON THE LYSOSOME-DEPENDENT CELL DEATH PROCESS IN BREAST CANCER CELLS

Pereyra L[1], Peralta S[1], Vargas Roig L[2], Sosa MA[1,3], Carvelli L[1,3]
[1] *IHEM-CONICET, Facultad de Ciencias Médicas, Universidad Nacional de Cuyo, Mendoza, Argentina.*
[2] *IMBECU-CONICET-Universidad Nacional de Cuyo, Mendoza, Argentina.*
[3] *Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Cuyo, Mendoza, Argentina.*
E-mail: ***lorecarvelli@gmail.com***

Breast cancer is the leading cause of death in women worldwide. Some tumor cells have shown an increased lysosomal biogenesis, together with an altered lysosomal integrity and/or functionality. Alterations in the lysosomal membrane permeability induce a release of proteases such as cathepsin D (CatD) into the cytoplasm, triggering apoptotic processes (lysosome-dependent cell death). Quercetin (Que) is a flavonoid highly used as an antioxidant, although it is known that in some types of tumors it has pro-oxidative effects. In breast cancer cells, Que induces cell death and upregulates lysosomal biogenesis, although its mechanism of action is still unclear. The aim of this study was to evaluate the effect of Que on the lysosome-dependent cell death process in MCF-7 human mammary tumor cells. Cell cultures incubated with Que (40 uM and 200 uM) for 8 and 24 h were processed for fluorescence microscopy and subcellular fractionation, followed by immunoblotting. In MCF-7 cells, Que treatments induced an apparent increase in the size of lysosomal compartments (labeled with LysoTracker™ Red DND-99) compared to untreated control cells. In turn, the effect of Que on lysosomal membrane permeability was evaluated by studying the CatD leakage to the cytoplasm. Immunoblots revealed that Que did not produce significant changes on the presence of CatD in the cytoplasmic fraction. Our results would indicate that Que does not trigger apoptosis through lysosomal membrane rupture in breast cancer cells, although other mechanisms involving lysosomes should not be ruled out.

013- THE NEUROPROTECTIVE ROLE OF ESTROGEN IN A RATS MODEL OF PARKINSON'S DISEASE

*Meier G * [1,2], Bonaccorso MP * [3], Carvelli L[2,4], Sosa MA[1,2,4], Cabrera R[3], Leiva N [1,2].*
[1]Laboratorio de Histología e Embriología. Facultad de Ciencias Médicas-CONICET-Universidad Nacional de Cuyo. [2]Facultad de Ciencias Exactas y Naturales-Universidad Nacional de Cuyo. [3]IMBECU-CONICET-Universidad de Mendoza. [4]IHEM-CONICET-Universidad Nacional de Cuyo. Mendoza. Argentina. Equal contribution. E-mail: nleiva@fcen.uncu.edu.ar*

Parkinson's disease (PD) is a neurodegenerative disorder characterized by the progressive loss of dopaminergic neurons in the substantia nigra compacta and an intracellular accumulation of the protein α-synuclein, a cytosolic and presynaptic protein. A genetic study identified twenty-four loci associated with PD, one of which was related to autophagic-lysosomal pathways. Lysosomes participate in the degradation of macromolecules from endocytic processes. Epidemiological and clinical studies reveal a difference in the development of PD between genders, giving sex hormones a neuroprotective function and turning them into an interesting therapeutic proposal. The objective of this study was to determine the effect of estrogens on the expression of lysosomal proteins in rats with the PD phenotype. Two-month-old male Sprague-Dawley rats underwent stereotaxic surgery to deliver 6-hydroxydopamine (6-OHDA) or artificial cerebrospinal fluid (V) into the left striatum. After 7 days, they received chronic treatment for 10 days with 17-β-Estradiol (E) or V. The groups were made up of C (lesion V); E (lesion V + E); HP (6-OHDA lesion) and HPE (6-OHDA + E lesion). After the treatments, the animals were sacrificed and the left and right brain regions were extracted: substantia nigra, prefrontal cortex and striatum. Samples were processed for immunoblotting using anti-cathepsin D (CatD) and anti-actin. Preliminary results show that chronic estrogen treatment in parkinsonian rats increases lysosomal enzyme CatD and actin expression in the substantia nigra, prefrontal cortex, and left striatum. Since CatD reduces the concentration of α-synuclein protein in PD, our results suggest that in animals with PD, estrogen exerts a neuroprotective effect through an increase in its lysosomal function. In turn, estrogens could also modulate the organization of the cytoskeleton, as a neuromodulation stage in these brain regions.

014- THE ANTIPROLIFERATIVE ACTIVITY OF YERBA MATE EXTRACT IN PC3 AND MDA-MB-231 HUMAN CANCER CELLS

Santiano FE[1], Fernandez MA[2], Espino M[2], Ginevro P[1], Rabino D, Silva MF[2], Carón RW[1], López Fontana CM[1]

[1] Laboratorio de Hormonas y Biología del Cáncer, Instituto de Medicina y Biología Experimental de Cuyo (IMBECU), Universidad Nacional de Cuyo (UNCuyo), Consejo Nacional Investigaciones Científicas y Técnicas (CONICET), Mendoza, Argentina.[2]Instituto de Biología Agrícola de Mendoza (IBAM-CONICET), Facultad de Ciencias Agrarias, Universidad Nacional de Cuyo, Mendoza, Argentina.
fsantiano@mendoza-conicet.gov.ar

Yerba mate (**ilex paraguariensis-YM-**) contains bioactive compounds that confer numerous benefits to human health and may delay tumor development. Traditionally, the extraction of plant metabolites is carried out with solvents that have negative effects on people health and the environment. The extraction of natural compounds by natural deep eutectic solvents (NADES) is an innovative, natural method, with high biodegradability, sustainability, the ability to solubilize and stabilize compounds of different polarity, and low or no toxicity. Therefore, the use of NADES becomes a priority to achieve safer extracts and enhance their bioactive properties. Our objective was to develop an extract rich in bioactive compounds with antitumor properties from YM using NADES and compare it with an aqueous extract. For this purpose, the extractive capacity of citric acid, glycerol, and water (CGH) NADES was tested and compared with aqueous extraction by HPLC-UV. In addition, we analyzed the direct effects of both extracts of YM on the proliferation and viability of human prostatic tumor epithelial cells (PC3) and human mammary tumor epithelial cells (MDA-MB-231). Both cell lines are not hormone-dependent and have high metastatic potential. The NADES had a greater performance in the extraction of theobromine, caffeine, rutin, chlorogenic, and caffeic acid, being chlorogenic acid and caffeine than the aqueous extract. When we compared the effect of the aqueous extract **vs** CGH extract on the PC3 cell line, we observed that both reduced cell proliferation from a concentration of 1.87 **vs** 0.39 mg/ml, and viability from 15 **vs** 3.12 mg/ml. In MDA-MB-231 cells, both extracts reduced proliferation and viability from low concentrations of 0.23 **vs** 0.19 mg/ml. We can conclude that YM can delay prostatic and mammary carcinogenesis by reducing the viability and proliferation of the studied cells. Also, higher concentrations of the aqueous extract are needed to obtain similar biological effects to the NADES extract. The identification of an extract of natural origin that potentiates the benefits of YM could be beneficial for the treatment and/or prevention of prostate and mammary tumor development.

015- T4 INDUCES THE PROLIFERATION OF HORMONE-SENSITIVE MAMMARY TUMOR CELLS

Cano R[1], Ferrando M [1], Zyla L [1], Bruna F [1], Santiano F [1], Pistone Creydt V [1], López Fontana C [1], Carón RW [1].
1Instituto de Medicina y Biología Experimental de Cuyo, Universidad Nacional de Cuyo, CONICET.
E-mail: ***rcano@mendoza-conicet.gob.ar***

Each year, approximately 17,000 women are diagnosed with breast cancer (BCa) and 5,400 women die from this cause in Argentina. Mendoza, which has a slightly higher incidence of BCa than the national average, is considered an endemic goiter area. There is controversy about the relationship between thyroid disorders and BCa risk, and little molecular data based on *in vitro* studies is available. Hypothyroidism seems to be a protective factor against BCa but long-term exposure or overdoses of thyroid replacement therapy with thyroxine (T4) may increase BCa risk. In previous studies, we observed that hypothyroidism prolonged the latency of tumor appearance, reduced tumor incidence, and retarded tumor growth in rats. In addition, we demonstrated that T4 regulated mammary carcinogenesis by interacting with other hormone pathways. In the present study, we analyzed the biological activity of T4, alone or combined with other steroid hormones, on the proliferation, viability, and adhesion of human BCa cell lines. MCF-7 (REα+, REβ+, PgR+, TRβ1+) and MDA-MB-231 (REα-, REβ-, PgR-, TRβ1-) were treated with 10-9 M of T4; 17β estradiol (E2) and/or progesterone (P4) in DMEM/F12 with 1% of charcoalized fetal bovine serum (FBSc) or DMEM/F12 with 1% FBSc as control. We evaluated proliferation and adhesion by MTT, and viability by trypan blue. Statistical analysis was performed using ANOVA I and Bonferroni as post test ($p<0.05$). T4 induced cell proliferation of MCF7 compared to control after 24 and 48 h treatment ($p=0.037$ and $p=0.0011$, respectively). It also tended to increase the viability of this cell line. Moreover, the combination with E2 further increased the proliferation of MCF-7 after 48 h of incubation, while the co-administration with P4 decreased their proliferation. Finally, the mixture of the three hormones augmented, even more, the proliferation of MCF-7. However, none of the treatments modified the cell viability or adhesion of this cell line. On the other hand, no significant differences were observed in the proliferation, viability, or adherence of MDA after hormone administrations. In conclusion, T4 promotes the proliferation of hormone-sensitive breast tumor cells and enhances the proliferative effects of E2.

016- STRUCTURAL CHARACTERIZATION OF FLAVONOIDS BOUND TO CYCLOOXYGENASE2

[1]Carmona Viglianco NE, [2]Rotelli AE, [2]Pedernera AM, [2]Maria AOM, [2]Pelzer LE, [2]Wendel GH, [1]Gomez Barroso JA
[1]Área de Biología Molecular, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis.
[2]Farmacologia, Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis.
[3]Farmacognosia, Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis.
jagomez@email.unsl.edu.ar

Inflammation is a process present in different pathologies. Many substances are generated and involved in it, such as histamine, serotonin, prostaglandins, PAF, etc. The cyclooxygenase enzyme has two isoforms (COX-1 and COX-2) and is responsible for the generation of prostaglandins, which is why it is important in the inflammatory process. Flavonoids have shown gastric and intestinal anti-inflammatory and protective activity in different animal models. When testing different flavonoids, ligands with hydroxyl or oxymethyl groups at the 3'4' position on ring B were found to have higher activity. In a previous work, the interaction of the flavonoids 7-O-methyleriodictiol, nepetin, 7-O-methylsudachitin and quercetin with the COX-1 enzyme was determined by Autodock using indomethacin as a positive control. In that work, similar affinities to the active site were observed for all compounds and was identified a second binding site. In this work we intend to determine the possible interaction of the flavonoids 7-O-methyleriodictiol, nepetin, 7-O-methylsudachitin and quercetin with the COX-2 isoform. We used the structural data of the human COX 2 protein (5IKR) deposited in the Protein Data Bank (PDB). The Autodock Vina and Chimera softwares were used to carry out the in silico coupling assays of the compounds to the COX-2 enzyme. The binding compounds-enzyme was observed using the Pymol and Chimera programs. Our results suggest that the tested flavonoids bind strongly to the active site region and to alternative docking sites. The flavonoid 7-O-methyleriodictiol shows a higher binding affinity for the active site of COX-2.

017- STRUCTURAL STUDY OF *Trypanosoma cruzi* PROTEINS FOR RATIONAL DRUG DESIGN

Carmona Viglianco N[1, 2], Cabrera M[1, 2], Zárate JM[1, 2] and Gomez Barroso JA[1, 2]
[1]IMIBIO, Universidad Nacional de San Luis, CONICET;
[2]Laboratorio de Biología Molecular Estructural, Facultad de Química, Bioquímica y Farmacia,Universidad Nacional de San Luis.
E-mail: jarturogomez@gmail.com

Trypanosoma cruzi is the etiologic agent of Chagas disease, which is a serious health problem in America. It has a high overall prevalence (6-8 million cases) and 65-100 million people are at risk of contracting this infection. Medications used for the disease treatment show undesirable side effects and, currently, there are no available vaccines. The identification of new targets for chemotherapy is very important and their three-dimensional structure resolution provides essential information. This project aims to solve the three-dimensional structure of proteins, mainly through X-ray crystallography and complementary bioinformatics tools. Different important proteins in the survival of the parasite, with structural peculiarities and differences with the human counterparts are studied. We study different proteins, such as ribosomal P proteins, which form a pentameric complex: TcP0 and four small TcP proteins (TcP1α, TcP1β, TcP2α and TcP2β). This complex has important functions and it is related to the formation of autoantibodies in chagasic patients. In addition, we studied other proteins involved in high-energy phosphate transfer from trypanosomatids: nucleoside diphosphate kinases (NDPK1, NDPK2, NDPK3) and adenylate kinases (AdK1 and other AdKn). Finally, we also studied the Pap1 interaction factor (FIP1 type), the specific cleavage and polyadenylation factor (CPSF-30) proteins involved in the mRNA maturation process. A homology model of TcP0 shows an N-terminal globular domain, an alpha domain, a disordered region, and a C-terminal negative tail. Homology patterns for all small TcP proteins show an N-terminal four-helix up-and-down bundle domain and a C-terminal disordered domain ending in an acid curve. Docking assays characterize the formation of dimers between small P proteins. We describe a quinary crystallographic structure for TcNDPK1 showing a multihexameric helix-like oligomer suggesting a model for enzyme regulation and storage. The TcAdK1 protein was crystallized and the crystallization conditions for X-ray assays are being refined. A TcNDPK2 multidomain homology model was proposed. We characterized TcCPSF30 and TcFIP1-like proteins as intrinsically disordered proteins (IDPs). A homology model for the TcCPSF30-TcFIP1-like interface region was obtained and the structural interaction was characterized. The three-dimensional structures and the bioinformatics results are important in the rational design of drugs and the use of natural compounds for the treatment of Chagas disease.

018- DHL INDUCES ROS IN *Trypanosoma cruzi* AND COULD REDUCE ITS INFECTIVITY ON MAMMALIAN CELLS

Gomez J [1] – Coll M[1], Cifuente DA[3], Sosa, MA[1,2], Barrera, PA[1,2]
[1] Instituto de Histología y Embriología (IHEM-CONICET), Facultad de Ciencias Médicas. Universidad Nacional de Cuyo (UNCuyo), Mendoza. [2] Facultad de Ciencias Exactas y Naturales (FCEyN), UNCuyo, Mendoza.[3]Instituto de Investigación en Tecnología Química (INTEQUI-CONICET, Universidad Nacional de San Luis, San Luis. E-mail: ***jgomez@mendoza-conicet.gob.ar***

Trypanosoma cruzi (*T. cruzi*) is a protozoan parasite of medical importance; this is the etiological agent of Chagas disease, endemic to Latin America. Its life cycle consists of three stages: epimastigote (non-infective), trypomastigote and intracellular amastigote (infective). The establishment of infection and development of the disease depend on the ability of the parasite to evade the host's immune response and survive the oxidative environment. T. cruzi has a highly efficient antioxidant system for the detoxification of reactive species. This system is composed of antioxidant enzymes and low molecular weight thiols, unique to trypanosomatids, making it an attractive molecular target. In our laboratory we study the mechanism of action of Dehydroleukodine (DhL), a natural compound that has an α-methylene group which could block the thiol groups of trypanothione or reducing enzymes and induce oxidative stress in the parasite. In this work we study the mechanism of trypanocidal action of DhL focusing on the antioxidant defense of T. cruzi. We observed that DhL affected the growth of T. cruzi (IC50 4uM), generated reactive oxygen species (ROS), and induced mitochondrial swelling (indicator of oxidative stress). To determine if the methylene group is responsible for the trypanocidal activity, various chemical substitutions were made that affected this group, derivatives DC-X2 to DC-X11. The parasites were incubated with DhL, semisynthetic derivatives, DhL + a reducing molecule (glutathione), more active derivatives + glutathione. VERO cells were infected with T. cruzi to assess cytotoxicity and selectivity index. The effect of DhL on amastigotes was evaluated, for which VERO cells were infected and then treated with the compound (2uM to 13uM). The results showed that glutathione blocked the effect of DhL and the derivatives had a lower trypanocidal effect. Only DC-X6 and DC-X11 significantly affected proliferation (IC50 7.30 uM and 26.11 uM, respectively). DhL was shown to have low cytotoxicity on mammalian cells with a selectivity index of 3.34. Preliminary data showed that infected cells had fewer amastigotes and an increase in uninfected cells at 48 hours of treatment, in a dose-dependent manner. We conclude that the methylene group of DhL is important in the trypanocidal role, that its mechanism of action is associated with the generation of ROS and that it has chemotherapeutic potential for the treatment of Chagas disease. Finally we expose that the antioxidant system of the parasite is an interesting target for the development of new trypanocidal drugs.

019- BIOCHEMICAL AND CELLULAR SHIFTS IN THE BLOOD OF *Pomacea canaliculata* INDUCED TO DIFFERENT HYPOMETABOLIC STATES

Rodriguez C[1,2], Cruz-Flores C[1,2], Giraud-Billoud M [2,3,4]
[1]Departamento de Biología, Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Cuyo, Mendoza, Argentina. [2] IHEM, Universidad Nacional de Cuyo, CONICET, Mendoza, Argentina. [3] Universidad Nacional de Cuyo, Facultad de Ciencias Médicas, Instituto de Fisiología, Mendoza, Argentina. [4] Universidad Nacional de Villa Mercedes, Escuela de Ciencias de la Salud-Medicina, Departamento de Ciencias Básicas, San Luis, Argentina. E-mail: mgiraudbilloud@gmail.com

Exposure to cold (hibernation) and desiccation (estivation) has shown to induce hypometabolic states in *Pomacea canaliculata* (Caenogastropoda, Ampullariidae). Different adaptive defense mechanisms, like the preparation for oxidative stress strategy, protect tissues during arousal from quiescence. Although there is a growing body of knowledge of this adaptive strategy for *P. canaliculata*, only a few studies have addressed the changes in the hemolymph and internal defense system of the species. In this study, adult *P. canaliculata* snails were induced to short cycles of activity-quiescence-arousal, on which quiescence consisted of periods of either hibernation or estivation during 7 days. The arousal consisted of putting the animals in water under active animal conditions (control, water at 24-26 ºC) for 30 mins, to then obtaining the samples. Once the condition of each experimental group was met, hemolymph samples were obtained and used to determine the concentration of hemocyanin and uric acid, total cell counts, and were also used to further characterize morphologically the different cell types by flow cytometry. The cycle of activity-estivation-arousal (AEA) induced a significant increase in the concentration of hemocyanin in arousal, which was maintained in this way in the arousal group, compared to the control (ANOVA-Dunnett, $P < 0.05$). In the activity-hibernation-arousal (AHA) cycle, hemocyanin levels did not vary significantly (ANOVA-Dunnett, $P < 0.05$). Uric acid concentrations increased significantly in AEA and AHA cycles, the values being significantly higher than the control in estivation and arousal, as well as in hibernation arousal (ANOVA-Dunnett, $P < 0.05$). Regarding hemocytes, both in the AEA and AHA cycles, the total hemocyte count was significantly higher during quiescence and its respective arousal, compared to the control (ANOVA-Dunnett, $P < 0.05$). Finally, we found that both cycles differed in morphological changes by flow cytometry. For animals in estivation, flow cytograms showed that the estivation group increased in mean size (FSC parameter) compared to the CTL group (6.83 *vs*. 7.69 [x10^4 MFI]). This change was later reversed in the arousal group (6.30x10^4 MFI). For hibernating animals, flow cytograms showed changes in median hemocyte granularity (SSC parameter), which was higher in the hibernation group than in the control group (4.04 *vs*. 4.99 [x10^4 MFI]). This change was also reversed in the arousal group (3.59x10^4 MFI). This is the first report regarding changes in the hemolymph and hemocytes of *P. canaliculata* exposed to activity-quiescence cycles.

020- THE INVASION OF *Trypanosoma cruzi* TO MAMMALIAN CELLS IS REDUCE BY OXIDATIVE STRESS

Coll M[1], Gomez J[1], Cifuente DA[3], Masone D[1,4], Sosa MA[1,2], Barrera PA[1,2]
[1] Instituto de Histología y Embriología (IHEM-CONICET), Facultad de Ciencias Médicas. Universidad Nacional de Cuyo (UNCuyo), Mendoza. 2 Facultad de Ciencias Exactas y Naturales (FCEyN), UNCuyo, Mendoza.
[3]Instituto de Investigación en Tecnología Química (INTEQUI-CONICET), Universidad Nacional de San Luis, San Luis
[4]Facultad de Ingeniería, UNCuyo. E-mail: ***mauro.coll16@gmail.com***

We have demostrated that the sesquiterpene lactone dehydroleucodine (DhL) is active against *Trypanosoma cruzi (T. cruzi)* with low cytotoxicity on mammalian cells (CC50:13 uM). We also confirmed that the trypanocidal action of DhL is consequence of generation of ROS. To assess the presumable interaction between DhL-glutathione and/or DhL-trypanothione we analyzed by conducting unbiased atomistic molecular dynamics simulations with Gromacs in the order of the microsecond. We conclude that DhL does not interact directly with glutathione or trypanothione. In order to identify possible molecular targets for DhL, we focused on the antioxidant enzymes. Therefore, we used *T.cruzi* epimastigotes that stably overexpress reducing enzymes such as; mitochondrial tryparedoxin peroxidase (mTXNPx), cytosolic tryparedoxin peroxidase (cTXNPx), tryparedoxin II (Tc-TXN II) and glutaredoxin (Tc-GRx). We observed that the overexpression of mTXNPx exerted a protective effect against DhL, suggesting that the compound could interfere, directly or indirectly, with the activity of these enzymes. Accordingly, the parasites overexpressing mTXNPx produced less ROS in the presence of DhL. A protective tendency, although not significant was also observed in the cTXNPx overexpressing parasites. On the other hand, we evaluated the activity of TcTS on epimastigotes incubated with DhL by using green malaquita and measuring the absorbance at 650 nm. We observed a higher activity of TcTS on DhL treated epimastigotes, indicating that the parasite is under an oxidative stress. Finally, we considerate that the oxidative stress induce on parasites could also occur on mammalian cells, but it would be a benefit for the cells. To demonstrate this we designed an experiment where cells were pre-treated with the compound and then infected with trypomastigotes. Then the mammalian cells were stained with Hoechst, and the number of infected and uninfected cells (n=100) was counted by fluorescence light microscopy. The pre-incubation with DhL avoid the invasion of *T. cruzi*. Further studies are necessary to confirm if DhL induce ROS on Vero cells.

021- PARTICIPATION OF NADPH OXIDASE 5 IN HYPOXIA-INDUCED GENERATION OF REACTIVE OXYGEN SPECIES IN HUMAN ENDOTHELIAL CELLS

Álvarez, MS[1]; Nolly M[1], Mazzei L[1]; Salvarredi L [1-2], Quesada I[1] and Castro C[1]

[1]Instituto de Bioquímica y Biotecnología, FCM UNCUYO e IMBECU-CONICET, and [2]Fundación Escuela de Medicina Nuclear; Comisión Nacional de Energía Atómica- Instituto Balseiro, UNCuyo
e-mail: msoledadalvarez@gmail.com

NADPH oxidase (NOX) is the main producer of reactive oxygen species (ROS) that may contribute to the pathogenesis of endothelial dysfunction (ED). In endothelial cells, ROS can be generated from sources such as NOX and mitochondria, which in turn can serve as signaling molecules in a wide variety of processes including posttranslational modification of proteins involved in Ca2+ homeostasis. The role of NOX5. a calcium-activated NOX isoform, in triggering ROS in ED is not clear. The aim of this work was to determine the implication of NOX5 in hypoxia aside from pro-atherogenic/pro-inflammatory conditions. Human umbilical vein endothelial cells (HUVECs) were treated with Angiotensin II (AngII; 10-7 M), TNF-alpha (100 ng/mL) or cobalt chloride (CoCl2), a hypoxia mimetic agent. NOX5 expression was first analyzed by RT-PCR and western blot. Then, Superoxide generation was measured by fluorescence techniques using 5 uM dihydroethidium (DHE) for 30 min in the dark at 37 °C. An increase in NOX5 protein expression was found in HUVECs stimulated with pro-inflammatory factors, and both significantly increase the expression of monocyte chemoattractant protein 1 (MCP-1) and Interleukin 32 (IL-32) (**$p<0.01$), two inflammation biomarkers associated with the atherogenic process. We found that the fluorescence intensity of DHE was significantly increased after AngII, TNF-alpha and hypoxia exposure, which was significantly decreased when HUVECS were treated with selective inhibitors of NOX5 ($p<0.01$). We determine the protective effects of a specific NOX-5 inhibitor on ROS production triggered by hypoxia. The pro-oxidant and pro-atherogenic environment surrounding endothelial cells contributes to the expression of pro-inflammatory factors. NOX5 would participate in the regulation of oxidative stress in human vascular tissue cells and its selective inhibition would decrease the generation of superoxide anion. Understanding the role of individual NOX isoforms in vascular disease is critical for the effective pharmacological regulation of vascular NADPH oxidases, both in the laboratory and in clinical practice.

BIOLOGIA DEL DESARROLLO Y REPRODUCCION (DR)

BIOLOGIA DEL DESARROLLO Y REPRODUCCION (DR)

022- STUDY OF THE EFFECT OF AMMONIUM TETRATHIOMOLYBDATE ON THE UTERUS OF MICE WITH INDUCED ENDOMETRIOSIS

Zapata F, Delsouc MB, Conforti RA, Zabala AS, Vallcaneras SS, Casais M
Laboratorio de Biología de la Reproducción (LaBiR), Universidad Nacional de San Luis (UNSL)/ Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET).
E-mail: mbdelsouc@unsl.edu.ar

Endometriosis (EDT) is a complex estrogen-dependent disease that affects primarily pelvic tissues. It is characterized by the growth of tissue similar to the endometrium outside the uterus, which causes inflammation and the formation of adhesions. Therefore, EDT often causes intense pelvic pain, dysuria, dyspareunia, dysmenorrhea, and subfertility, affecting the quality of life of patients. There is no cure for this disease and new treatments are needed to control its progression. It was recently shown that Ammonium Tetrathiomolybdate (TM, copper chelator) inhibits the progression of experimental EDT. However, it is necessary to analyze the possible unwanted effects of the drug on the uterus. The aim of this work was to analyze if the oral administration of TM alters the histology and oxidative state of the uterine tissue of mice with EDT. Eighteen female C57BL/6 mice were divided into three experimental groups: Sham (placebo surgery), EDT, and EDT+TM. EDT induction was performed by autologous transplantation of uterine tissue to the intestinal mesentery. The EDT+TM group received 0.30 mg of TM/day in their drinking water from postoperative day 15. One month after inducing the pathology, intact uterine tissue samples were collected for histological analysis (hematoxylin-eosin stain) and oxidative stress studies (total antioxidant capacity, catalase activity, superoxide dismutase activity, and concentration of malondialdehyde and nitrites). Data were statistically analyzed using one-way ANOVA followed by Tukey's test ($P < 0.05$ was considered statistically significant). Interestingly, the analyzed factors did not show significant changes between the experimental groups. It is probable that the observation of possible changes in the uterus requires a longer period of experimentation. However, it is not a minor detail that the administration of TM does not cause an adverse effect on the uterus, despite considerably inhibiting the development of endometriotic-like lesions in the same experimental model. These observations continue to support the study of TM as a possible innovative treatment for EDT.

023- MAMMARY GLAND EXPRESSION OF GNRH IS MEDIATED BY ESTRADIOL AND PROGESTERONE (*Lagostomus maximus*)

Corso MC[1,2], Proietto S[1,2],DiGiorgio N[2,3], Lux-Lantos V[2,3], Dorfman VB[1,2], Vitullo AD[1,2], Halperin J[1,2].
[1]Laboratorio de Endocrinología Reproductiva, Centro de Estudios Biomédicos Básicos, Aplicados y Desarrollo (CEBBAD), Universidad Maimónides. CABA, Argentina.
[2]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)
[3]Instituto de Biología y Medicina Experimental (IBYME)
Email: corso.clara@maimonides.edu

The tissue dynamics of the mammary gland (MG) during pregnancy is mainly modulated by prolactin (PRL) and the ovarian steroids estradiol (E2) and progesterone (P4). However, there is a great diversity of local factors that participate in the fine regulation of these processes. In particular, our group determined that the levels of local transcription and translation of gonadotropin-releasing hormone (GnRH) and its receptor (GnRHR) in the MG of adult female vizcachas vary with the stages of the reproductive cycle. Furthermore, by inducing a hyperprolactinemic condition, we have established that MG GnRH content is modulated by PRL. The aim of this work was to further investigate the regulation of mammary GnRH by two approaches: 1) studying the effect of E2 and P4 on the local expression of this neuropeptide, and 2) studying the transcriptional factor FoxO3a expression as a potential mediator of GnRH action in MG tissue. To do this, we performed culture experiments on MG explants incubated, on the one hand, with increasing concentrations of E2 or P4, and on the other, with a GnRH analogue. MG-explants cultured with either steroid doubled their GnRH content compared to control explants, which strongly suggests a steroid-dependent regulation of local GnRH. In addition, FoxO3a markedly increased its expression level when MG-explants were stimulated with GnRH, which places this transcription factor downstream of the GnRH signaling pathway in MG tissue. Our results contribute to a better understanding of the role of GnRH in mammary gland tissue remodeling.

024- HYPERTHYROIDISM ALTERS MAMMARY GLAND DEVELOPMENT DURING LACTATION AND IMPAIRS OFFSPRING NUTRITION

Sánchez MB[1,2], Michel MC[1,2], Viruel LB[2], Neira FJ[1,2], Rodríguez-Camejo C[3], Pietrobon EO[1,4], Soaje M[1,5], Hernández A[3], Jahn GA[1], Valdez SR[1,6], Mackern-Oberti JP[1,5].
[1]IMBECU; [2]UMaza; [3]UdeLAR; [4]IHEM; [5]UNCuyo FCM; [6]UNCuyo, FCEN.
E-mail: bsanchez@mendoza-conicet.gob.ar

Maternal milk is a great source of bioactive components, immune factors, hormones, and nutrients which are vital for the development of the newborns. Hyperthyroidism (H) alters maternal behavior and disrupts milk production. However, it remains unclear if H could generate changes in the nutritional and immunological composition of maternal milk. Our work aimed to evaluate the influence of H on milk quality and bioactive components and if this affects developmental and immunological parameters of offspring in early lactation. To this end, 12 weeks old *Wistar* rats were injected with 0,25 mg/kg T4 (hyper) and vehicle (control) and euthanized on day 2 of lactation (L2). Serum, milk, and mammary gland from dams and offspring serum were obtained for further analysis. Total IgG and IgA levels from mothers and offspring serums and rat milk were analyzed by ELISA. Nutritional components like total proteins, reducing sugars (lactose), caloric value, and fat content was measured in milk. Moreover, histological analysis of the mammary gland was performed, and offspring developmental, biochemical, and hormonal parameters were evaluated on L2. Our results show that H pups had lower weight on days 1 and 2 ($p<0,001$), less weight gain, and diminished length, cerebral weight, and head circumference ($p<0,001$). T4 and corticosterone levels were reduced in pups of H mothers ($p<0,001$ and $p<0,01$) and glucose and albumin serum levels were reduced to ($p<0,01$). Concerning the mammary gland, the alveolar area and mammary adipose tissue ($p<0,01$) were significantly lower and the mammary connective tissue was higher in the hyper group than in the control group ($p<0,05$). Furthermore, in the whole mount mammary gland analysis, we observed a diminished epithelial elongation ($p<0,05$). We found that H milk displayed a reduced caloric value and fat concentration ($p<0,01$) without changes in total IgG in serum and milk of mothers and offspring serum and milk IgA. In conclusion, H affects offspring parameters and mammary gland development in early lactation. H may alter the energy intake without affecting humoral immunity in the offspring.

025- EFFECT OF HIGH-FAT DIET ON SPERM QUALITY EVALUATED BY HETEROLOGOUS BUNDUG ASSAY OF RABBIT SPERMATOZOA TO ZP-FREE MOUSE OOCYTES.

Avena V[1], Funes A[1], Wetten, PA[4], Klinsky, OG[4], Monclus M,[1,2], Boarelli P[3], Saez Lancellotti E[1,2], Michaut, MA [4,5,] Fornés M[1]
[1] Laboratorio de Investigaciones Andrológicas (LIAM), Instituto de Histología y Embriología de Mendoza (IHEM), UNCUYO-CONICET; [2] Laboratorio de Investigaciones de la Universidad del Aconcagua, UDA, [3] Laboratorio de Enfermedades Metabólicas, UMaza, [4]Laboratorio de Biología Reproductiva y Molecular (IHEM), UNCUYO-CONICET, [5]Facultad de Ciencias Exactas y Naturales, UNCUYO.
E-mail: virginiaavenaihem@gmail.com

For sperm to fertilize an oocyte, it must undergo capacitation (Cap) and the acrosome reaction (AR); finally, it must penetrate the zona pellucida (ZP) before fusing with the oocyte to be incorporated into the ooplasm. Cholesterol loss is an essential step in sperm capacitation. In previous studies, we have observed that Spermatozoa (sp) from hypercholesterolemic rabbits (HCR) generated by a fat diet display alterations in Cap and AR. To further explore the fertilization potential of HCR spermatozoa, we performed a binding assay using ZP-free mouse oocytes. For this purpose, control rabbits (NCR) and rabbits fed with 7 % (½ HFDR) or 14 % fat (HFDR) were prepared. Glycemia, TG, Cholesterol, and HDL-Cho were monitored biochemically. Ejaculated samples followed three steps: 1) spermogram evaluation 2) sperm selection by swim up with BWW medium (0.5% BSA), and 3) incubation for 16 h with HTF medium (0.5% BSA) to promote Cap. In parallel, oocytes were collected from hormonally super stimulated CF-1 mice (8 weeks old). ZP was removed by a brief incubation in Tyrode´s acid, and washed further in HTF medium. Sperm and oocytes, were co-incubated for 1 h at 37 °C and 5 % CO2 at a final concentration of 50,000 sp/100 ul. After co-incubation, the oocytes were washed in 3 drops of HTF medium to remove unattached sp. Oocytes with bound sperm were fixed with 2% PAF, washed in blocking solution, and mounted on Vectashield containing permeable Hoechst to quantify the number of membrane-bound sp per oocyte. Spermatozoa from HFD-fed rabbits, which had abnormal spermograms, also gave poor binding rates (½ HFDR: 7.14 ± 3.39 and HFDR: 3.28 ± 2.10 sperm per oocyte) compared to control sp (NCR: 32.47 ± 16.16 sperm per oocyte). From these results, we conclude that the ingestion of the high-fat diet in this animal model is associated with a lower sperm binding, which suggests another level of the fertilizing process in which HFDR sperm are altered.

026- IODINE INTAKE ADEQUACY AND METABOLIC PARAMETERS IN POLYCYSTIC OVARY SYNDROME PATIENTS

[1]Ortiz I, [2] Ortiz G, [3] Velez L, [4,5] Altamirano J, [2] Pelletán L, [2] Martínez A, [1,5,6] Gamarra-Luques C, [1,5] Hapon MB.
[1]CONICET IMBECU CCT Mendoza, [2]Instituto de Medicina Reproductiva, Mendoza,[3]University of California, Department of Biological Chemistry, Irvine, [4]CONICET IANIGLA CCT Mendoza, [5]UNCuyo Facultad de Ciencias Exactas y Naturales, [6] UNCuyo Facultad de Ciencias Médicas. e-mail: bhapon@mendoza-conicet.gob.ar

Polycystic Ovary Syndrome (PCOS) is multifactorial and frequent endocrinopathy in women. On the other hand, hypothyroidism is an endocrinopathy with a high prevalence in women, which impacts female reproduction and metabolism. Despite the high prevalence of thyroid disease in women with PCOS (10-30%), in our region, there is not a permanent epidemiological surveillance, considering that it is an area of iodine deficiency. Scientific bases confirm that women with PCOS that later became hypothyroid may have adverse outcomes on metabolism and fertility. It is worth to note that, this disorder is aggravated by iodine consumption deficiency which correlates with a higher prevalence of hypothyroidism. In view of the preceding, this study hypothesized that women with PCOS have a higher prevalence of metabolic disorders associated to iodine intake. To corroborate this, the goal of this study was to perform a prospective study carried out from a cohort of 42 women from 18 to 42 years old (PCOS n=11, Control n=31), who attended for infertility consultation at the Instituto de Medicina Reproductiva (IMR) or volunteers from Mendoza province. The presence of PCOS was determined according to the Rotterdam criteria: oligo-or anovulation, clinical and/or biochemical signs of hyperandrogenism, and/or polycystic ovaries on ultrasound. The following morphometric parameters were evaluated: age, height and body weight. Besides, the biochemical profile was assessed by the serum determination of total, LDL and HDL cholesterol, triglycerides, glucose, and urine iodine. Statistical analysis was performed by means of GraphPad Prism 7 software. The analysis showed that PCOS have a higher body mass index than controls ($p=0.0076$). With respect to the biochemical profile, PCOS patients showed lower levels of total cholesterol ($p=0.038$) due to the decrease of HDL cholesterol ($p=0.0218$). The glycemia, triglycerides and LDL cholesterol were not affected. Urine iodine in PCOS women is lower than controls ($p=0.027$). It is also noteworthy that 27.3% of PCOS patients present iodine insufficiency (<100 ug/dL) compared to 7.1% of controls. To summarize, we can conclude that the presence of PCOS have adverse metabolic and fertility consequences, and specially in our region, it would be worsened by the nutritional iodine deficiency. The progress on the understanding of the relationship between PCOS and iodine nutrition deficiency, that in turn promotes thyroid malfunction, will conduct to the improvement of health-promoting public strategies in terms of prophylaxis, assessment, and therapy. These policies are required to overcome the metabolic and reproductive disturbances on women health of our region.

027- LONG-TERM EFFECTS OF MATERNAL MILD HYPERTHYROIDISM ON THE DEVELOPMENT AND THE BEHAVIOR OF OFFSPRING IN ADULTHOOD

Michel MC[125], Sánchez MB[12], Neira F[12], Viruel LB[2], Soaje M[13], Pietrobon EO[13], Gomez SE[4], Jahn GA[1], Mackern-Oberti JP[13], Valdez SR[15]
[1]Laboratorio de Reproducción y Lactancia-IMBECU-UNCuyo, [2]Universidad Juan Agustín Maza, [3]Facultad de Ciencias Médicas-UNCuyo, [4]Laboratorio de Hormonas y Biología del Cáncer, IMBECU, [5]Facultad de Ciencias Exactas-UNCuyo.cemichel@outlook.com

Abnormal levels of thyroid hormones (THs) are associated with alterations in anxiety and circulating hormones such as glucocorticoids (GCs) and prolactin affecting fertility and reproductive success. However, little is known about the long-term effects of maternal hyperthyroidism on the development and behavior of their offspring. For this purpose, eight pregnant Wistar rats were divided in two groups defined as: Control (Euthyroid, n=4) and HyperT (n=4). Hyperthyroidism was induced with T_4 0.1mg/kg/day, s.c. After delivery, on day 2 of lactation, the number of pups in each litter was standardized to eight and the offspring allowed to growth under standard condition. Development parameters were recorded from birth to 42 postnatal day (PND). Adult female and male offspring (PND 85-100) were subjected to the Open Field Test (OFT) to evaluate locomotor activity using EthoWatcher computacional tool. The parameters assessed were as follows: a) rearings, b) entries to areas of interest, c) total distance traveled. At PND 100-120, the adult offspring were sacrificed, trunk blood was collected for serum hormonal determinations and adrenal glands (AG) dissected for histological analysis using Image J program. We found that offspring from HyperT mothers (named HyperT pups) presented alterations in the postnatal development of some physical, sensory, motor, and reproductive parameters compared to offspring of euthyroid mothers (named Control pups). Body length at PND 1 was lower in HyperT pups ($p<0.001$) while there were delays in the eye opening ($p<0.01$), ear canal opening ($p<0.05$), forelimb grasp ($p<0.05$), auditory startle ($p<0.001$), testicular descent ($p<0.01$), vaginal opening ($p<0.05$) in HyperT pups compared to Control pups. In the OFT, adult female and male pups showed different behaviours in locomotor activity and exploration: female HyperT pups exhibited greater distance traveled ($p<0.01$), increased number of entries to areas of interest ($p<0.01$) and of rearings ($p<0.05$) compared to Control female pups. In addition, female HyperT pups showed increased entries and time spent in the center of the square ($p<0.01$) and number of rearings ($p<0.05$) compared to male HyperT pups. At PND 100-120, we found an increased size of the AG *zona fasciculata* (GCs synthesis zone) in adult female HyperT pups compared to adult female Control pups ($636,6 \pm 40,01$ vs $451,0 \pm 10$ arbitrary units $p<0.01$, while there was no differences between male of both group. Also, at PND 100-120 the basal serum corticosterone levels were similar in both male and female Control and HyperT rats. These results show that a maternal mild hyperthyroidism may have long- term effects on physical and neurological development of the offspring triggering sex-dependent behavioral consequences in adulthood.

028- ASSESSMENT AND OPTIMIZATION OF OOCYTE QUALITY TO IMPROVE ASSISTED REPRODUCTIVE TECHNIQUE SUCCESS

Wetten P.A.[1], Klinsky Lahoz O.G.[1], Michaut M.A.[1,2]
[1] Laboratorio de Biología Reproductiva y Molecular, Instituto de Histología y Embriología de Mendoza (IHEM), Universidad Nacional de Cuyo (UNCUYO)-CONICET, [2] Facultad de Ciencias Exactas y Naturales, UNCUYO, Mendoza, Argentina.
Email: paulawetten@gmail.com, mmichaut@gmail.com

In assisted reproduction technologies (ART), oocytes are inevitably subjected to postovulatory aging. Although quite significant technical progress has been made to improve ART technologies, poor oocyte quality is the crucial factor closely associated with ART failure. Understanding the subjacent mechanisms in the oocyte aging process and finding chemicals that can prevent postovulatory aging are two of the most important research topics today. In previous work, we showed that ROS levels increased during *in vitro* mouse oocyte aging. In addition, we also observed that: 1) cortical granules density (CGD) decreased, indicating premature exocytosis, and 2) the localization of alpha-SNAP and NSF, two proteins involved in membrane fusion during cortical granule exocytosis, were altered in postovulatory *in vitro* aged oocytes. Dithiothreitol (DTT) is a dithiol with two end sulfhydryl groups that works as an antioxidant. We hypothesized that DTT treatment might prevent the aforementioned alterations during *in vitro* mouse oocyte aging. Mature oocytes were obtained from hormonally stimulated CF-1 female mice (8-12 weeks of age). To achieve *in vitro* aging, oocytes were collected 16 h post hCG (time 0 h, control oocytes) and *in vitro* cultured by 4 or 8 h (aged oocytes) in the presence or absence of DTT. ROS levels were measured using the fluorescent indicator DCF-DA. When *in vitro* oocyte aging was performed in presence of DTT, ROS levels diminished significantly to similar levels observed in control oocytes. To determine the DTT effect on premature cortical granule exocytosis, mouse oocytes were aged in presence of DTT, fixed, and stained with fluorescent LCA to label cortical granules. Results showed that aged oocytes incubated with DTT had a CGD akin to control oocytes. Likewise, indirect immunofluorescence analysis of the alpha-SNAP and NSF localizations showed that in aged oocytes treated with DTT both proteins had a similar distribution pattern to control oocytes. Altogether, these results suggest that the addition of antioxidants to the culture medium might be useful to avoid the alterations produced by the postovulatory *in vitro* oocyte aging and consequently improve the ART rate success.

029- EFFECT OF PRENATAL TREATMENT WITH D-AMPHETAMINE ON THE TESTIS OF MALE ADULT RATS

Pietrobon EO[1,4], Sanchez MB[1,6], Michel C[1,6], Rosales J[1]., Neira F[1], Mackern-Oberti JP[1,5], Gomez S[7], Valdez SR[1,2] Bregonzio C[3], Monclus MA[4,5], Soaje. M[1,5]
[1]Laboratorio de Reproducción y Lactancia-IMBECU-CONICET; [2] FCEN-UNCuyo Mendoza; [3]IFEC-CONICET; [4]IHEM-CONICET; [5]FCM-UNCuyo; [6]UJAM; [7]Laboratorio de Hormonas y Biología del Cáncer-IMBECU-CONICET
Email: msoaje@mendoza-conicet.gob.ar

Prenatal amphetamine exposure (PEA) induces long-lasting changes that are evident even in adulthood. D-amphetamine (AMPH) is a stimulant of CNS, it reverses the action of monoamine transporters, blocks the reuptake and degradation of dopamine (DA) and noradrenaline (NA) increasing their availability. Evidence indicates that DA and NA participate in the regulation of gonadotrophin releasing hormone (GnRH) neurons during development and migration. Also, it has been demonstrated that the intake of AMPH derivatives in adulthood alters the hypothalamic-pituitary-gonadal axis, producing low levels of testosterone and poor sperm quality. The aim of the present study was to evaluate the effects of prenatal AMPH exposure on testis during adulthood, particularly on the development of the seminiferous epithelium structure. Female rats were treated daily with AMPH 2.5mg/kg i.p or saline (SAL) during days 15 to 21 of pregnancy. On days post-natal 75-90, adult PEA and SAL treated male rats, were sacrificed by decapitation and the testis and epididymides were surgically removed and weighed. Blood samples were obtained for testosterone determination by chemiluminescence method. Testes were fixed for the histological analysis and the epididymides were sectioned and incubated in PBS at 37°C for the release and posterior sperm count. Next, they were prepared in HM (no capacitating medium) and HMB (capacitating medium) for the later analysis of the acrosomal reaction. Data were analyzed using two-way ANOVA and Student´s-*t* test. No difference in weight testes was observed in PEA rats compared with SAL treated rats. Serum testosterone levels diminished significantly in PEA rats ($p<0,001$) and the sperm count resulted lower in PEA than SAL male treated rats ($p<0,03$). A significant diminution in the height ($p<0,001$) and area of seminiferous epithelium was observed in PEA compared with SAL rats ($p<0,001$). However, the percentage of acrosomal reaction did not show significant differences between both groups ($p<0,05$). Our results suggest that prenatal amphetamine exposure may affect the structure and development of seminiferous epithelium in adult male. These changes are followed by a diminution of serum testosterone levels and low number in the sperm count that might have some consequence on male fertility.

030- SERPIN F1 DIMINISHES MURINE SPERM ACTIVATION DURING IN VITRO ASSAYS

Conte MI[1,2], Arancibia Cabañez MR[2], Basaez Alonso MJ[2], Leporati JL[3], López ME[2], Sáez Lancelloti E[1,2], Fornés MW[1,2], Aguilera Merlo C[3], Monclus MA[1,2]

[1]IHEM – CONICET; [2]FCM – UNCUYO; [3]UNSL

Email: marinesconte@gmail.com

For proper fertilization, mammalian sperm need to suffer different steps after ejaculation inside the female tract -capacitation, acrosome reaction (AR) and hyperactivation- considered together as a sperm activation. These processes are regulated by the loss of male "decapacitating" factors and the influence of female factors presents inside the female genital tract. A male decapacitating factor is a sperm head membrane molecule that allows capacitation after been removed such as SERPIN F1. This protein has been described recently by our group. It is expressed in androgen-dependent manner in Wistar rat male´s reproductive tract. We have initiated the study with SERPIN F1 as a possible decapacitating factor in murine sperm. We preincubated in vitro mouse epididymal sperm with the anti-SERPIN F1 antibody (to block the endogen protein) followed by adding different concentrations of recombinant SERPIN F1 (100, 500 and 1000 nM) - as exogen source. Then, we performed capacitation and AR triggered by calcium ionophore. We evaluated the AR by Coomasie Blue stain, and we noted a decrease in the percentage of AR with increasing concentrations of added Serpin. We also evaluated the AR triggered by Progesterone using as experimental condition SERPIN F1 at 500 nM and the antibody, obtaining similar results. In other set of experiments, we incubated capacitated sperm with the antibody and the recombinant SERPIN F1 prior to AR stimulation with Progesterone (to distinguish pre or postcapacitation effect), obtaining a diminished percentage of AR. These results suggest that SERPIN F1 may affect the sperm activation (measured as percentage of AR) both before and after in vitro capacitation of mouse spermatozoa.

031- EXPRESSION OF CYTOKERATIN 5 DURING THE POSTNATAL BLOOD-TESTIS BARRIER DEVELOPMENT

Pulcini G[1], Sosa MA[1,2], Aguilera AC[1,2], Morales CR[3], Carvelli L[1,2]
[1] IHEM-CONICET, Facultad de Ciencias Médicas, Universidad Nacional de Cuyo, Mendoza, Argentina.
[2] Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Cuyo, Mendoza, Argentina.
[3] Faculty of Medicine, McGill University, Montreal, Quebec, Canada.
E-mail: lorecarvelli@gmail.com

Cytokeratins (CKs), as part of the cytoskeleton, are important for the mechanical stability and integrity of epithelial cells and tissues. In keratinocytes, CKs 5 and 14 participate in the assembly of desmosomes that make up the epithelial barrier. In testis, Sertoli cells participate in the formation and maintenance of the blood-testis barrier. Particularly, in mice fetuses, these cells express CKs 8, 18 and 19 until they differentiate (postnatal day 14). The expression of CK 5 in mouse Sertoli cells has not been described yet, although our preliminary studies demonstrated, for the first time, that these cells expressed this intermediate filament in adult mice. The aim of this study was to determine the relationship of CK 5 and the formation of the blood-testis barrier during postnatal testis development. Male mice (C57BL/6) of 1, 5, 18 and 90 days old were used. After sacrifice, the testes were removed and processed for immunocytochemical (IHC) and immunoblotting assays. Light microscopy-IHC observations of mice testis showed that in Sertoli cells, the CK 5 staining intensity is markedly increased in animals with a developed and functional blood-testis barrier. Moreover, by immunoblot analysis, an increased expression of CK 5 in adult mice testes was also noted. These preliminary results suggest that CK 5 could play an important role in the formation and maintenance of the blood-testis barrier in mice, providing new insights for this protein in the spermatogenesis process.

032- GLYCOSAMINOGLYCANS ISOLATED FROM CAUDA EPIDIDYMAL FLUID IMPROVES SPERM FEATURES IN LIQUID-STORED PORCINE SPERMATOZOA

Baronian D[1], Ojeda G[1], Buttazzoni AC [2], Cantú DF [2], De Blas G [3], Sosa MA[3], Carvelli, F [2,3], Aguilera AC [2,3]
[1] Facultad de Ciencias Veterinarias y Ambientales, UMAZA. Mendoza, Argentina
[2] Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Cuyo. Mendoza, Argentina
[3] Facultad de Ciencias Médicas, Universidad Nacional de Cuyo. CONICET. Mendoza, Argentina
E-mail: caguilera@mendoza-conicet.gob.ar

Artificial insemination (AI) is the most practiced technique in porcine reproduction. Since this practice requires the storage of spermatozoa in semen extenders, there is an increasing interest in improving the liquid-storage composition to preserve sperm quality. Glycosaminoglycans (GAGs) are a family of linear polysaccharides comprised of repeating hexosamine-containing disaccharides that are found in the reproductive fluids along the male and female genital tracts. Different studies showed that GAGs may be involved in sperm processes such as capacitation and acrosome reaction *in vivo*. The aim of this study was to investigate the effect of GAGs isolated from cauda epididymal fluid (G-EF) and seminal plasma (G-SP) on viability, membrane stability and mitochondrial activity of boar spermatozoa stored in commercial sperm extenders. GAGs from EF and SP were isolated by protease digestion, lipid extraction and by different precipitation conditions. Fresh boar sperm was diluted in commercial short-term extender (BTS) and long-term extender (GM) supplemented with G-EF and G-SP, for 3 and 7 days at 16 ºC respectively. Spermatozoa storage either with G-EF or G-SP showed high percentage of membrane stability and viability assessed by flow cytometry using M540/ YoPro ($p<0.05$). Mitochondrial activity, assessed by Rohodamine123, showed a significant decrease in G-EF suggesting that GAGs could preserve mitochondrial function in liquid store spermatozoa ($p<0.05$). To test the functional ability to undergo sperm capacitation, spermatozoa were incubated in TALP capacitation medium for 1 hour at 38,5 ºC in a humid atmosphere. No differences were observed in the capacitation status assed by flow cytometry using M540/ YoPro ($p<0.05$). These results provide evidence that the supplementation of GAGs from EF and SP might have a protective effect on boar spermatozoa increasing membrane stability, reducing mitochondrial activity and maintaining viability during liquid-stored sperm storage.

033- EFFECT OF CORTISOL ON SEMEN PARAMETERS AND MALE FERTILITY

Arias RJ[1], Mata-Martinez E[1], Giojalas L[3], Guidobaldi H[3] and De Blas GA[1,2]
[1]IHEM-CONICET-UNCuyo. [2]LaTIT. Área de Farmacología-FCM-UNCuyo. Mendoza. Argentina. [3]IIBYT-UNC-CONICET. Córdoba. Argentina.
E-mail: rodojosearias@gmail.com

Calcium signaling is a key regulatory mechanism in sperm functions such as capacitation, motility, hyperactivation, chemotaxis and acrosome reaction. Progesterone (Pg) has been associated with several processes of sperm physiology, since it directly activates membrane Ca^{2+} channels allowing the increase of Ca^{2+} cytoplasmic concentration. Cortisol (Co) is a steroid hormone secreted by the adrenal gland that is released in response to stress. It hass been documented that Co con affect semen quality, decreasing sperm concentration and impairing motility. Nevertheless, there is little information regarding the effects of Co in other aspects of sperm physiology. The aim of this study was to investigate the effects of Co on physiological events in human sperm activated by Pg, such as intracellular Ca^{2+} currents, acrosomal reaction, chemotaxis, and motility. We worked with semen samples from normal donors according to the parameters established by WHO. Cells were recovered by swim up method and capacitated for at least 3 hours. For the different methodological strategies used, capacitated spermatozoa were incubated in absence (control) or presence of progesterone and cortisol. We performed real-time dynamic measurements of intracellular Ca^{2+} concentration, evaluated the acrosomal reaction (AR), and studied the effect on chemotaxis using the sperm selection assay. Finally, using a computerized semen analysis system, we studied all the kinetic parameters of motility. The results show that Co did not increase intracellular calcium as Pg does. In functional assays, Co did not induce AR but rather inhibited AR stimulated by Pg. Chemotaxis assays showed that it did not have chemoattractant capabilities, as well as did not modify motility parameters as Pg does. From these results we conclude that Co alters sperm physiology in response to Pg, mainly by altering acrosomal reaction. In addition, it does not affect motility parameters and lacks chemoattractant action.

034- HYPOTHYROIDISM THROUGH THE REPRODUCTIVE CYCLE ALTERS THE DNA METHYLATION LEVEL OF MAMMARY DIFFERENTIATION-ASSOCIATED GENES

García D[1], Hapón MB[1,2], Carón R[1], Campo Verde Arbocco F[1,3]
[1] IMBECU-UNCuyo, CCT Mendoza CONICET. [2] Fac. de Ciencias Exactas y Naturales, UNCuyo. [3] Facultad de Ciencias Médicas, Universidad de Mendoza.
E-mail: arboccocv@gmail.com

Mammary epithelial functional differentiation involves an abrupt turnover in the cell´s transcriptome. These changes arise from an epigenomic modification that confers lineage differentiation. The epigenomic imprinting depends on reproductive hormones from gestation to involution. In previous work, we proved that hypothyroidism (hypoT) disrupts the mammary transcriptome through lactation. In recent studies, we demonstrated that hypoT through the reproductive cycle alters the long-term mammary cell ability to respond to the hormonal fluctuation of cycle. In this study, we analyzed the impact of hypoT through a reproductive cycle in the mammary epigenome, focused on the methylation state of differentiation-associated genes. In this work, we investigated the mammary glands of hypothyroid Sprague Dawley hypothyroid (HypoT) and euthyroid (Ctrl) rats that have undergone a complete cycle of gestation, lactation, and involution. On day 28 after weaning, we dissected the inguinal mammary glands and isolated genomic DNA using CTAB reagent. We evaluated the DNA methylation state using MSRE and designed the bioinformatic assay with online ensemble database for gene sequence analysis and both beacon designer and methyl primer express software for primer designer and CpG island analysis. Next, we analyzed the methylation level by Real-Time PCR of GATA-3, STAT6, TET2, ELF5 y STAT5. The digested/non-digested ratio allows us to estimate the methylation level of each sequence. The results show that hypoT through the reproductive cycle, long-term alters the methylation state of STAT6, STAT5, and TET2. This suggests both, an impediment in lineage commitment and in the mammary ability to respond to the prolactin pathway in successive lactation. Particularly, the increase in STAT5 promoter methylation suggests a partial loss in the cellular ability to synthesize milk compounds. These results, added to previous work, prove that hypoT through the reproductive cycle alters the mammary differentiation and in consequence its long-term ability to respond to hormonal stimulus.

035- TESTOSTERONE MODIFIES OVARIAN ANTI-MULLERIAN HORMONE RELEASE IN RATS WITH POLYCYSTIC OVARY

Figueroa MF, Mendoza GV, Forneris ML
Lab. Biol. Reprod (LABIR). Fac. Qca. Bqca y Fcia (UNSL). Ejército de los Andes 950, San Luis, Argentina.
E-mail: mfigueroa@unsl.edu.ar

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women of reproductive age, which is associated with increased androgens, antral follicle growth arrest, chronic inflammation, and oxidative stress. Anti-Mullerian hormone (AMH), a dimeric glycoprotein produced from the granulosa cells of pre-antral and antral follicles, is elevated in PCOS. It has been implicated in follicle dysfunction that lead to the development of the disease, but the exact mechanism of action of AMH in the ovary is not well understood. The purpose of this study is to evaluate the role of androgens on AMH release and its relationship with cytokines involved in ovarian steroidogenesis, in a PCOS-induced rat model. Polycystic ovary condition (PCO) was induced in adult female Wistar rats (60 days of age) via i.m injection of estradiol valerate (2 mg/rat). PCO and Control (C) ovaries were incubated with RPMI medium (basal value), T (10^{-6}M) or flutamide (an androgen receptor antagonist; 10^{-4}M) plus T (F+T), for 4h in metabolic bath. In ovarian conditioned media (supernatant), AMH and tumor necrosis factor alpha (TNFα) concentration were measured by enzyme-linked immunosorbent assay (ELISA) while nitric oxide (NO), as nitrites, were quantified by Griess reaction. The mRNA expression of androgen receptor (AR) and interleukin (IL)-1β were assessed in ovary by RT-PCR. Serum AMH levels were higher in PCO than C rats ($p<0.05$). Comparing to basal value, the PCO ovary released more AMH than C ovary ($p<0.05$). The C ovaries responded with an increase of AMH release after T treatment in relation to basal values ($p<0.05$). Instead, there was a significant reduction in AMH release in PCO ovary exposed to T compared to PCO ovary incubated in basal media ($p<0.05$). This inhibitory effect on AMH release was partially reduced when the PCO ovaries were simultaneously incubated with flutamide ($p<0.01$). Both AR and IL-1β mRNA expression were down-regulated in C and PCO ovaries exposed to T. The NO and TNFα release pattern observed was the following: PCO+T > PCO >C+T ~ C ($p<0.05$). The PCO ovary response differed from C ovary. When PCO ovary was exposed to a high androgen concentration, AMH was, at least locally, down regulated. Although, a possible synergistic effect of estradiol with T or an interaction with mediators of inflammation cannot be ruled out. This mechanism may have implications for the understanding of PCOS pathophysiology.

036- EFFECTS OF TESTOSTERONE ON ANTERIOR PITUITARY IN A POLYCYSTIC OVARY MODEL

Mendoza GV[1], Figueroa MF[1], Gornitz P[2], Forneris ML[1]
[1]Laboratorio de Biología de la Reproducción (LABIR). Facultad de Química, Bioquímica y Farmacia (UNSL). Ejército de los Andes 950. San Luis. [2]Laboratorio Gornitz, Villa María (Córdoba), Argentina.
E-mail: gvmendoza@unsl.edu.ar

Polycystic Ovary Syndrome (PCOS) is a frequent hyperandrogenic condition that affects young women. Neuroimmunoendocrine alteration in the Hypothalamic-Pituitary-Gonadal (HPG) axis has been reported. Previously, we demonstrated that splenic macrophages secretions affect the release of gonadotrophins, the expression of immune mediators and the synthesis and release of nitric oxide (NO) in rat model of polycystic ovary. The aim of this study was to investigate if testosterone (T) modulates luteinizing hormone (LH) release in PCO anterior pituitary (PCO-AP) and its relationship with NO, androgen receptor (AR), estradiol receptor (ER), IL-1β and macrophage colony-stimulating factor (M-CSF) mRNA expression. The PCO condition was induced in adult 60 days female Wistar rat with a simple dose of estradiol valerate (i.m injection 2 mg/rat). PCO and Control pituitaries (PCO-AP and C-AP) were incubated with RPMI medium (basal value), T (10^{-6}M) or flutamide (an androgen receptor antagonist; 10^{-4}M) plus T (F+T), for 4h in metabolic bath. The LH release was measured by electrochemiluminescence (ECLIA) and NO release (nitrites) was determinate by Griess reaction. The genetic expression of AR, ER, IL-1β and MCSF were analyzed by RT-PCR. The release of LH was lower in PCO than C rats in basal condition ($p<0.01$). After T was added to PCO-AP, LH release increased significant compared with basal value ($p<0.001$). This stimulatory effect on LH release was reduced to basal values in presence of Flu. In basal condition, the NO release was similar between PCO-AP and C-AP. In PCO-AP, T increased NO release ($p<0.05$). In basal condition, mRNA levels of AR were lower in PCO-AP in relation with basal C-AP ($p<0.01$); with T, it was observed an increase in PCO-AP RA expression ($p<0.05$). The RE mRNA levels was higher in PCO-AP than C-AP ($p<0.05$) in basal condition. Despite no changes were observed in PCO-AP + T, it was evidenced an increase in RE expression in C-AP compared with basal values ($p<0.05$). Interestingly, M-CSF and IL-1β mRNA levels increased in PCO-AP when T was added respect to basal ($p<0.05$). Our results showed that hyperandrogenism environment could contribute, in PCO-AP, to disturb the complex feedback regulation system of the HPG axis, which involves a crosstalk between gonadotrophic hormones, cytokines and ovarian steroid hormones. In particular, we demonstrated that M-CSF is expressed in PCO-AP and it has participation in LH secretion. Taken together, these data provide a new perspective to understand the molecular mechanism for PCOS development.

037- CLINICAL IMPORTANCE OF THE PREDICTIVE VALUE OF THE SPERMOGRAM IN REPRODUCTIVE HEALTH: A STATISTICAL STUDY IN SAN LUIS

Busolini F[1-2], Rosales G[1-2], Cruceño A[1], Lesik G[3], Garcia Pérez P[3], Recabarren M[3], Orellano G[3], Aguilera-Merlo C[1].
[1]Area de Morfología, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis. [2]Consejo Nacional de Investigaciones Científicas y Técnicas, CONICET. [3]Laboratorio Orellano-Elorza, San Luis.
E-mail: fabriciobusolini@gmail.com

The World Health Organization (WHO) laboratory manual for the examination and processing of human semen, in its latest editions of 2010 and 2021, intended to unify reference values for the main seminal parameters. Consequently, a local statistical study was carried out in order to evaluate seminal quality and its relationship with the reproductive health of a population that attended a private laboratory in the city of San Luis, Argentina. Furthermore, from this study we obtained our own reference values, as recommended by the WHO. 94 samples of patients, referred to the laboratory for functional disorders of the reproductive system or for fertility problems, were analyzed. This study was conducted during 2019-2021. The age range of the patients was between 20-49 years, and the seminal samples were classified into 3 groups (G): G1: 20–29 years old (n=11), G2: 30–39 years old (n=61), and G3: 40–49 years old (n=22). Macroscopic and microscopic studies were performed and the main sperm parameters were evaluated: volume (V), concentration (C), progressive motility (Mp) and morphology according to Kruger criteria (Mk). Statistical analysis was performed using the non-parametric Kruskal-Wallis test, considering a value of $p < 0.05$ as statistically significant. Data are reported as mean ± SEM. The following values were obtained by age group: G1: V= 4.74 ± 0.55 ml; C= 88.83 ± 29.95 million/ml; Mp (a + b)= 46.36 ± 2.53 %, Mk= 10.18 ± 1.45 %; G2: V= 3.73 ± 0.19 ml, C= 168.25 ± 22.08 million/ml, Mp (a + b)= 47.7 ± 1.39 % and Mk= 15.44 ± 0.71 %; G3: V= 3.16 ± 0.33 ml, C= 232.11 ± 75.28 million/ml, Mp (a + b)= 40.49 ± 2.49 %, Mk= 11.95±1.21%. Statistics revealed significant differences in G3 versus G1 and G2 in motility ($p= 0.0397$); and in G2 versus G1 and G3 in morphology ($p= 0.0179$). These results exhibited that the majority of individuals between 30-39 years of age performed seminal tests in order to evaluate their fertilizing capacity, finding mostly a good seminal quality. On the contrary, younger individuals only attended the laboratory for some unknown alteration, presenting decreased values in concentration and sperm morphology. This study highlights the importance of working with highly trained professionals in the field, and the need for *clinical laboratories* to participate in the external quality assessments programs.

VETERINARIA, ANATOMIA, HISTOLOGIA Y FISIOLOGIA ANIMAL
(VAH)

VETERINARIA, ANATOMIA, HISTOLOGIA Y FISIOLOGIA ANIMAL (VAH)

038- EFFECT OF FOOD RESTRICTION ON PLACENTAL AND PLASMATIC OXIDATIVE STRESS IN RATS DURING THE LAST THIRD OF GESTATION

Arabel R[1,2], Borghi D[1,3], Farías M[1,2], Binotti S[1,2]
[1]INBIAS- Instituto de Biotecnología Ambiental y Salud (CONICET).[2] Depto. Biología Molecular. Facultad de Ciencias Exactas, Fco-Qca y Naturales. [3] Depto. Anatomía Animal. Facultad de Agronomía y Veterinaria. Universidad Nacional de Río Cuarto. Río Cuarto, Córdoba. mail: sbinotti@exa.unrc.edu.ar

The placenta serves as the critical intermediary between the maternal and fetal environments. Despite its transient role as the mediator of the exchange of nutrients, gasses, and waste between mother and fetus, the capacity of the placenta to adapt to environmental stresses has a lifelong impact on the health and well-being of the offspring. In this sense, maternal undernutrition is a common environmental stressor associated with increased risk of postnatal health disorders. Moreover, endocrine response to undernutrition has been associated with an oxidative stress increase. In this study, the effect of food restriction on placental and plasmatic oxidative stress in pregnant rats, during the last third of gestation, was investigated. 3 months old male and female Wistar rats were used. Pregnant rats were randomly divided into the control group (C): *ad libitum* food; and the food restriction group (FR): 40% reduction in daily food intake, during the last third of pregnancy. Day 21 of pregnancy, all rats were euthanized and different samples were obtained. In plasma, malondialdehyde (MDA) and ferring reducing ability of plasma (FRAP) were determined. Placenta and fetus size and weight were measured, for the placental efficiency determination. Also, placental MDA, carbonyls (CAR) levels and superoxide dismutase (SOD) and catalase (CAT) activity were measured. No changes were observed in MDA plasmatic y FRAP levels. In response to food restriction, placental weight ($p \leq 0.02$) and diameter ($p \leq 0{,}00002$) decreased, when compared to the C. On the other hand, non-statistically significant differences were observed in fetus weight and cephalocaudal length, between C and FR. As to oxidative stress markers, an increment in placental MDA ($p \leq 0.02$) and carbonyls ($p \leq 0.001$) was observed in the FR, while SOD and CAT activity showed no difference between groups. Oxidative damage observed in the placenta could be related to the stress situation caused by food restriction. It is known that stress increases corticosterone levels, resulting in a major production of reactive oxygen species. This increment, in addition to the basal antioxidant activity observed in FR, would lead to the placental oxidative stress found in the study. Thus, an increment in oxidative stress could result in a compromised placental function, predisposing to an increment in neonatal mortality or disease risk in adult life.

039- EFFECT OF NUTRITIONAL RESTRICTION IN PREGNANT GOATS ON THE BODY DEVELOPMENT OF THEIR OFFSPRING

Mura N[3], Flores Bracamonte MC[1,2], Merkis CI[1], Díaz T[1], Bozzo A[1]
[1]INCIVET-UNRC. [2]Becaria Doctoral CONICET. [3]Lab. de Biología Celular y Embriología, FAV-UNRC.
E-mail*: muranadya@gmail.com*

The problems of the goat sector are integrative of social, productive and environmental constraints that give the system exclusive particularities. Goats are a group with different demands than the rest of the ruminants because they have very low production rates. The intrauterine growth stage presents a great plasticity and when the fetus is subjected to inadequate nutrition long-term deleterious organic changes may occur. The aim of this study was to evaluate the effect of maternal nutritional restriction during gestation on the body development of offspring. Ten primiparous pregnant goats were assigned to 2 dietary treatments during gestation. The control group (C, n=5) were fed with an *ad libitum* diet that consisted of a 70/30 mixture of chopped alfalfa hay and ground corn grain (energy concentration of 2.4 Mcal/kg DM) and supplemented with a mineral vitamin core. The energy restricted group (R, n=5) were fed with 70% of the energy requirements of group C, from day 50 of gestation to term and supplemented with urea so that the restriction was not of the protein type. This group received a diet with an energy concentration of 1.68 Mcal/kg DM. The weight and morphometric variables such as height at the withers and shoulder length - ischial tuberosity were recorded in the offspring, from birth and at 45 days. No statistically significant differences were observed in weight, height at the withers and shoulder length - ischial tuberosity between the groups C and R at both times studied. These results suggest that the nutritional restriction applied in pregnant goats had no influence on the morphological parameters determined in their offspring. Future research is needed on the impact of nutritional restriction on the number of muscle fibers and intramuscular adipose cells in offspring that will determine future performance in meat production.

040- SACCHARIDE PATTERN IN GOAT PLACENTA DURING GESTATION

Flores Bracamonte MC[1,2], Gregori S[3], Mura N[3], Díaz T[1], Acuña F[4,5], Barbeito C[4,5], Bozzo A[1]
[1]INCIVET-UNRC. [2]Becaria Doctoral CONICET. [3]Lab. de Biología Celular y Embriología, FAV-UNRC y [4]Cátedra de Histología y Embriología, FCV-UNLP. [5]CONICET. E-mail: cfloresbracamonte@ayv.unrc.edu.ar

In the province of Córdoba, goat production is an economic source for farming families that develop this activity with limited technological resources. To optimize their productivity, it is important to guarantee an adequate weight of the offspring at birth. The growth and survival of the fetus depends on the placenta, which is characterized by being cotyledonary and sinepitheliochorial with trophoblast gigant cells that migrate from the chorionic epithelium and fuse with the endometrial epithelium to form syncytia. Cell surface carbohydrates are involved in the processes of cell recognition and adhesion between the trophoblast and the uterus. During placenta development, the composition of carbohydrates on the cell surface undergoes variations that have a fundamental role in the processes of cell recognition and adhesion between the trophoblast and the uterus. The placental pattern of carbohydrates has not been studied in this species. The aim of this study was to describe the pattern of carbohydrates in the goat placenta throughout gestation. Fifteen goats (*Capra hircus*) older than two years that had access to food and water *ad libitum* were used. They were sacrificed at 50, 100 and 135 days of gestation following the COEDI animal management recommendations Histological sections of placentas were obtained and the lectinhistochemistry technique was performed with biotinylated lectins: GSL-I, WGA, SJA, SWGA, PSA and LCA. The placental structures analyzed were glycocalyx (GC), binucleated cells (BN), mononucleated cells (MN), syncytia (S), and fetal (EF) and maternal (EM) endothelium. The intensity of binding to each lectin was qualitatively rated on a scale of 0 (negative), + (weak), ++ (moderate) to +++ (strong). 10 random fields were analyzed for each slice of placental tissue. At 50 days of gestation, the structures that possessed +++ binding intensity were the GC of mononuclear trophoblastic cells and EFs with GSL-I and EMs with WGA. At 100 days, the GC of mononuclear trophoblastic cells showed +++ binding intensity with GSL-I, the EF had +++ binding intensity with GSLL-I and WGA, and the EM showed +++ binding intensity with WGA. At 135 days, +++ GC binding of mononuclear trophoblastic cells was identified with GSL-I and EM and EF showed +++ binding intensity with GSL-I, WGA and LSA. The pattern of placental carbohydrates allowed evidence of remodeling in the different gestational stages studied.

041- EXPRESSION OF HORMONAL RECEPTORS AND PROLIFERATING CELLULAR NUCLEAR ANTIGEN IN PARS DISTALIS CELLS: STUDY IN RELATION TO SEX

Rosales GJ[1, 2], Filippa VP[1, 2], Mohamed FH[1]
[1]Área de Morfología, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis; [2]Consejo Nacional de Investigaciones Científicas y Técnicas, CONICET. E-mail:gabirosales87@gmail.com

Gonadal steroids are involved in the regulation of cellular activity of pituitary pars distalis (PD). Several studies carried out in some mammals have indicated that this regulation vary in relation to sex. The viscacha (*Lagostomus maximus maximus*) is a native rodent to Argentina of seasonal reproductive patterns. From February to April, the no pregnant females experience a massive polyovulation phenomeno and they prepare for an extensive pregnancy, and the males are in their reproductive period. The aim of this work was to study and quantify the colocalization of androgen receptors (AR), estrogen receptors alpha (ERα), and proliferating cellular nuclear antigen (PCNA) in LH-, FSH-, GH-, PRL- and folliculostellate (FS)-cells of pituitary PD of adult male and female viscachas. In each group, four pituitary glands were collected and processed for light microscopy. Colocalization of antigens in PD cells was detected by double-immunohistochemistry. These cells were quantified by morphometric and statistical analysis. Location of AR was mainly observed in GH-cells ($P < 0.01$) both males and females. In females, the ERα was mainly found in the PRL-cells ($P < 0.01$) and were numerous in FS cells compared with males ($P < 0.01$). Instead, in males the ERα was frequently observed in GH-cells ($P < 0.01$). In females numerous GH-cells and LH-cells expressed PCNA ($P < 0.01$). While in males the expression of PCNA was mainly in FSH-cells and LH-cells ($P < 0.05$). The results show that the AR are important to regulate the activity of somatotrophs in both sexes. The ERα regulate the activity of lactotrophs in females probably in preparation for pregnancy. In males these receptors affect the somatotrophs who might be very active to maintain the metabolic conditions during the reproductive period. In females, cell proliferation is mainly in somatotrophs and gonadotrophs-LH probably because these cells must maintain metabolism and particularly ovary for the reproductive process. In males, cell proliferation occurs basically in gonadotrophs indicating the great activity of the gonadotrophic axis at this time of the seasonal reproductive cycle. Finally, double immunohistochemistry provided morphological evidence for the existence the specific regulation of the cellular activity in the different pituitary PD populations in relation to sex of the animals. Further studies are needed to understand the mechanisms of regulation activated by gonadal steroids in the viscacha pituitary.

042- REPRODUCTIVE ALTERATIONS IN MALE RATS EXPOSED TO THE HERBICIDE GLYPHOSATE IN A COMMERCIAL FORMULATION

Borghi D [1,3], Binotti S [1,2], Farias M [1,2], Cots D [1,3], Salinero C[1,4], Bonatto F[1,4], Aiassa D[1,4]
[1]INBIAS- Instituto de Biotecnología Ambiental y Salud (CONICET). [2] Depto. Biología Molecular. FCEFQyN. [3] Depto. Anatomía Animal. FAyV. [4] Depto. Ciencias Naturales. FCEFQyN. UNRC. Mail: dborghi@ayv.unrc.edu.ar

Glyphosate is an organophosphate herbicide used to eliminate perennial annual grasses. Its action is probably due to the inhibition of biosynthesis of aromatic amino acids, which are essential for plant growth and survival. In order to increase its effectiveness, other substances not specified on the labelling are added to glyphosate, thus enhancing the toxicity of the active ingredient. The objective of this work was to evaluate the effect of different concentrations of glyphosate (48%), from a commercial formulation; on sperm viability in male Wistar rats. 8-week-old young albino male rats were used. A total of twenty-four rats were divided into 4 groups: 1: treated with drinking water (control); 2: 10 mg/kg body weight/day glyphosate diluted in drinking water; 3: 50 mg/kg of body weight/day of diluted glyphosate in drinking water and group 4: 100 mg/kg of body weight/day of diluted glyphosate in drinking water. Body weight and water intake were measured. Sperm count and motility, frequency of malformations, plasmatic membrane capacity (HOST) and testosterone concentration were measured. No changes were observed in weight and water intake. A decrease in the number of sperm was found in the groups 3 and 4 when compared to control ($p \leq 0.05$). A decrease in the capacity of the plasmatic membrane in groups 2 and 4 when compared to control was observed ($p \leq 0.05$). Sperm motility, showed no differences between the experimental and control groups; although a tendency to lower sperm motility was displayed. No differences were observed between control and experimental groups and neither between experimental groups, regarding to the number of live spermatozoa and frequency of malformations. Testosterone concentration was significantly lower in groups 3 and 4, when compared to the control ($p \leq 0.05$). Therefore, the alteration of some of the sperm viability parameters could be due to the testosterone levels decrease, which could result in a reduced fertility potential.

043- *IN VIVO* AND *IN VITRO ATRAZINE EVALUATION* ON DIGESTIVE ENZYMES OF EARED DOVE (*Zenaida auriculata*)

Manzanos NA, Bach NC, Cid FD, Chediack JG
Laboratorio de Biología Integrativa. IMIBIO_SL, Departamento de Biología, FQByF. Universidad de San Luis. CCT San Luis CONICET. San Luis – Argentina. E-mail: nazarenomanzanos@gmail.com

It has been observed that certain environmental pollutants can affect the enzymatic activity of the digestive system in some vertebrates. However, this effect is poorly studied in birds. Atrazine is a widely used herbicide in our country, and negative effects on the physiology of some organisms have been described. In these sense, although atrazine has been shown to produce some adverse effects in birds, there is a lack of knowledge about the effect on digestive physiology. Thus, the main objective of this work was to elucidate the Atrazine effects on digestive enzymes (intestinal and pancreatic) in a in vivo model of Eared Dove and the direct effect in brush border membrane vesicles (BBMV), *in vitro* model. To achieve our goal related to in vivo experiment, we established three independent groups of birds (n=6 each group), two groups were exposed during 15 days to the 25 mg/kg and 250 mg/kg atrazine concentration. After exposure, body weight measure, blood extraction and removal of the intestine, stomach, liver and pancreas were performed at the same time (8:00 am), to avoid disturb by circadian/daily variation. BBMV was obtained after intestinal lumen scraping using a polyethylene glycol (PEG) technique, then, BBVM were exposed to Atrazine concentrations of 5 µM; 2.5 µM; 1 µM and 0.5 µM, taking into account two controls, one with buffer and the other with ethanol, since atrazine is solubilized at 0.4% in ethanol. The intestinal enzymatic activity of sucrase, maltase and aminopeptidase was determined in both *in vivo* and *in vitro* models and the enzymatic activity of the pancreatic enzymes trypsin and chymotrypsin was determined *in vivo* model. Statistical analysis performed was RM-ANOVA to compare the proximal, medial, and distal portions of the *in-vivo* model and for pancreatic enzymes. *In-vitro* model was analyzed by one-way ANOVA, Tukey's post-hoc test ($p<0.05$). We did not found any differences in the masses of the organs of the digestive system. We did not found effect of Atrazine in the intestinal enzymes nor pancreatic enzymes. We found a classical pattern of intestinal enzyme activity reported for other bird species. Our results showed a non-significant direct inhibition of intestinal enzymes studied in BBMV exposed to different concentrations of Atrazine. In conclusion, the doses assayed of atrazine do not affect the intestinal and pancreatic digestive enzymes in doves. Supported by CyT-UNSL PROICO 02-0820 and FONCYT PICT-201–0595

044- S-100 PROTEIN EXPRESSION IN THE ADRENAL MEDULLA OF PREGNANT AND NON-PREGNANT VISCACHAS (*Lagostomus maximus maximus*): AN IMMUNOHISTOCHEMICAL AND MORPHOMETRIC STUDY OF SUSTENTACULAR CELLS

Gallol LE[1], Busolini FI[1 2], Dimenza Bujaldón JM[1], Vargas MR[1], Mohamed FH[1]
[1]Area de Morfología, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis. [2]Consejo Nacional de Investigaciones Científicas y Técnicas, CONICET. e-mail: gallolezequiel@gmail.com

An accurate functional adjustment of the adrenal gland is key for a successful pregnancy. Its dysfunction is associated with premature births, low birth weight of offsprings, psychomotor impairments and diabetes, among others. In viscacha, a seasonal breeding rodent, pregnancy lasts approximately 154 days and three stages can be defined: early (EP), mid (MP), and late pregnancy (LP). The purpose of this work is to analyse morphometric variations in the expression of S100 protein in the sustentacular cells (SC) of pregnant and non-pregnant viscachas by immunohistochemistry. We also aim to evaluate a probable relation between medullar activity and pregnancy. Four adrenal glands (n=4) per group were studied. The reproductive condition was assessed according to body weight and light microscope observations of ovaries. Additionally, uterine horns were examined to evaluate the presence of embryos and foetuses. The adrenal medullas were processed for light microscopy and the immunopositive percentage area (% IA) for the S100 protein was analysed. Estradiol (pg/ml) and progesterone (ng/ml) serum levels were also determined by RIA. Statistical differences were evaluated by Kruskal-Wallis test followed by Dunn's multiple comparisons test. A value of $p < 0.05$ was considered significant. Positive S100 nuclei were frequently triangular or elongated in shape. The cytoplasm and cytoplasmic processes of SC vary according to the pregnancy stage. In non-pregnant females (NP) the cytoplasm was scarce and the processes were few, thin and well-defined surrounding some chromaffin cells. In EP, immunolabeling at nuclear level decreased in intensity. The processes were mostly thin and well-defined, but they often did not surround chromaffin cells. During MP, nuclear and cytoplasmic labeling were significantly accentuated and SC exhibited a more abundant cytoplasm; however, their cytoplasmic processes were fewer, shorter and thicker. In LP, cytoplasmic processes were long, defined, and variable in thicknesses and frequently found surrounding chromaffin cells. Variations in the expression of the S100 protein related to serum hormone levels were found between pregnant and non-pregnant viscachas. In NP females the % IA was the lowest (4.28 ± 0.20) compared with EP (6.03 ± 0.36), MP (5.36 ± 0.10) and LP (7.19 ± 0.18) values. In the biochemical study, variations in estradiol (NP: 18.01 ± 3.19; EP: 27.50 ± 2.50; MP: 75.02 ± 2.50 and LP: 24.25 ± 2.17), as well as in progesterone serum levels (NP: 0.72 ± 0.11; EP: 4.64 ± 0.95; MP: 51.02 ± 3.10 and LP: 18.61 ± 2.25) were also reported in each pregnancy stage. Our results demonstrated that SC vary morphologically in relation to the levels of female sex hormones, indicating the participation of these hormones in the regulation of medullar activity in pregnant viscachas.

045- EFFECT OF THE DAYS OF STAY OF CATTLE IN A FEED-LOT FOR FEED CONVERSION EFFICIENCY, DAILY INCREASE IN LIVE WEIGHT, DAILY INTAKE OF DRY MATTER AND CONSUMPTION EXPRESSED IN PERCENTAGE OF LIVE WEIGHT

Panza, AA[1], Privitello, MJL[1], Leporati, JL[1]
[1]Facultad de Ingeniería y Ciencias Agropecuarias. Universidad Nacional de San Luis.
aapanza@email.unsl.edu.ar

A beef cattle feedlot is a confined area with adequate amenities for complete feeding for productive purposes. The objective of this work was to analyze differences in a feedlot between days of confinement taken as a categorical variable (DPE) 4 categories: up to 85, up to 110, up to 145 and more than 145 days of confinement (H85; H110; H145 and M145 respectively) with respect to of the quantitative output variables: feed conversion efficiency (ECA), daily live weight gain (ADPV), daily dry matter intake (CDMS) and consumption expressed as a percentage of live weight (C%PV) of cattle. To compare CDMS, ADPV, ECA and C%PV according to DPE, ANOVAs were performed for k independent samples. In cases where there were significant differences, the LSD-Fisher test was applied ($p<0.05$). For all the tests, the assumptions of Normality (Lilliefors), Homocedasticity (Breusch Pagan) and Independence (Durbin-Watson) were validated. The results were as follows for H85, H110, H145 and M145 respectively: 7.51, 1.060, 7.9, 3.07; 7.39, 1.21, 8.92, 3.1; 7.64, 1.16, 8.83, 3.06; 7.5, 1.12, 8.39 and 2.96 (ECA, ADPV, CDMS and C%PV respectively. No significant differences were reported for ECA. ADPV was higher in H110 and H145 compared to H85. CDMS was also higher for H110 and H145 compared to M145 and H85 and C%PV were higher in H110 compared to M145. The best ADPV are observed when the animal spends some time in confinement and after 145 days of confinement this performance decreases, and both CDMS and C%PV followed this trend.

SESION II DE POSTERS

BIOQUIMICA, FISIOLOGIA, PATOLOGIA Y PRODUCCION VEGETAL
(BV)

BIOQUIMICA, FISIOLOGIA, PATOLOGIA Y PRODUCCION VEGETAL (BV)

001 - EVALUATION AND DEVELOPMENT OF *Atriplex lampa* (MOQ) D. DIETR. SEEDS PROCUREMENT AND STERILIZATION TECHNIQUES FOR SUBSEQUENT *IN VITRO* GERMINATION ASSAYS

Arce A[1], Rodriguez M[1], Videla A[1]

[1]Área de Ecología, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis (PROICO 2-3918. UNSL). e-mail: ***pagustinaarcebece@gmail.com***

Atriplex genus in Argentina has numerous shrubby species that exhibit physiological mechanisms that allow them to survive in extreme aridity as far as varied edaphic and salinity conditions. *Atriplex lampa* is a forage shrub native from Argentina arid and semi-arid zones that tolerates saline soils and also is a pioneer in plant succession after strong disturbances. In addition, it has been successfully used in the restoration of mining and oil exploitation liabilities. In this context, this species *in vitro* micropropagation is of interest, as a technique that allows to obtain healthy plants, free of contaminants and with high multiplication levels, which would contribute to acquire plant material as a resource in multiple areas. In this work, different scarification and sterilization treatments were evaluated to develop *A. lampa* seeds *in vitro* germination harvested in Las Salinas del Bebedero (San Luis). Two threshing techniques were tested to obtain seeds without bracts: i) manual threshing using forceps and scalpel, ii) mechanical scarification using non-slip rubber bands. The time taken to obtain 100 bract-free seeds of good quality was recorded. Prior to the germination test, four different sterilization treatments were used for the previously scarified seeds: T1) 50% alcohol; T2) 70% alcohol; T3) 2% sodium hypochlorite; T4) 5% sodium hypochlorite and a control with distilled water. Seeds were placed to germinate in a petri dish inside a culture chamber (25°±2°C). The number of germinated and infected seeds was recorded daily for two weeks; the germination percentage (GP), Germination Rate Index (GRI) and infection percentage (IP) were calculated. The results were compared by ANOVA. Regarding threshing techniques, anti-slip rubbers use was more effective in obtaining 100 seeds of good appearance and quality (30') versus treatment i) (120'). No significant differences were observed between GP and GRI in the sterilization treatments with respect to the control. As for IP, fungal infection was only observed in Control and T1, which value does not reach 1%. These results indicate that sterilization techniques tested in this work could be optional, depending on the availability of resources, and also that greater efficiency is achieved for threshing with anti-slip rubber.

002 - DEVELOPMENT OF SOYBEAN GERMPLASM *(Glycine max (L.) Merrill)* WITH NUTRITIONAL QUALITY FOR HUMAN CONSUMPTION

Bologna S[1], Rojas E[1], Soldini D[2], Gilli J[2], Pertusati L[1], Lucero V[1], Sartori L[1], Crozio E[1]

[1]Universidad Nacional de San Luis (UNSL), Facultad de Ingeniería y Ciencias Agropecuarias (FICA). Villa Mercedes, San Luis, Argentina. ***sbbologna@gmail.com***

[2]Instituto Nacional de Tecnología Agropecuaria (INTA), Marcos Juárez, Córdoba, Argentina. ***soldini.diego@inta.gob.ar***

With the aim of generating variability for traits required for consumption of soy foods, such as non-GMO, high protein content, large grain size, light hilum color, reduced lipoxygenase enzyme activity and antinutritional factors, in 2019 in the Marcos Juárez INTA experimental station a biparental cross was carried out between the parents FICA 1513.2 (non-GMO genotype, triple null for lipoxygenases and for Kunitz trypsin inhibitor) and IA36 (non-GMO genotype, light hilum color, high protein content and large grain size). In the INTA greenhouse in the winter of 2020, the F_1 generation was advanced and the F_2 population was harvested at the end of the year. In Villa Mercedes (San Luis) in the FICA experimental field on November 30th 2021, the F_2 population was sown in bulk with the purpose of selecting individual plants and starting F_3 families. The following variables were registered: Plant height at R8 (PHR8), number of nodes at R8 (NN), number of pods per plant (NPPP), number of seeds per plant (NSPP), hundred seeds weight (HSW) and hilum color (HC). The first field selection was made based on agronomic value, PH and NN, and individual plants were harvested. The second selection was made in the laboratory based on light HC and HSW. In order to characterize the variability generated, descriptive statistics and principal components analysis (PCA) were made. The mean values obtained for the variables were: PHR8: 79 cm., NN: 15, NPPP: 81, NSPP: 161, HSW: 15 g. The NPPP and the NSPP were the variables that showed the greatest variability (SD: 2.6 and 52.8 respectively). Regarding the HC, 74 % of the plants selected displayed light color, 15 % displayed dark color and 11 % were colorless. The existing 73 % variability was explained by means of PCA, showing that the extreme genotypes 262 and 182 were the ones that contributed the most to said variability. The positive correlations between the variables with the greatest relevance were observed between PHR8 and NN, and between NPPP and NSPP, while HSW did not correlate with either NPPP or NSPP. Ten genotypes were identified, which were associated with the variables NPPP and HSW according to the projections about the Principal Component 1. The characterization of the developed germplasm allowed the identification and selection of genotypes that expressed the greatest variability for the traits of interest.

003 - INTA-FICA 5C k/lx: NEW SOYBEAN VARIETY *(Glycine max (L.) Merrill)* WITH DIFFERENTIAL QUALITY

Bologna S[1], Rojas E[1], Soldini D[2], Gilli J[2], Lucero V[1], Carrió A[2], Sartori L[1], Vicentin I[2]
Universidad Nacional de San Luis (UNSL), Facultad de Ingeniría y Ciencias Agropecuarias (FICA). Villa Mercedes, San Luis, Argentina. ***sbbologna@gmail.com***
[2]Instituto Nacional de Tecnología Agropecuaria (INTA), Marcos Juárez, Córdoba, Argentina. ***soldini.diego@inta.gob.ar***

One of the most important derivatives in soybean production is soybean meal destined to animal nutrition, since it is one of the main protein sources in pig and poultry diets. The problem with soybean feed in monogastric animals is that protein availability is affected by the presence of antinutritional factors such as Kunitz (KTI gene), which inhibits trypsin and interferes with protein digestion producing growth inhibition (Armour *et al*., 1998). On the other hand, acceptance and palatability of soybean derivatives are conditioned by the bitter and astringent flavor which results from lipoxygenase enzymes (*Lx1, Lx2, Lx3* genes) which are part of the grain (Siedow, 1991). With the aim of obtaining soybean germplasm of differential quality and which expresses reduced activity of Kunitz antinutritional factor and lipoxygenases, biparental crosses were carried out between the BRM92-6600 progenitor (triple null conventional genotype for lipoxygenases) and the PI 542.044 (L81-4590) progenitor (null conventional genotype for Kunitz trypsin inhibitor) in 2007 at INTA experimental station (Marcos Juárez, Cordoba). Segregating populations were conducted by the Modified Single-Seed Descent Method at FICA-UNSL (V. Mercedes, San Luis). Molecular marker-assisted selection was performed using codominant functional markers for the *Kti* gene and the *Lx1/Lx2* linked genes (Sequin, et al., 2008) and the dominant marker which selects genotypes with at least one copy of *lx3* allele (Sequin, 2009), which allowed identification of null families for Kunitz and lipoxygenases characteristics. A superior genotype with the proposed quality attributes was selected and the registration process was initiated in 2021 at the National Registry of Property of Cultivars under the name INTA-FICA 5C k/lx. It is a non-transgenic conventional variety with the biological characteristics required for pig feeding and the production of special meals. Its differential genetic characteristics are reduced activity of both Kunitz antinutritional factor and lipoxygenase enzymes since it has the *lx1, lx2 and lx3* recessive alleles for the three lipoxygenases and the *kti* recessive allele which prevents accumulation of antinutritional factor in the seed, in addition to expressing an improvement in the content of protein and oil in the grain (41.5% of protein and 23% of oil on a dry basis). Through this new obtained germplasm, value is added to national production and the consumer and agroindustry demands are met. It is the first variety developed by the public sector, which, by leveraging resources and efforts in both the educational and technological spheres, constitutes a contribution to improving the quality of national soybean production.

004- INFLUENCE OF THE METEOROLOGICAL ELEMENTS IN THE PROTEIN CONTENT EXPRESSION IN SOYBEAN IN VILLA MERCEDES (SAN LUIS)

Sartori L[1],Rojas E[1], Bologna S[1], Gilli J[2],Soldini D[2],Lucero V[1],Pertusati L[1], Saber G[1],Perroni F[1]
[1]Universidad Nacional de San Luis (UNSL), Facultad de Ingeniería y Ciencias Agropecuarias (FICA). Villa Mercedes, San Luis, Argentina. ***mlsartori@email.unsl,edu.ar***
[2]Instituto Nacional de Tecnología Agropecuaria (INTA), Marcos Juárez, Córdoba, Argentina. ***gilli.javier@inta.gob.ar***

The soybean *(Glycine max* (L.) Merrill) is the oilseed par excellence. Argentina is the world's third largest producer of this crop and leads the export of flour and oil. The Argentine industry has had difficulties to produce meals that meet the minimum international marketing standards due to the low protein content of soybeans produced in recent years. The potential content of protein and oil are determined genetically, these being quantitative characters strongly affected by the environment, it has been reported the protein content to be four times more dependent on environmental conditions than on the variety. The moment in which the environment has the greatest effect on the determination of protein content (PR) is related to the stage in which the PR accumulates in the grain, this begins in the R3 phenological phase and decreasing after the grain is fully developed (R6). The time of occurrence of these stages can be modified with management practices such as the choice of sowing date, which generates variation in the meteorological environment to which the plants are exposed. The objective of this work was to determine which meteorological elements best explain the protein content of soybean genotypes in Villa Mercedes (San Luis), In the experimental field of the Faculty of Engineering and Agricultural Sciences of the National University of San Luis 160 genotypes corresponding to the National Soybean Genetic Improvement Program of the INTA Marcos Juárez were sowing, in a Hill plot design. The phenological data was registered according to the scale of Fehr &Cavinnes (1977). From the automatic meteorological station of the University, the data that allowed calculating the meteorological variables for the phenological period R3-R6, average minimum temperature (T.MIN), average maximum temperature (T.MAX), average temperature (T.MED), accumulated radiation (RA) and accumulated precipitation (PP), was obtained. The protein and oil content (AC) of the grains was determined in the Laboratory of Industrial Quality and Added Value of Cereals and Oilseeds of INTA-EEA, Marcos Juárez (Córdoba). All statistical analysis being evaluated using Info-Stat software. The principal component analysis (PCA) showed great variability for all variables evaluated. Regression analysis using partial least squares (PLS) showed T.MIN as the meteorological variable with the greatest inertia in relation to protein expression. Through this study, it was possible to gain a better understanding of the soybean protein in relation to meteorological variables of soybeans in Villa Mercedes (San Luis), tending to achieve a higher quality of this species.

005- ACTION OF TEMPERATURE ON THE PROTEIN CONTENT OF SOYBEAN GRAIN IN VILLA MERCEDES (SAN LUIS)

Rojas E[1], Sartori L[1], Bologna S[1], Gilli J[2],Soldini D[2], Lucero V[1], Pertusati L[1], Perroni F[1], Saber G[1]
[1]Universidad Nacional de San Luis (UNSL), Facultad de Ingeniería y Ciencias Agropecuarias (FICA). Villa Mercedes, San Luis, Argentina. ***erojas@email.unsl,edu.ar***
[2]Instituto Nacional de Tecnología Agropecuaria (INTA), Marcos Juárez, Córdoba, Argentina. gilli.javier@inta.gob.ar

Increasing the protein content is one of the main objectives of genetic soybean improvement (Glycine max (L). Merril).Argentina is the world's third largest producer of this crop and leads the export of flour and oil. The potential content of protein and oil are determined genetically, these being quantitative characters strongly affected by the environment. The moment in which the environment has the greatest effect on the determination of protein content (PR) is related to the stage in which the PR accumulates in the grain, this begins to happen rapidly between 12 and 28 days after flowering (R3 and R6 respectively), and then decline. The moment of occurrence of these stages can be modified with management practices such as the choice of sowing date, which generates variation in the meteorological environment to which the genotypes are exposed. The main meteorological element that influence the determination of the protein is temperature, with a positive correlation between PR and cool environments. The objective of this work was to determine threshold values of temperature that allow improving the current production scheme, tending to increase the nutritional quality of said species. In the experimental field of the FICA-UNSL (National University of San Luis) 160 genotypes were sowing, in a Hill plot design. The phenological data was registered according to the scale of Fehr &Cavinnes (1977). From the automatic meteorological station of the FICA, the data that allowed calculating the meteorological variable for the phenological period R3-R6, average minimum temperature (T.MIN) was obtained. The protein of the grains was determined in INTA Marcos Juárez (Córdoba). Using classification trees, minimum temperature threshold (UT.MIN) was established from which all the genotypes were classified. Of these genotypes, 41 had their R3-R6 period with temperatures equal to or less than 13.8 °C, being considered low protein genotypes (PRB ≤ 38%) and 116, whose temperatures were higher than said threshold, were grouped as high protein genotypes (PRA > 38%). The cluster analysis allowed to separate four groups of genotypes, one of them being integrated by the two genotypes with the highest genetic potential for the character under study and whose T.MIN during R3-R6 was higher than the UT.MIN threshold. The genotypes that during their R3-R6 presented the lowest T.MIN of the trial, were not of high potential for PR and had the lowest mean content of said variable. This study, allowed to gain a better understanding of the changes in soybean protein levels in relation to meteorological variables and to establish what would be the optimal environmental conditions that would maximize the protein concentration of soybeans in Villa Mercedes (San Luis), tending to achieve a higher quality of this species as food.

006- LONG RANGE SYSTEMATIC OF THYMOL IN IMPERIAL SEEDLESS

Rosa MB1, Acosta RJ1, Reverendo AG1, López L2, Dambolena JS3, Ravetti S4,5, Kassuha D1,6.
1.Instituto de Ciencias Básicas (ICB), Universidad Nacional de San Juan; 2. Estación Experimental Agropecuaria INTA San Juan (EEA INTA San Juan); 3. Instituto Multidisciplinario de Biología Vegetal (IMBIV). Universidad Nacional de Córdoba; 4. Centro de Investigaciones y Transferencia Villa María (CIT VM); 5. Instituto Académico Pedagógico de Ciencias Humanas, Universidad Nacional de Villa María; 6. Instituto de Investigaciones en Ciencias Químicas. UCCuyo. E-mail: ***melisa_rosa88@hotmail.com***

Grapevine production is one of the traditional factors in the economy development of San Juan province, so all types of pathologies that alter the grape yield and quality have fundamental implications in the economic development of the region. Internationally, the generic name "Grapevine Decay" or "Grapevine Wood Diseases" has been adopted to include those pathologies produced by ligninolytic fungi such as Eutypiosis, Esca, Petri's Disease, BAD (Black Arm Death). Previous experiments in our laboratory demonstrated the significant in vitro antifungal effect of the monoterpene thymol against the following phytopathogenic fungi isolated and identified from Imperial seedless (Vitisvinifera L) on the San Juan Province: Eutypella microtheca, Arambarria destruens, Lasiodiplodia theobromae and Lasiodiplodia crassispora. So, the objective of the present study was to determine the thymol systematic in Imperial seedless. In total, 18 grapevine plants were used in this study: 6 grapevine plants were treated by irrigation with a 0.1% m/v Thymol solution, 6 plants were treated with a 0.5% m/v Thymol solution, and finally another 6 plants were not treated with Thymol (control group). All plants were covered in the mid zone to avoid contact with thymol. The plants were only exposed to thymol once (except the control plants) a day. Herb material extract were prepared from plants middle parts after 3 days of treatment. The material was fractionated into 0.5 cm2 small pieces and placed in containers with 50 mL of dichloromethane during 48 hours. Each sample was filtered and concentrated under reduced pressure at the rotary evaporator. They were analyzed by gas chromatography (GC) coupled to mass spectrometry (MS). In total, 0.0032 and 0.0056 µmol per gram of plant were obtained from plants treated with thymol at a 0.1 % and 0.5 % concentrations, respectively. The thymol recorded uptake in treated plants, together with its antifungal effects in in vitro experiments, demonstrated the potential of thymol as an antifungal agent in diseased grapevine plants.

007- SEED HEAT-PRIMING INDUCES CHANGES IN ANTIOXIDANT SYSTEM IN MAIZE SEEDLINGS

Eggel ML[1,2], *Pérez Chaca MV*[2], *Pena LB*[1,3]
[1]*CONICET. Instituto de Química y Fisicoquímica Biológica (IQUIFIB).* [2]*Universidad Nacional de San Luis. Fac. Química, Bioquímica y Farmacia.* [3]*Universidad de Buenos Aires. Fac. Farmacia y Bioquímica. Dpto. Química Biológica. E-mail: luz.eggel@gmail.com*

In addition to soil moisture, an abiotic factor that influences seed germination is temperature. Different priming techniques: osmo, hydro, chemical, hormonal and nutrient techniques have been used to improve seed germination and crop yield. The increased levels of carbon dioxide (CO_2) trigger a rise in temperatures and an increase of drought episodes, causing climate change. Seeds between harvest and sowing may experience temperature increases for short periods during storage. Our objective was to evaluate the redox state during post-germinative seedling development after heat-priming of maize seeds. Maize seeds (*Zea mays* L.) variety NS 7818 VIP3 from Nidera were subjected to pretreatment with 40 or 50 °C for 3 and 7 d. Seeds with and without heat-priming were superficially disinfected, and germinated on cotton and paper towels saturated with distilled water at 28 °C for 96 h. The determinations were made using the apical 2 cm of the roots. Ascorbate peroxidase (APX) and catalase (CAT) activities were determined as ascorbic and H_2O_2 consumed respectively. Lipid peroxidation was quantified by measuring the thiobarbituric acid reactive substances (TBARS). Root growth was induced by heat-priming at 40 °C in maize seedlings. Pretreatments disrupted cellular redox balance, modifying antioxidant enzyme activities. All pretreatments induced at least 2 fold the APX activity significantly (P<0.01), however, only heat-priming at 40 °C with both times induced more than 4 fold the CAT activity (P<0.01). On the other hand, pretreatment at 50 °C, regardless of time, showed an increase in 200% of TBARS (P<0.001). According to these results, we propose that seeds primed at 40 °C have induced antioxidant defense systems that would limit oxidative damage to lipids in maize seedlings.

008- STUDY OF THE ALLERGENIC POTENTIAL IN GREENS SPACES AROUND THE NATIONAL UNIVERSITY OF SAN LUIS

Polak N, Isaguirre AC*, Moglia MM
Facultad de Química, Bioquímica y Farmacia- Universidad Nacional de San Luis, Argentina
*e-mail: ac21isaguirre@gmail.com

Urban trees are a vital element in the afforestation of cities, because they interact with citizens, providing them with well-being and indirectly increasing their quality of life. However, many of the afforestation plans do not take tree species into account, which causes the existence of a series of problems, among which are pollinosis. In this work, a novel index was used that contemplates biological and biometric parameters intrinsic to the tree species of the National University of San Luis. To carry out this work, a census of the tree species found inside and outside the University was carried out, their volume was calculated and, in addition, the value of the allergenic potential of each species was taken into account. Thus, with the data obtained, the calculation of the index of potential allergenicity of urban green spaces (IUGZA) was carried out. Said index provides a standardized value between 0 and 1, establishing at 0.3 the threshold from which the flora of the green space can cause discomfort in the allergic population. For this study, four census zones were established, inside and outside the National University of San Luis (A, B, C and D). Data on the pollination period were obtained from aerobiological studies carried out in the city using Lanzoni spore trap. In this sense, the following values were obtained: 0.12 (zone A), 0.031 (zone B), 0.106 (zone C) and 0.085 (zone D), in a total area of approximately 2 hectares. The results have shown that the areas studied do not exceed the threshold established as sufficient to cause allergy symptoms in the population. However, it can be seen that in zones A and C, which include the rear entrance of the rectory building and the Botanical Garden of the National University of San Luis, the IUGZA is close to the established threshold. Among the species cultivated in this area are several specimens of Cupressaceae, Fagaceae and Oleaceae, with high allergenic potential (HPV). It is concluded that although IUGZA does not reach the critical thresholds in any of the zones, people sensitive to the pollens of these families should avoid go to through zones A and C, from the end of winter to the end of spring. Carrying out this type of study in other green areas of Argentina is important to reduce pollinosis problems in the population.

009- ORGANOLEPTIC CONDITIONS, PH AND MS IN SORGHUM MICROSILOS

Salguero EA, Vetore OS, Casagrande DR, Privitello MJL,Bacha EF
Departamento de Cs. Agropecuarias Facultad de Ingeniería y Ciencias Agropecuarias.Universidad Nacional de San Luis,
e-mail: ***drcasagrande@gmail.com***

The forage reserve in the livestock production activity is of fundamental importance, even more so in areas with adverse or highly variable climate, as it is the case of the Province of San Luis, Argentina, which has a semi-arid climate. The lactic fermentation process that characterizes the stabilization of wet forage silage results in organoleptic characteristics (odor, texture and color) that can be quantified using a certain scale, as well as the values of pH, °Brix and DM. In a crop of forage sorghum that was planted ina parcelat the FICA-UNSL experimental field, three growth stages could be distinguished: GS1: Three-leaf stage, GS2: anthesis, GS3: pasty-hard grain. Once the phenological stage was reached for the first cut (GS2: anthesis) and the successive ones until (GS3: pasty-hard grain), plants were cut in four randomly distributed plots. The cuts corresponded to the following dates: 4/6/2022, 5/12/2022 and 5/26/2022. The whole plant harvested material was taken to the INTA's Estación Experimental Agropecuaria of Villa Mercedes to chop the forage with a Mainero model 4771 precision chopping machine. To reproduce the silage process, microsilos were made using PVC cylinders with a diameter of 110mm and a length of 45cm, the chopped material was placed in the tubes and uniformly compacted with a pressure equivalent to 500 kg/m^3 using a pounder, avoiding the release of liquids caused by breaking plant tissue. Four microsilos were made for each cut-off date. It was proposed to evaluate the changes in the organoleptic characteristics, pH (3:1 solution with a Altronix TPX-I digital pHmeter), dry matter (DM) up to constant weight at a temperature of 60°C and °Brix by manual refractometer (0- 32 °Brix), at the Forage Processing Laboratory of FICA-UNSL. All variables were analyzed with ANOVA. Regarding the %DM variable, there were significant differences between the date of April and the date of May. For the variable pH, there were significant differences between the first cut-off date and the last one. The °Brix variable does not present a significant difference for any of the cut-off dates. Quantitatively, higher °Brix are denoted in the ensiled material compared to the non-ensiled chopped material, as a result of the fermentation process. Instead, the pH was somewhat higher in the latter and similar to that of other forage species. Also, the humidity was somewhat higher in this case. The ensiled material generally presented good quality, although the %DM levels were low for the evaluated cut-off dates. The pH level is the recommended for any moment of cut. Regarding organoleptic characteristics, the odor and color variables do not present significant differences for any cut-off date. The texture variable presents significant differences between the date 5/12/2022 and the dates 4/6/2022 – 5/26/2022. The organoleptic characteristics, aroma, color and texture, were adequate for a good silage, although the texture was somewhat loose and the color was brownish.

010- CUMULATIVE GROWTH AND NUMBER OF PLANTS IN PANICUM COLORATUM AFTER A PROGRAMMED BURN

Casagrande DR, Vetore OS, Privitello MJL
Departamento de Cs Agropecuarias, Facultad de Ingeniería y Cs Agropecuarias, Universidad Nacional de San Luis.
e-mail: drcasagrande@gmail.com

Panicum coloratum is a species that grows with moderate rainfall of 700 to 1250mm per year; it is defined as a resource resistant to drought (it thrives with a minimum of 400 to 500mm in summer). This characteristic is particularly marked in the cv Verde that withstands frosts in this area until -18°C. This crop can be preserved by making rolls in the spring or rolls from the harvester tail in March after the seed is harvested. It has high palatability but it declines with maturity. Seed production is high but matures unevenly and falls off as soon as it reaches maturity. In this area, fires occur by chance in the material accumulated annually, generating qualitative and quantitative losses in the production of forage species. It was proposed to determine the accumulated production of this species after a situation of high stress generated by burning as a result of fires. At the experimental field of the FICA UNSL in the city of Villa Mercedes, transects were carried out with ten samplings each, removing the accumulated material. The accumulated production in kilograms of dry matter per hectare and the number of plants per square meter was evaluated on a *Panicum coloratum* crop without nitrogenous fertilization, affected by a programmed burn on August 18, 2021, carried out by the Association of Volunteer Fire Department "El Fortin". The superficial temperature evaluations were carried out with a FLIR thermal imaging camera model K2 and observed a primary detection of ranges from 140°C to 395°C and punctual measurements of more than 500°C, varying by the amount of combustible material and wind gusts (wind of 2km/h and gusts of 10km/h). The observed flames ranged from 10cm to 140cm in height. Seconds after the fire passed through, the temperature variations observed ranges between 95°C and 60°C. In a sequence of 6 superficial thermal records from the burn line to up to 40 meters further back (taken at regular intervals from where it burned), temperatures of 160°, 60°, 69°, 53°, 54° and 40°C were recorded. It was proposed to evaluate the productive response of the pasture after the programmed burn and because of it (after the growing season from August 18, 2021 to March 18, 2022), 10 samples were taken within the lot and were measured live weight, dry weight, percentage of dry matter, kilograms of dry matter per hectare and number of plants per square meter. A drying oven was used for 48 hours until constant weight at 60°C. At the time of harvest, an average percentage of dry matter of 50.3% was recorded, with an average accumulated growth per ha of 4413.5kg/ha and an average of 9.4 plants per m2. Regarding what was revealed during the burning process, which occurred with wind gusts of 10 km/h or more, it can be deduced that the ground did not increase its temperature after exposure to the fire. This is due to the burning characteristics, which suddenly gives off a large number of calories and it is quickly dissipated by the environment.

011 - GERMINATION *IN VITRO* OF *Atriplex lampa* (MOQ) D. DIETR. SEEDS UNDER DIFFERENT SALINITY CONDITIONS

Arce A [1], Díaz Gabutti MS [2], Leporati, J [3], Sosa L[1]

[1]Área de Ecología, Facultad de Química, Bioquímica y Farmacia (FQByF), Universidad Nacional de San Luis (UNSL) (PROICO 2-3918. UNSL).[2]Instituto de Investigación en Tecnología Química (INTEQUI-CONICET), FQByF, UNSL. [3]Facultad de Ingeniería y Ciencias Agropecuarias (FICA), UNSL. e-mail: ***pagustinaarcebece@gmail.com***

Atriplex lampa is a forage shrub native from Argentina arid and semi-arid zones that exhibits physiological mechanisms that allow it to survive in extreme aridity and high salinity conditions, allowing its successful use in restoration tasks of mining and oil exploitation liabilities. In this context, *in vitro* micropropagation is of interest. The objective of the present work was to evaluate *A. lampa* seeds *in vitro* germination previously disinfected against different salt concentrations. The seeds were harvested in Las Salinas del Bebedero (San Luis). Prior to sterilization, threshing and mechanical scarification were performed to obtain the seeds without bracts. The sterilization protocols evaluated were: Protocol 1 (P1): immersion of the seeds in 70% ethanol, 4 minutes in 10% sodium hypochlorite (NaClO) + rinsing with distilled water. Protocol 2 (P2): seed immersion in 70% ethanol, 4 minutes in 10% NaClO + 10 minutes in 5% NaClO + rinse with distilled water. Sowing was performed under laminar flow in glass jars with 50% Murashige-Skoog medium, with N=40 per protocol. Germination was carried out during 30 days in a culture chamber (25°±2°C) with a photoperiod of 16 h light, 8 h dark, with a weekly record. The germination percentage (PG) and infection percentage (PI) were calculated. The results were compared using Pearson's Chi-square, since the data were dichotomous. P1 presented higher germination with respect to P2 ($p<0.05$). There were no significant differences in contamination between the two protocols, therefore P1 was selected for the *in vitro* germination tests. Consequently, we worked with 6 treatments plus a control of NaCl osmotic potentials: -0.4; -0.8; -1.2; -1.5; -1.9 and 2.2 MPa, in 50% Murashige-Skoog medium, with an N=25 per treatment, taking 16/8 and 25°±2°C culture chamber. Germination was recorded weekly over 8 weeks. Germination data were compared by Pearson's Chi-Square. With a $p<0.05$ it was inferred that germination is dependent on the treatment applied, being higher at lower osmotic potentials (control and -0.4 MPa) and no germination at higher potentials (-1.5; -1.9 and 2.2 MPa). These results would indicate that *A. lampa* seeds *in vitro* germination is more effective at osmotic potentials of NaCl no higher than -0.4 MPa. This work will eventually contribute to the *in vitro* establishment of the species under different salinity conditions.

012- SALINITY EFFECTS ON *Atriplex lampa* (Moq.) D. Dietr. GERMINATION WITH SODIUM SALTS IN SAN LUIS PROVINCE – ARGENTINA.

Arce AL[1], Videla AM[2], Sosa LR[1].

[1] Laboratorio de Fisiología Vegetal. Área de Ecología. Departamento de Biología. Facultad de Química, Bioquímica, y Farmacia. Universidad Nacional de San Luis (UNSL). San Luis, Argentina. [2] Área de Biología. Departamento de Biología. Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis (UNSL). San Luis, Argentina. E-mail: Arce.laurita@gmail.com.

Germination response of the halophyte species *Atriplex lampa* (Moq.) D. Dietr was analyzed using Na^+ salts. This study is important because the genus is widely used for the rehabilitation of degraded lands, forage, and fuel production in arid areas, and also since it is a native species of San Luis province. In order to carry out this work, seeds were collected in the surroundings of El Bebedero stream, next to national route 146 (33° 43' Lat. S; 66°37' Long W). The assay consisted of exposing seeds to different sodium monosaline (NaCl, Na_2SO_4) and sodium bisaline (NaCl + Na_2SO_4), isosmotic solutions at osmotic potentials of 0.0 (control); -0.4; -0.8; -1.2; -1.5; 1.9 and 2.2 MPa and evaluating their effect on the germination percentage. Anionic effects were also evaluated. As results it was observed that in the -0.4 MPa potential, both in monosaline solutions of NaCl and Na_2SO_4, achieved the highest germination percentage reached being 47% and 20%, respectively, as well as in bisaline solutions of sodium, a germination percentage of 47% was reached. Germination from -0.8 MPa did not exceed 15% with NaCl and 9% with Na_2SO_4, contrary to bisaline which registered 50% more germination at the same potential (33%). It was determined that in *A. lampa* the germination percentages were significantly affected by solution concentration, salt type, and the interaction between both factors. Obtained data suggest that *A. lampa* seeds are more sensitive to isosmotic monosaline solutions and SO_4^{2-} ions during the germination stage than bisaline solutions, where this toxicity is reversed.

013 - EVALUATION OF THE BIOLOGICAL NITROGEN FIXATION OF *Adesmia bicolor* CONSOCIATED WITH *Festuca arundinacea*

*Menichelli D, Novaira A, Malpassi R, Grassi E, Aguirre L, Castillo E, di Santo H, Gorjon J, Ganum MJ, Vega J, Basconsuelo S, Grossi F, Bianco L.**

*Facultad de Agronomía y Veterinaria, Univ. Nac. de Río Cuarto, Córdoba. INIAB UNRC-CONICET (Instituto de Investigaciones Agrobiotecnológicas), Ruta 36 Km 601, (5800) Río Cuarto, Córdoba, Argentina. *e-mail:* ***lbianco@ayv.unrc.edu.ar***

In general, the introduction of legumes into grasslands leads to higher nitrogen (N) accumulation in the soil and higher productivity. Therefore, by growing associated with other species, legumes are able to increase the total nutritional value of non-fixing species and, in addition, increase their dry matter production. The objective is to evaluate the biological fixation of N of *Adesmia bicolor* (Fam. Leguminosae) growing consociated with *Festucaarundinacea* (Fam. Gramineae) in field conditions throughout its life cycle. The consociation trial was carried out in the Field of Teaching and Experimentation of the Faculty of Agronomy and Veterinary of the UNRC. Four treatments resulting from the combination of different ratios of legume vs. grass were evaluated: A1:F0 (Control I: *A. bicolor*, pure culture), A1:F1 (*A. bicolor* and *F. arundinacea* in similar proportions), A3:F1 (*A. bicolor* and *F. arundinacea* in proportions 3 to 1) and A0:F1 (Control II: *F. arundinacea*, pure culture). During the vegetative, flowering and fruiting stages, three known surface areas (0.25 m^2) were selected for treatment, in which total dry biomass production, number of nodules in *A. bicolor* and N content were determined through the Kjeldahl method, in both species. In the specie*A. bicolor*, higher total dry biomass production was observed in the pure crop (A1:F0) with respect to those consociated in all growth phases. In the specie*F. arundinacea*, a higher production of total dry biomass was observed in the pure crop (A0:F1) in the vegetative and fruiting stage, while in the flowering stage it was higher in the treatments consociated, although the differences were not statistically significant. In *A. bicolor* the highest nodule production was, in all treatments, in the vegetative stage and decreased throughout the growth phases. The N content in the two species was higher in the aerial part compared to the underground. The highest values in the N content were presented in the A3:F1 treatment. It is concluded that *A. bicolor* is effective to fix N in both pure and consociated cultivation, mainly in its first stages of life. Taking into account the total dry biomass values of *F. arundinacea* and the N content in both species, promising results were observed in the treatments consociated A1:F1 and A3:F1, for which it is suggested to continue with studies that allow to understand the behavior of this leguminous association - grass.

014- EVALUATION AND COMPARISON OF VEGETATIVE CHARACTERISTICS IN POPULATIONS OF *Adesmia bicolor* (LEGUMINOSAE) OF THE CENTRAL REGION OF ARGENTINA

Gorjon J[1], Novaira A[2], Malpassi R[1, 5], Grassi E[3, 5], Aguirre L[3, 5], Castillo E[3, 5], Bianco L[1, 5], di Santo H[3, 5], Grossi F[3], Ganum M[4, 5], Basconsuelo S[1]

[1]Morfología Vegetal. [2]Química. [3]Genética. [4]Sistema Suelo-Planta. Facultad de Agronomía y Veterinaria. Universidad Nacional de Río Cuarto. Ruta 36 km 601. Río Cuarto. Córdoba. [5]Instituto de Investigaciones Agrobiotecnológicas (INIAB). CONICET-Universidad Nacional de Río Cuarto. Ruta 36 km 601. Río Cuarto. Córdoba. E-mail: ***jgorjon@ayv.unrc.edu.ar***

In the central arid-semi-arid region of Argentina, faced with the shortage of winter pastures, the behavior of native autumn-winter growing legumes with forage potential is studied. Among them is *Adesmia bicolor*: herbaceous, perennial, stoloniferous, with indefinite growth, preferably winter. The objective was to evaluate and compare eight populations of *A. bicolor* from Córdoba (Populations 1 and 2), San Luis (Populations 3, 4, 5, 8 and 9) and Entre Ríos (Population 11) through morphometric vegetative characters. The trial was conducted at the National University of Río Cuarto (Córdoba). The design of the experiment was completely randomized with 4 samples matching the seasons. The number of stolons m^{-2}, length of internodes (cm), length and width of leaflets (cm) were evaluated. The data obtained were analyzed by ANOVA and Fisher's LSD test. Populations 11 and 5 stand out for the highest records of quantified variables throughout the crop cycle, reaching average values in winter (most critical season in forage availability) of 1740 m^{-2} runners (population 5), internode length 1,92 cm (Population 11), length and width of leaflets 0.53 and 0.26 cm, respectively (Population 11). In this way, both populations would be the most promising due to a greater dispersion capacity in the field providing greater perpetuity in time (Population 5) and greater production of aerial biomass (Population 11). On the other hand, it is observed that the differences are not associated with the collection environment, but with the ability to adapt to the new environment presented by each of the populations. The results enhance the interest in continuing the study of these populations, integrating reproductive characteristics, carbohydrate mobilization and total nitrogen.

015- PHYSICOCHEMICAL PROPERTIES OF GUM EXTRACTED FROM THE FRUIT OF *Lithraea molleoides*

Becerra F (1, 2), Garro M F (1) ,Filippa Mauricio (1) ,Masuelli M (2)
[1]FQByF-National University of San Luis, San Luis, Argentina.
(2) INFAP-CONICET and FQByF-UNSL, San Luis,**Argentina**
e-mail mfgarro@gamil.com

Lithraea molleoides (Vell.) Engl. (Anacardiaceae), popularly called "molle", "drinking molle", "white molle", "sweet molle", "chichita". This plant is traditionally used in infusions as digestive and diuretic. This species develops in the phytogeographic region of the southern Chaco and specifically our study focuses on the province of San Luis. In preliminary studies we have observed that *the Lithraea molleoides* fruit shows diuretic and gastroprotective activity and is used as a natural sweetener in mate intake. Was collected in San Francisco del Monte de Oro, province of San Luis, on the banks of Route 2 (32 ° 36'00 "S 66 ° 07'30" W / -32.6, 63 66.125), Voucher number, UNSL # 533.The objective of this study is to obtain polysaccharides that have applications as thickeners, biodegradable film formers, gelling agents, that facilitate which allow a absorption of the products groceries The plant material for analysis was dried at room temperature, protected from light until reaching hygroscopic humidity and then it was ground to fine powder in a knife mill. In this study we carry out the thermal extraction of polysaccharides at 80°C and then precipitate them with ethanol in a 70/30 ratio. This is dried at 60°C and finally ground. The rubber obtained exhibits absorbance at 276 nm, surface tension of 60 dyn/cm, 1.5° Brix for a solution of 0.04% by weight, whose optical activity is clockwise at 34.45°. The intrinsic viscosity is 22.83 ml/g using the Huggins method. Although these are preliminary data, this novel gum extracted from *Lithraea molleoides* has great potential in food science and possible applications in the food industry.

016- FIELD EVALUATION OF *Bacillus velezensis* EM-A8, POTENTIAL BIOCONTROLLER OF MAIZE FOLIAR PATHOGEN *Exserohilum turcicum*

Grossi Vanacore M F[1], Sartori M[1], Barros G[1], Giordanino F[1], Nesci A[1], García D[1].
Laboratorio de Ecología Microbiana. Depto. De Microbiología e Inmunología. Facultad de Ciencias Exactas Físico Químicas y Naturales. Universidad Nacional de Río Cuarto. Córdoba. Argentina.
E-mail: ***mgrossi@exa.unrc.edu.ar***

Maize is one of the most important cereals worldwide. Northern corn leaf blight, caused by the pathogen *Exserohilum turcicum*, is among the diseases that threaten maize yield. In order to find a biological alternative to traditional chemical management of the disease, two formulations with the antagonist *Bacillus velezensis* EM-A8 were developed. Previously, the antagonist ability of the bacteria was determined *in vitro* and maize's physiological response to the bacteria and the pathogen was evaluated in greenhouse conditions. To assess disease control ability under natural conditions, a trial was performed in the south of Córdoba province, Argentina. Biocontrol bacteria was applied in both nutritive broth (B) and enriched nutritive broth (EB) in late sowing maize at V_8 phenological stage, in natural incidence of the disease. Every ten days salicylic acid foliar concentration, proline foliar concentration, disease severity, and number of affected leaves were quantified, and yield and its components- number of rows per ear, number of kernels per row, and weight of thousand kernels (g)- were measured after physiological maturity. Visual estimation of severity and number of affected leaves resulted in high values in all of the treatments, although the biocontroller aided in maintaining lower values than the control. Proline (15.57±3.96 $\mu Mol.g^{-1}$ FW) and salicylic acid (32.04±10.47 $nMol.g^{-1}$ FW) levels did not differ among treatments. However, yields were significantly superior in plots treated with EB (8711.88±1790.29 $kg.ha^{-1}$) and B (8450.12±2579.32 $kg.ha^{-1}$) compared to the control (7463.67±1812.76 $kg.ha^{-1}$). The number of kernels per row was also higher in EB-treated maize (29.28±4.64). Although b did not differ from the control in this trait (27.78±4.89 and 27.52±5.48, respectively), kernel weight was higher in B (216±9.61 g) and EB (214.89±23.17 g) treated plots compared to the control (194.67±5.66 g). Further studies are necessary to determine the mechanisms by which *B. velezensis* EM-A8 enhances maize yield and clarify if this occurs due to its antagonistic activity or rather to its influence on the plant's tolerance.

017- BEHAVIOR OF THE FRUIT FLY PEST IN THE OASIS "C" OF THE PROVINCE OF SAN LUIS

Martinez Espeche, Mario E.[1], Lucero, Rolando A[1], Perez, B.[2], Monti Facundo[1]
1Facultad de Ingeniería y Ciencias Agropecuarias, Universidad Nacional de San Luis. Ruta Provincial N° 55 S/N extremo Norte, Villa Mercedes, San Luis. 2 Asesor Externo.
mmartinezespeche@gmail.com

The pests *Ceratitis capitata* and *Anastrepha fraterculus*, generate the greatest impact on fruit and vegetable production in the world. In the province of San Luis, the fruit sector must have knowledge of climatic factors, incidence of diseases and pests that affect the yield and quality of the fruit. Provincial Law Nº. IX-0629-2008 promotes the plan to combat the eradication of the fruit fly. The oasis "C", includes the city of Villa Mercedes and surrounding areas. The objective of the work is to analyze the dynamics of the pest, regarding the phenology of fruit trees where it can cause damage. Data were taken from traps carried out from July to February in the 2020-2021 campaign, calculating the Fly/Trap/Day Index (MTD); the experimental fruit forest of the UNSL was used to record phenology. Climate data were extracted from network of weather stations (REM). The fly population, during 21 weeks of trapping, takes values from 0.14 to 0.27 MTD; the temperature reaches values of 12.5º C, (+-5.3ºC). From week 22 to 31, there is a greater presence of flies, obtaining MTD values between 2 to 6; the temperature in that period is 22.7°C, (+-1.95°C). For the indicated stage of greater fly population, the peach, is susceptible to the attack of the fruits, because it is in the phenological states "H - I", fruit set and small fruit respectively aggravating when the conditions of temperature and humidity are optimal for the development of the pest (24-27ºC). It was determined that the stage in which the population of fruit flies increases, are coincident with the critical phenological phases of the host, stimulated by the conditions of temperature and humidity. The management of the pest in early phenological phases of the crop would contribute to the curve of greater population of flies, moving to phases of harvest maturity, reducing control treatments and damage levels.

018- BEHAVIOR OF THREE VARIETIES OF ALMOND TREE IN THE QUINES – CANDELARIA REGION OF THE PROVINCE OF SAN LUIS – ARGENTINA.

Lucero, Rolando A[1], Martinez Espeche, Mario E.[1], Monti Facundo[1]
1Facultad de Ingeniería y Ciencias Agropecuarias, Universidad Nacional de San Luis. Ruta Provincial N° 55 S/N extremo Norte, Villa Mercedes, San Luis.
rolandolucero1962@gmail.com

The development of nut plantations in the province must be based on the selection of varieties that can produce commercial quality fruits and that respond to the organoleptic requirements of current markets and consumers. In the context of the soil and climate characteristics of the eco-regions that exist in the Province of San Luis, the quines-Candelaria area, according to the fruit map of the province, presents edaphoclimatic conditions and the possibility of irrigation for the commercial plantation of Almond tree (*Prunus dulcis* Mill.) based on the requirements of this species. In field surveys of establishments in the area, 115 hectares of almond trees are currently implanted, which correspond to the varieties, Felisia, Guara and Penta, all with characteristics of late flowering and self-compatible pollen. For the characterization, the average flowering dates for each variety in each establishment and the occurrence of climatic events considered critical harmful to the development of the fruit were determined. From the analysis of the climatic data and flowering dates of the last 10 years (2012-2022), the minimum temperatures of damage recorded, developed between the end of May to mid-August, reaching -5.2°C, and 50% of the flowering, develops in the Penta variety around September 20, while in Guara it develops in mid-October and for the Felisia variety 50% of the flowering is concentrates around November 10. As a result, there are good possibilities for the development of these three varieties in the Quines-Candelaria region, capable of providing the market with quality fruits, the management of each forest and variety in particular must continue to be analyzed in order to evaluate the yields, as well as new varieties with similar characteristics.

019- EVALUATION OF THE TOXIC EFFECT OF Zn/Cd ON THE ANTIOXIDANT RESPONSE IN GLYCINE MAX AND PROBABLE COMPETITION WITH Ca/Mg TRANSPORTERS

Gatica Aguilar CV[1-3], Gallardo LV[1], Ciminari ME[1], Casin N[2], Pacheco P[2], Pena LB[3-4], Gil RA[2], Pérez Chaca MV[1]
[1] Universidad Nacional de San Luis, Facultad de Química, Bioquímica y Farmacia – Proyecto 2-4318, San Luis, San Luis, Argentina, CPA-5700.[2] Instituto de Química de San Luis Dr. Roberto Olsina, Laboratorio de Espectrometría de Masas, San Luis, San Luis, Argentina, CPA-5700.[3]CONICET. Instituto de Química y Fisicoquímica Biológica (IQUIFIB) 4- Universidad de Buenos Aires.
Mail: caamigatica@gmail.com

Heavy metals pollution has produced big soil problems all around the world. Cadmium (Cd) is a heavy metal without biological functions and also causes harmful effects at cellular and molecular levels. Zinc is an essential microelement for plants, but in excessive concentrations it causes alterations in physiological, biochemical and molecular processes. There are soil ions that interact with Zn and possible pollutant Cd, such as Calcium (Ca) and Magnesium (Mg). Metals compete to get inside, transporting and utilization in the plant; because they have similar chemicals characteristics and also plants absorbed them using the same transporters (IRT1-ZIP). The objective was to determine the competition between Ca and Mg transporters with Cd and Zn, in Glycine max leaves, and its effect on antioxidant and prooxidant parameters. Leaves were obtained after 10 days of plant development under hydroponics in Hoagland's nutrient solution conditions and subjected to contamination with two ions (Zn and Cd) during 6 days. The $ZnCl_2$ concentrations used in the study were: 0, 0.6 and 4.8 mM and 40µM of $CdCl_2$, as a constant concentration. The measured parameters were photosynthetic pigments (Chlor) and carotenes (Car) and Ca and Mg endogen content. CAT and APX antioxidant enzymes, MDA and H_2O_2 content were measured as oxidative response. Results showed a significant decrease in Car and Chlor in Zn (4.8 mM)/ Cd ($p < 0.01$) treatments, and a Chlor increase in Zn (0mM), Zn(0.6mM) and Zn (4.8 mM) with Cd ($p<0.01$). CAT activity decreased significantly in all treatments with respect to the control ($p < 0.05$, 0.01 and 0.001). APX activity increased in Zn (4,8 mM) treatments with Cd and without Cd ($p < 0.001$). MDA content rises significantly in Cd treatments both Zn (0.6 and 4,8 mM without Cd ($p<0.001$). H_2O_2 content increased significantly in Zn (4.8 mM) whit and without Cd treatments ($p<0.001$). The endogenous content of ions in the leaves showed that while Zn++ concentration increases, Cd++ absorption decreases significantly ($p<0.001$) and vice versa ($p<0.001$) in Cd presence. Ca^{++} y Mg^{++} diminished significantly with respect to control ($p< 0,01$) in all treatments, except for Mg^{++} in Zn (4.8 mM) without Cd treatment. According to these results we can conclude that Cd/Zn duet modifies essential ion (Mg and Ca) contents, probably due to transporters competition to enter the plant. The antioxidant activity as a prooxidant observed against high concentrations of Zn could be attributed to the plant response against toxicity originated by Zn /Cd.

020- ISOLATES OF *Fusarium spp*. OF CORN GRAINS PRESENT IN PRODUCING AREAS OF THE PROVINCE OF SAN LUIS

Bravo MB[1], Guillin E[1], Calvente V[2] y Salinas E[2]
[1]INTA San Luis.[2]Facultad de Química, Bioquímica y Farmacia. UNSL
e-mail: **salinaseloy@gmail.com**

In Argentina, the cultivation of corn (Zea mays) is one of the most important. It provides food to humans, animals and serves as raw material in the industry. Pathogens cause yield loss and feed toxicity through the production of mycotoxins. Aren´t information regarding the prevalence of mycotoxicogenic species in San Luis, so sampling was carried out in 4 corn-producing areas, with two plots for site (Tilisarao, Comandante Granville, Buena Esperanza and Candelaria). Healthy spikes and those with disease symptoms were collected. To obtain fungal colonies, different seeding techniques and culture media were tested. Healthy and diseased grains were sown on two media; Nash Snyder: (PO4H2K, SO4 Mg 7H2O, peptone, agar, distilled water, PCNB (Terraclor 75%), streptomycin sulfate, neomycin sulfate) and Potato Glucosated Agar (PGA, Britania). Grain disinfection was: washed in 70% alcohol, 2% sodium hypochlorite and distilled water. 5 grains for each Petri dish were seeded and added with dilutions obtained from solutions of healthy and diseased grains. Subsequently, a cultural and morphological characterization of the strains obtained was carried out. The color of the colony, texture, shape of the edges and it came from the grain or not, were observed.
The morphological variables were typical reproductive structures of *Fusarium*. The largest number of strains was obtained by sowing the grains directly on the plate, prior to disinfection, but not with the dilutions. Diseased grains were not suitable for visualizing colonies due to the large amount of inoculum present. The preliminary results indicate that the highest percentage of Fusarium was found in the north of the province (Tilisarao) with 60% of colonies, then in Comandante Granville with 30%, followed by Buena Esperanza with 30% and Candelaria10%. The culture medium on which the greatest amount of the pathogen developed was PGA. with 70,6 % versus 24,13% NS. Light pink, dark pink and violet colonies could be seen in the Petri dishes, with irregular edges with linear growth and a slightly cottony texture. Through the use of optical microscope, characteristic fusiform macro and micro conidia, as well as monophyalides, could be observed. These results suggest the prevalence of *Fusarium* in the 4 representative sites of San Luis.

021- EVALUATION OF THE PHENOLOGICAL BEHAVIOR AND YIELD OF THE CROP OF HOPS (*Humulus lupulus* L.) WITH APPLICATIONS OF ORGANIC FOLIAR FERTILIZER

Denegri A[1], Gutergoff A[2], Posadaz A[1], Ocaño S[1]
[1] Facultad de Turismo y Urbanismo UNSL- [2] Facultad de Ciencias Agropecuarias-UNC
andreadenegri211@gmail.com

The work sought to evaluate the phenological behavior and the yield of the Hop (*Humulus lupulus* L.) crop with management of commercial FFO organic foliar fertilizer with microbiological activity based on a consortium of total aerobic mesophilic microorganisms in a concentration of 1.5 105 CFU/ mL versus management with irrigation and without any type of application. The tests were carried out in the town of Pampa de Olaen, Córdoba, Argentina in an entisol-type soil, well supplied with organic matter and nitrogen, but with an abundance of calcium carbonate, which implies a reduction in the infiltration capacity of water and root development, added to limitations in the phosphorus content of the soil. We worked with two lines of 40 pods each of the Cascade variety, to which weekly applications of organic fertilizer were made to the soil for the first three weeks at a dose of 10 l/ha. and the following 6 weeks in foliar spraying at a dose of 5 l/ha. The results were analyzed with Infostat (V.2018), ANOVA analysis ($p<0.05$) with a posteriori Tukey test. In the first year, the average height showed significant differences, with the treated plants being 44% higher (1.89cm versus 1.06cm), as was the leaf area where it was observed that treatment presented an average of 24.85 cm2 while the control showed values of 11.19 cm2, 55% lower. Likewise, the sanitary state of the plants was considerably better in the treated plants that showed greater resistance to the attack of the spider might as well as greater vigor in the elongation of the guides and homogeneous coloration in their leaves. These results are promising when it comes to proposing, at least in small-scale production, treatments with products of biological origin, which favor plant development.

022- ANTIOXIDATIVE RESPONSES OF *Adesmia subterránea* SEEDLINGS EXPOSED TO HEAVY METALS STRESS

Parera V [1], Gallardo L[2], Gatica CV[2] Pérez Chaca VM[2], Parera CA[3], Feresin GE[1]
1 Instituto de Biotecnología-FI-UNSJ, Av. Libertador Gral. San Martin 1109 (O), 5400 San Juan, Argentina. CONICET
2 Universidad Nacional de San Luis, Facultad de Química Bioquímica y Farmacia
3 INTA- CR Mendoza-San Juan
e-mail: victoriaparera.t@gmail.com

A prerequisite to beginning a successful phytoremediation program is the selection of adequate plant species capable to tolerate heavy metal stress. It will depend on the ability to cope with reactive oxygen species (ROS), by triggering the enzymatic and non-enzymatic antioxidant system. Fabaceae species are efficient in different phytoremediation processes. The aim was to evaluate the seedling establishment, the activity of the antioxidant enzymes and parameters of oxidative stress of *A. subterránea* under conditions of stress due to Cd and Hg. Plants were grown semi hydroponically using vermiculite as substrates in solutions of different Cd (3, 4.5, and 6 ppm) and Hg (0.8, 1.2 and 1.6 ppm) concentrations and a control treatment (distilled water). Three replicates (25 seedlings) per level of treatment were tested in a growth chamber under control environmental conditions (T° 20°C day/night 12hs light/dark). Statistical analysis for enzyme activity was performed using ANOVA followed Tukey-Kramer Multiple Comparisons Test and generalized linear mixed-effects models with a binomial error distribution was used for seedling establishment. Results showed that the seedling establishment was greater than 70% in all the treatments and control Under Hg treatments, the CAT activity (µmol H2O2/mg protein min) decreased as the concentrations increased and was significantly lower compared with the control. While the activity of APX (µmol Ascorbate/mg protein min) and GSH (nMoles GSH/g PF) was similar to the control. Under Cd treatments, the CAT activity and GSH didn´t defer from the control. Contrary, the APX activity was significantly higher in the 4.5 and 6 ppm treatment compared to the control. The application of HM treatments, significant increase in membrane damage (TBARS), but no significant differences were found in the production of extracellular H_2O_2 with the control. These results suggest that the exposure of *A. subterránea* to HM induces lipid peroxidation, despite the activation of the enzymatic and non-enzymatic defense. The oxidative stress could be due to another type of ROS rather H_2O_2. However, this specie managed to establish itself and tolerate different concentrations of heavy metals and could be considered as a potential specie for phytoremediation.

023- *Medicago sativa* L. *Var.* CW660 AND *Glomus intraradices:* GERMINATION AND RADICAL COLONIZATION UNDER SALINITY CONDITIONS

Achiary M[1], Chiroli CV[1], Zapico MG[2], Pacheco Insausti MC[1], Pedranzani HE[1]
1-Laboratorio de Fisiología Vegetal, Facultad de Química Bioquímica y Farmacia.2-Facultad de Ciencias Humanas.
Universidad Nacional de San Luis (UNSL).
malenaachiary@gmail.com

Previous studies have shown that *Medicago sativa* L CW660 variety is sensitive to salinity. The objective of this study was to associate this sensibility with arbuscular mycorrhizae in order to study their effects on germination and root colonization under stress conditions. Seeds of *M. sativa*, var. CW660 were inoculated with 5 ml of commercial mycorrhizal solution containing *Glomus intraradices* (M) spores. Another group was the control without mycorrhizae (NM). Twenty seeds with 3 repetitions were sown in Petri dishes, irrigated with 5 ml of water in control group, and solutions of 50mM, 100mM, 200mM NaCl in treatment groups. They were placed in an oven at 25 ºC and then germinative energy (GE) and germinative power (GP) were measured. Statistical analyzes were carried out for mycorrhizal (M) and non-mycorrhizal (NM), comparing the control group with different NaCl concentration treatments. For this purpose, a Levene's test for homogeneity of variances was performed ($p>0.05$ in all cases), followed by an ANOVA test and next a multiple comparisons test. On the other hand, previously germinated seeds were sown in terrines with perlite/soil (1:1), before sterilized; they were separated into two lots: mycorrhized (M) and non-mycorrhized (NM). Control pots and pots treated with 100 and 200 mM NaCl were defined in each group. After 8 weeks, they were harvested and the roots were stained and observed under an OLYMPUS CX31 microscope to identify vesicles, hyphae and arbuscules at 40X and 100X. The GE of seeds (NM) decreased significantly at 200 mM NaCl with respect to the control and the other treatments. The M seeds showed GE and GP values higher than the NM in all treatments. In both inoculation conditions, GP at NaCl 200 mM decreased significantly with respect to all other treatments. The mycorrhization was successful and mycorrhizal vesicles and hyphae were observed in colonized plant roots, showing the same degree of infection in the control as in the salinized roots. Germination was increased in the seeds that were biostimulated.

024- ENZYMES GENE EXPRESSION INVOLVED IN PROLINE, GLUTATION AND PHYTOCHELATINS SYNTHESIS IN *Medicago sativa L.* EXPOSED TO SALINITY AND CADMIUM

Pacheco Insausti M.C.[1] Pallol B.[2], Pueyo J. J[2], Pedranzani H.E.[1]
[1] PROICO 2-3318 Ciencia y Técnica. Facultad de Química Bioquímica y Farmacia. UNSL, Ejército de los Andes, 950 (San Luis)
[2] Instituto de Ciencias Agrarias, Consejo Superior de Investigaciones Científicas. Madrid.
ceciliapachecoin@gmail.com

Alfalfa is a species of great plasticity, morphologically and physiologically adapted to tolerate abiotic stresses. The aim of this work was to evaluate enzymes gene expression involved in the synthesis of proline, glutathione and phytochelatin in two varieties of alfalfa, inoculated with tolerant rhizobia exposed to combined stress by salt and cadmium. For the trial, seeds of var. Trinidad 87 and CW 660 were previously germinated and then planted in a terrine system with sterilized vermiculite. A first replicate was watered with Hoagland nutrient solution (SN) and the second replicate contains this same nitrogen limiting solution. The plants are inoculated with *S. meliloti* capable of nodulating the roots. Control plants were watered with nitrogen and nitrogen-limiting SN, and the treatments consisted of SN with nitrogen + Cd 75 µM +100 mM NaCl; nitrogen-limiting SN + Cd 75 µM+100 mM NaCl. 5 weeks post cultivation, profiles expression of the genes involved in proline, glutathione and phytochelatins synthesis were evaluated by Real-time qPCR. Statistical analysis performed was a multifactorial ANOVA with IBM SPSS v. 27, mean comparisons were carried out using Tukey's test ($p \leq 0.05$). Enzymes involved in the glutathione pathway: glutathione synthase and glutamylcysteine synthetase showed a significant expression increase in the inoculation, treatments and genotypes, and also interaction between these three factors. Cysteine syntethase and Homoglutathione synthetase (Hgshs) increased their expression profile significantly by inoculation and genotypes, while there was only positive interaction between the three factors in hGSHS. Phytochelatin synthase did not increase its gene expression in any studied factors. Enzymes involved in proline synthesis, Δ1-pyrroline-5-carboxylate synthetase 1; Δ1-pyrroline-5-carboxylate synthetase; pyrroline-5-carboxylate reductase; Δ1-pyrroline-5-carboxylate dehydrogenase; ornithineδ-aminotransferase increased their genetic expression by inoculation, stress treatment and genotypes, showing positive interaction between them. Proline dehydrogenase increased its expression by treatments and genotypes, but did not show significant interaction between the factors. We can conclude that pathways activated, in response to combined stress by cadmium and salinity, were proline and glutathione synthesis.

025- VERTICAL STRUCTURE AND DEFOLIATION FREQUENCY EFFECTS IN *Thynopirum ponticum* (Podp.) IN EARLY SUMMER (VILLA MERCEDES, SAN LUIS)

Bacha EF, Privitello MJL, Tello IM, Montenegro MA, Rodríguez MJ, Vetore OS.
*Departamento de Ciencias Agropecuarias. Facultad de Ingeniería y Ciencias Agropecuarias-Universidad Nacional de San Luis. Villa Mercedes. E-mail:**efbacha@gmail.com***

Agropiro Alargado, *Thynopirum ponticum* (Podp.) Barkworth & Dewey is a perennial grass with good capacity to produce in salinity conditions, which has shown phenotypic plasticity through the modification of morphogenic and forage quality parameters in response to applied defoliation regimes. The vertical structure of *T. ponticum* pasture was evaluated from distal leaf length: LFD, height of differentiated leaf sheaths: AVF, length of floral stems: LVF, and composition of structural fractions (sheaths: %VA, blades: %LA and floral stems: %VF). The phenological state of the pasture was also determined and percentual projected aerial cover. The effect of three frequencies of mechanical defoliation set at 30, 60 and 90 days, until December, was compared in a pasture implanted on lowland and slightly saline sector of the FICA UNSL experimental field (Villa Mercedes, San Luis). The data set was statistically analyzed by ANOVA or Kruskal Wallis test, with Infostat software. The LFD was higher in spring ($p<0.01$), without exceeding 30 cm, with a more erect structure due to the reproductive state. While AVF, despite showing differences between dates, did not rise above 5 cm. LVF had a median of 52 cm, only generated under seasonal cuts. The %VA was low with little variation according to defoliation frequencies (2.6% and 4.5% in November, maximums close to 5.5% in reproductive stages in December). The fraction with the highest interest, % LA, was always the majority and 100% until October. In November %LA for F30 was significantly higher ($p<0.05$) than for F60, due to the phenological differentiation of the pasture. In December, no statistical differences ($p>0.10$) of %LA of 70-75% are detected, but considering the different accumulation period from 30 to 90 days, the advance of reproductive structures generation is exposed. These values indicate that regardless of cutting frequency, "agropiro" maintains a high proportion of leaves and a low number of reproductive components until mid-December, at which time %VF increases regardless of defoliation frequency. In the evaluated period, aerial coverage varied between 75% and 100%. The variables evaluated reflect that for the year of study the change to reproductive state began in November with the consequent variations in the constitutive fractions of the biomass. Although there is no marked effect of the established defoliation frequencies, seasonal cuts allow a greater reproductive development of the pasture that would affect its quality (and accessibility precisely due to the characteristics of the species). In addition to the distal leaf height, it is necessary to consider in an integrated manner other variables such as the number of leaves, morphogenetic parameters, or productivity of the pasture to define the effects of the frequency of defoliation in agropiro pasture.

026- AVAILABILITY AND FORAGE DISTRIBUTION OF AGROPIRO ALARGADO (*Thynopirum ponticum)* PASTURE, WITH DIFFERENT FREQUENCY OF SIMULATED DEFOLIATION

Bacha EF, Privitello MJL, Montenegro MA, Rodríguez MJ, Tello IM, Vetore OS.
*Departamento de Ciencias Agropecuarias. Facultad de Ingeniería y Ciencias Agropecuarias-Universidad Nacional de San Luis. Villa Mercedes. E-mail:**efbacha@gmail.com***

In the semi-arid region, there are few perennial alternatives to have quality forage for livestock during the winter period. *Thynopirum ponticum* (Podp.) Barkworth& Dewey, known as "agropiro alargado" or "agropiro" pasture, is a temperate specie that adapts to conditions of low to moderate soil salinity, generates forage with a good balance of nutrients in autumn-winter period and can develop actively in spring. The frequency of defoliation can modify the expression of genetically determined growth, and it is necessary to know more about the productive behavior of this species in the area of Villa Mercedes, San Luis. Forage availability of dry matter, expressed as $Kg.MS.ha^{-1}$, was determined, and estimated on agropiro pasture into UNSL experimental field (Villa Mercedes, San Luis), subjected to different frequencies of simulated defoliation: 30, 60 and 90 days. The objective was to establish productive differences under fixed defoliation. The cut of the accumulated production and the estimates between February and December was made, simulating the desired intensity of grazing, to describe the distribution of the growth of the pasture for these frequencies. Since the data set did not present a normal distribution, it was analyzed using nonparametric statistics with Infostat software. No significant statistical differences ($p>0.10$) were obtained for the total accumulated up to December, without effects of defoliation frequency on agropiro pasture forage accumulation. Forage availability varied around 1700 and 1850 $kgDM.ha^{-1}$. According to the accumulated for each cut-off date, the seasonal growth distribution was compared. It is observed that the lower frequency of defoliation stimulates the autumn-winter forage growth: considering the total production of the period, in the three conditions, the spring period concentrates from 70 to 90% approximately of the availability generated by the pasture. Under monthly defoliation, 20% of the total production is transferred to the autumn-winter period, while seasonal defoliations concentrate only 3% in the same period. It is necessary to continue with the evaluation of forage production in agropiro after December, and in order to generate adequate conclusions on pasture management, the information must be integrated with other variables (structural, morphogenetic and indicators of the perennially of the pasture). Although a good forage accumulation of the pasture is registered, the production is basically concentrated in spring, without the typical autumnal development of other environments. Pasture growth should be evaluated until the end of one or more cycles, to have more solid evidence on the distribution of growth and defoliation frequencies on forage accumulation.

027- PREGERMINATING TREATMENT AND GERMINATION UNDER SALINITY AND HIDRIC STRESS OF BUFFEL GRASS (*Cenchrus ciliaris* L.)

Chiroli C.[1], Achiary M [1], Zapico MG [3], Ruiz OM[2], Pedranzani HE [1]
1-Laboratorio de Fisiología Vegetal. FQByF. 2-FICA 3-FCH.PROICO 02-3318. Ciencia y Técnica. Universidad Nacional de San Luis. Ejército de los Andes 950. San Luis.Email: ***camilachiroli@gmail.com***

Due to the increase in desertified areas in the province of San Luis, and the increase in infertile soils, *Cechrus ciliaris* L. (Buffel grass) is proposed as a species with adaptability and tolerance to extreme environments and as a soil improver for the recolonization of native species. The objective was to study seed dormancy and tolerance to saline and water stress. The seeds of Buffel grass cv. Texas were subjected to seven pre-germination treatments in order to select the most suitable for germination tests under stress conditions. The seven pre-treatments were: immersion in water for 24 hours; potassium nitrate (KNO3) 1000 ppm; cold stratification; mechanical and chemical scarification; hot/cold water alternation; Giberelic acid (AG3) 500 ppm. For each pretreatment, 50 seeds with 4 repetitions were used. For the stress study, the scarified seeds were sown and irrigated with 5 ml of water (control) and solutions of 100 mM and 200 mM NaCl (salinity treatment). Two levels of hydric stress were applied, 40% and 60% of humidity. In each treatment 20 seeds were used and 5 repetitions were made. The germinative energy (EG) was analyzed on the third day and the germinative power (PG) on the seventh day. For the statistical analysis of the pregerminative treatments, the Mann-Whitney test ($p<0.05$) was used, comparing each treatment with the control. For the stress study, the Kruskal-Wallis test ($p<0.05$) and a post hoc test were applied. The results provided that mechanical scarification was the best with 40.77% germination. The GE showed a significant decrease against severe (31.5%) and mild (20%) hydric stress and severe saline stress (5%) with respect to the control (58%). PG decreased significantly only at 200 mM NaCl (20%). In conclusion, mechanical scarification was the best to eliminate physical dormancy in seeds and *C. ciliaris* showed tolerance to mild and severe water stress and mild salt stress.

028- SALINITY EFFECTS ON *Atriplex lampa* (Moq.) D. Dietr. GERMINATION WITH DIFFERENT POTASSIUM SALTS IN SAN LUIS PROVINCE – ARGENTINA

Arce AL[1], Videla AM[2], Sosa LR[1].
[1] Laboratorio de Fisiología Vegetal. Área de Ecología. Departamento de Biología. Facultad de Química, Bioquímica, y Farmacia. Universidad Nacional de San Luis (UNSL). San Luis, Argentina. [2] Área de Biología. Departamento de Biología. Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis (UNSL). San Luis, Argentina. E-mail: Arce.laurita@gmail.com.

Germination response of the halophyte species Atriplex lampa (Moq.) D. Dietr was analyzed using K+ salts. This study is important because the genus is widely used for degraded lands rehabilitation forage, and fuel production in arid areas, and also since it is a native species of San Luis province. In order to carry out this work, seeds were collected in the surroundings of El Bebedero stream, next to national route 146 (33° 43' Lat. S; 66°37' Long W). Before sowing to evaluate germination, experiments were carried out to determine the species' optimal threshing and scarification methodology. Seeds were exposed to different potassium monosaline (KCl, K_2SO_4) and bisaline (KCl + K_2SO_4), isosmotic solutions at 0.0 (control); -0.4; -0.8; -1.2; -1.5; 1.9 and 2.2 MPa osmotic potentials and Germination percentage and anionic effects were evaluated. As results KCl showed the highest germination percentage was 68% at -0.4MPa. Concerning to K_2SO_4 germination was inhibited at -0.4MPa with a 40% percentage. About potassium bisaline solution, 65% was obtained at -1.2MPa. SO_4 anion exhibited a maximum of 40% germination obtained at -0.4MPa, while Cl- anion treatment leaded on 68% germination at -0.4MPa. A. lampa germination percentages were significantly affected by solution concentration, salt type, and also the interaction between both factors. Obtained data suggest that A. lampa seeds are more sensitive to isoosmotic monosaline potassium solutions and presence of Cl- ions than other treatments, which would be affecting the germination process. In bisaline solutions, toxic effects would be mitigated by mechanisms of interaction or ionic antagonism.

ECOLOGIA, ETOLOGIA Y BIODIVERSIDAD (EB)

ECOLOGIA, ETOLOGIA Y BIODIVERSIDAD (EB)

029- EVALUATION OF NATIVE AND EXOTIC GRASSES IN GREEN ROOFS IN RIO CUARTO (CÓRDOBA)

Brandana, AG[1], Estévez, SJ[1], de Yong, AD[1], Imhof, L[2], Cáceres, N[2], Núñez, C[3],

[1] Cátedra de Espacios Verdes, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto. [2] IRNASUS (Universidad Católica de Córdoba- CONICET). [3]Cátedra de Botánica Sistemática, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto. E-mail: gbrandana@ayv.unrc.edu.ar

Cities advance in waterproofing surfaces, green roofs are an alternative to counter this situation, but they are subject to extreme conditions for vegetation. The objective was to evaluate the performance of plant communities. The trial (12 m^2) was carried out during 2020-2021, at U.N.R.C. A modular system (industrial model INPI UCC-CONICET) was used for extensive green roofs. Each treatment consisted of a community formed by a grass and creeping herbaceous (*Glandularia x hybrida*, *Sedum* spp and *Phyla nodiflora*). Native grasses: *Eustachys retusa, Jarava ichu, Amelichloa caudata, Pappophorum pappiferum*; exotic grasses: *Pennisetum setaceum, Pennisetum allopecuroides, Pennisetum setaceum rubrum* and control (*Sedum acre* and *Sedum confusum*). Plants were irrigated when symptoms of water stress were detected. Variables evaluated: survival, health status and cover. Control treatment obtained the maximum cover value (85%) at 295 days after planting (DDP) and remained stable, but after flowering period it decreased below 70%, and health status (wilting) scores also decreases. Between communities with native grasses, *Jarava Ichu* reached maximum cover of 69.5% at 71 DDP and *Eustachys retusa* achieved maximum cover (71%) at 169 DDP, both communities maintained 100% survival values and high health status scores (healthy plants) towards the end of the trial. Between communities with exotic grasses, *Pennisetum setaceum* achieved maximum coverage (73%) at 325 DDP, showed good performance, 90% of survival and health status (healthy plants). In general, *Sedum* (control) takes longer to cover the surface but is more stable in coverage, health status and survival, while communities with grasses decline in times under stress. Between grass communities, although they had similar trends among themselves, some of them showed better performance. Native grasses were *Eustachys retusa* and *Jarava ichu* and the exotic grass communities had *Pennisetum setaceum rupelli*. Despite they achieved lower coverage than control, they reached acceptable values in less time.

030- GRAZING OF *Artemia persimilis* PICCINELLI AND PROSDOCIMI, 1968 (CRUSTACEA, ANOSTRACA) IN A HYPERSALINE LAKE OF LA PAMPA (ARGENTINA)

Echaniz SA[1], Vignatti AM[1], Cabrera GC[1], Capecce C[1]

[1]Facultad de Ciencias Exactas y Naturales, Universidad Nacional de La Pampa, Santa Rosa, La Pampa, Argentina.

E-mail: santiagoechaniz@exactas.unlpam.edu.ar

The anostracans of the genus *Artemia* are among the few animals that inhabit hypersaline lakes, given that they have physiological mechanisms to withstand osmotic stress. It is represented in Argentina by *Artemia franciscana*, an introduced species from North America, and *Artemia persimilis*, autochthonous and the only species that has been recorded in La Pampa. It has been indicated that *Artemia* species have influence on ecosystems, since their grazing by water filtering, related to the size of the specimens, depresses the phytoplankton biomass and increases water transparency. Because the effect of *A. persimilis* on the lakes it inhabits is not known, the objective was to determine the filtering rates of this species in a hypersaline lake of La Pampa. Monthly samples were taken between October 2014 and September 2015 in East Lake of Parque Luro (64º17'W, 36º55'S). Water temperature and transparency were determined and samples were taken to determine the phytoplankton chlorophyll-*a*. Quantitative samples of zooplankton were taken and filtered with a 0.09 mm mesh net. The samples were anesthetized with CO_2 to avoid deformations of the specimens and were refrigerated until fixation. Specimens were removed in the laboratory, their sex and stage of development (grouped into nauplii, metanauplii, postmetanauplii, postlarvae and adults) were determined, and their total length was determined with a Leitz micrometric eyepiece. The grazing rate (mL/day) was calculated using the formula that relates filtering to the length of the animal and to determine differences between stages, Kruskal Wallis test (H) was performed. Mean daily filtration rates were different between stages ($H = 9.19$; $p < 0.05$), very reduced those of nauplii (1.52 ± 0.21 mL/day) and higher in the case of postlarvae (100.99 ± 23.02 mL/day) and adults (159.99 ± 30.39 mL/day). The existence of previous information on the density of each group of stages and the approximate average volume of the lake during the study (~818000 m^3) allowed us to calculate the approximate daily filtration of the population, which varied between 202,243 m^3 in July (a quarter of the total lake volume) and 2,1514,180 m^3 in April (26 times the total volume of water in the lake), respectively. The largest volumes of water filtered coincide with the occasions in which higher densities of postlarvae and adults were recorded. The high volumes of water filtered by the population of *A. persimilis* would help explain the low concentrations of phytoplankton chlorophyll-*a* (4.84 ± 8.53 mg/m^3) in this lake.

031- EDAPHIC CYANOBACTERIA IN *Geoffroea decorticans* (CHAÑAR) ISLETS AND NATURAL GRASSLANDS OFARGENTINA CENTRAL REGION

Ramos Irazola F1, Manrique M1, Fernandez Belmonte MC1, Zitnik D1, A2, Sueldo R, Rauber R3 y Cendoya A.1
1FICA. UNSL – 2FTU. UNSL –3EEA INTA SAN LUIS
floramos98@gmail.com

In arid and semi-arid regions, edaphic cyanobacteria presence plays an important role in ecosystems since they contribute to forming soil structure, improve the stability of aggregates, and provide the soil with atmospheric nitrogen. The objective of this work was to identify the cyanobacterial taxa in soils in the center and edge *Geoffroea decorticans* (chañar) islets and natural grasslands of the región studied. To achieve this, samples were taken at 15 sites of four establishments, located in the región called "Dune area with grasslands and islets of *Geoffroea decorticans* (chañar)" in San Luis province, which were extracted from the first 5 cm of soil. Samples cultures were made in Petri dishes having Watanabe (1951) liquid medium, and were placed in FICA-UNSL Phycology Laboratory culture chamber under temperature (20º-30ºC) and photoperiod (12 hrs light- 12 hrs darkness) controlled conditions. Cyanobacteria observation and qualitative analysis was carried out using an Olympus BX 50 optical microscope, in order to measure their cellular and filamentous structures Species found classification was made: Non Nitrogen Fixing (NF) and Nitrogen Fixing (NF), the latter in turn, in Heterocysts (HF) and Non Heterocysts (NHF). They were taxonomically determined with specific bibliography for the Cyanobacteria group. The NF genera found were *Oscillatoria, Phormidium, Synechocystis* and *Chroococcus* and HF genera were *Calothrix, Scytonema* and *Nostoc*. The latter also appears in its NHF form. *Scytonema* genus was only found in one natural grassland site and also one of them on the islet edge. Sites corresponding to natural grassland presented greater generic diversity: 9 from NF and 6 from HF. In islet center and edge sites ~~of the islet~~, 8 NF and 3 HF were found in both cases. Subsequently, the NF *Oscillatoria subbrevis* species appears in 6 natural grassland sites, in 9 edge islet site and in 3 sites in the islet center. An initial NF cyanobacteria growth was observed in all sites, followed by NHF and HF, such as it occurs in other studied sites. It is concluded that arid and semi-arid environments cyanobacteria edaphic of from the studied region contain various genera of NF, HF and NHF. This group of microorganisms importance presence lies in the fact that all of them would act effectively in the soil degradation recovery, therefore contributing to the productive systems sustainability.

032- GERMINATION AND EARLY GROWTH PATTERNS OF *Leptochloa crinita* (LAG.) PARODI (POACEAE), UNDER DIFFERENT LEVELS OF SIMULATED PRECIPITATION

Silvestro L[1], Rodríguez Rivera M[1] y Sosa L[1].
[1]PROICO 2-3918. Facultad de Química, Bioquímica y Farmacia - Universidad Nacional de San Luis. Argentina.
e-mail: ls10377@gmail.com

Leptoclhoa crinita is a natural component of the grasslands in San Luis province. *Leptoclhoa crinita* is interest for the restoration activities of degraded environments due to its tolerance to defoliation, drought and salinity. The germination and early growth processes of *L. crinita* under different levels of simulated rainfall were studied. The seeds were placed in pots with vermiculite as substrate. Each pot was irrigated with 10, 20, 40, 60, 80 and 100 mm of water (initial irrigation) in a random design. The number of germinated seeds was recorded and the germination percentage (PG) per treatment was calculated. When no more germination was recorded, the pots were watered up to field capacity to evaluate the PG of the non-germinatable fraction (final irrigation). At the end of the test length of the aerial part and root, fresh weight (FP) and dry weight (DS) of the seedlings were measured. The statistical treatment was performed by ANOVA, significant differences were found in the PG between the initial irrigation with 100, 80 and 60 mm (PG=32, 18 and 20% respectively) with respect to the rest of treatments. Length, PF and PS of the root as aerial part was significantly higher for the 10, 20 and 60 mm treatments, and lower for 100 mm. It is concluded that the minimum amount of rainwater necessary to start the germination process in *L. crinita* seeds is 20 mm. The seeds of the fraction that did not germinate initially reach up to 52% germination when they were irrigated at field capacity. The early growth of length and weight of roots and aerial part is greater in those seedlings from initial treatments with lower levels of simulated rainfall.

033- ARBUSCULAR MYCORRHIZAL FUNGI ASSOCIATED TO LEAD ACCUMULATOR GRASS

Menoyo E[1], Flores T[2], Medero M[2], Shortrede S[2], Salazar J[3], Becerra A[3]
[1] Instituto de Matemática Aplicada San Luis (IMASL)-CONICET, Universidad Nacional de San Luis. San Luis, Argentina, [2] Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis, [3] Instituto Multidisciplinario de Biología Vegetal (IMBIV)-CONICET, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Córdoba. Córdoba, Argentina. E-mail: emenoyo@gmail.com

Microorganisms-plants associations allow the establishment in harsh environments, including heavy metal contaminated areas. The studies with native organisms are very important in environmental remediation due to they were adapted to local conditions, forming specific relationships that allowed to survive. The aim of this work was to study arbuscular mycorrhizal fungi (AMF) associated to the rhizosphere of *Jarava plumosa Jarava plumosa* (Spreng.) S.W.L. Jacobs & J. Everett, native lead accumulator grass. The study area is located in Bouwer, Córdoba, where the battery recycling factory is situated. The rhizospheric soil from *J. plumosa* was collected at 6 sites with different lead soil content (Pb: 14-2938 $\mu g.g^{-1}$). The AMF spores were extracted through the decantation, wet sieving and centrifuged in sucrose gradient. The spore density was determined under a stereomicroscope as the number of spores/100 g of dry soil. Also, the relationship between AMF density and Pb concentration in plant tissue was analyzed. The presence of AMF were determined in all study site, density varied from 130 to 1524 spore/100 g soil, differed according to lead soil content. *Jarava plumosa* accumulated Pb in stem and root, this accumulation was greater at the site with high Pb. Bioremediation reduce the toxic effect of environmental pollutants through the use of plants and microorganisms. The application of this methodology is possible due to ability of some organisms to survive in contaminated soils. In environments highly contaminated with Pb, AMF-grass associations could allow the development of this plant community. Finally, highlight the importance of studies and applications of native species in restoration practices as determinant factor in local biodiversity reclamation.

034- PRELIMINAR STUDY ON THE POTENTIAL IMPACT OF DOMESTIC CATS (*Felis catus*) ON WILDLIFE IN SAN LUIS

Parnisari DR[1]; De Giuseppe BC[1], Miranda NJ[1], Mangione A[1,2]
Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis (UNSL). IMIBIO CONICET
E-mail: parnisari.rocio@gmail.com.

The domestic cat (*Felis catus* Linnaeus, 1758) is one of the most common companion animal species. Widespread throughout the world, they have a notable impact on wildlife, causing population decline in birds and mammals. While on islands they have caused local extinctions, on continents their impact is variable and sometimes speculative. In Argentina, there are no systematic studies, or are scarce, there are no management programs either. In the present work, the data on ownership/non-ownership of cats, characteristics of ownership, number, distribution and preliminary data on the impact of the species on wildlife for San Luis, Argentina were collected in an exploratory way. An online survey was conducted using Google Forms from May 14th to June 16th, 2022.A total of 579 responses were received. Most responses came from Ciudad de San Luis, followed by smaller numbers from Juana Koslay, Ciudad de La Punta, Potrero de los Funes and El Volcán. A total of 1139 cats were declared by the respondents, and more than 50% were reported by their owners as active hunters. The most preyed species were birds (35%), insects and arachnids (28.5%), and mammals (28.3%). The data underestimate the pressure exerted on wildlife by stray cats, which, according to the survey respondents, ranged from 6 to 10 per block in 35% of cases and more than 10 per block in 29% of cases. About 76% of respondents said they allow cats to run free and 71% of them do so without any system to warn prey of their presence. Another significant fact from this study is that 72% of the people who answered the survey say they are unaware or deny the fact that domestic cats affect wildlife. This poses challenges for the management of cat populations and the conservation of predated fauna. On the other hand, it highlights the relevance of this type of studies when proposing environmental education programs. This study summarizes the first data on the estimated impact of cats on wildlife in San Luis. The results and the feasibility of systematizing studies in the province are discussed in order to use it as a management tool and to generate policies on this matter. This work was carried out as part of the course Management and Conservation of Natural Resources of the Bachelor of Biological Sciences of the FQByF-UNSL

035- FECES PROCESSING TECHNIQUES FOR STUDY OF DIET THE OMNIVOROUS RODENT *Oxymycterus rufus* (Rodentia-Cricetidae)

Lemanich Funes GO[1], Nuñez MB[2], Jofré LE[1]
[1]Área de Zoología, Universidad Nacional de San Luis (UNSL), [2] Área de Biología, Universidad Nacional de San Luis (UNSL). E-mail: georlemanich31@gmail.com

Studies of the diet of small mammals using their feces are particularly complex. On the one hand, due to the small sample size and, on the other hand, depending on the type of diet, it is sometimes necessary to combine macroscopic and microscopic techniques to analyze the nature of the food consumed. This study aimed to process the feces of the omnivorous small mammal *Oxymycterus rufus*, using a combination of macroscopic and microscopic techniques to determine the presence of the different food components. Feces from 13 individuals of *O. rufus*, collected in La Florida, San Luis, were used. To determine the composition of the diet, the microhistological technique of Dacar & Giagnnoni (2001) was carried out with adaptations that included the separation of the sample to make macroscopic observations under a binocular loupe to determine the presence of arthropod fragments in the stool. The quantification of the remains found was carried out by applying the Relative Appearance Frequency (RF%) technique of the different trophic categories, with the Appearance Frequency being the number of feces containing a given item divided by the total number of feces analyzed by 100. The results obtained showed fragments of the Insecta Class with an FR% of 100% of the samples, observing remains of tegument, legs, and mandibles of insects. In the case of plant fragments, the RF% was 100%, observing fragments of the monocotyledonous and dicotyledonous epidermis, and pollen grains. There are few dietary studies carried out on this species, but what was obtained in this work coincides with the results of other researchers. The little number of samples and their small size adds relevance to the need to fine-tune a highly efficient technique that makes it possible to take advantage of scarce material. For this work, the fact that there is a coincidence with other investigations is of the utmost importance to support the technique put to the test.

036- ASSESSMENT OF THE TOTAL ENVIRONMENTAL IMPACT OF AGROCHEMICALS ON CORN AND SOYBEAN CROPS IN THE EL MORRO BASIN (SAN LUIS, ARGENTINA)

Martínez Espeche M E[1], Garbero M M[1]
[1]Facultad de Ingeniería y Ciencias Agropecuarias, Universidad Nacional de San Luis. Ruta Provincial N° 55 S/N extremo Norte, Villa Mercedes, San Luis. E-mail: mmartinezespeche@gmail.com

The expansion of agriculture in the El Morro basin has increased the use of pesticides associated mainly with direct seeding. The impacts of agricultural activities are usually associated with the use of pesticides. In the El Morro Basin, the crops of Corn (*Zea mays* L), and Soybeans (*Glycine max* L. Merr.), represent 98.06% of the Agricultural area. To obtain a global vision of agrochemical pollution in the basin, we worked with a scale that allows us to qualify the different characteristics of each substance in relation to various factors. They were (i) Ecotoxicity; (ii) Toxicity in humans; (iii) Impact on environmental factors; and (iv) environmental aspects of the agrochemical. These characteristics were reflected in a qualitative matrix of Environmental Impact assessment with which the different substances were categorized according to their Total Environmental Impact (TWI) into: (i) Very High, (ii) High, (iii) Medium, (iv) Low and (v) Very Low. In order to assess each attribute, the safety sheet of each chemical product (SENASA) and the Chamber of Agricultural Health and Fertilizers (CASAFE) were used. The most commonly used molecules in these systems correspond to Glyphosate, 2,4-D, Picloram, Dicamba, metolachlor, atrazine and flumioxazin, where Glyphosate, 2,4-D and Dicamba reached medium impact values, picloram low impact values and metolachlor, atrazine and flumioxazin reached very low impact values. However, 30 molecules are used in this basin in agricultural systems, which are below 5% of use. The repeated use of molecules with medium impact values could harm the sustainability of the agricultural systems that grow corn and soybean crops.

037- CYANOBACTERIA PRESENT IN BIOLOGYCAL CRUSTS (BCs) AND THEIR RELATIONSHIP WITH INFILTRATION IN SOILS AFFECTED BY FOREST FIRES

Denegri A[1], Fernandez Belmonte C[2] Sueldo R[2], Zitnik D[2], Manrique M[2], Campitelli P[3]
[1] Facultad de Turismo y Urbanismo- UNSL, [2] Facultad de Ingeniería y Ciencias Agropecuarias- UNSL, [3] Facultad de Ciencias Agropecuarias- UNC. andreadenegri211@gmail.com

One of the erosive effects with greatest impact on soils affected by forest fires is caused by the generation of hydrophobicity and decreased infiltration capacity, a situation that worsens in soils with a weak structure and steep slopes. The infiltration rate serves to evaluate the impact of fires in terms of susceptibility to be eroded post fire. The Cyanobacteria present in the biological crusts (BCs) play, among other roles, the fixation of particles and water retention, being able to reduce the risks of post-fire soil loss. The objective of this research was to analyze differences in infiltration in three soils affected by fires in the mountain areas of the central region of Argentina, and to establish a relationship between them and the presence of different genera of Cyanobacteria present in the BCs of these soils. BCs samples were taken three days after the fire; they were cultivated in a specific medium and were observed under an optical microscope to identify the Cyanobacteria present, and later, classify them into fixers (heterocyst and non-heterocyst) and non-fixers. Infiltration tests were performed by the simple ring method. The three sites showed four common genera of Cyanobacteria, *Nostoc* and *Nodularia* (fixative), and *Oscillatoria* and *Phormidium* (non-fixative). In typical haplustol soils and high intensity fires, the fixers decreased by 6.5% and the non-fixers by 23%; infiltration rate was 10.3 mm/min in burned soil versus 18.2 mm/min in unburned soil. In soils classified as entisols affected by fire and by light intensity fires, fixatives showed an increase of 5.3% and non-fixatives decreased by 3.6%. The difference in infiltration rate was from 4.4 mm/min in control soil to 10.2 mm/min in fire-affected soil. These results allow us to conclude that fires affect the infiltration rate of the soils under analysis; this depends on the type of soil, intensity of fire, as well as the condition of fixative and non-fixative of cyanobacteria present in the BCs.

038- QUALITATIVE AND QUANTITATIVE ANALYSIS OF ENRICHED-ALKALOID EXTRACT OBTAINED FROM TWO DIFFERENT EXTRACTION METHODS FROM TWO CHILEAN *Rhodophiala* SPECIES (AMARYLLIDACEAE)

de Andrade JP[1,2], Burgos-Edwards A[3], Theoduloz, C[4], Schmeda-Hirschmann G[5]
[1]Departamento de Medicina Traslacional, Facultad de Medicina, Universidad Católica del Maule, Talca, Chile. [2]Núcleo Científico Multidisciplinario, Dirección de Investigación, Universidad de Talca, Campus Lircay, Talca, Chile. [3]Centro de Estudios en Alimentos Procesados CEAP, Campus Lircay, Talca, Chile. [4]Laboratorio de Cultivo Celular, Facultad de Ciencias de la Salud, Universidad de Talca, Campus Lircay, Talca, Chile. [5]Laboratorio de Química de Productos Naturales, Instituto de Química de Recursos Naturales, Universidad de Talca, Campus Lircay, Talca, Chile. E-mail: jdeandrade@ucm.cl

Amaryllidoideae plants are a particular source of an exclusive and consistent group of isoquinolinic-like alkaloids, which have shown a wide range of biological activity, such as antitumoral, antiparasitic, anti-inflammatory, antiviral, anticholinesterase activity, among others. In terms of chemistry, it is well-known that alkaloids are biosynthesized in a small content in plants and the typical acid-base extraction for obtaining alkaloid-enriched fractions is a reasonable harmful method, which can lead to chemical modification and artefact formation from actual plant's components. The aim of the present work is to evaluate the alkaloid composition of the two indigenous Chilean species *Rhodophiala rhodolirion* and *Rhodophiala splendens*, applying two different extraction methods, i.e. the typical acid-base extraction and the Adsorptive Membrane Chromatography (AMC) extraction. The latter is based on ion-exchange principle. Both methods are under qualitative and quantitative comparison. First and foremost, the enriched-alkaloid extracts from acid-base method were obtained from both species and analyzed by means of GC-MS and HPLC-DAD analysis. Through GC-MS, eleven alkaloids were identified in *R. rhodolirion* and ten alkaloids in *R. splendens*, along with some undefined compounds in both species. A rapid fractionation of the enriched-alkaloid extract from these species allowed to isolate lycorine, pseudolycorine and narciclasine from *R. rhodolirion* and lycorine from *R. splendens*. These alkaloids were identified throughout NMR experiments and were used as standards for HPLC-DAD validation method, according to ICH guidelines. The quantification of the alkaloid-enriched extract was also compared with different desalinization processes under AMC procedure using different kinds of Amberlite®. Finally, the enriched-alkaloid extract from both species were also evaluated to determine their anti-acetylcholinesterase activity potential. The qualitative and quantitative analysis of the alkaloids from both species throughout the two mentioned extraction methods, along with their relationship with the biological potential as anti-acetylcholinesterase agent, were also discussed.

039- USE OF BIODIVERSITY DATABASES AND PROPOSED COLLABORATIVE APPROACH AS TOOLS FOR THE STUDY OF EXOTIC ARTHROPODS IN CUYO

Verteramo GR[1], Ripa RR[2,3], Lapadula WJ[4], Werenkraut V[2]
[1]Facultad de Química, Bioquímica y Farmacia (UNSL). [2] Instituto de Investigaciones en Biodiversidad y Medioambiente (CONICET-UNComa). [3] Instituto de Evolución, Ecología Histórica y Ambiente (CONICET). [4] Instituto Multidisciplinario de Investigaciones Biológicas de San Luis (CONICET). E-mail: ilgino15@gmail.com

Invasive alien species represent a growing concern due to the environmental and economic problems they cause. Although arthropods represent a large part of the world's exotic fauna, they have received less attention than other taxa, leading to a lack in the knowledge of the number and identity of introduced species in many regions. Here we used biodiversity databases to compiled, and update the existing information about Exotic Arthropods (EA) for Cuyo. We found a high number of AE recorded for the region, with 41 species belonging to 3 classes: Insecta (27 spp), Arachnida (12 spp) and Malacostraca (2 spp). This constitutes approximately 53% of the 75 species of AE reported in databases for Argentina. In the national context, Cuyo has more species reported than NOA (33) and NEA (31) regions, and fewer species reported than Centro (58) and Patagonia (50) regions. Considering that many of the other species of AE in Argentina are present in localities neighboring Cuyo, they could be present in the region and still not have been detected. Within the region, the greatest number of species was detected in the province of Mendoza (39 sp.) followed by San Luis (16 spp), San Juan (15 spp) and La Rioja (14 spp). By using these databases we improved our knowledge of introduced biodiversity in Cuyo and detected provinces and groups that were under-studied. The differences found in the number of AE could be due to different factors that affect invasiveness such as: economic development, commerce, agriculture, competition with local species, etc. However, the low number of EA in certain provinces and regions could also be due to the absence of specialists conducting invasion ecology studies on arthropods. Thus, we do not know if the observed patterns are real or if they are due to data absence. Focusing on the use of methodologies such as "horizon scanning" and considering that we do not have a reliable list of exotic species for the region, we propose to enrich the knowledge about the presence of AE in Cuyo, through the coordination of a collaborative assessment with specialists of different arthropods groups.

040- CONTRIBUTION TO THE KNOWLEDGE OF AN URBAN LAKE PHYTOPLANCTON

Quaife, ES[2], Daruich, GJ[1,2], Ray, AM[3], Algozino, C[2], Muñoz Carbajal, D[2], Almeida, C[2], Gonzalez, P[2].
[1] Área de Biología, [2] Área de Química, Universidad Nacional de San Luis, [3]Facultad de Filosofía Humanidades y Artes (FFHA) Instituto de Ciencias Básica (ICB) Universidad Nacional de San Juan.E-mail: elbasquaife@gmail.com

Algae are widely present in fresh water environments, such as streams, lakes and rivers. Although relatively inconspicuous, they have a major importance in the fresh water environment, in ecology terms and in relation to human use of natural resources. Phytoplankton is an important primary producer; it is the basis of the whole autotrophic food web in the aquatic ecosystem. This work is part of an overall Project that includes the study of the algal communities in aquatic ecosystems dynamics in Cuyo region. In this first stage we analyze the algal and cyanobacterial communities of samples collected during 2022 winter season. The study area is located in Parque de Mayo, in the urban lake Parque de Mayo of San Juan province. The methodology used in the collection followed the standard parameters for lentic environments. Samples were collected with phytoplankton net opening of 10 microns mesh. Physico-chemical variables (T°C, pH, conductivity, nitrites, nitrates, disolved oxygen, among others) were obtained using portable sensors and subsequent laboratory techniques. These parameters provided an autecological characterization of the species studied. Identification was performed using optical microscope 400X and 1000X magnification. Preliminary results show 24 taxa, of which 50% corresponds to Chlorophyta (Green algae), 37 % Bacillariophyta (diatoms) and 12 % Cyanobacteria. Low diatom diversity, presence of *Nitzschia* and *Crucigenia* microalgae resistant to eutrophication processes, evidenced urbanization impact. Microscopic analyses of water samples provide information on the algal species diversity and density which could potentially be useful as early warning signs of deteriorating conditions.

041- STIPEAE SPECIES IDENTIFICATION KEY OF SAN LUIS (ARGENTINA) BASED ON VEGETATIVE AND REPRODUCTIVE CHARACTERS

Mercado SE[1], Prina, A[3], Aostri CA[1], Genovese C[2], Pérez D[1], Salguero A[1]
[1]Facultad Ingeniería y Ciencias Agropecuarias. Universidad Nacional de San Luis
[2]Facultad de Turismo y Urbanismo. Universidad Nacional de San Luis.
[3] Facultad de Agronomía. Universidad Nacional de La Pampa
Fac de Ing. y Cs. Agropecuarias. UNSL, 5730 San Luis seocampo@email.unsl.edu.ar

The tribe *Stipeae* Martinov is distributed in temperate to warm-temperate grasslands of the world (America, Eurasia, and Australia) and rarely in tropics. Stipeae are perennial C_3 herbs with 1 floret spikelets, without rachilla extension and a single awned lemma, specialized for anemochory. Due to recent molecular and morphological studies carried out by several authors, *Stipa* s.l. genus was segregated into several American genera, considering *Stipa* only an EuroAsian genus. To date, the tribe under study comprises 9 genera present in Argentina: *Aciachne, Amelichloa, Anatherostipa, Jarava, Nassella, Ortachne, Pappostipa, Piptatherum* and *Piptochaetium.* The aim of this work was to build a genera and species identification key based on morphological characters easily to recognize in laboratory or in the field. Considering the importance of proper identification,herbaria plant collections were checked, and new wild specimens were collected. The material was identified by traditional botanical methods, then kept in the herbaria Ciencias Agropecuarias (VMA) and EEA INTA San Luis (VMSL). As a result, to date 26 botanical entities distributed in 5 genera were identified: *Amelichloa ambigua, Amelichloa brachychaeta*, *Jarava ichu*, *Jarava juncoides*, *Jarava plumosa*, *Jarava pseudoichu*, *Pappostipa vaginata, Piptochaetium medium*, *Piptochaetium montevidense, Piptochaetium napostaense*, *Piptochaetium ruprechtianum Piptochaetium stipioides*, *Piptochaetium stipioides* var. *echinulatus, Nassella longiglumis*, *Nassella cordobensis, Nassella filiculmis*, *Nassella hunzikeri*, *Nassella hyalina*, *Nassella megapotamia*, *Nassella neesiana*, *Nassella nidulans, Nassella niduloides*, *Nassella poeppigiana*, *.Nassella pseupampagrandensis*, *Nassella sanluisensis*, *Nassella tenuis, Nassella tenuissima*, *Nassella trichotoma*. So far 28 species distributed in 5 genera of this tribe have been identified.

042- GERMINATION TRIALS OF FOUR NATIVE SPECIES FROM THE UPPER MENDOZA RIVER BASIN WITH POTENTIAL USE IN ECOLOGICAL RESTORATION PROGRAMS

Frete JF[1], Duplancic MA[1,2], Ontivero M[1,3], Bonjour L[1,3]
[1]Grupo de Investigación Geobotánica y Fitogeografía – IADIZA. [2]Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Cuyo. [3]CCT CONICET-Mendoza
aduplancic@gm.fcen.uncu.edu.ar

In July 2019, nearly 8000 ha of the Mendoza River basin in Potrerillos suffered severe degradation by fire. SumáNativas is a collaborative project developed in the area, as an initiative coordinated between public and private sectors, scientific agencies and organizations dedicated to natural environment and biodiversity conservation, with the aim to restore damaged areas by revegetating them with native plants, favouring natural regeneration. To achieve this, it is necessary to have high numbers of seedlings multiplied in nursery. Four native species germination capacity was evaluated under nursery conditions: *Chuquira garuscifolia*, *Berberis empetrifolia*, *Dysphania ambrosioide*s and *Tetraglochin alatum*, through the application of pregerminative treatments. Tests were carried out in Petri dish with filter paper kept permanently saturated with drinking water. Three replicates of 30 seeds were made for each treatment and their controls. Germination counts were made daily for 45 days. Number of germinated seeds was determined and the following indexes were calculated: mean germination percentage (%G), mean germination time (MT, mean time in days to reach maximum germination of the seed lot) and the germination time coefficient of variation (CVt) as a synchrony measurement.-Pretreatments application improved germinative parameters. In *C. ruscifolia* the application of a fungicide solution increased %G, both in *B. empetrifolia* stratification in refrigerator and in *D. ambrosioides* imbibition, decreased MT. While in the latter the highest germination percentage was in the control, without pretreatment, in *T. alatum* mechanical scarification allowed germination, being null in the control, and else scarified seeds incubation at a higher temperature decreased MT and increased synchrony. The maximum mean percentages reached with the best treatment for each species were: *Chuquira garuscifolia* 75.67% (SD 11.87), *Berberis empetrifolia* 70.00% (SD 6.67), *Dysphania ambrosioide*s 95.56% (SD 5.09), and *Tetraglochin alatum* 54.44% (SD 13.47). Different seeds species have their own attributes that conditioning germination, seedling establishment and therefore their possibility of being used in restoration. Each species, depending on these attributes, responded differently to pregerminative treatments. Those that optimize each species germination parameters were detected, to facilitate their production in the nursery. Likewise, all the proposed pre-treatments can be carried out in a simple way and without expensive resources, expecting to be used by the community nursery in the project area, assuming that knowledge transfer is effective and efficient.

043- EVALUATION OF SPONTANEOUS NATIVE PLANT GROWTH FOR USE IN LIVE FENCES

Costa M, Genovese MC, Piñero M & Suyama A
Facultad de Turismo y Urbanismo - Universidad Nacional de San Luis (UNSL). E-mail: melicos72@gmail.com

The use of living fences is a very common gardening practice in urban environments. The species selected for this purpose are reduced to a small number, mostly invasive alien species (IAS). In the northeastern region of the province of San Luis, there is a constant advance of urban areas that generate a gradual loss of biodiversity linked to land use change and aggravated by gardening practices in which a high preference for the use of IAS was observed, especially in fences. On the other hand, in recent years the use of native species has been proposed in the design of living fences and their incorporation as biological corridors for species of shrub and herbaceous flora and associated fauna. In this sense, the aim of this work is to provide data on the design and management of spontaneous living fences with native species, which are easy to implement and very low maintenance, as a contribution to the conservation of biodiversity in urban spaces located in a moderately conserved environment. For this purpose, a trial was carried out on 9 plots of 5m long by 1m wide limited on one side by a wire fence, in which 3 treatments were observed: 1) fence without irrigation, 2) fence with irrigation, 3) fence with implantation of native species seedlings and irrigation. Considering ecological aspects and ornamental attributes, 3 species of shrubs were chosen to act as nurse plants for the planted plot: *Schinus fasciculaltus*, *Aloysia gratissima* and *Lippia turbinata*. Periodic monitoring of the growth of the implanted species and the recording of spontaneous woody species, both native and invasive exotic, is currently being carried out. Partial results show the appearance of at least 132 individuals of woody species and climbers of ornamental interest. The individuals correspond to 12 different species from 8 botanical families. The results were evaluated with an analysis of variance using the statistical programme InfoStat. To evaluate the differences, a Fisher's multiple comparison of means was performed with a significance level of 0.05. Both analyses showed no significant differences. The growth rate analysis of the planted specimens also showed no significant differences. In the 9 plots, three *Ulmus pumila* specimens were detected as IAS. These partial results correspond to 15 months of testing and due to the nature of the experiment are still very preliminary. Considering the subjective nature of gardening, a perception survey was developed to assess the level of acceptance of the spontaneous fence at this stage of development. The study population at this stage corresponded to the FTU community, with a bias towards students, teaching staff, administrative staff and authorities, in order to evaluate possible strategies for training and implementation of the project on a larger scale. Final results are expected by the end of 2022.

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044- NANO PHARMACOLOGY ANTIHYPERTENSIVE CAN IMPROVE THE CARDIAC REMODELING

Sanz RL[1], Martín Giménez VM[2], Mazzei LJ[1], García Menéndez S[1], Diez ER[3], Prado NJ[3], Manucha W[1,4]
1-Facultad de Ciencias Médicas, UN de Cuyo, Mendoza, Argentina. 2-Instituto de Investigaciones en Ciencias Químicas, Facultad de Ciencias Químicas y Tecnológicas, UCC, San Juan, Argentina. 3-Instituto de Medicina y Biología Experimental de Cuyo (IMBECU), CCT-Mendoza, CONICET, Mendoza, Argentina. 4-Laboratorio de Farmacología Experimental, Básica y Traslacional. Área de Farmacología, Facultad de Ciencias Médicas, Universidad Nacional de Cuyo, Mendoza, Argentina.
E-mail: wmanucha@yahoo.com.ar

Arterial hypertension (AH) determines changes in the cardiac structure and associated geometric alterations such as left ventricular hypertrophy (LVH). On the other hand, ventricular remodeling (VR) responds to changes in cardiac size and conformation, which can lead to impaired ventricular function (VF). In this regard, endogenous molecules with therapeutic potentials, such as anandamide (AEA), are investigated. AEA exerts beneficial properties at the cardiovascular level but, unfortunately, with has many secondary and/or adverse effects, which determined its rejection in subsequent clinical trials. Of interest, new technologies -including nano-structured polymers- are opening up new therapeutic alternatives. In this regard, our laboratory has designed a new method to obtain an unprecedented nano-scaffold carrying the active principle AEA with which the present research work was carried out. Thus, our objective was to evaluate in spontaneously hypertensive rats (SHR) treated with nano-formulated AEA the possible hemodynamic, structural, cardiac functional changes, and inflammatory markers of interest. Male rats (N=10 per group, 250-300 g) normotensive (WKY) and SHR, treated or not with AEA nano-formulated in epsilon polycaprolactone (AEA/PCL, 5 mg/Kg, IP), 1 weekly dose for 4 weeks. Before and after the pharmacological protocol, we determined systolic blood pressure (SBP, CODA), body and heart weight, two-dimensional echocardiogram (Echo), ECG, and inflammatory markers. In addition, performed routine blood tests, weight and cardiac histology, ventricular size and wall size in the long and short axis were performed, according to Teichholz, to calculate VF, body surface area and ventricular mass index (VMI). AEA/PCL in SHR managed to reverse all the alterations observed in untreated SHR, such as the elevation of inflammatory markers (IL-1, IL-6, TNFα, high-sensitivity CRP and plasma Hsp70; $p<0.05$), SBP (180± 10 vs 130±8 mmHg; $p<0.01$), LVH (1.746±0.062 vs 1.236±0.18; $p<0.01$). We did not observe changes in VF (85.76±1.33 vs 83.72±2.75; p=NS). We highlight a lower IMV VMI when we relate to surface and weight in SHR with AEA/PCL compared to untreated SHR. The positive effects of AEA/PCL in SHR open a promising chapter for developing new antihypertensive therapeutic alternatives and their comorbidities.

045- NANOFORMULATED ANANDAMIDE IN THE NEUROINFLAMMATION LINKED TO HYPERTENSION

García Menéndez S[1], Mocayar Marón FJ[1], Martín Giménez VM[2], Mazzei L[1], Manucha W[1,3]
1-Facultad de Ciencias Médicas, UN de Cuyo, Mendoza, Argentina. 2-Instituto de Investigaciones en Ciencias Químicas, Facultad de Ciencias Químicas y Tecnológicas, UCC, San Juan, Argentina. 3-Instituto de Medicina y Biología Experimental de Cuyo (IMBECU), CCT-Mendoza, CONICET, Mendoza, Argentina.
E-mail: wmanucha@yahoo.com.ar

Hypertension is considered one of the most significant risks of cardiovascular diseases, with exaltation of the renin-angiotensin-aldosterone system, systemic and neural inflammation. In addition, it is a path to cognitive deterioration, dementia and behavioral alterations. Thus, the pathophysiology mechanism that links hypertension with cognitive-behavioral changes is complex. The confluence of cognitive deterioration, depression and hypertension warns of the need for more and better knowledge. To highlight, the spontaneously hypertensive rats (SHR) is a validated model of essential hypertension, neuroinflammation and cognitive deficits. Parallel, an endocannabinoid called anandamide (AEA) would protect neurons from inflammatory damage, and its signaling decreases in the hypertensive brains. However, trials with the conventional formulation with AEA have revealed multiple side effects. At the same time, the nanotechnological design with nano-structured scaffolds could reduce side effects and rescue protective actions at the central and peripheral levels. Therefore, we decided to evaluate if the implementation of nanoformulated AEA manages to reduce blood pressure values, improve the profile of the systemic inflammatory state as well as at the nervous system level and finally, if its possible impact at the behavioral level is evidenced. Adult male normotensive (WKY) and hypertensive (SHR) rats were used, treated or not with AEA nanoformulated in polycaprolactone epsilon (AEA/PCL) (N=10, per group), at a weekly dose of 5 mg/Kg IP, for four weeks. Systolic blood pressure (SBP) was obtained using the tail-cuff method (CODA). Behavioral tests such as Plus Maze Test and Open Field Test were performed at the end of treatment. The cerebral cortex was also harvested for western blot assays. Inflammatory markers were determined in plasma by ELISA. AEA/PCL produced a significant reduction in SBP, and a decrease in inflammatory markers and markers of oxidative stress (NADPH oxidase and nitrites). Protein expression of WT-1, AT-1 and iNOS was higher in the cerebral cortex of SHR, while AEA/PCL decreased it. In contrast, Hsp70 expression increased after treatment within the cerebral cortex. Abnormal behaviors observed by Plus Maze Test (open arm dwell time), and Open Field Test (exploration time), also decreased after AEA/PCL treatment. These results allow suggesting antihypertensive and anti-inflammatory properties of nano-formulated AEA. This novel nano-scaffold could regulate inflammation through the AT-1-Hsp70-iNOS pathway and improve cognitive-behavioral functions in SHR rats.

046- GALANTAMINE AND DONEPEZIL COMBINATION AS CHOLINESTERASES INHIBITORS IN ALZHEIMER'S DISEASE THERAPY

Adarvez-Feresin C[1], Zaragoza-Puchol D[2], Parravicini O[1], Garro A[1], Enriz D[1], Feresin GE[2]
[1]IMIBIO-SL CONICET, Facultad de Química, Bioquímica y Farmacia, UNSL, Ejército de Los Andes 950, San Luis, Argentina, CP: 5700. [2]Instituto de Biotecnología. UNSJ, CCT CONICET SAN JUAN. Av. Lib. Gral. San Martín 1109(O), San Juan, Argentina, CP: 5400. E-mail: camilaadarvezferesin@gmail.com

Alzheimer's disease (AD) is the most common cause of dementia affecting the elderly population. Current drug-based treatments that may temporarily ease symptoms or slow down the progression consist of cholinesterase inhibitors (iChE) designed to increase acetylcholine levels to maintain the cholinergic signal. There are six treatment FDA-approved: iChE including galantamine (GAL), donepezil (DON), and rivastigmine;N-methyl-D-aspartate antagonists, donepezil-memamntine combination therapy; and recently approved monoclonal antibodies (aducanumab). The pharmacological interaction between a combination of drugs results in a synergistic (increases), antagonist (decreases) or indifferent effects. Thise aim of this study aimed was to perform a kinetic analysis study to determine 1- the *in vitro* interaction of the GAL (a natural product of Amaryllidaceae) and DON (synthetic drug) combination against AChE and BuChE cholinesterases; and 2- to corroborate these results by a molecular modelling study employing docking techniques, molecular dynamics simulations and QTAIM (Quantum Theory of Atoms in Molecules) studies. The results from the kinetic plots showed that when GAL and DON are combined over a range of concentrations around the IC_{50}, the best inhibition of AChE occurred with the mixture containing the highest concentration of GAL and the lowest of DON. Evidence from Molecular modelling indicated the existence of co-occupancy of the ligands in both enzymes. In the AChE result was important that GAL must first occupy the active site before DON. Moreover, it is important to highlight that in BuChE, the two ligands are easily located due to the larger size of the active site of this enzyme, obtaining six possible poses. On the other hand, from the simulations of the complexes for AChE, three possible poses were shown. The present results may indicate that the combined use of GAL and DON may represent a starting point to reduce the dose and avoid hepatotoxic and gastrointestinal side effects. It also lays the foundation for further studies on the interaction of other compounds isolated from natural sources that inhibit cholinesterase.

047- *Prosopanche americana*: STUDY OF ACUTE TOXICITY IN MICE

[a]Rodríguez S, [a]Paredes J, [b]Barcia CS, [c] Petenatti E, [a]Wendel G. [a]Farmacología. [b]Bromatología, [c] Farmacognosia. Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. E-mail: jdparedes@unsl.edu.ar

Prosopanche americana (R. Br.) Baillon (Family Hydnoraceae) commonly known as “guaycurú santiagueño”, “huaycurú”, “huáchar”, “guacharo”, “flor de fierro”, “flor de la tierra” o “espinazo de lagarto”. This plant is a perennial hemiparasitic plant distributed in Argentina (Córdoba, Santiago del Estero, Mendoza, La Rioja, San Luis). The rizome are used in folk medicine as vulnerary, homeostatic, expectorant, cardiac disorders. Infusion of the rizome (Del Vitto LA & EM Petenatti 560, UNSL) was prepared, separated by filtration and the aqueous extract was concentrated and lyophilized to preserve it. The *Prosopanche amricana* lyophilized extract (PALE) was studied for acute toxicity, as per revised OECD guidelines Nº 423: Acute Toxic Class Method. Albino mice (20 - 25 g) of both sexes were randomly divided into five groups of six animals each (3 males and 3 females). Mice were fasted for 4 hours and given oral increasing doses of PALE (5, 50, 300 and 2000 mg/kg) respectively. The fifth group, served as control, was treated only the vehicle (distilled water). Animals were observed daily, for 14 days. The parameters studied were weight and macroscopic analysis of the vital organs: heart, lungs, liver, spleen and kidneys. The Irwin observation test was used to evaluate the effects of PALE on behavior and physiological function. The oral doses of 2000 mg/kg of PALE did not produce any sign of acute toxicity in the animals (male and female). Over the 14 days following the oral administration of PALE, none of the animals died and no significant changes organ weight were observed through the end of this period (p>0.05). No gross lesions were noted in any mice on necropsy. There were no signs on symptoms of ataxia, catalepsy, excess curiosity, scratching, restlessness, respiratory distress, urination, diarrhea, convulsions, and coma. Oral doses of PALE up to 2000 mg/kg produced no mortality and visible signs of delayed toxicity 14 days post-treatment. These results ensured the continuance of pharmacological studies on this species using the oral route and motivated us to proceed with the biological assays. The highest dose did not induce noticeable signs of toxicity. In conclusion, under the present experimental conditions, PALE had not presented signs of toxicity.

048- EVALUATION OF IN VIVO ANTIDIARRHOEAL ACTIVITY OF *CONYZA BONARIENSIS* AQUEOUS EXTRACT IN RATS AND MICE

Blanco A, Teves M, Paredes J, Wendel G
Farmacología. Fac. de Qca., Bqca. y Fcia. Univ. Nac. de San Luis. Email: gwendel@unsl.edu.ar

Conyza bonariensis (L.) Cronquist (Asteraceae) is commonly known as "yerba carnicera" or "rama negra". It is a native annual herb employed in the traditional medicine for several purposes; various bibliographic references from Argentine report its use as antidiarrheal. The aim of this work was studying the effect of entire plant lyophilized aqueous extract of *C. bonariensis* for antidiarrheal activity through the techniques of intestinal transit in mice, intestinal fluid accumulation in rats (enteropooling) and Castor oil-induced diarrhea in mice. The vegetable material was collected in the Fraga area, San Luis province and afterwards was dried and reduced to powder to prepare the infusion. The aqueous extract was lyophilized for preservation and use. Three documentary specimens were deposited in the Herbarium of the National University of San Luis under registration UNSL#561. The animals were divided in six batches of n=8 (Positive and negative control, and a batch for each extract dose). The aqueous extract was administered orally at doses 125, 250, 500 and 1000 mg/kg. In the negative control, the animals were administered with vehicle (saline solution) and in the positive controls were utilized morphine sulphate (10 mg/kg, v.o.), Loperamida (10 mg/kg, v.o.) and Chlorpromazine (10 mg/kg, i.p.) as reference drugs respectively for the tests of intestinal transit, intestinal fluid accumulation and diarrhea induced by Castor oil. All data were expressed as the mean ± S.E.M. (Standard Error of Mean). A probability of $p<0.05$ was considered significant. The results obtained in the intestinal transit test analyzed by 1-way ANOVA revealed that the treatment produced a significant statistically decrease [$F_{(4,35)} = 6$; $p<0.01$] of normal peristaltic index of mice with a reduction of 19.16%, 27.62%, 28.74% and 32.29% respectively for doses 125, 250, 500 and 1000 mg/kg and in comparison with the negative control group. Meanwhile, the analysis by 1-way ANOVA of the intestinal fluid accumulation results indicated that the experimental intervention did not produce a statistically significant change [$F_{(4,35)} = 1$; p = ns] in the values of the enteropooling and weight and volume of intestinal contents (vs. negative control group). In the diarrhea test in mice, only the two bigger doses of the vegetable extract (500 and 1000 mg/kg) provoked a significant statistically decrease in the diarrhea severity induced experimentally by Castor oil ($p<0.05$ and $p<0.001$, respectively). The experimental results obtained show that the aqueous extract of *C. bonariensis* has antidiarrheal activity that could be due to its inhibitory effect on intestinal motility. These experimental results have shown that the extract exhibits a protective effect against hypermotilitic diarrhea but not against hypersecretory diarrheas. The different secondary metabolites present in the species could be responsible for the activity observed, however, more research is necessary to determine the specific mechanism of action and relate the antidiarrheal effect to an active plant ingredient.

049- EVALUATION OF GASTROPROTECTIVE EFFECT OF *Jodina rhombifolia* (Hook. & Arn.) Reissek

Duarte SR[1], Paredes JD[2], Teves MR[2], Wendel GH[2]
[1]Enfermería, Facultad de Ciencias de la Salud. [2]Farmacología, Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. San Luis, Argentina. E-mail: gwendel@unsl.edu.ar

Jodina rhombifolia (Hook. & Arn.) Reissek (Santalaceae) is a small perennial hemiparasitic tree, popularly known as "Peje", "Quebrachillo", "Quebracho flojo", "Sangre de toro", "Sombra de toro". This species is utilized in Argentine folk medicine for a great diversity of health problems as: anti-alcoholic, digestive/stomach, anti-ulcer, gastritis, antidiarrheic, anti-inflammatory, hepatoprotective, hypotensor, among others. The major chemical constituents of leaves of *J. rhombifolia* are phenolic compounds, organic acids, tannins, flavonoids, steroids, gums and mucilagues; the extract of its leaves revealed the presence of C-glycosyl flavonoids. The aim of this study was to assess the gastroprotective effect of the *J. rhombifolia* leaves lyophilized aqueous extract (JRLE) on experimental ulcers and mechanism in rats. The medicinal plant was collected in "Los Chañares" establishment, in the Fraga locality, San Luis Province. Infusion to 10% was prepared following the methodology outlined in the VI Ed Argentine National Pharmacopoeia and then lyophilized to preserve it. The JRLE was redissolved in distilled water just before oral administration. In all protocols (Approved protocol Nº F-348/20, F-357/21 and F-360/21), Wistar rats (180-200 g, n=6-8) fasted 24 h prior to treatments. JRLE was investigated by using various *in vivo* ulcer models. The stomachs were removed and inspected for lesions in the glandular portion. A scanner examined the specimens and the scanned images were analyzed by using a program developed by the National Institutes of Health (Image J 1.46r). The role of prostaglandins (PG), sulfhydryl groups (SH) and nitric oxide (NO) were evaluated. Oral pretreatment with JRLE (250, 500 and 1000 mg/kg) produced significant decrease in the intensity of gastric mucosal damage induced by ethanol ($p<0.001$ vs. ethanol); damage inhibition (%): 44.08, 59.28 and 90.41 (dose dependent). Moreover, JRLE prevented damage induced by others ulcerogenic agents: ClH 0.6 N, NaCl 25% and NaOH 0.2 N ($p<0.001$ vs. controls). The pretreatment with the SH blocker NEM (N-ethylmaleimide, s.c., 10 mg/kg) did not reduce the mucosal protection observed with JRLE treatment. These findings suggest that endogenous SH is not involved in the protective effect of JRLE. The inhibitory effect of JRLE on ethanol induced ulcerogenesis continued even after the inhibition of NO following pretreatment with NO synthase inhibitor (L-NNA, i.p., 40 mg/kg), The antiulcerogenic JRLE protection was only partially blocked by pretreatment with indomethacin (inhibitor of PG, i.p., 10 mg/kg), ($p<0.05$ vs. control). Present findings suggest that JRLE gastric protection depends, at least partially, on a possible mechanism related with the modulation of endogenous PG. Several flavonoids are reported for their gastroprotective activities. These compounds could be responsible for the gastroprotective activity. These results contribute to the scientific validation of the digestive, anti-ulcer and gastritis indications of this botanic species in Argentine folk medicine.

050- DIURETIC EFFECT OF *Jungia polita* IN RATS

Cabello F[1], Contreras Fernández M, Moyano F[1], Príncipe V[2], Petenatti EM[2], Wendel GH[1]
[1]Farmacología. [2]Farmacognosia. Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. Chacabuco y Pedernera. 5700. San Luis. E-mail: mfmoyano07@gmail.com

Jungia polita Griseb. (Asteraceae-Multisieae) is popularly known as "zarzaparrilla", "viña". This shrub species is used in argentine folk medicine as diuretic, anti-sclerotic, hypotensive, for skin affections; antihyperlipidemic, bradicardic and depurative. Infusion (10%) of the aerial parts (Del Vitto LA & EM Petenatti s.n., III-2007 (UNSL # 835)) was prepared, separated by filtration and the aqueous extract was concentrated and lyophilized to preserve it. Oral administration of *Jungia polita* up to 2g/kg produced no mortality and visible signs of delayed toxicity 14 days post-treatment. This study was designed to determine the diuretic activity of the *Jungia polita* lyophilized extract (JPLE). The test was performed as described by Lipschitz *et al*. The experiments were approved by the local Committee CICUA (Protocol F-405/22). Wistar rats (150-180 g) were employed. The animals, randomly assigned into groups (n=6-8), were deprived of food for 18 hours prior to starting the experiments and had free access to water. The test groups were administered with different doses of JPLE (250 or 500 mg/kg, orally). 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 carbon dioxide. Urinary volumetric excretion (UVE) and urine chemical parameters were measured in 3-hour diuresis. All values were expressed as the mean ± SEM. Graph Pad Prism was used for the statistical analysis and p values less than 0.05 were considered statistically significant. Student's *t*-test was performed to evaluate the differences between the control and the experimental samples for each time point. The lot 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; $p<0.001$). The urine samples presented normal chemical parameters in all the cases: urinary density and pH were similar to controls. The data reported in this work indicate that the infusion of *J. polita* showed diuretic activity (0.59), compared to furosemide, a potent loop diuretic. This diuretic activity could be due, in part, to the presence of flavonoids in this plant. Further investigations are necessary prior to their recommendation for use as diuretic.

051- SUB-LETHAL EFFECTS OF A GLYPHOSATE-BASED HERBICIDE ON *Daphnia spinulata* Birabén, 1917 AT DIFFERENT SALINITIES

Lares BA[1], Vignatti A[1], Echaniz SA[1], Cabrera GC[1], Giacomino V[1], Cora Jofré F[1], Gutiérrez MF[2]
[1]Facultad de Ciencias Exactas y Naturales, Universidad Nacional de La Pampa, Santa Rosa, La Pampa, Argentina. [2]Instituto Nacional de Limnología, CONICET-UNL, Paraje El Pozo, Ciudad Universitaria UNL, Santa Fe, Argentina. E-mail:
aliciavignatti@exactas.unlpam.edu.ar

Cereal and oilseed production is one of the most important economic activities in the Argentine Pampas region. It and involves the use of large amounts of glyphosate (N- (phosphonomethyl) glycine) for crop protection. Part of the residues of this herbicide can reach nearby water bodies and put non-target aquatic organisms at risk, including *Daphnia spinulata* (suborder Cladocera), an endemic species of shallow, subsaline lakes in the region. The present study's objective was to evaluate the effects of an herbicide (Panzer Gold®) on the life cycle parameters of this species. Two treatments were carried out, with 0.11 mg/L (T_1) and 3.75 mg/L (T_2) of herbicide in two concentrations of salts, 1 g/L (S_1) and 2 g/L (S_2), plus their respective controls. Neonates less than 24 hours old were placed individually in containers with 25 ml of solution and kept until death under a light/darkness regime of 16:8 and a temperature of 22 ±1 °C. Molts and offspring were measured and removed every 48 hours, the medium was changed, and the specimens were fed with *Chlorella vulgaris*. Significant differences ($p<0.05$) were registered between both saline concentrations for every measured parameter, indicating the lower performance of this species at higher levels of salinity. For S_1, significant differences ($p<0.05$) in longevity were seen between the control (mean = 17 days) and both treatments (mean = 14 days). Likewise, for S_2, longevity was significantly higher ($p<0.05$) in the control (mean = 13 days) compared to both treatments (mean = 8 days). For S_1, the mean number of offspring in the control solution was 10 individuals, and no difference was seen in the treatments. For S_2 however, a mean of 8 individuals was recorded in the control solution compared to only 2 individuals in T_1. This demonstrates an increase in the effect of the herbicide at higher levels of salinity. Although the number and size of the molts were higher in both controls compared to the treatments, the differences were not statistically significant. Large-sized filter-feeding cladocerans, such as *D. spinulata*, play a key role in water bodies by depressing phytoplankton biomass and increasing water transparency. Therefore, the decrease in the size of its populations due to glyphosate-based herbicides could alter the characteristics of the ecosystems it inhabits.

052- GASTRIC CYTOPROTECTIVE ACTIVITY OF ACACIAIN PEPTIDASE IN RATS

Villegas Gabutti C[1], Quiroga GH[2], Paredes J[1], Barberis S [2,3], Wendel G [1],*
[1] Laboratorio de Farmacología, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis, San Luis, Argentina. [2] Laboratorio de Control de Calidad y Desarrollo de Bromatología, Universidad Nacional de San Luis, San Luis, Argentina. [3] Instituto de Física Aplicada (INFAP) - Centro Científico Tecnológico (CCT) San Luis - CONICET, San Luis, Argentina.
E-mail:cmville@gmail.com

Acacia caven (Mol.) Molina is an arid and semi-arid area native tree of South America, which belongs to the Mimosaceae (Leguminosae) family. It is a very widespread species in Argentina, Chile, Bolivia, Uruguay, Paraguay and Brazil. Non-wood forest products, defined as "goods of biological origin other than wood, coming from forests", have experienced a sustained increase in their consumption in recent decades, especially foods and medicinal species, valued for their condition as goods of wild, natural and/or organic origin, with a significant impact on health and in the context of healthy eating. The objective of this work was to evaluate the anti-ulcerogenic effect in rats and the role of prostaglandins in this effect of the purified proteolytic extract of *Acacia caven* (Mol.) Molina pollen. The crude extract and the purified proteolytic fraction (acaciain peptidase) of *A. caven* pollen were obtained according to Barcia et al. (2019), using an FPLC unit (Akta Prime Plus, General Electric), and concentration and vacuum drying (SpeedVac™ Vacuum Concentrator SPD1030/2030). The anti-ulcerogenic effect of acaciain peptidase was evaluated using Wistar rats (180-200 g; n=6-8) of both sexes, and fasting for 24 h. The rats were grouped into an ulcer control group that was administered 1 ml of the necrotizing agent (absolute ethanol), and experimental groups that were administered the extract (16.2, 32.5 and 65 mg/kg), 60 min. before absolute ethanol. Indomethacin (10 mg/kg, s.c.) was used to evaluate the role of prostaglandins (PG). The animals were euthanized with CO_2 after 60 min of the necrotizing agent administration. The stomach scanned images were analyzed using Image J software (NIH). Ethanol caused gastric ulcers in all animals, while pretreatment with the extract at doses of 32.5 and 65 mg/kg prevented the formation of gastric lesions induced by ethanol ($p<0.001$ vs ethanol). The damage inhibition percentages were: 61.1% and 82.1% for the 32.5 and 65 mg/kg doses, respectively. The effect elicited by the lyophilized extract at 65 mg/kg was not attenuated by pre-treatment with indomethacin (10 mg/kg, s.c.), a prostaglandin synthesis inhibitor. Further assays will be carried out to suggest its use as a new food or pharmaceutical ingredient. These results suggest that the gastroprotective mechanism of action of acaciain peptidase does not involve prostaglandins at the dose assayed.

053- IDENTIFICATION OF BIOACTIVE EXTRACTS WITH ANTIFUNGAL ACTIVITY FROM *Dalea boliviana* Britton

Negro MF[1], Ortega MG[1], Silva MF[2], Peralta MA[1]
[1]Departamento de Ciencias Farmacéuticas, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba. Instituto Multidisciplinario de Biología Vegetal (IMBIV) -Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET).[2] Laboratorio de Química Analítica Verde, Facultad de Ciencias Agrarias, Universidad Nacional de Cuyo, Instituto de Biología Agrícola Mendoza (IBAM)-Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET).Email: maperalta@unc.edu.ar

Dalea boliviana Britton is a native species from Argentina. Previous studies determined the presence of prenylated flavonoids in the hexane extract of its roots. These compounds have been reported as antifungals against *Candida albicans*. This yeast is capable of producing superficial and systemic mycoses called candidiasis. Multiple drug resistance (MDR) is the primary mechanism responsible for resistance in clinical strains of *Candida*. The objective of this study was to evaluate the antifungal activity of extracts obtained with solvents of increasing polarity from the roots of *D. boliviana* against clinical strains of *Candida albicans*, and to determine the minimum inhibitory concentration (MIC) for those extracts that were more active. *D. boliviana* was collected in the department of Humahuaca, province of Jujuy, Argentina. From the dried roots, four extracts were obtained with organic solvents according to the following polarity order: hexane (DbH), chloroform (DbC), ethyl acetate (DbA), and ethanol (DbE). Soxhlet was used as the extraction methodology. The antifungal activity of the extracts was evaluated by microdilution in a 96-well plate (according to CLSI standards), on two clinical strains of *C. albicans*, one resistant (CaR) and the other sensitive (CaS) to azoles. The optical density at 540 nm was measured in the presence of the four extracts at a concentration of 500 µg/ml. At the concentration evaluated, the DbH, DbA, and DbE extracts showed growth inhibitions of less than 50% for both strains, while DbC inhibited the growth of CaS and CaR by 67% and 71%, respectively. The chloroform extract turned out to be the most active, so 125 and 250 µg/ml concentrations were evaluated to determine its MIC. At 250 µg/ml, it inhibited 57% and 55% for CaS and CaR, respectively, establishing this concentration as the MIC for DbC. These results allowed evidence, of the DbC extract medicinal potential, against clinical strains of *C. albicans* even those azole-resistant. It is proposed to deepen the phytochemical and pharmacological investigations of this extract.

054- TOXICITY OF AZO DYES CONGO RED AND ALIZARINE YELLOW R ON PLANT AND AQUATIC ORGANISMS

Padilla CD[1], Magallanes-Noguera CA[1,2], Kurina-Sanz M[1,2], Giannini FA[3], Bonilla JO[1,2]
[1]FQByF, UNSL. [2]Instituto de Investigación en Tecnología Química (INTEQUI, CONICET-UNSL). [3]Laboratorio de Bioensayos, Química General e Inorgánica, FQByF, UNSL. San Luis, Argentina. E-mail: jobonilla@email.unsl.edu.ar

The textile industry is the second most polluting and generates wastewater that contains a wide variety of chemical contaminants and large quantities of dyes. Because of photolytic and thermal stability, along with resistance to biodegradation, textile dyes remain in the environment for a long time. Among them, azo dyes are the largest and most versatile group, accounting for 80% of all dyes used in textile industries. Bioremediation is a sustainable and eco-friendly technology to treat this type of pollution. The knowledge of the toxic effects of dyes is a key requirement to propose future strategies for environmental sanitation. For these reasons, the objective of this work is to evaluate the toxicity of the azo dyes Congo Red ($C_{32}H_{22}N_6Na_2O_6S_2$, 696.66 g mol^{-1}) and Alizarine Yellow R ($C_{13}H_8N_3NaO_5$, 309.21 g mol^{-1}) toward different model species that represent relevant ecological functions. The phytotoxicity of the azo dye aqueous solutions (25, 50, 75 and 100 µg mL^{-1}) was evaluated using *Lactuca sativa* L. seeds after 120 h exposure by analyzing the Absolute Germination (GA) and the Germination Index (GI), which also takes into account the length of the radicle and hypocotyl. Likewise, we determined the average growth-inhibition of roots in *Allium cepa* after 72 h. Additionally, the toxicity of the azo dyes was evaluated on *Danio rerio* fertilized eggs after 96 h. The arithmetic means were evaluated through ANOVA, p=0.05 (IBM SPSS Statistics v24). Although Congo Red did not significantly inhibit germination or radicle and hypocotyl elongation of *L. sativa* L. at all concentrations tested, it inhibited around 50% the roots length in *A. cepa* from 50 µg mL^{-1} onwards. The dye caused 100 % mortality of *D. rerio* fertilized eggs from 75 µg mL^{-1} onwards at 96 h. On the other hand, Alizarine Yellow R inhibited between 20-30 % the germination of *L. sativa* L. seeds from 75 µg mL^{-1} onwards and was moderately toxic in terms of radicle and hypocotyl elongation (GI ~ 75 %). This dye inhibited 50 % the roots elongation in *A. cepa* when present at 100 µg mL^{-1}, while it caused total mortality of *D. rerio* eggs at 50, 75 and 100 µg mL^{-1} after 96 h. These results position both textile azo dyes as targets for the development of removal and biodegradation processes with competent organisms to minimize risks for human health and the environment.

055- SPECIATION ANALYSIS OF ADSORBED ATMOSPHERIC ARSENIC IN POLLEN AND AEROBIOLOGICAL SAMPLES BEFORE AND DURING THE COVID-19 PANDEMIC

Escudero DR[a], Isaguirre A[a], Moyano F[ab], Fourcade G[b], Hasuoka P[c], Pacheco P[c], Moglia M M[a]*
[a] Facultad de Química, Bioquímica y Farmacia- Universidad Nacional de San Luis, Argentina
[b] Hospital San Luis, San Luis, Argentina
[c]Instituto de Química de San Luis (INQUISAL-CONICET-Universidad Nacional de San Luis), Argentina
** e-mail: danielarocioescudero@gmail.com*

Arsenic (As) is a toxic element for humans, which can be released into the environment naturally or by anthropogenic activities. Pollen grains have the ability to adsorb and transport heavy metals such as As, these having become indicators for contamination by As. The toxicity of As depends on the chemical form in which it is present, the inorganic form being more toxic than the organic forms. Therefore, to assess the risk of exposure to As, the individual concentrations of each species must be determined rather than a total elemental analysis. The objective of this research is to evaluate the effects of vehicular traffic on the concentration of As in the atmosphere, for this aerobiological samples were collected in pre-pandemic and pandemic periods in the city of San Luis, Argentina, in the vicinity of the San Luis Regional Hospital. Subsequently, total As was determined in the mentioned samples. Similarly, for a more comprehensive study, As speciation was performed on fresh pollen samples from *Vachellia caven*. Firstly, an elution of atmospheric As species adsorbed on pollen samples was performed, which was optimized by using 1% v/v acetone, 15 minutes of ultrasonic bath and centrifugation. The eluted As species were determined by LC-ICP MS, with As (III) and As (V) concentrations between 0.08 and 0.62 µg g^{-1} and 0.33 and 0.89 µg g^{-1} respectively, these concentrations corresponding to year 2021. Analyzing 0.05 g of pollen, the method reaches a detection limit and quantification limit of 0.01 and 0.04 µg g^{-1} for As (III); and 0.01 and 0.06 µg g^{-1} for As (V), respectively. A microscopic analysis of the aerobiological samples was also carried out in order to determine the most abundant pollen species in the periods studied, which was identified as Chenopodiaceae-Amaranthaceae, with a concentration of 38 grains of pollen/m3 of air in 2019 and 36 grains of pollen m^{-3} of air in 2021. The concentration of this type of pollen, in the years studied, is in the moderate category of the Manual of the Spanish Network of Aerobiology. In addition, other types of pollen were recorded during these periods, such as Poaceae, *Plantago*, *Artemisia* and other Asteraceae, but in the "low" categories established by REA. The results obtained in this study showed significant variations in the concentration of total As, in aerobiological samples, which suggests that traffic increases the concentration of atmospheric As.

056- EVALUATION OF CYTOTOXIC EFFECT OF *Tessaria absinthioides* DIFFERENT HARVESTS AND AQUEOUS PREPARATIONS ON p53 +/- HUMAN BREAST CANCER CELL LINES

Pascual LI[1], Sammartino J[2], Hapon MB[1,3], Gamarra-Luques C[1,2]
[1]IMBECU – UNCuyo, CTT Mendoza CONICET, [2]FCM – UNCuyo, [3]FCEN – UNCuyo.
Email: lpascual@conicet-mendoza.gob.ar

According to the Global Cancer Observatory, breast cancer was the most prevalent in Argentina in the year 2020, with 22,024 reported cases, representing 16.8% of all the new cases and being the most frequent in women (32.1%), with the highest mortality (19.9%). This data shows the need to improve current treatments, not only to increase their effectiveness but also to reduce their side effects. New strategies are being explored by incorporating natural compounds as plant-derived products that might be beneficial in benefit cancer management. The aqueous extract of *T. absinthioides* (AETa) has been reported for its cytotoxicity against cancer cell lines, with no-toxic and antitumoral effects when it is orally administered in animals. The aim of this study was This study aimed to compare the cytotoxic effects of *T. absinthioides* different harvests and aqueous preparations on MCF7 (p53 +) and T47D (p53 -, mutated) cell lines. Plant leaves harvested in 2017, 2018 and 2019 (Lavalle County, Mendoza) were used to prepare the AETa by boiling 10 g leaves in 100 mL water, followed by heat concentration up to the final volume of 10 mL. The decoction (DETa) was prepared by boiling of 10 g leaves in water (100 mL), without later concentration. Finally, to prepare the infusion (INTa), 10 g of leaves were placed in 100 mL of hot water (96°C) for 10 minutes. In order to investigate the cytotoxic activity of different harvests and preparations on MCF-7 and T47D cell lines, the cell proliferation was assessed by performing an MTT assay in a dose-response experimental design. The treatments were applied in the culture media for 72 h, and their doses were estimated by the dry content of leaves in the solution. The treatments potency was calculated by de median effective dose (Dm, as the concentration that inhibits proliferation at 50%), using CompuSyn software. This study demonstrated that the cytotoxic activity of AETa on MCF-7 and T47D cells did not vary significantly between the 2017, 2018 and 2019 harvests. In MCF7, Dm values were 9.86, 9.99 and 7.60 µg/mL, respectively; while T47D cells showed Dm values of 13.84, 13.79 and 13.07 µg/mL. Then, when the effect between different preparations were analyzed, AETa and DETa showed a comparable activity on both cell lines (MCF-7 Dm = 7.99 and 6.81 µg/mL; and T47D Dm = 9.47 and 9.13 µg/mL). In contrast, INTa showed a significantly decreased cytotoxic effect (ANOVA followed by Tukey´s multiple comparisons test, $p < 0.05$) on both cell lines (29.75 and 35.32 µg/mL, respectively). Later, when obtained Dm where were compared between both cell lines, the MCF-7 cells were always significantly more susceptible to the treatments than the T47D cells (Student T test, $p < 0.05$). These results demonstrate: first, that the plant activity resulted similar similarly when harvests from different years were compared; second, that the decoction resulted in the optimum process for the plant aqueous plant preparation; and finally, that the p53 protein expression sensitizes the breast cancer cells to *T. absinthioides* treatment. In conclusion, this study represents a valuable evidence of *T. absinthioides* aqueous extract activity, promoting its application in oncology research.

057- *Prosopis strombulifera* AND *Tessaria absinthioides* ALTER THE TRANSCRIPTOME OF MBA MD-231 CELLS

Campoverde Arboccó F[1,2], Pascual LI[1], Hapon MB[1,3], Gamarra-Luques C[1,4]
[1]IMBECU – UNCuyo, CTT Mendoza CONICET, [2]Fac. Ciencias Médicas – Univ.de Mendoza, [3]Fac. Ciencias Exactas y Naturales – UNCuyo. Fac. Ciencias Médicas – UNCuyo,
Email: arboccocv@gmail.com

The alterations in the transcriptome and methylome of cancer cells are related to the antineoplastic treatment resistance. Therefore, compounds that influence genes methylation result of great therapeutic interest. In recent years, the therapeutic potential of common dietary ingredients hasd been demonstrated, while phytomedicine has gained relevance as a new option in cancer therapy. In accordance with the complementary approach of phytomedicine in cancer therapeutics, previous works with *Prosopis strombulifera* (AEPs) and *Tessaria absinthioides* (AETa) aqueous extracts demonstrated cytotoxic effects on human breast adenocarcinoma cell lines. The goal of this work is to study the influence of AEPs and AETa treatment on the transcriptome of the MBA MD-231 cell line, evaluating the expression of genes whose products participate in the establishment of the methylome and tumor progression. Cell cultures of MDA-MB-231 were treated with EAPs and AETa for 72 hours at no cytotoxic doses. Later, RNA was obtained from the cells using the TRIzol reagent, and the total RNA (2.5 µg) was reverse-transcribed with the enzyme MMLV-RT. Finalizing, the expression of each gene was analyzed using specific primers by real-time PCR. The obtained results show that both extracts have the ability to can alter the cellular transcriptome, particularly the expression of enzymes related to the dynamic control of DNA methylation. AEPs increased the expression of the Dnmt3b gene (de novo methyl transferase) and decreased the Dnmt1 (maintenance methyl transferase), suggesting the activation of de novo cellular methylation mechanisms, possibly due to the lack of a hemimethylated template chain. On the other hand, AETa increased the expression of Dnmt1 and TET2 (DNA demethylating enzyme). Although these results appear to be contradictory, the treatment with AETa induced an important modification of gene expression, suggesting a massive impact on the cellular transcriptome. In relation to TET2 expression changes, it is known that the increase in the expression of its mRNA is associated with a good prognosis in breast cancer. In conclusion,

the results of this study show the capability of AEPs and AETa to alter the cellular transcriptome and open a new window about these plant-derived compounds potentialities in cancer research.

058- EVALUATION OF ACUTE ORAL TOXICITY OF *Kosakonia radicincitans* IN RATS

Possetto P, Calvo J, Sansone G, Calvente V, Teves MR, Wendel GH
Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. Email: papossetto@unsl.edu.ar

Several species of the *Kosakonia* genus act as beneficial microorganisms that growth-promote and carry out a biological control of pests in plants. Inside this genus, *K. radicincitans* has been reported as a growth-promoting of radish, tomato, and maize plants. In addition, we have reported on the ability of this bacterium to promote the growth of lettuce plants (*Lactuca sativa* L.) under greenhouse conditions and biological control agent of pathogenic fungi. Regarding the interaction of this bacterium with the human, there are bibliographic records that indicate, to date, only two case reports (United States 2016 and Austria 2020) where some strain of *K. radicincitans* acted as a human pathogen. The objective of this work was to evaluate of acute oral toxicity of *K. radicincitans* in rats, for provide data about the toxicity at preclinical level about this new growth promoting agent. Wistar rats of both sexes (180-200 g) from the Central Bioterio of the National University de San Luis were used. The potential acute toxicity of the native strain *K. radicincitans* was tested in accordance with the provisions of guideline No. 423 of the Organization for Economic Co-operation and Development. A negative control group (saline solution) and an experimental group for each of the doses of *K. radicincitans* [1×10^6, 1×10^8, 1×10^{10} y 1×10^{12} CFUs (Colony Forming Units)/kg weight of animal; *p.o.*] were established. Each animal group was constituted by three female rats and three male rats. After, administration was registered the animal´s motor activity with an actograph. The animals were observed periodically during the first 24 hours (with special attention during the first 4 hours), and then daily during the 14 days of the study to observe their overall behavior and evidence of any toxicity sign or death. The animals and food were weighed at the start, seventh and fourteenth day of the study. On the fourteenth day, the animals were euthanized with CO_2. The heart, spleen, lungs, liver, kidneys and testicles/ovaries were removed which were macroscopically examined and weighed individually. The weight of each organ was expressed as a percentage of weight relative to the weight of the whole animal. The experimental results showed that the administration of a single dose of *K. radicincitans* did not cause mortality or visible symptoms of toxicity in either male and female rats at the doses tested. In none of the animals were observed symptoms of restlessness, respiratory depression, convulsions or death. The analysis by 1-way ANOVA indicated that the experimental procedure did not produce statistically significant modifications neither on the relative weight of examined organs nor in the rest of the analyzed parameters when compared to records of the negative control group. The results demonstrated that the under the experimental conditions and based on the toxicological records evaluated, there were no observed changes of toxicological significance in female and male Wistar rats, so this study provides some important information respect to the use of native strain *K. radicincitans* as growth promote/biological control agent of vegetables used in the human alimentation.

059- COMPARATION OF THE ACUTE TOXICITY BY GLYPHOSATE (COMMERCIAL FORMULATION) IN TWO SPECIES OF PLANKTONIC MICROCRUSTACEANS: *Boeckella poopoensis* MARSH, 1906 AND *Daphnia spinulata* BIRABÉN, 1917

Cabrera GC[1], Vignatti AM[1], Echaniz SA[1], Lares BA[1], Gutiérrez MF[2], Giacomino V[3]
[1]Grupo de Ecología y Fisiología del Zooplancton (GEFZoo), Depto. de Ciencias Biológicas, FCEyN, UNLPam. [2]Instituto Nacional de Limnología (CONICET-UNL) [3]Depto. de Química, FCEyN, UNLPam.
E-mail: gabrielacabrera@exactas.unlpam.edu.ar

In the central region of Argentina there is a significant number of wetlands and shallow lakes, most of them located in basins where agricultural production is developed. This means that a large number of herbicides are used each year to control weeds; the most widely used being commercial formulations based on glyphosate (N-(phosphonomethyl) glycine). Given that these agrochemicals can be transported to surface water bodies by leaching and runoff, the aim of this study was to determine and compare the effect of glyphosate on two species of microcrustaceans that are frequent in the zooplankton of shallow lakes in the center of the country, the copepod *Boeckella poopoensis* and the cladoceran *Daphnia spinulata*. Acute bioassays (48 h duration, without medium renewal or feeding) were carried out with nauplii of *B. poopoensis* and neonates of *D. spinulata* with increasing concentrations of glyphosate (commercial formulation Panzer Gold): 0 (control); 1.3; 2; 3; 4.5; 6.75 and 10.13 mg/L. The media used were mesocosm water (previously sterilized) where a stable population is maintained for the former; and distilled water with 1 g/L of ClNa (optimum medium for its culture) for the seconds. 25 specimens were used for each concentration (one per 25 ml transparent bottle). The photoperiod was 8/16 hours (darkness/light) and the temperature was 22 (±1) °C. As an indicator of death, the immobility of the specimens was considered and the Probit method was used to calculate the LC50. *Boeckella poopoensis* was more sensitive to the herbicide since its LC50 was 5.1 mg/L while that of *D. spinulata* was 7.5 mg/L. The greater tolerance recorded in cladocerans could be due to that their postembryonic stages develop protected within the

females breeding chamber, unlike copepods which, due to external postembryonic development, their nauplii larvae (with their organ systems and resistance mechanisms still immature) are directly exposed to environmental conditions as soon as the eggs hatch.

060- OXIDATIVE STRESS BY GLYPHOSATE (COMMERCIAL FORMULATION PANZER GOLD) IN *Boeckella poopoensis* MARSH, 1906 (CRUSTACEA, COPEPODA)

Cabrera GC[1], Vignatti AM[1], Echaniz SA[1], Negro L[2], Gutiérrez MF[2], Cora Jofré F[3]
[1]Grupo de Ecología y Fisiología del Zooplancton (GEFZoo), Depto. de Ciencias Biológicas, FCEyN, UNLPam. [2] Instituto Nacional de Limnología (CONICET-UNL) [3] Depto. de Química, FCEyN, UNLPam.
Email: gabrielacabrera@exactas.unlpam.edu.ar

Glyphosate (N-(phosphonomethyl) glycine) is the most widely used herbicide worldwide for control weed. In South America, particularly in the pampean region, where an important agricultural production is developed, large quantities are used each year. Although its toxicological risk is disputed, various studies have shown its harmful effects on aquatic organisms. Given that *Boeckella poopoensis* is a frequent and representative calanoid of the saline lakes of the Neotropical region, the aim of this work was to evaluate the effect of this herbicide on the antioxidant mechanisms of the species. An experiment was developed to evaluate the enzymatic activity of catalase (CAT) and glutathione S transferase (GST) and the levels of hydrogen peroxide (H_2O_2). For 15 days, copepodites IV and V males and females separately, were exposed to four concentrations of glyphosate (commercial formulation Panzer Gold): 0 (control); 0.58; 1.16 and 2.32mg/L. For each treatment, 4 replications were carried out with 15 individuals each, transparent bottles of 100 ml were used. Every 48 h, the medium was renewed (mesocosm water, previously sterilized, where a stable *B. poopoensis* population is maintained) and *Dunaliella salina* was fed. The photoperiod was 8/16 hours (darkness/light) and the temperature was 22 (±1) °C. After exposure, a significant difference ($p<0.05$) was recorded in CAT levels between males and females, since, in the former, the enzyme increased as glyphosate concentrations increased, while in females a decrease was observed, although these differences were not significant when compared to their respective controls. Since the function of CAT is to catalyze the decomposition of H_2O_2 into water and molecular oxygen, its behavior in this study could explain why males maintained H_2O_2 levels similar to the control, unlike females in which an increase was observed. Although no significant differences were found in GST, imbalances in the oxidant/antioxidant balance, recorded especially in females, would show that glyphosate has a toxic effect on *B. poopoensis*.

061- TOXICITY OF NANOALLOY OF CuNi ON LARVAL DEVELOPMENT OF *Rhinella arenarum*

Reyero E[1], Fernandez CA[1], Quiroga J[2], Peréz Iglesia JM[2-3], Fernandez G[4], Esquivel MR[5-6], Cangiano MA[1,2]
[1] Facultad de Ingeniería y Ciencias Agropecuarias (FICA), Universidad Nacional de San Luis (UNSL), Ruta 55 Ext. Norte, Villa Mercedes, San Luis, Argentina, [2] Instituto de Investigaciones en Tecnología Química (INTEQUI)-CONICET Ruta 55 Ext. Norte, Villa Mercedes, San Luis, Argentina. [3] Universidad de Los Comechingones, [4]Facultad de Química, Bioquímica y Farmacia (UNSL), [5] Centro Atómico Bariloche (CNEA - CONICET), Avenida Bustillo km 9,5, Bariloche, Rio Negro, Argentina.[6] CRUB- Universidad Nacional del Comahue, Quintral 1250, Bariloche, Rio Negro, Argentina. E-mail: cfernandez@email.unsl.edu.ar

CuNi-based alloys are widely used in industry for their properties. They have a very high electrical conductivity, with a melting point above 1100 °C. Cu-Ni does not develop uncontrolled degradations, it has a high inherent resistance to biofouling, chlorination can be reduced or, in some cases, avoided, and it can be remelted and reuse 100%. CuNi nanoalloys also vary in synthesis techniques; In this study, bimetallic Cu-Ni NPs obtained by a chemical method called citrate-gel (B1-500) were analyzed. Due to its resistance to corrosion, CuNi is widely used in aquatic environments; therefore it is interesting to study its toxicity in organisms.The current work evaluated the lethal toxicity of CuNi-based alloys on larvae of the South America toad, the amphibian *Rhinella arenarum.* In order to know the concentration, the nanoalloy was previously characterized by atomic absorption spectrophotometry (AA). The results determined the following values of Cu and Ni: 164.67 mg/L and 181.21 mg/L respectively. The toxicity of CuNi powder (nanoalloy) was evaluated by standardized bioassays using 25-stage *Rhinella arenarum* larvae (Gosner). The bioassays were carried out using 5 individuals and 3 replicates. Various proportions of these compounds were tested at different exposure times. The parameter that is established in the toxicity test and that is the most used in ecotoxicology is LC50 (Lethal Concentration 50): concentration that causes lethality over 50% of the exposed organisms, in a certain time. The value obtained in the Cu-Ni nanoalloy was LC50 equal to 0.027 with confidence limit (95%): 0.016 (LCI) and 0.056, when affected by the concentration of Cu and Ni to this parameter we have LC50 for Cu 4.44 mg/L and for Ni 4.89 mg/L. Although for aquatic environments in the regulations the acceptable toxicity values for CuNi-based nanoalloys are not available, the values obtained refer to toxicities lower than the levels allowed by different standards established for Cu and Ni individually.

062- EVALUATION OF THE ACUTE TOXICITY OF IVERMECTIN FORMULATION AND CADMIUN IN AMPHIBIANS

Pistone C[1*], Sanchez E[2,3*] *Cianci Romero A[1], Alvarez SM[23] , Enriz RD[13], Giannini FA[1]*
*[1]Laboratorio de Bioensayos, Cátedra de Química General e Inorgánica, Universidad Nacional de San Luis, e-mail: emysilsanchez@gmail.com. [2]Laboratorio de Nutrición, Medio Ambiente y Metabolismo Celular, Cátedra de Fisiología, Universidad Nacional de San Luis. [3]IMIBIO-SL CONICET. *equal contribution.*

Amphibian populations are decreasing globally. The environmental contamination is one of the mayor factors that contribute to amphibious population declines. However, there is a great disagreement about if amphibious are good sentinels of ecological contamination or not, due a lot of ecotoxicological studies indicating that amphibians are generally less sensitive than fish and invertebrates to different groups of contaminants. Ivermectin is a broad-spectrum antiparasitic used as a treatment in humans and mainly in animals. It also recently gained importance in the framework of the 2020-2022 Covid-19 pandemic produced by the SARS-CoV-2 virus as a therapeutic alternative. On the other hand, cadmium (Cd) is a pollutant of global concern due to its high toxicity at low concentration. Various modern industrial activities cause serious Cd contamination because of its wide use in fields such as battery, pigments, coatings, plating and plastics. Our working group has been study over the years the toxicity of a commercial formulation of Ivermectin for humans and the toxicity of Cd. Previously, carried out the evaluation of the toxicity of both substances using two species of fish (*Poecilia reticulata* and *Danio rerio*) as experimental models. Here in, we present a study using amphibian larvae as experimental model. To evaluate these compounds, we use the technique recommended by the U.S. Fish and Wildlife Service (Johnson and Finley 1980) modified by our working group. The toxicity was evaluated in amphibian larval stages (V-VI according to Martin et al.) of *Rhinella arenarum* obtained by collection in the month of November in San Luis city. Ten specimens were exposed in duplicate to different concentrations (5-0.625 mg/L for Cd and 0.250-0.032 mg/L for ivermectin) for a period of 96 hours. The LD_{50} was determined according the ratio of mortality in 96hs of exposure using an online software that develops "probit analysis". The results obtained showed LD_{50}=2.3 mg/L for Cd and LD_{50}= 0.122 for ivermectin. Considering our previous studies in fish (Cd DL_{50}=2-3 mg/L and ivermectin LD_{50}= 0.0039 mg/L) amphibians have greater resistance than fish in the case of Ivermectin but similar to both fish species in Cd acute intoxication. Our results highlight the importance of testing the distinct nature and mechanism of toxicity of contaminants individually to be able to come to any conclusion on the relative toxicological sensitivity of amphibians and further investigate the sensitivity and consequences of the chronic exposure to these axenics.

SESION III DE POSTERS

BIOTECNOLOGIA Y GENETICA (BG)

BIOTECNOLOGIA Y GENETICA (BG)

001- PNIPAM AND PNIPAM-co-3% APTA HYDROGELS ARE BIOCOMPATIBLE IN AN *IN VIVO* ANIMAL MODEL

Sommaro A, Capella V, Zabaldano L, Rodriguez N, Liaudat AC.
Instituto de Biotecnología Ambiental y Salud (INBIAS), Universidad Nacional de Río Cuarto (UNRC)-Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). e-mail: ***aliaudat@exa.unrc.edu.ar***

The design of matrices to guide the regeneration of different tissues requires the creation of a scaffold and the desired cell type culture to achieve the functional unit to be transplanted. Previous studies carried out in our laboratory have shown that Poly-N-isopropylacrylamide (PNIPAM) and PNIPAM-co-3% (3-((acrylamidopropyl) trimethyl-ammonium chloride), APTA) hydrogels are scaffolds that allow adhesion and development of epithelial, renal, pulmonary and immune cells of different species with the absence of cytotoxicity. The aim of this study was to analyze the *in vivo* biocompatibility of PNIPAM and PNIPAM-co-3% APTA hydrogels with 3D architecture in male Wistar rats. PNIPAM or PNIPAM-co-3% APTA hydrogel half-discs of 0.5 cm width were implanted in subcutaneous pockets of 3 rats per treatment (control, PNIPAM and PNIPAM-co-3% APTA) for 30 days. The healing process was evaluated in all animals during the first 10 days after surgery. After 30 days exposure to the different hydrogels, the rats were sacrificed according to the UNRC animal care protocol. Blood samples were taken for hematological and biochemical analysis, in addition to kidneys, liver, and spleen for further histopathological evaluation. The results showed the absence of alterations in the healing process and in the post-surgery recovery time in all the animals evaluated. The values of the hematological parameters (number of erythrocytes, leukocytes, platelets, hematocrit %, leukocyte formula and hemoglobin concentration) and liver enzyme activities (GPT, GOT and ALP) of different hydrogels implanted animals were similar to the control group. Histopathological studies remained unchanged in all experimental groups. In conclusion, PNIPAM and PNIPAM-co-3% APTA hydrogels are biocompatible in a murine model, maintaining hematological, biochemical and histological parameters without alterations.

002- LACCASE AND LIGNIN PEROXIDASE ACTIVITY IN INDIGENOUS *Pleurotus* sp. AND *Trametes* sp. STRAINS

Carrillo A[1]*, Bonilla J*[1]*, Kurina-Sanz M*[1]***,*** *Aguirre Pranzoni C*[1]
[1]*INTEQUI-CONICET, Universidad Nacional de San Luis, San Luis (5700), Argentina.*
E-mail: aguirrepranzoni.c.unsl@gmail.com

The advances in biotechnological processes to obtain high value products are intimately related to enzyme production. The use of enzymes substantially improves the sustainability of industrial processes. Specifically, the lignin-modifying enzymes (LMEs) are attracting the attention because they allow reducing lignocellulosic waste and can biodegrade recalcitrant products. The white rot fungi are known as promising laccase and peroxidase producers. The main objective of this work is to explore the enzyme producing capacity of two white rot fungi: *Pleurotus* sp. and *Trametes* sp., in the presence of lignocellulosic wastes, using both liquid and solid fermentations. The fungal strains were isolated from a rural zone of San Luis, Argentina. Brewer's bagasse from a local brewing industry was used as lignocellulosic substrate for solid fermentation or it was also added to YG liquid medium. The laccase and lignin peroxidase activities were determined using ABTS and pirogalol, respectively. When YG media were supplemented with brewer's bagasse, the laccase activity increased from 320.56 to 624.64 U/L in *Pleurotus* sp. and from 3.20 to 104.46 U/L in *Trametes* sp. On the contrary, lignin peroxidase activity did not increase in the presence of lignocellulosic substrate neither for *Pleurotus* sp. nor for *Trametes* sp. Solid fermentation analysis yielded promising results in terms of lignin peroxidase activation, since both microorganisms increased twenty-fold the lignin peroxidase activity (0.0 to 20.0 U/hL), when compared to liquid supplemented culture. Under the same conditions, *Trametes* sp. triplicated the laccase activity (104.46 to 365.55 U/L), while *Pleurotus* sp. halved it (624.64 to 378.24 U/L). These results show that culture conditions determine the differential enzyme production, which can be optimized by using lignocellulosic waste as enzyme activity-inducing substrate.

003- SOLID STATE FERMENTATION OF AGROINDUSTRIAL WASTE BY ACTION OF *Aspergillus niger* ON A LARGE SCALE FOR ENZYME PRODUCTION

Pacheco ME[1], Goldstein MM[1], Solar DM[1], Santana A[1,2], Gil R[1], Rodríguez L[1], Martín ML[1,2]
1 Instituto de Biotecnología, Facultad de Ingeniería, U.N.S.J., San Juan. Argentina
2 Departamento de Ingeniería Química, Facultad de Ingeniería, U.N.S.J., San Juan, Argentina.
E-mail: marialuciamartin79@gmail.com

The largest amount of agro-industrial waste generated in the province of San Juan comes from the olive and wine industries. Among the main waste generated are grape pomace, stalk, alpeorujo and olive pomace, which have the characteristic of being produced in large quantities in seasons of a few months, causing environmental problems for their safe final disposal, required of industries by the current legislation of the province. Solid state fermentation (SSF) is a very valuable alternative for the treatment of this type of waste, could be able to produce a product with added value (enzymes) that is useful for the involved. Previously, the team has been working for some time in the search for the optimal conditions for the SSF by the action of *A. niger*. The objective of this work was to carry out a study of the production of hydrolytic enzymes using *A. niger* on the use of red grape pomace (GP) and olive pomace (OP), using large-scale SSF. The growth kinetics of the microorganism was also studied. The SSF was carried out using 18 kg of substrate with 1:1 proportions of grape pomace (GP) and olive pomace (OP), under optimized operational studied conditions such as: glucose addition: 1.5% w/w; initial moisture content: 66% w/w; addition of micronutrient solution: 5 ml/100g of wet substrate; temperature: 27°C; incubation time: 12 days; initial pH: 4.5; inoculum size: $1x10^7$ spores/g dry. Enzyme activities were measured in the aqueous SSF extracts. To determine the Glucosamine content, each SSF sample underwent acid hydrolysis of fungal chitin to N-acetyl glucosamine. As result, cellulase activity increased from the beginning of fermentation and reached a peak at 42 h fermentation (0.45 UE), then decreased, peaks considered less significant. The activity of exopolygalacturonase reached a maximum value at 75 h of fermentation (0.41 UE) and then decreased. The xylanase enzyme showed its highest activity at 93 h (0.56 UE) and finally the endopolygalacturonase enzyme showed maximum growth at 75 h (1.7 UE) and 139 h (1.96 UE). We can conclude that, on a large scale, the enzymatic activity of the four enzymes studied is elevated approximately around 75 h, at which time the enzymatic extraction would be optimal to obtain an enzymatic complex.

004- OPTIMIZATION OF THE PROPORTIONS OF THREE AGROINDUSTRIAL RESIDUES USED AS A SUBSTRATE FOR THE PRODUCTION OF FUNGI OF THE GENUS *Pleurotus*

Nuñez Ruiz G[1], Martín M L [1,2], Lima B[1,3], Santana A [1,2]
1 Instituto de Biotecnología, Facultad de Ingeniería, U.N.S.J., San Juan. Argentina
2 Departamento de Ingeniería Química, Facultad de Ingeniería, U.N.S.J, San Juan, Argentina.
3Consejo Nacional de Investigaciones Científicas y Técnicas, San Juan, Argentina.
E-mail: gonza.ruiz.96@gmail.com

The main agro-industries in the Cuyo Region, Argentina, are oil-olive and wine. In the production of olive oil and wine, numerous lignocellulosic wastes are generated. Most olive oil factories use continuous two-phase systems, generating a semi-solid residue called "alpeorujo". While in the wineries large amounts of stem (plant structure of the grape cluster) and grape pomace are obtained. In the province of San Juan, significant amounts of pomegranate peel are produced. Due to their their high content of phenolic compounds these residues present difficulties for their final disposal and so they are polluting. The use of biotechnological processes, alone or combined with physicochemical analysis, is recommended for the treatment of these residues. In previous studies, the relevant culture conditions were found for the Solid-State Fermentation process of *Pleurotus ostreatus* and *Pleurotus eriingy* on a mixture rich in alpeorujo, using the Plackett-Burman method. Likewise, the capacity of these edible fungi to degrade the phenolic compounds of the alpeorujo was determined. In the present work, we sought to optimize the proportions of the residues used as a substrate for the production of these edible mushrooms, applying the Box-Behnken (DBB) method. 15 tests were carried out for each species, 30 in total, corresponding to a DBB for 3 variables, at 3 levels, with 3 repetitions of the central point. The variables and levels tested to optimize the production of *P. ostreatus* and *P. eriingy* were percentage of alpeorujo, grape pomace and pomegranate peel (30, 40 and 50% p/p). The tests were carried out in polyethylene bags with a capacity of 500g, initial moisture content: 70% p/p, initial pH: 6.0; inoculum at 10% p/p. Incubation time: 10 days at 28°C. The response surfaces represented by the growth of mycelium were constructed and the optimal values of the variables that maximize the production of *P. ostreatus* were predicted, those that resulted in alpeorujo 50 % p/p, pomace of grape 40% and pomegranate peel 40 % p/p and alpeorujo 40 % p/p, pomace of grape 30% and pomegranate peel 40 % p/p for the *P. eriingy*. It is concluded that with the use of the Box Benhken experimental design, it was possible to find the proportions of the optimal agroindustrial waste mixtures, for the favorable growth of edible fungi.

005- *IN VITRO* PROPAGATION OF *Hedeoma multiflora* Benth IN HORMONE-FREE MEDIUM

Diaz Gabutti MS[1,2], Leporati J[2], Verdes P[2], Kurina-Sanz M, Magallanes-Noguera C[1]
[1]INTEQUI-CONICET, FQByF-UNSL Almirante Brown 1455, San Luis. [2]Departamento de Ciencias Agropecuarias, FICA-UNSL, Ruta Provincial 55 (Ex 148), Villa Mercedes. E-mail: msdiazgabutti@gmail.com

Hedeoma multiflora Benth. (Lamiaceae) known as "peperina de las lomas" is a native and medicinal herb. It is highly demanded for its aromatic, digestive, cytotoxic and antioxidant properties, which endangers the survival of the natural populations. The aim of this work was to establish an *in vitro* organogenesis protocol in a hormone-free medium to generate high biomass of *H. multiflora*. The plants were collected from two wild areas of San Luis province, Argentina (Line 1 Potrero de los Funes; 32° 24 00" S 65° 01 00" 0 and Line 2 Carpintería, Merlo 33° 13 00" S 66° 14 00" 0). Binodal segments (explants) of *H. multiflora* plants were cultivated on Murashige and Skoog (MS) Medium 50% and Woody Plant Medium (WPM) supplemented with naphthalene acetic acid (NAA) (T_1), with kinetin (KIN) (T_2), with both hormones (T_3) and hormone-free (T_0). The number of roots, shoots and internodes were measured at the eighth week of cultivation. The explants were cultivated in 50 ml of sterile nutrient medium, and cultured at 24 ± 2 °C with 16 hours photoperiod and an intensity of 48 mmol.s-1.m-1. The repetitions were between four and ten per treatment. This analysis was performed with non-parametric statistics (Kruskal Wallis) and the differences between the medians were considered significant at a value of $p<0.05$. The binodal segments of both vitroplant lines planted in the 50% MS culture medium did not present significant differences between the different treatments tested (T_1, T_2 and T_3) and the control (T_O) in the number of roots, shoots and internodes at the eighth week of cultivation. The binodal segments of both vitroplant lines shown in the WPM culture medium did not present significant differences between the different treatments tested and the control in the number of roots, shoots (except for T_0* with T_1**) and internodes at the eighth week of cultivation. No significant difference was observed in the *in vitro* growth rate of any treatment tested with respect to the control in both culture media studied for both lines of vitroplants. These data suggest that the growth of the species responds equally to *in vitro* culture beyond the hormonal combinations, the salts present in the culture medium and its genotype. In addition, 26.39 number of shoots were obtained at T_0 from the initial explant, that is, it is possible to obtain 26.39 shoots from each binodal segment in a period of 12 weeks and, at its time, each shoot can regenerate an entire plant. This work establishes an efficient *in vitro* multiplication protocol without the addition of hormonal factors.

006- DNA EXTRACTION FROM WILD AND *IN VITRO* PLANTS OF *Hedeoma multiflora* Benth.

Diaz Gabutti MS[1,2], Verdes P[2], Kurina-Sanz M[1], Magallanes-Noguera C[1]
[1]INTEQUI-CONICET, FQByF-UNSL Almirante Brown 1455, San Luis. [2]Departamento de Ciencias Agropecuarias, FICA-UNSL, Ruta Provincial 55 (Ex 148), Villa Mercedes. E-mail: msdiazgabutti@gmail.com

Hedeoma multiflora Benth. (Lamiaceae) known as "peperina de las lomas" is a native and medicinal herb well-known due to its flavoring, digestive, cytotoxic, antioxidant and antirheumatic properties. Its glandular hairs secret essential oils mainly composed by the monoterpenes such as pulegone, isomenthone and menthone. Since the survival of *H. multiflora* natural populations is in danger, we consider *in vitro* culture as an alternative for its conservation. There are no genomic data about specific molecular markers to correlate chemotypes and genotypes neither for wild nor for *in vitro* plants. Restriction site associated DNA sequencing (RADseq) and its derived protocols, such as the double digest RADseq (ddRADseq), offer a flexible strategy for an efficient sampling of the plant genome. However, this technique requires genomic DNA of high quality and quantity. The aim of this work was to select a proper extraction protocol of genomic DNA (gDNA) for both, wild and *in vitro H. multiflora* specimens. Fresh young leaves of wild plants from three different sampling sites (S1: near of *El Morro* 33° 17 25" S 65°28 07" W; S2: *La Esquina, El Morro* 33°11 03" S 65° 22 08" W and S3: *Dique Boca del Río, Merlo* 32° 58 37.8" S 65°02 50.4" W) and from two micropropagated lines were collected and ground with liquid nitrogen in mortar. Based on Doyle protocol we defined three different treatments by using increasing concentrations (2%, 3% and 4%) of cetyl trimethyl ammonium bromide (CTAB) to extract gDNA. Treatment 1 (CTAB 2%) yielded 150 – 600 ng/ul of gDNA from wild plants and 60 – 90 ng/ul from *in vitro* plants although 260/280 ratio was a bit low (1 to 1.3) and contamination with RNA was observed in wild plant samples. Treatment 2 (CTAB 3%) shows comparable amounts of intact gDNA nevertheless the 260/280 ratio was better (1.3 to1.5) and no contamination with RNA was evident. While the application of treatment 3 (CTAB 4%) resulted in similar amounts of gDNA with an improved 260/280 ratio for *in vitro* plants (1.7 to1.8), albeit the gel showed DNA degradation and RNA contamination. Therefore, treatment 2 was selected to obtain gDNA in adequate quantity and quality from both, wild and *in vitro* plants of *H. multiflora* Benth to use in the ddRADseq technique. This optimized protocol will allow to go from the DNA sample to genotyping data to study the genetic stability of micropropagated plants.

007- MODELLING WINE'S BIOCONTROL: THE TEMPERATURE TO MANIPULATE THE COMPETITION SUCCESS

Kuchen B[12], Azcona S*[1], Rodríguez L[1], and Scaglia G[13]* *Equal contribution

[1]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). [2]Instituto de Biotecnología (IBT), Universidad Nacional de San Juan (UNSJ). [3]Instituto de Ingeniería Química (IIQ), Universidad Nacional de San Juan (UNSJ). email: benjaminkuchen@gmail.com

In wine's fermentation, are found spoilage yeasts that are detrimental to the quality of the wine, generating relevant economic losses. SO_2 was traditionally used to control these yeasts. However, SO_2 is considered one of the main allergens. Biocontrol emerges as a sustainable alternative. Nevertheless, the applicability of this technology is poorly developed. The objective was to model a biocontrol interaction with a submodel that explains and quantifies a control variable for the interaction, in this case, the temperature. Experimentation was done with *Metschnikowia pulcherrima* and *Zygosaccharomyces rouxii* yeasts, at a total inoculum of $2 * 10^6$ cells/mL in a Biocontroller/Spoilage ratio of 4. Three temperatures 290, 294 and 298 °K were evaluated. Kinetics were quantified by plate counting. The model used was "Lotka-Volterra": "$dX_i/dt = \mu_{maxi}*X_i*(1-X_i/K_i-a_i*X_j/K_i)$"; "i,j: M.*pulcherrima*, *Z.rouxii*". The parameters "μ_{max}" and "a" were fitted with the secondary model of "Ratkowsky" (i.e.: $\mu_{max}= (\mu_1*(\text{Temperature}-\mu_2))^2$). For parameter estimation and statistical analysis, AMIGO^{2}Toolbox for Matlab was used. Cost Function: Least Squares, Simulation: Cvodes, Optimization: Genetic Algorithms, were developed. Estimated parameters: μ_{1i}:0.0116, μ_{2i}:330, μ_{1j}:0.0154, μ_{2j}:270, K_i: 7.64, K_j:8.02, a_{i1}:0.027, a_{i2}:270, a_{j1}:0.0898, a_{j2}:281. The model fit R^2: 0.82. The Crammer-Rao matrix shows no parametric correlation. The kinetics revealed competitive success of the biocontroller BMp29 over BZr6 in the 290°K condition. The use of mathematical models allows us to observe the influence of temperature on the control interaction, quantifying the influence of the parameter and the co-inoculated population, it will be possible to manipulate the biocontrol interaction. Populations should be studied for $dX_i/dt=0$, "nullclines" to determine population stability for each co-inoculation conditions. The improvement of biocontrol will reduce the application of chemical antiseptics such as SO_2.

008- ECO-FRIENDLY SYNTHESIS OF SILVER NANOPARTICLES USED IN THE DEGRADATION OF ORGANIC DYES

Ancafilú Mendoza A, Durán K, Cora Jofre F, Scoles G , Pattacini, S.
Universidad Nacional de La Pampa. Facultad de Ciencias Exactas y Naturales Santa Rosa. La Pampa. Argentina
katiaduran1@hotmail.com

The presence of chemical substances such as dyes in aqueous media constitutes a serious environmental problem due to their high toxicity and low biodegradability. In the last decades the synthesis of nanoparticles has experienced a great advance due to the high number of applications in fields such as cosmetics, industry and especially the environment. In the present study, the synthesis of nanoparticles was carried out using chemical substances of natural origin such as extracts of some plants instead of dangerous reductants such as sodium borohydride (NaBH4). The objective was to obtain silver nanoparticles (AgNPs) by the reduction of metal salts with extracts of buttercup (Calendula officinalis), pichana (Baccharis spartioides) and sunflower (Helianthus Petiolaris) and subsequent evaluation of the photocalytic activity in the dye methylene blue (AM). The characterization of the nanoparticles was performed using Transmission Electron Microscopy (TEM) and ultraviolet-visible spectroscopy. Size measurement was performed using Fiji software, visualizing the largest average particle size for buttercup AgNPs (38.8 nm), (18.7nm) for sunflower AgNPs and (24.3nm) for pichana AgNPs. To evaluate the degradation, a uv-vis spectrophotometer was used to monitor the absorption band of the methylene blue dye at 664 nm and the % degradation of the dyes was calculated, taking into account that values below 50% are not good degraders of the dyes. From the analysis of the results, it can be inferred that AgNPs from the buttercup species are promising in dye degradation (% degradation 72) compared to pichana (24%) and girasolillo (17%). In addition, it was evidenced that the increase in the volume of AgNPs, in this case those obtained from buttercup extracts, leads to an increase in the rate of reduction or degradation of the dye.

009- CLASSIC CYTOGENETICS IN ADVANCED TRICEPIRO LINES

González V [3], Castillo E[3,5], Grossi F[3], di Santo H[3,5], Aguirre L[3,5], Malpassi R[1,5], Bianco L[5], Gorjon J[1], Novaira A[2], Ganum M[4,5], Basconsuelo S[1], Grassi E[3,5].

[1]Morfología Vegetal. [2]Química. [3]Genética. [4]Sistema Suelo-Planta. Facultad de Agronomía y Veterinaria. Universidad Nacional de Río Cuarto. Ruta 36 km 601. Río Cuarto. Córdoba. [5]Instituto de Investigaciones Agrobiotecnológicas (INIAB). CONICET-Universidad Nacional de Río Cuarto. Ruta 36 km 601. Río Cuarto. Córdoba. E-mail: ***ecastillo@ayv.unrc.edu.ar***

Interspecific hybridization is used to incorporate desirable traits into germplasm of agronomical interest. The ploidy level was analyzed in three advanced tricepiros lines obtained from the crosses between the triticales Cayú-UNRC, Yagán-INTA, and Yavú-UNRC (2n=6x=42) used as female progenitors, and the two trigopiros Don Noé-INTA (2n=8x=56) and SH16-INTA (2n=6x=42) employed as male progenitors. The assessed lines were Cayú x SH16, Yavú x SH16, and Yagán x Don Noé. The number of bivalents in stem cells of pollen grains meiosis (II/SCP) was determined and the cytological stability was quantified through an index based on the count of tetrads with absence/presence of micronuclei (MI) and an index considering the number of microspores with micronuclei per tetrade (IxM). Comparisons were made through nonparametric tests. The ploidy level of the lines resulted in 6x=2n=42, proving the trend in these Triticeae to stabilize at the hexaploid level. There were no significant differences in the MI indexes, and the mean values were: Cayú x SH16 51.12 ± 32.1; Yavú x SH16 44.50 ± 26.3, and Yagán x Don Noé 32.58 ± 28.2. Contrary to expected based on the ploidy level, the cross involving Don Noé appeared to be the most stable line according to the MI index. No significant differences were found among lines for the IxM index either. Mean values were Cayú x SH16 1.88 ± 0.9; Yagán x Don Noé 1.65 ± 0.8 and Yavú x SH16 1.44 ± 0.7, the latter with the least number of microspores with micronuclei per tetrad. These materials were superior in agronomical traits in comparative yield trials, and the results in this study contribute to their description and characterization according to INASE standards.

010- MOUSE SPERM CRYOPRESERVATION: A BIOTECHNOLOGICAL NEED TO ACOMPLISH THE BIOETHICAL PRINCIPLE OF THE 3R

Navarro C[1,3], Klinsky Lahoz OG[1], Sartor T[2,3], Furlán M[2], Wetten PA[1], Michaut MA[1,3]

[1] Laboratorio de Biología Reproductiva y Molecular, Instituto de Histología y Embriología (IHEM), UNCUYO-CONICET, [2] Instituto de Histología y Embriología (IHEM), UNCUYO-CONICET, [3] Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Cuyo

Email: ***ncristian870@gmail.com***, ***mmichaut@gmail.com***

Sperm cryopreservation is an important technique for maintaining valuable genetic resources in biomedical research and wildlife. Research projects on reproductive biology use the mouse as an experimental model due to its short reproductive cycle. However, maintaining mice strain in an animal facility has the disadvantage of occupying large spaces with high economic and human costs. Thus, mouse sperm cryopreservation becomes a biotechnological need to reduce the drawbacks of this model and to accomplish the bioethical principle of the 3R: Replacement, Reduction and Refinement. Although the cold has been used as a method of preservation since ancient times, it was only in 1990 that the ideal conditions to cryopreserve mouse sperm with a relatively simple cryoprotectant were found. This cryoprotectant solution (CPS) is composed by raffinose and skim milk. The aim of this work was to set up the sperm cryopreservation from CF-1 mouse strain using this CPS. The sperm were collected from caudae epididymides of 3-5 month old male mice. After killing each mouse, both epididymides were removed and placed in a 35-mm sterile dish containing CPS (18% raffinose and 3% skim milk) equilibrated at 37 °C. Each cauda epididymis was cut three times and sperm were allowed to disperse for 3 min in the CPS solution. Immediately, 0.25 ul straws were loaded and rapidly cooled in liquid nitrogen vapor for 10 minutes. Finally, straws were plunged directly into liquid nitrogen for storage. To evaluate the effect of cryopreservation on sperm motility, frozen samples were rapidly thawed by transferring them from liquid nitrogen into a 37 °C water bath for 10 min. After 30 minutes of recovering in HTF medium supplemented with 0.5% BSA, *in situ* and progressive motility were evaluated for each sample. The results showed that this protocol yielded 3-6 % and 8-14 % of mouse sperm with *in situ* and progressive motiliy, respectively. The results showed that we have set up the mouse sperm cryopreservation protocol to reduce the breeding and slaughter of CF-1 mice males.

011- EVALUATION OF TWO TECHNIQUES FOR APPLICATION OF Kosakonia radicincitans AS BIOLOGICAL CONTROL AGENT FOR BLUE MOLD IN APPLES

Rodríguez Rivera M[1], Navarta G[1], Calvo J[1].
*[1]Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. Email: **mfrodri@gmail.com***

The fungus *Penicillium expansum* causes blue rot affecting apples. Mechanical damage caused by harvest and post-harvest handling is one of the main causes for the entry of pathogenic fungi. Apples are usually stored after harvest. During cold storage, losses of economic importance are produced by decays due to fungal rot. The bacterium *Kosakonia radicincitans* showed antifungal activity against *P. expansum* and is considered as a biological control agent (ACB). The objective of this work was to evaluate the efficiency of two application techniques of one aqueous formulation of ACB against *P. expansum* in stored cold apples. For the biocontrol assays, Red delicious apples were obtained from a commercial orchard. Surface apples were disinfected by immersion for 1 min in a dilute solution of sodium hypochlorite (1% active chlorine), washed two times by immersion in distilled water, and left in a dry place to remove excess water off the surface. Then, fruits were wounded (3 × 3 × 3 mm^3) in two places (midway between the calyx and the stem end) with a punch. Two treatments were carried out: (T1), immersed for 1h in suspension of *K. radicincitans* (UFC=7×10^6 /mL), and (T2) sprayed with the same solution. Then both groups were inoculated with 20 µL of the phytopathogen (3×10^5 conidia /mL). The group control was inoculated only with the pathogen (T3). After 32 days of storage at 4 °C, the wounds were examined, the number of infected wounds was counted and expressed as percentage of disease incidence (DI % = (number of wounds that develop disease/total number of wounds treated) ×100), DI value may range from 0% (total effectiveness) to 100% (no antagonist effect). Diameters and depth rots were measured. Firmness (Kg/cm^2) and sugars (°Brix) of apple were evaluated at the beginning and end of the trial. Ten apples constituted a single replicate and each treatment was replicated two times. Data analyzed with ANOVA showed that the number of infested wounds in T1, treated with immersion in an aqueous formulation of *K. radicincitans*, was significantly lower (DI 44%) than in T2 and T3 (DI 100%). The average rot diameter was significantly larger in T3 (33.0 mm) compared to T2 (21.0 mm) and T1 (20.2 mm). The depth of rotting was lower in T1 (11.0 mm), compared to T2 (21.0 mm) and T3 (22.0 mm). The average firmness of the apples at the beginning of the trial (11.4 Kg/cm^2) was significantly decreased in T3 (6.55 Kg/cm^2) compared to T2 (9.33 Kg/cm^2) and T1 (10.39 Kg/cm^2), while the initial sugars (14 °Brix) showed no difference between treatments at the end of the trial. The results would indicate that the apple immersion technique for the application of a suspension of *K. radicincitans* was effective in reducing the effects caused by *P. expansum* under cold storage conditions. The optimization of the application will be achieved by studying other variables of interest.

012- TRICEPIRO: SEED PRODUCTION IN STABILIZED LINES DERIVED FROM DIFFERENT TRIGOPIROS

Lanzetti A[1], Aguirre L[1,2], Vega DJ[2], Plevich A[1], Rovere M[2], Grossi Vanacore MF[1], di Santo H[1,2], Castillo E[1,2], Kaufman E[1], Ferreira A[1,2], Ferreira V[1], Grassi E[1,2].
[1]Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto, Ruta Nac. 36 km 601, Río Cuarto, Córdoba; [2]Instituto de Investigaciones Agrobiotecnológicas, Ruta Nac. 36 km 601, Río Cuarto, Córdoba. E-mail: egrassi@ayv.unrc.edu.ar

Tricepiro is a winter annual forage crop derived from the intergeneric hybridization of three species (wheat, rye, and *Thynopirum ponticum*) with high potential for climate and soil limited agricultural systems in the central region of Argentina. The combination of different genomes causes fertility issues in the hybrids, particularly in early generations. In order to evaluate reproductive traits, 22 stabilized tricepiro lines previously selected by agronomical traits were used. These lines originated from crosses between triticales (6x) and three trigopiros. The trial was sown in August 2021 at the National University of Río Cuarto. Biomass production (DW/m^2), number of tillers ($Till/m^2$), number of spikes (Spi/m^2), grain production (GP/m^2), percentage of fertile tillers (FT), and harvest index (HI) were measured at physiological maturity. Previous studies indicate that the tested lines were stabilized at hexaploid level (6x) with wheat and rye genome retention and differential introgression of *Thynopirum ponticum* in their genome. Mean values of DW/m^2, $Till/m^2$ and GP/m^2 were 965.7±357.2 g/m^2, 242.8±91.0 $Till/m^2$ and 318.0±127.7 g/m^2, respectively. ANAVAs suggest that HI, $Till/m^2$, and FT traits were statistically different between genotypes. ANAVAs and PCA showed that lines derived from the male HOR performed better in the measured traits, except for FT, a trait in which the lines from male octoploid trigopiro (DN) had improved behaviour. It was proved that the stabilized lines do not present fertility problems that affect normal grain production and the contribution of trigopiros used as progenitors could be differentiated.

013- ISOLATION AND CHARACTERIZATION OF MICROORGANISMS FROM A LANDFARMING OF THE PROVINCE OF SAN LUIS WITH POTENTIAL CAPACITY FOR USE IN BIOAUGMENTATION

Salinas A[1], Lijteroff R[2], Delfini C[3], Villegas L[3,4]
[1]Área de Biología. Departamento de Biología. Facultad de Química, Bioquímica y Farmacia. UNSL.
[2]Área de Educación en Ciencias Naturales. Departamento de Biología. Facultad de Química, Bioquímica y Farmacia. UNSL. [3]Instituto de Química de San Luis (INQUISAL). UNSL-CONICET.
[4]Área de Bromatología. Departamento de Farmacia. Facultad de Química, Bioquímica y Farmacia. UNSL
asalinaskenny@gmail.com

The final disposal of industrial effluents with organic or inorganic compounds is a concern for companies and governments. Consequently, in recent decades, different methodologies have been used to reduce them, without causing damage to the environment, among which are bioremediation processes. Landfarming is an ex-situ bioremediation treatment process that is carried out in the upper zone of the soil. In San Luis Province there is a landfarming that receives effluents from chemical industry and has been used for more than 10 years. The aim of this work was to isolate microorganism from a landfarming soil with the capacity to tolerate the environmental stresses which can favor increasing and accelerating landfarming processes. The samples were collected in two stages, during the winter period of 2022: the first was taken from the supernatant of the effluent after its discharge; the second from the mud generated in the mixture of soil and effluent, after 5 days of discharge. The sampling points were 3 at different distances from the discharge of effluents. Two approaches were utilized to isolate microorganism from the landfarming soil: a direct isolation approach in EG medium following the streaked-on agar plate and enrichment approach in liquid medium incubated a 30°C, 150 rpm for 72 h. While, using a direct isolation approach only 12 morphotypes were isolated, using enrichment approach 15 morphotypes were isolated. To characterize the isolates, the characteristics of the colonies, the cells and the Gram coloration in the case of bacteria were taken into account. The isolates will be molecularly identified. It is well established that only approximately 1% of microorganisms on Earth can be readily cultivated *in vitro*. But this work aims to use microorganisms in bioaugmentation process, so it only focused on culturable microorganisms. These preliminary results show that landfarming has an active microbiota and it is feasible to isolate microorganisms that can be used in bioaugmentation processes with native strains.

014- EVALUATION OF BIOLOGICAL AND MICROBIOLOGICAL QUALITY PARAMETERS IN AN AMENDED SUBSTRATE FROM ALPERUJO´S ANAEROBIC DIGEST

Quiroga V[1], Zarsavilla F[1], Bueno J[2], Martín M. L[1], Gil R[1], Rodríguez L[1]
1 Instituto de Biotecnología, Facultad de Ingeniería, U.N.S.J., San Juan. Argentina
2 Departamento de Biología, Facultad de Ciencias Exactas, U.N.S.J., San Juan, Argentina.
E-mail: laurirodriguez@gmail.com

Anaerobic Digestion (AD) process is based on a series of metabolic reactions, mediated by different group of microorganisms that produce Biogas (methane) and a digested substrate (DS). The DS has been defined as a semisolid fraction from this AD that can be used in both liquid and solid form. It contains organic material and considerable amounts of mineral (nitrogen, phosphorus, potassium) with low C/N index, which makes them interesting as fertilizers or soil amendments. In previous work, using germination seed method, no phitotoxicity where found when digest concentration were 10 and 50 %. What's more, root elongation and germination index were higher than blank test, so the aim of this work was analyze biological and microbiological quality parameter such as microorganisms and enzymes as responsible agents in vegetable promoting activities. The essays consist in 12 samples with 3 repetitions. They were carried out using 500 g pots with fertile soil and digest addition in 25 t/ha dose with 1/1, 1/10 and 1/100 dilutions. A witness sample (without digested) and commercial fertilizer Fertifox ® were included among samples. Tomato seeds (*Solanum lycopersicum*) were cultivated at moderated temperature, indirect solar exposure; irrigated day 0 and 15 with diluted fraction digested and then with 75 ml of water tap. After 28 days, plants were harvest. Parameters regarding plant growing were measured (fresh and dry weight, number of leaves, aerial part and root elongation, among others). Also, were analyzed; presence of main microbial group (molds, yeast and bacteria) using selective culture method and enzymes activities (Laccase, β glucosidase, Amylase and Cellulase) responsible for nutrients assimilation. In terms of plant growth parameters, some negative effects (less dry and fresh weight) were observed when digest was added without dilution. Regarding microbial groups, CFU was higher for mold and bacteria when dilution 1/100 was applied. On the contrary, Yeast CFU was lower. In terms of enzymatic activities, all samples show less activity, between 70-80 % of witness sample. B-glucosidase was the only one that show higher activity when dilutions 1/10 and 1/100 were tested. Finally it is conclude that the addition of diluted fraction of the digested increases microbial groups population, which favors plant nutrients assimilation Future essays will include determination of other compounds such as humic acids to set synergy effects.

015- BIOCONVERSION OF COUMARIN USING WHOLE CELLS *OF Aspergillus terreus*

Murúa S[1], Bustos DA, Pacciaroni A[1], Bustos Crescentino D[1]
[1]Instituto de Ciencias Básicas - Universidad Nacional de San Juan (UNSJ). E-mail: ***sofimurua@gmail.com***

The usual way for a phytopathogenic fungus to treat xenobiotic compounds is to metabolize them to hydrophilic compounds through the introduction of one or more hydroxyl groups, by oxygenation, hydration, reduction or cleavage of the carbonyl group. This biocatalysis process can be carried out by two basic processes; either using isolated cellular enzymes, or whole cells. Many derivatives of coumarin are used in human and veterinary medicine, so being able to biotransform it or any of its derivatives can result in other novel compounds with similar applications. In the present work, the bioconversion of coumarin was investigated through a screening process with a battery of 15 fungi of the genus *Aspergillus*, *Penicillium*, *Alternaria*, *Emericella* and *Phoma*, determining that the only one that biotransformed was *A. terreus*. The process was carried out on a large scale with whole cells of A. terreus in liquid potato dextrose medium, for 14 days at a temperature of 25 0C with shaking at 120 rpm. Product of the biotransformation the hydroxylated compound 5-hydroxycoumarin was obtained. It was separated from the culture medium by liquid-liquid extraction with ethyl acetate, later purifying it by TLC. The structural elucidation of the obtained compound was performed by 1H Nuclear Magnetic Resonance Spectroscopy. The biological activity of the metabolite obtained was assayed by determination of cytotoxic activity with the *Artemia salina* mortality assay and antioxidant activity with the DPPH method. The antioxidant activity was found to be higher compared to the starting compound, while the cytotoxic activity was lower.

016- ARTIFICIAL INTELLIGENCE IN SEARCH OF GENOMIC PROGNOSTIC FACTORS FOR HUMAN BREAST CANCER

Fernández Muñoz JM[1], Zoppino FCM[1]
[1]Laboratorio de Oncología, IMBECU CCT-Mendoza. Consejo Nacional de Investigaciones Científicas y Técnica (CONICET)
Email: ***mzoppino@yahoo.com***

Breast cancer (BC) is the neoplasm with the highest incidence and mortality in women in Argentina. Cancer is a manifestation of genetic alterations (point mutations, copy number changes, and fusions) that affect the function of critical genes. There is a need to identify those patients in early stages (negative nodes) in whom the disease may later progress towards a poor prognosis. In this regard, several molecular signatures add prognostic value independent of variables used routinely in Argentina, we mention OncotypeDx, MammaPrint and Prosigna, based on molecular subtypes by PAM50. These tests are not widespread in Argentina, mainly due to cost. This inconvenience makes necessary new and better approaches. The advancement of next-generation sequencing (NGS) techniques and microarray technologies lead to the generation of a large amount of genomic and epigenomic information. In this genomic study, we perform an analysis of the Heat shock Proteins (HSP) genes family in breast cancer from TCGA and METABRIC databases. HSP has 95 members, are ubiquitously and some of them are well-documented participant actors in cancer pathways. We have evaluated and collated information mainly based on gene copy number variation (CNV) and its relation with the expression of mRNAs, DNA mutations, and their association with molecular subtypes and clinical data. CNVs are DNA fragments from 1kb to 5Mb, which are present in variable copy numbers compared to a reference genome. The role of CNVs in cancer is a new field of research. In order to classify patients in groups with different overall survival, we developed and applied "Galgo" an artificial intelligence algorithm to identify tumor phenotypes strongly associated with patient survival. We characterize a new molecular signature that compromised CNVs on 27 HSP genes, which classify breast cancer patients in three different groups with differences in overall survival (Log Rank test P = 0.0013 in the validation set) and that can be projected onto accessible tests for Argentine patients. Pathways analysis of the groups shows congruent information of worse prognosis where cell cycle, regulation of actin cytoskeleton, and focal adhesion are altered in groups with diminished overall survival. In node-negative patients, the subgroup of the worse prognosis increment the death risk 1.4 times (confidence interval= 1.06-2.0) in Cox´s multivariate model on the validation set (METABRIC) and it is independent of routine prognostic factors including PAM50 molecular classification. The results suggest that precise knowledge regarding the role of CNVs in CM to be used to improve prognostic standards.

017- SIMULTANEOUS DETERMINATION OF ZINC AND COPPER IN WATER SAMPLES BY POTENTIOMETRIC STRIPPING ANALYSIS

Biasi AM [a], Valverde AM [b], Takara EA [c], Scala-Benuzzi ML [d], Messina GA [d], Gómez NN [a]
[a] Instituto Multidisciplinario de Investigaciones Biológicas (IMIBIO-CONICET-UNSL), [b] Facultad de Química, Bioquímica y Farmacia (FQBF-UNSL), [c] Instituto de Física Aplicada (INFAP-CONICET-UNSL), [d] Instituto de Química de San Luis (INQUISAL-CONICET-UNSL).
*E-mail:**anto.mbiasi@gmail.com***

The detection of metal ions, such as copper and zinc, is of great interest in the environment and health fields. As is widely known, water is one of the essentials that supports all forms of plant and animal life. Among the wide diversity of contaminants affecting water resources, metals receive particular concern considering their toxicity even at low concentrations. Therefore, the determination and monitoring of these metals in water have become necessary. For years, several methods using traditional techniques, such as spectrometry, have been developed. These methods are available for the determination of trace amounts of heavy metals with sufficient sensitivity for most applications. However, these methods are more expensive and time consuming compared to electrochemical methods. Anodic stripping voltammetry (ASV) is a powerful analytical technique due to its high sensitivity and reproducibility. Mercury-based electrodes have traditionally been used in stripping techniques, but due to its strong toxicity extensive research efforts have been devoted to finding alternative electrode materials. An interesting approach in electrode modification is the use of carbon-based conductive materials, such as graphite and graphene, which are ideal for sensor applications, since they possess unique physical and chemical properties. Nevertheless, they have a great drawback, their agglomeration and adhesion to the electrode surface. To overcome these disadvantages and to improve the stability of modified electrodes, polymers are usually incorporated. In the present work, a new nanocomposite containing graphene oxide/Graphite (GO/GRA) and Polyethylenediimine (PEI) was prepared and characterized. The interactions and morphology of GO/GRA/PEI were studied by infrared spectrophotometry and SEM, respectively. The modified electrode was characterized by cyclic voltammetry and electrochemical impedance spectroscopy. Also, the simultaneous determination of Zn(II) and Cu(II) based on square wave anodic stripping voltammetry (SWASV) was investigated. The determination was carried out at pH 4.5 at a deposit potential of -1.2 V and accumulation time of 200 s. The obtained limits of detection for Zn and Cu were 12 and 4.5 nM, respectively. The results revealed that the newly developed sensor has high practical applicability, reproducibility, and stability in the simultaneous detection of Zn and Cu.

018- DEVELOPMENT AND OPTIMIZATION OF AN AFFINITY COLUMN FOR THE PROTEINS'S ISOLATION AND PURIFICATION

Torres CF[1, 2], Gonzalez UA[2], Gómez A[1], Ferraris MP[1,2]
*[1]Laboratorio de Biología Estructural, Área de Biología Molecular. [2]Laboratorio de Procesos Separativos con Membranas. Facultad de Química, Bioquímica y Farmacia - Universidad Nacional de San Luis, Av. Ejército de los Andes 950, CP 5700, San Luis, Argentina, E-mail: **pilarferraris05@gmail.com***

The most effective affinity purification technique has been affinity chromatography, which combines conventional column chromatography with affinity interactions. The objective of this work was to develop methodologies to be applied in the protein purification using affinity chromatography with the Cell-Cibacron macroligand immobilized on solid supports. Affinity macroligands were prepared from yeast cells modified by chemicals and with the Cibacron Blue F3GA ligand molecule immobilized to the wall cell by covalent bond. The amount of ligand immobilized on the wall cell was determined by spectrophotometric method. Agarose-macroligand cubes were prepared using 4 % agarose dissolved in 1X PBS buffer, pH=7.6 using a 2x2 mm red metallic. A fixed-bed column system with immobilized agarose-macroligand cubes was prepared. Bovine Serum Albumin (BSA) adsorption on Affinity Agarose-macroligand was investigated by means of adsorption isotherms using BSA. Adsorption experiments were carried out in batch cultures. The chromatographic column was studied by Human Serum Albumin (HAS) and BSA adsorption from human and bovine serum. The selectivity of the separation process was compared using the agarose-macroligand affinity column with Blue-Sepaharose TM 6 Fast Flow (Ge Healthcare) commercial chromatographic resins. The purity of HSA and BSA was assayed by gel electrophoresis (SDS-PAGE). The maximum attachment of ligand on the wall cell was 212 µmol of Cibacron dry/g of dry cell. Adsorption values such as Kd = 9.35 $x10^{-4}$ M and qm = 135 mg BSA/g adsorbent were calculated by linear transformation of Langmuir. HSA and BSA were purified with high purity (more than 80%) with the affinity chromatography column system using agarose-macroligand cubes. The comparative selectivity showed that the purity of the BSA obtained with the agarose-macroligand affinity column is similar to that obtained with the commercial column. It is an easily reproducible system, which also demonstrated an adequate sample processing speed. There was no occlusion or blockage of the affinity column during the separation process.

019- SCREENING AND SELECTION OF VARIABLES FOR OPTIMAL OBTAINING OF ENZYME INVERTASE FROM *Aspergillus niger* AND ANALYSIS OF ENZYMATIC ACTIVITY USING THE 3,5-DINITROSALYCIC ACID METHOD

Ramos Gomez PD[1,2], Ferraris MP[1], Bustos Crescentino D[2], Campderrós ME[1], Gonzalez UA[1]
[1]Facultad de Química Bioquímica y Farmacia - Universidad Nacional de San Luis. Instituto de Investigaciones en Tecnología Química (INTEQUI) - CONICET. Av. Ejército de los Andes 950, San Luis. [2] Instituto de Ciencias Básicas (ICB), Facultad de Filosofía, Humanidades y Artes - Universidad Nacional de San Juan. E-mail: ***paoladanielaramos27@gmail.com***

The enzyme Invertase, also known as β-D-Fructofuranosidase catalyzes the hydrolysis of sucrose producing a mixture of its two monomers glucose and fructose called invert sugar. This product, sweeter than sucrose, is mainly used in the food and pharmaceutical industry. It can be obtained using a chemical or enzymatic method, the enzymatic is much more efficient because undesirable products are not obtained. Invertase is produced by a wide variety of organisms that can use sucrose as a carbon source. It can be found in invertebrates, vertebrates, green algae, bacteria, vegetables and fungi. The genus *Aspergillus* has been shown to be a good producer of this enzyme. The aim of this work is to obtain the enzyme invertase at laboratory scale from the fungus *Aspergillus niger* and study the influence of experimental parameters that affect the production and purification process of this enzyme. We worked with *A. niger*, analyzed the enzymatic activity of invertase using 3,5-dinitrosalicylic acid. To determine the concentration of Invertase in the samples, a glucose calibration curve was performed and absorbance's of the samples were measured at 540nm. A high glucose concentration is indicative of high enzyme activity. A screening of different variables such as culture medium, time, pH and temperature was performed. A higher biomass was obtained working with Sabouraud dextrose liquid medium (SDLM) supplemented with sucrose (SDLM) than Sabouraud dextrose liquid medium (SDL) or Potato dextrose liquid medium (PDL) in all of the cases. The highest values of glucose concentration were 65.22 and 64.51 g/l corresponding to biomass obtained in SDLM supplemented with sucrose 20 g/l and 30 g/l respectively, and then suspending it in a 10 g/l sucrose solution before obtaining the enzymatic extract. The fungus was suspended in sucrose solution 10 g/l in order to increase the production of more enzyme Invertase in the presence of more substrate. These values were obtained working at pH 5, at a temperature of 28 °C.

020- BIOAUGMENTATION OF BIOMIXTURES WITH ACTINOBACTERIA FOR ATRAZINE REMOVAL: OPTIMIZATION OF INOCULUM CONCENTRATION

González SK[1], Maldonado LM[1], Benimeli CS[1,2], Polti MA[1,3], Saez JM[1,3]
[1]Planta Piloto de Procesos Industriales Microbiológicos (PROIMI-CONICET), S. M. de Tucumán, Argentina.
[2]Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Catamarca (UNCA), S. F. del V. de Catamarca, Argentina.
[3]Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad Nacional de Tucumán (UNT), S. M. de Tucumán, Argentina.
jsaez@conicet.gov.ar

Biopurification systems (BPS) or biobeds are bioprophylaxis systems to prevent pesticide point-source contamination, whose efficiency relies mainly on the pesticide removal capacity of the biomixture, the majority component of a BPS. The microbial metabolic abilities of the biomixture could be improved through bioaugmentation with microorganisms with specific degrading capacities, like actinobacteria. In this sense, *Streptomyces* sp. M7 is a previously selected actinobacterium with well-known pesticide-degrading abilities. The aim of this work was to optimize the concentration of *Streptomyces* sp. M7 (M7) inoculated in organic biomixtures for atrazine (ATZ) removal. For this purpose, the biomixtures B1 and B2 were formulated with soil, peat, and sugarcane bagasse and filter cake, respectively, inoculated with three concentrations of M7 (2, 4, and 8 g kg^{-1}), and contaminated with atrazine (50 mg kg^{-1}). The residual concentration of ATZ and different microbial groups were determined along a 28 d-assay. In general terms, at the end of the assay, an increasing trend was shown in the microbial developments of the different groups studied in both contaminated and bioaugmented biomixtures for the three concentrations of inoculum used. In B1, the microbial counts were significantly higher with 8 g kg^{-1} inoculum, with respect to lower inoculum concentrations: total heterotrophic microorganisms, total bacteria, fungi, and actinobacteria reached counts of 3.2 x 10^7; 2.7 x 10^7; 1.7 x 10^5, and 1.5 x 10^7 CFU g^{-1}, respectively. In B2, total heterotrophs, total bacteria, and actinobacteria were significantly higher for the 4 g kg^{-1} inoculum concentration, reaching 7.9 x 10^7; 1.1 x 10^8, and 5.9 x 10^7 CFU g^{-1}, respectively; fungal counts did not show significant differences. ATZ removal showed no significant differences in B1 and B2 between the three concentrations of M7 inoculum evaluated. The concentration of 2 g kg^{-1} of M7 was selected for further studies considering lower costs and optimum removal efficiency.

021- TOWARDS THE DESIGN OF STABLE AND EFFECTIVE DYE-DECOLORIZING CONSORTIA OF EDIBLE FUNGI

Domínguez FG[1], Pacheco MS[1], Torres MA[1], Nieto Peñalver CG[1,2], Pajot HF[1,3]
1) PROIMI CONICET CCT NOA SUR. Avda Belgrano y Pje Caseros, SM de Tucumán. 2) Instituto de Microbiología, Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán. 3) Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Catamarca. E-mail: hipolitopajot@conicet.gov.ar

Synthetic dyes are used in textile industries due to their advantages over natural dyes. However, textile effluents cause irreparable damage to water bodies because of the proper toxicity of textile dyes or by reducing the penetration of visible light leading to the eutrophication rivers and lakes. Aerobic biodecoloration is an interesting treatment alternative for these effluents. However, no microorganism is capable of degrading all existing dyes, making the use of microbial consortia mandatory. Wood White Rot fungi produce enzymes such as Laccase, Manganese Peroxidase or Lignin Peroxidase that have been widely used for the degradation of textile dyes. The objective of this work was the selection of compatible edible fungi for the formation of consortiums capable of degrading different colorants. For this, we selected ten *Pleurotus, Psilocybe, Ganoderma* and *Lentinula* strains. Fungi were maintained in Petri dishes with 20 mL of solid YM medium (glucose: 1%, soy peptone: 0.5%, yeast extract: 0.3%, malt extract: 0.3%, agar: 1.8%), incubated at 25°C. Media were inoculated with 5 mm diameter plugs obtained from growths in solid YM medium, preincubated for 7 days at 25°C. The laccase production of the different fungi was evaluated in solid media using eight substrates: 2,2-Azino-bis(3-ethylbenzothiazoline-6-sulfonic acid (ABTS), catechol, 2,6-dimethoxyphenol, 1-naphthol, benzidine, syringaldazine, 3,4-dimethoxybenzylalcohol, and guaiacol. Assays in which oxidized substrates produced haloes of different colors around the wells were considered positive. To carry out the compatibility tests, the ten strains were confronted with each other on different plates with YM solid medium in duplicate and incubated for 7 days at 25°C. Four modes of interaction were observed: inhibition haloes, zone with a dark line (in the contact of one strain with the other the line is produced), overgrowth (invasion of one strain on the other) and growth without inhibition. For the evaluation of the bleaching capacity of each strain, four industrial textile dyes were used: Black Vilmafix® B-V, Blue Vimafix® RR-BB, Red Vilmafix® 7B-HE and Orange Procion® HER, which were seeded in four wells made in the plates of each strain forming halos of each color. After 24 hours of incubation at 25°C, different levels of degradation were observed around the haloes depending on the structure of the dye. The results show that the tested fungi could be employed in the design of effective dye decolorizing consortia.

022- ASSESSING THE TEXTILE-DYE DECOLORIZATION POTENTIAL OF PSYCHROPHILIC AND PSYCHROTOLERANT YEASTS FROM 25 DE MAYO/KING GEORGE ISLAND (ANTARCTICA)

Pacheco MS[1], Domínguez FG[1], Torres MA[1], Martorell MM[2], Ruberto LAM[2], MacCormack WP[2], Martinez LM[2], Pajot HF[1,3], Nieto Peñalver CG[1,4]
1) PROIMI CONICET CCT NOA SUR. Avda Belgrano y Pje Caseros, SM de Tucumán. 2) Instituto Antártico Argentino, Av. 25 de Mayo 1147, Villa Lynch, Provincia de Buenos Aires. 3) Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Catamarca. 4) Instituto de Microbiología, Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán. E-mail: hipolitopajot@conicet.gov.ar

Antarctic environments typically present low temperatures, high solar radiation and low nutrient availability, being one of the harshest environments on Earth. Psychrophilic and psychrotolerant yeasts from Antarctic soils and cryoconites have adapted to such conditions, being an interesting source of new enzymes with great biotechnological potential. This work intends to prove the textile dye decolorizing potential of 139 yeasts isolated from soil and cryoconite samples from 25 de Mayo / King George Island, Antarctica. Isolates were cultivated in YM, and NDM (Normal Decolorization Medium) media at 15, 20 and 25°C, and classified into psychrophilic and psychrotolerant according to their growth profiles. Textile dye decolorization was evaluated in the same two media, plus 200 mg/L of one of four commercially available reactive azo dyes: Vilmafix® Blue RR-BB (CI, Reactive Blue 221), Vilmafix® Red 7B-HE (CI, Reactive Red 141), Vilmafix® Black B-V (CI, Reactive Black 5), or Vilmafix® Green RR-4B (CI, Reactive Green). Plates were incubated for 72 h at 15, 20 or 25°C, depending on the yeast isolate. Dye decolorization haloes and colony dyeing were recorded daily and used to select the most promising isolates. Of 139 isolates, 34% were classified as psychrophilic (growing only at 15°C) while the remaining 66% were classified as psychrotolerant (growing at all the assayed temperatures), irrespective of the medium assayed. Forty-five isolates produce haloes in at least one of the tested dyes in NDM, while only 40 yeast produced haloes in YM. 15 isolates were selected for further studies Isolates A075 and Y28D produced intense haloes without colony dyeing; isolates Y67, Y70 and Y75 produced intense haloes and get dyed only at the edge of the colonies while the remaining ten isolates, A092, A099, A104, A105, A106, A107, Y6, Y59, Y73 and Y84, produced neat haloes with a significant colorization of the entire colonies. The obtained results prove the biotechnological potential of Antarctic yeasts, raising the possibility of designing more efficient dye-decolorizing methods at low temperatures.

023- INDIRECT HEAVY METALS DETERMINATION IN WATER SAMPLES BASED ON ALKALINE PHOSPHATASE INHIBITION USING A NOVEL MODIFIED SURFACE BY LASER-INDUCED FLUORESCENCE DETECTION

Piguillem Palacios SV [a], Jofre F [a], Scala-Benuzzi ML [a], Gomez G [b], Raba J [a], Bertolino FA [a], Pereira SV [a], Messina GA [a]
[a] Instituto de Química de San Luis (INQUISAL-CONICET-UNSL), San Luis, Argentina. [b] Instituto de Investigación en Tecnología Química (INTEQUI – CONICET - UNSL), San Luis, Argentina.
e-mail: ***sofiapiguillem@gmail.com***

During the last few years, the need for fast, sensitive, specific, automated and in situ detection methodologies has led to the development of easy-to-use and inexpensive devices. Paper has attracted great interest as a potential support material for sensors in analytical chemistry and clinical chemistry due to its versatility, abundance and low cost. Its fibrous and porous structure generates a high surface-to-volume ratio that increases immobilization capability compared to traditional materials for the fabrication of sensor devices. Considering these advantages, the development of Paper-based Analytical Devices (PADs) has had a great growth. This work is based on the modification of paper through the impregnation of porous materials that provide greater advantages. In this sense, Metal-Organic-Frameworks (MOFs) are one of the new materials with major advantages that have been synthesized in the last decades. Among them, we can mention their defined crystalline structure, simple synthesis and high capacity to increase the surface area trough functionalization with reactive groups. The problem of certain metal ions, such as copper, mercury and lead, is growing, as their detection corroborates environmental contamination. Various sources of water samples are of great interest in this study, as multiple life forms depend on the toxicity found in water. Consequently, one of the main objectives in water quality monitoring is the determination of metal concentration. For this purpose, a paper biosensor modified with UiO-66-NH2 was developed. This support was characterized by several techniques to determine the crystalline structure, morphology, and different immobilizations on it (SEM, EDS, XRD, FTIR). Metals were indirectly determined by measuring the enzymatic response of the enzyme Alkaline Phosphatase (ALP), because the activity of this enzyme decreases in the presence of the mentioned metal ions (Cu^{2+}, Hg^{2+} and Pb^{2+}). Serial decreasing concentration solutions of the metals under study were evaluated, starting from a solution of 2 mg mL^{-1}. The evaluation of the enzymatic response was performed by measuring the fluorescence generated by the activity of FAL against its substrate 4-methylumbelliferyl phosphate (MUP), which is converted into methylumbelliferone. Detection was performed by laser-induced fluorescence using a solid-state laser (λ excitation 430 nm, λ emission 458 nm). The optimum concentration of FAL was 0.005 mg mL^{-1} in DEA buffer 0.1 M pH 8. A decrease in its fluorescent response was found to be proportional to the increase in the metal ion solutions concentrations.

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024- ISOLATION AND CULTIVATION OF THE GREEN MICROALGAE *Desmodesmus* SP

Muñoz Carabajal DML, Ferrari SG.
Área Microbiología e Inmunología. Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. San Luis. Argentina. E-mail: ***danacarabajal1@gmail.com***

Different anthropogenic activities generate wastewater and effluents that, when discharged into natural water bodies, can cause serious damage to the environment and health of people. Different methods of purification have been used for contaminants removal; however, they present economic limitations. Thus, a technique of removal by microalgae is a promising and low cost alternative. Microalgae are a group of photosynthetic organisms that can use the components present in wastewater to grow and, furthermore, they are useful for studying the toxicity of aquatic contaminants. The goal of this work was to isolate and cultivate the autochthonous microalgae *Desmodesmus* sp for future use in bioassays. For the isolation of this microalgae two culture media were used (BBM and BG-11) added with 1% agar-agar. Subsequently, biomass was inoculated in liquid media and incubated at 25±2°C with continuous illumination (2,500 lux) and orbital agitation (150 rpm) for 10 days. Growth was determined by DO at 580 nm measurements, chlorophyll *a* and *b* and cell counting in the Neubauer chamber. Cell morphology was also studied by optical microscopy. Biomass production at the end of the culture was higher in BBM medium (OD_{580}= 0.462) than in BG-11 (DO_{580} nm = 0.398). However, the highest specific growth rate was observed in the BG-11 medium (0.0339 h^{-1}), which can be attributed in part to the different composition of the culture media since the N/ P ratio is 37 times higher in BG-11 than in BBM. The isolate showed characteristic features of the genus *Desmodesmus* with coenobia of 2-4 ovoid cells showing a parietal chloroplast with a single pyrenoid and spiny projections. In BBM, coenobia of 4 cells predominated: 28 µm ± 0.25 wide and 20 µm ± 0.25 long while in BG-11 the measures were significant lower ($P < 0.5$) 20 µm ± 0.25 wide and 16 µm ± 0.25 long. The final cell count in the Neubauer chamber of 9.75x106 cells/mL was greater than in BG-11. However, with the exception of cell sizes, the differences in the parameters studied were never significant ($P > 0.5$). For this reason, we conclude that both culture media are suitable for the isolation and growth of *Desmodesmus* sp and would allow the use of this native microalga in water bodies monitoring tests in the province of San Luis.

025- MODULATION OF INNATE IMMUNE RESPONSE IN BOVINE MAMMARY GLAND EPITHELIAL CELLS BY *Minthostachys verticillata* ESSENTIAL OIL

Arsaute S[1], Montironi ID[2], Cecchini ME[1], Reinoso E[1], Cariddi LN[1]
[1]Laboratorio de Inmunología, Instituto de Biotecnología Ambiental y Salud (INBIAS), Universidad Nacional de Río Cuarto (UNRC)/Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Río Cuarto, Córdoba, Argentina. [2]Cátedra de Farmacología, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto (UNRC), Río Cuarto Córdoba, Argentina. E-mail: sofi.arsaute@gmail.com

Minthostachys verticillata, is an autochthone medicinal plant and our research group has demonstrated that their essential oil (EO) has the ability to modulate the immune response. The aim of this work was to evaluate whether EO modulates the synthesis of proinflammatory cytokines in bovine mammary gland epithelial cells (MAC-T) in the presence or absence of a *Staphylococcus aureus* strain (Sa) isolated from cows with mastitis. The cells were treated with EO (25, 50 and 100 µg/mL), Sa ($5x10^6$ CFU/mL) and pretreated with EO and then challenged with Sa at different times (2, 6, 24 and 48 h). Cells without stimulation were used as control. IL-1β and IL-6 cytokines were quantified in the cell supernatant by sandwich ELISA. MAC-T cells stimulated with Sa produced higher levels of IL-1β and IL-6 than untreated cells ($p<0.001$) up to 48 h. MAC-T cells also responded to EO stimulation (25, 50, and 100 µg/mL) with increased IL-1β levels between 2 and 6 h ($p<0.05$) and increased IL-6 synthesis between 6 and 48 h ($p<0.01$ and $p<0.05$) compared to untreated cells. A decrease in both cytokines in cells treated with EO was observed between 24 and 48 h without differences compared to untreated cells. In cells pretreated with EO and then challenged with Sa, increased levels of both cytokines were observed in the first hours. However, after 6 h a decrease in IL-1β was observed compared to cells treated with Sa alone ($p<0.01$) being the lowest values at 48 h ($p<0.001$). After 24 h, a decrease in IL-6 was observed compared to cells treated with Sa alone ($p<0.05$), being the lowest values at 48 h ($p<0.01$, $p<0.001$ and $p<0.001$). These results suggest that after 24 h, EO would stimulate the production of anti-inflammatory cytokines and these would inhibit the production of IL-1β and IL-6 in cells pretreated with EO and challenged with Sa. Anti-inflammatory cytokines will be quantified in further assays.

026- EVALUATION OF CHEMICAL STABILITY AND TOXICITY OF *Minthostachys verticillata* ESSENTIAL OIL

Arsaute S[1], Montironi ID[2], Cecchini ME[1], Reinoso E[1], Cariddi LN[1]
[1]Laboratorio de Inmunología, Instituto de Biotecnología Ambiental y Salud (INBIAS), Universidad Nacional de Río Cuarto (UNRC)/Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Río Cuarto, Córdoba, Argentina. [2]Cátedra de Farmacología, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto (UNRC), Río Cuarto Córdoba, Argentina. E-mail: sofi.arsaute@gmail.com

Minthostachys verticillata (Griseb.) Epling is an aromatic plant characteristic of Argentina. Our research group has characterized the effect of its essential oil (EO) on the immune response of animals. However, to achieve a marketable bioproduct it is necessary to evaluate its stability and toxicity. The aim of this work was to evaluate the chemical stability of EO after storage at -20°C for 12 and 24 months and to determine its toxicity in bovine mammary gland epithelial cells (MAC-T). Leaves of the species *M. verticillata* from Villa Larca, San Luis, obtained commercially in April 2019, were used. The EO was obtained by hydrodistillation and the identification and characterization of its metabolites was carried out by gas chromatography coupled to mass spectrometry (GC-MS). Six compounds were identified, being pulegone (77.2%) and menthone (8.6%) the majority followed by limonene (1.5%), among others. After 12 months of storage at -20°C a GC-MS was performed again and a variation in the relative percentage of pulegone (58.87%), menthone (18.91%) and limonene (1.47%) was observed. After a further 12 months (total 24 months) of storage at -20°C, the percentages of pulegone, menthone and limonene (57.94%, 22.22% and 4.49%, respectively) remained stable. No organoleptic changes were observed in the EO and the chemotype (pulegone/menthone) was not affected. The cytotoxic effect of EO on MAC-T cells was determined by MTT assay. Different concentrations (10, 25, 50, 100, 250, 500, 750, 1000, and 2000 µg/ml) were evaluated at different exposure times (6, 24 and 48 h). EO did not alter cell viability up to 1000 µg/ml at the times tested. The results obtained are important for the future development of a bioproduct applicable to animal health.

027- SYNERGISTIC ANTI-*Trypanosoma Cruzi* EFFECTIVENESS OF CANDIMINE COMBINED WITH BENZNIDAZOLE BY THE CHOU-TALALAY METHOD

Piñeiro *M[1,2], Martinez-Peinado N[3], Ortiz J[1,2], Barrera P[4], Sosa MA[4], Alonso-Padilla J[4], Feresin GE[1,2]*
[1]Instituto de Biotecnología, FI, UNSJ, Argentina; [2]CCT-CONICET San Juan.[3] Instituto de Salud Global de Barcelona, Hospital Clínic de Barcelona, Universidad de Barcelona, Barcelona, España .[4]Facultad de Ciencias Médicas, IHEM "Dr. Mario H. Burgos", UNCuyo-CONICET, Argentina. Email: mauridpg@gmail.com

Chagas disease, caused by the parasite *T. cruzi*, affects over six million people worldwide, mainly in Latin American countries. Currently available drugs, Nifurtimox or Benznidazol (Bzn), have variable efficacy in the chronic phase and significant side effects. Recently, evidence has emerged in favor of the use of drug combinations to improve the efficacy and tolerance of treatment.
Amaryllidaceae plants have proved to be a potential natural source of therapeutic agents due to their rich diversity in alkaloids. The *Hippeastrum* genus is endemic to South America. Candimine (Cnd), isolated from *H. morelianum*, reported activity against the protozoan *Trichomonas vaginalis*. The aim of this study was to evaluate a the combined activity between Cnd and Bzn against *T. cruzi* by means of the Chou-Talalay method, additionally its cytotoxicity profile was determined against two mammalian cell lines (Vero and HepG2) to ascertain its selectivity against the parasite and potential liver toxicity. The Combination Index (CI) and the Dose Reduction Index (DRI) were estimated using CompuSyn software. Compounds were combined in a fixed dose ratio corresponding to 0.25; 0.5; 1; 2 and 4 times that of the individual IC_{50} values. In epimastigotes, the interaction was synergistic (IC<1) for the combination of 1.07µM Cnd and 2.05 µM Bzn. In tripo+amastigotes, four combinations indicated additivism between Bzn and Cnd (0.9<IC<1.1) and for $2\times IC_{50}$ a slight synergism was observed (IC=0.87). In amastigotes, three combinations showed synergism between Bzn and Cnd (IC<1), highlighting the relationship of $4\times IC_{50}$ (IC=0.08). All combinations showed a favorable IRD for Bzn and Cnd (DRI >1). Finally, the cytotoxicity of the combinations tested on Vero and HepG2 cells showed in all combinations reported antagonism (CI >1). These results suggest that the interaction of candimine would enhance the trypanocidal effect of Bzn, reducing the dose of both compounds to obtain the same result as individually. At the same time, it would be favorable for mammalian cells, since their overall cytotoxic effect is less. Thus, Cnd is proposed as a potential compound to increase the efficacy of Bzn and reduce its adverse effects.

028- CONTROL OF INFECTIONS CAUSED BY *Alternaria alternata* WITH *Trichoderma harzianum* AT DIFFERENT STAGES OF TOMATO CULTIVATION (*Solanum lycopersicum*)

Autran VA[2], Guiñazú LB[1, 3], Pastor NA[3], Pretti A[1], Torres AM [3], Andrés JA[1,3]
[1]Laboratorio de Microbiología Agrícola, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto.
[2]Laboratorio de Morfología Vegetal, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto.
[3]Instituto de Micología y Micotoxicología (IMICO) UNRC-CONICET.
E-mail: ***jandres@ayv.unrc.edu.ar***

Tomato cultivation is one of the most widespread in Argentina. This is affected by various diseases, including those caused by the fungal genus *Alternaria*. It includes pathogenic species that can infect crops from planting and even cause significant post-harvest damage. The use of phytopathogen biocontrollers is a promising tool that gained a strong boost thanks to technology and coupled with the paradigm shift in society's consumption habits. In this work we evaluated the effectiveness of *Trichoderma harzianum* ITEM 3636 as an antagonist of *A. altermata*. *In vitro* evaluation tests of the antifungal activity of *T. harzianum* against *A. alternata* were carried out, and subsequently, it was evaluated on tomato seedlings germinating on agar and contemplating inoculation with *A. alternata* and co-inoculation of *T. harzianum and A. alternata*. In addition, post-harvest tests were carried out in a culture chamber, trying to determine the protective action of *T. harzianum* against *A. alternata* in fruits at commercial maturity. The statistical analysis of the data obtained was performed with the INFOSTAT software. The r^2 was 0.74, which indicates that 74% of the differences between the plates are due to the treatments used. The p value was <0.0001, which shows a positive action of the biocontrol microorganism. In the test with seedlings several parameters were evaluated and in the analysis of variance a correlation of r^2= 0.52 and a p-value < 0.0001 were obtained, which indicates statistically significant differences between the treatment inoculated only with *A. alternata* and the co-inoculated with *A. alternata + T. harzianum*. Finally, in the post-harvest determinations on ripe tomato fruits, it was observed that the application of *T. harzianum* delays the decomposition of the fruits, in addition to maintaining the diameter of the wounds delimited with significant differences. This work provides validity for the use of biological control agents, indicating that they constitute an effective and friendly alternative to the environment in an attempt to reduce the use of chemical products.

029- THE PROTECTIVE ROLE OF *Pseudomonas sp* PCI2 ON POST-HARVEST DETERIORATION OF TOMATO CAUSED BY *Alternaria alternataX*

Guiñazú LB[1, 3], Pastor NA[3], Autrán VA[2], Cejas LJ[3], Torres, AM[3], Andrés JA[1, 3].
[1]Laboratorio de Microbiología Agrícola, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto.
[2]Laboratorio de Morfología Vegetal, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto.
[3]Instituto de Micología y Micotoxicología (IMICO) UNRC-CONICET.
E-mail: ***jandres@ayv.unrc.edu.ar***

The high moisture content and water-soluble nutrients in tomato fruits make them perishable and susceptible to a number of fungal pathogens that cause postharvest rots. The *Alternaria* genus, widely distributed in nature, includes pathogenic species that can infect field crops or cause significant post-harvest damage, behaving as a facultative pathogen that is favored by stress, maturity and senescence of the host. In the tomato fruit, the conidia of the fungus germinate and penetrate through wounds and the infection remains latent until maturity, when tissues weaken. *A. alternata* infection is visualized as dark brown to black, smooth, slightly sunken, firm-textured lesions that can reach several centimeters in diameter. The application of fungicides is a common strategy used in an attempt to minimize post-harvest losses; however, this practice has caused environmental problems due to its residual toxicity, stimulated the appearance of strains resistant to active principles and generated concern for human and animal safety. A sustainable alternative is the development of products based on biological control agents. Among them, bacteria of the *Pseudomonas* genus have been reported as efficient against various fungi. In this work, the effectiveness of *Pseudomonas sp* PCI2 in suppressing diseases caused by *A. alternata* in tomato fruits was evaluated. To establish the antagonistic activity of the bacterial strain against the fungal strain, commercially ripe tomato fruits were superficially disinfected by immersion in a suspension of 2% sodium hypochlorite for 2 minutes, rinsed with sterile distilled water and then were dried by a stream of sterile air in a laminar flow chamber. Incision wounds were made on the fruits, 3 mm deep and 3 mm in diameter in the equatorial region. Immediately, 20 µl of an aqueous suspension of *Pseudomonas sp* PCI2 were applied to each of the wounds, evaluating different concentrations (10^9, 10^7 and 10^5 CFU/ml). Three hours later, 15 µl of a suspension containing 10^4 conidia/ml of *A. alternata* was applied to each wound. The fruits were kept in a chamber at 20 ºC and 95% humidity for 7 days in plastic containers protected with plastic wrap. Inoculation with the *Pseudomonas sp* PCI2 strain showed a significant decrease in the symptoms of the disease, with an average reduction of 50% in the area of the lesions, a result that was observed with all bacterial concentrations, suggesting the use of the lowest. Therefore, this microorganism can be considered as a promising tool in the biological control of *A. alternata* and suitable for the design of an effective strategy for the conservation of fruits.

030- SYNTHESIS OF PAEONOL DERIVATIVES AND THEIR POTENTIAL ANTIVIRAL ACTIVITY AGAINST SARS-CoV-2

Rocha Figueroa LP,[1] Araujo dos Santos N,[1] Oliveira Santiago PH,[2] Romão W,[1] Lacerda Junior V,[1] Ellena J, De Souza Borges W (PQ).[1]*
[1]Programa de Pós-Graduação em Química, UFES; [2] Instituto de Física de São Carlos USP
EMAIL: warley.borges@edu.ufes.br

Coronaviruses are a family of six species of viruses generally distributed in humans and animals that cause a broad spectrum of diseases in animals, and cause chronic diseases and the common cold in humans. Four of these species, typically, cause mild cold symptoms but two, SARS-CoV and MERS-CoV, usually can cause fatal respiratory disease. Human infections with SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) were officially identified by the coronavirus study group and first reported in the last months of 2019, the syndrome was named Coronavirus-Disease-19 (COVID-19). Infections spread rapidly worldwide and finally in March 2020 World Health Organization declared COVID as a new pandemic. The virus continues spreading across the globe until today in a minor proportion. In this context, three paeonol ethers derivatives were synthesized using a nucleophilic substitution methodology studied in our research group. Paeonol is a natural product widely studied due to its several biological activities, as well as its derivatives synthesized so far. All ether derivatives (two unpublished) of paeonol were obtained, which were determined by NMR, FT-IR, FT-ICR MS and two of them by X-rays, being the first study of this type presented for these compounds. The results showed that a simple methodology, with low reaction times, using nucleophilic substitution was very useful to obtain paeonol ether derivatives in high yield and low impurities The paeonol and all the synthesized compounds are being evaluated as possible actives against the virus SARS-CoV-2 using an enzyme inhibition method of two proteases, MPro and PLPro, and the results will be discussed later. These results show that it is advisable to use the method for the production of new derivatives and thus assist in the discovery of new potential bioactive compounds.

031- STATISTICAL AEROBIOLOGICAL PREDICTION MODEL

Torres AF, Moglia MM.
PROICO 30716 Solar Radiation and Environment (FCFMyN - UNSL). San Luis (5700), Argentina. E-mail: andres.f.torres@gmail.com.

In aerobiology, relations with agriculture are very important, in crop forecasting and in the concentration of spores in the atmosphere which affect plant diseases caused by fungi. The objective of the research is to propose a predictive model of fungal spores present in the atmosphere of General Alvear (Mendoza, Argentina), through environmental variables (humidity and temperature), from weekly records. This research included the registration of two complete years (July 2019- June 2021). Biological particles in suspension were sampled with a Hirst-type volumetric sensor, Lanzoni brand. For the analysis and particle count of the samples, the number of each of the types of aeroparticles was identified and counted in 4 predetermined horizontal bands, distributed homogeneously on the surface of the slide. Analysis was performed using a Celestron binocular light microscope, at 40 x 10 magnification. During the period studied, different environmental variables were recorded, such as humidity and temperature. The weekly averages of spores were crossed by principal component analysis with the environmental variables to verify the correlations among them and choose the regressor. Temperature variables were considered as regressors and the following predictive model is proposed: spores = 24.80 + (5.78 x (maximum temperature)) + (10.10 x (minimum temperature)). The determination coefficient is 87% (adjusted 75%) and all statistical assumptions to apply the model were checked. The contributions of this research could help to substantially improve the production of fruit trees and vegetables.

032- SECRETED PROTEINS BY *Candida albicans* SHOW ANTIGENIC SIMILARITY WITH PROTEIN FRACTIONS OF *Larrea divaricata* Cav. (JARILLA)

Urquiza Martínez MP, Dávila S, Isaguirre AC, Mattar Domínguez MA*
Facultad de Química, Bioquímica y Farmacia- Universidad Nacional de San Luis, Argentina
** e-mail: urquizapaulina@gmail.com*

Heterologous immunity or cross-reactivity are fundamental attributes of adaptive immunity. *Candida albicans* presents virulence factors which favor adhesion or penetration and consequently, modify its role as a commensal to become a pathogenic microorganism. In our laboratory, it has been shown that proteins from *Larrea divaricata* Cav. are inducers of cross-reactive antibodies against cellular proteins of *Candida albicans*. However, there are no studies on cross-reaction against the exoproducts (EP) of this yeast, which have significant proteolytic activity. The objective of this work was to demonstrate the molecular mimicry between jarilla proteins and EP of *C. albicans*, through specific antibodies against *L. divaricata* proteins. For this work, proteins from a crude jarilla extract obtained by different purification methods were used. Balb/c mice were subcutaneously immunized. In the first dose, antigens obtained from protein extracts precipitated with ethanol or ammonium sulfate were used. In a second dose, antigens obtained from the extract with or without prior washing treatment of jarilla leaves with acetone were used. Two doses of the antigen were applied, separated from each other by 21 days. Mice were bled 15 days after the last dose. *C. albicans* was cultured in MMO medium (modified MacDonald/Odds) to induce EP with proteolytic capacity. The supernatants were obtained at different culture times, 72 and 96 h. The cross-reaction of anti-jarilla antibodies against *C. albicans* EP was tested by ELISA assays. For these assays, the following sensitizing antigens were used: jarilla proteins and *C. albicans* culture supernatants concentrated and partially purified with 10 kDa cut-off membrane concentrators (Amicon Ultra - 0.5mL 10K). Our results demonstrated the importance of choosing the methodology used to obtain jarilla proteins as immunogens. On the other hand, it was observed that heterologous anti-jarilla protein antibodies recognized *C. albicans* EP in proteolytic activity-inducing medium, thus demonstrating the antigenic similarity exists between both proteins, at different growth times. Our findings encourage further study on the ability of specific antibodies to neutralize some *C. albicans* virulence factors involved in host-pathogen interaction. These antibodies are obtained from plant proteins. Because this methodology is considered friendly to the environment, it is intended to collaborate from this study with promising pharmacological targets through a possible prophylactic and/or protective action of *L. divaricata* proteins. From the point of view of human health, this approach could contribute to possible future biotechnological developments.

033- *Yersinia enterocolitica* OUTER PROTEIN P (YopP) INHIBITS NITRIC OXIDE PRODUCTION THROUGH SIALIC ACID INTERACTION BY A POSSIBLE EXTRACELLULAR MECHANISM

Garay JA[1], Silva JE[1,2], Jofre BL[1,2], Di Genaro MS[1,2], Davicino RC[1,2]
[1]Area de Microbiología e Inmunología, FQByF-UNSL [2]IMIBIO-CONICET. Email: ***davicino521@gmail.com***

Previous studies of our laboratory demonstrated that the food-borne pathogen *Yersinia enterocolitica* (Ye) inhibits nitric oxide production (NO) in murine peritoneal macrophages (Mϕ) through Ye outer protein P (YopP) by a carbohydrate-dependent manner. However, the knowledge about the glycan motifs involved in the YopP- Mϕ interaction is underdeveloped. The aim of this study was to explore YopP activity as lectin and identify the possible N-glycans used as target. Mϕ were obtained by intraperitoneal lavage in C57BL/6 mice under aseptic conditions, cells were plated and Mϕ were purified by incubation for 2 h at 37°C in supplemented DMEM medium in an atmosphere of 5% CO_2. Mϕ ($1x10^6$ cells/ml) were incubated with 5 IU/mL of PNGase F or 2 IU/mL of α 2,6 Syalidase in DMEM medium without fetal bovine serum, washed and cultured overnight in supplemented DMEM medium. Subsequently, Mϕ were infected with Ye serotype 0:8 (pYV+, WA-314) (Ye wt) or Ye WA-314 deficient in YopP (pYV+, WA-C pYVNalrKanr) (Ye Δ*yopP*) at MOI 10:1. To elucidate possible targets, we performed competition tests with five lectins: PNA, SNA, LEL, ECL or MAL II. After infection, Griess, lactate deshydrogenase (LDH) and urea tests were performed, and YopP expression was determined by Western Blot. Hemagglutination tests were carried out with Ye wt, Ye Δ*yopP*, purified Yops or periodate treated Ye. We identified YopP presence in the supernatants of Ye wt-infected Mϕ, while LDH assay showed that experimental conditions did not induce cell lysis. These results suggest a possible YopP secretion by Ye. Yops hemagglutinin results suggest a lectin property of Yops. Moreover, deglycosylated Mϕ (Md) showed increased urea production and decreased NO secretion. Urea production was not modified after infection, while NO production was modulated by YopP. In this regard, the presence of YopP inhibited NO generation in Mϕ meanwhile stimulated NO in Md. SNA is a vegetable lectin with Neu5Ac (alpha2-6) Gal (GalNAc or syalic acid) affinity. We found that SNA did not affect NO production by Ye wt-infected Mϕ while inhibited NO production in Ye Δ*yopP*-infected Mϕ. Interestingly, Ye wt-infected Mϕ treated with syalidase showed a significant increase in NO production, suggesting that syalic acid-containing motifs plays a critical role in YopP-mediated effects. Further studies are required to consolidate the importance of a possible extracellular role of YopP collaborating with injected intracellular YopP in regulating the NO production.

034- ANTIMICROBIAL ACTIVITY MODULATION OF *Bacillus velezensis* SL-6 BY THE PRESENCE OF *Yersinia enterocolitica*

Climent FV, Cozzolino ME, Iriarte HJ, Ferrari SG, Silva PG
Área Microbiología e Inmunología, Facultad de Química, Bioquímica y Farmacia, UNSL. E-mail: marianacozzolino@gmail.com

Some *Bacillu*s species, safe for industrial use, are commercially available as biocontrol agents to control crop pests. Also, some of them have been proposed as probiotic bacteria to regulate human and animal health by their secretion capability of ribosomal and non-ribosomal antimicrobial metabolites, among others. Emergent research studies propose that co-cultivation and biotic additives such as heat-killed cells are novel strategies for the enhancement of secondary metabolite synthesis. The present work describes the influence of *Yersinia enterocolitica* W1024 (*Ye*) on the antibacterial activity of *B. velezensis* SL-6 (*Bv* SL-6), a strain with a broad inhibitory spectrum against pathogenic microorganisms. *Bv* SL-6 was grown for 24 h at 30 °C with orbital agitation (200 rpm) in a liquid synthetic medium under two different induction conditions. In the co-culture experiments, both bacteria were inoculated at 2% *v/v* from a fresh cell suspension prepared in saline solution. In addition, batch cultures in the presence of thermally killed cells (autoclaved for 30 min) of *Ye* at 10% *v/v* were performed. A pure culture of SL-6 strain was included as a control. Cell-free supernatants (CFSs) were obtained by centrifugation and filtration. The antibacterial activity was determined by the well-diffusion method against *Y. enterocolitica* W1024, *Escherichia coli* ATCC 25922 (*Ec*), *Listeria monocytogenes* (local isolate) and *Staphylococcus aureus* ATCC 43300 (MRSA), and inhibition zone diameters were measured using a digital caliper. Furthermore, the serial two-fold dilution method was used to determine the antimicrobial titer expressed in arbitrary units per milliliter (AU/ml). The CFS obtained from co-culture, increased the diameter inhibition zone against *Ye* (4.9%), while a minimal reduction (2.9%) in antagonism against *Ec* was observed ($p<0.05$). The inhibition zones against gram-positive bacteria did not show a statistically significant difference. Moreover, *Ye* heat-inactivated cells reduced the antagonistic activity against both gram-negative bacteria. The antibacterial activity against *Ye* showed a 10.3% diminution in the inhibition zone diameter, with a substantial reduction of antibacterial titer in AU/ml (54.3%), while the antagonism against *Ec* dropped to 11.3 and 44.7% for both parameters, respectively ($p<0.05$). *Ye* showed poor induction in modulating the antagonistic response of *Bv* SL-6 against the indicator bacteria tested, with a predominance of the inhibitory action on the antimicrobial activity.

035- ANTIBACTERIAL ACTIVITY OF ESSENTIAL OIL OBTAINED FROM *Eupatorium buniifolium*

Centorbi HJ[1], Aliendro OE[1], Gambluch Negre XY[1], Kurina-Sanz MB[2], Mattana CM[1], Satorres SE[1]
[1]*Área Microbiología. Facultad de Química Bioquímica y Farmacia. Universidad Nacional de San Luis.* [2]*Instituto de Investigaciones en Tecnología Química (INTEQUI), Facultad de Química Bioquímica y Farmacia. Universidad Nacional de San Luis, CONICET. San Luis, Argentina. E-mail: 768centorbi@gmail.com*

Essential oils (EOs) are aromatic and volatile mixtures of secondary metabolites obtained from different parts of plants. *Eupatorium buniifolium* Hook. et Arn. (Asteraceae), popularly known as "romerillo" or "romerillo colorado" is part of the native flora of the Province of San Luis, Argentina. EOs were isolated by hydrodistillation techniques from the aerial part. The *in vitro* antibacterial activity of EOs was evaluated against *Staphylococcus aureus* ATCC 43300, *Pseudomonas aeruginosa* ATCC 27853 and *Listeria monocytogenes* CLIP 74904 strains. The minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) were determined by the micro-well dilution assay method, in tripticase soy broth (TSB) with 0.01% (W/V) addition of 2,3,5-triphenyltetrazolium chloride as visual indicator of bacterial growth. Suspensions of 10^6 CFU/ml for each strain were used. EO was dissolved in DMSO and then serial twofold dilutions were made in a concentration range from (µg/ml) 5,000 to 2.44. The 96-well plates were prepared by dispensing into each well 100 µl of TSB, 100 µl of EO serial dilutions and 5 µl of the inoculum. In addition, TSB, strains and EO controls were also included. The plates were incubated at 37°C for 24 h under aerobic conditions. The MIC was defined as the lowest concentration of the EO in the medium, in which there was no visible growth after incubation (no red colour). The MBC was determined by subculturing on tripticase soy agar (TSA) from the last three wells that showed no visible bacterial growth. The experiments were performed in duplicate and then replicated at least twice. *E. buniifolium* EO showed inhibitory activity against *S. aureus* ATCC 43300 (µg/ml), MIC 1,250-MBC 1,250; *L. monocytogenes* CLIP 74904, MIC 312-MBC 625; and no activity against *P. aeruginosa* in the studied range (MIC-MBC > 5,000 µg/ml). In this work, we observed that EO resulted to be more active on Gram positive than on Gram negative bacteria. However, *S. aureus* was less affected, if compared with *L. monocytogenes*. The effect observed for *P. aeruginosa* is probably due to the hydrophilic lipopolysaccharides contained in the outer membrane, which create a barrier against the hydrophobic compounds of the EOs. Antibacterial activity of EOs presents an increasing interest in the last years since they were shown to be effective even on multidrug resistant strains. Further studies are needed in order to find the proper ways to deliver these active natural compounds.

036- BIOFILM FORMATION OF *Salmonella* sp IN DIFFERENT CULTURE MEDIA

Colocho F[1], Favier G[2], Mayer M[3], Pungitore C[4,5], Lucero C[1,2]
[1] Instituto Multidisciplinario de Investigaciones Biológicas (IMIBIO - CONICET). [2] Área de Microbiología e Inmunología de la UNSL, Argentina. [3]Instituto de Química Orgánica Eberhard Karls, Universidad de Tubingen, Alemania. [4] Área de Química Orgánica, UNSL. [5] Instituto de Investigación en Tecnología Química (INTEQUI-CONICET-SL). E-mail:cluceroestrada@gmail.com.

Salmonella spp. is mostly involved in foodborne illnesses worldwide. Approximately 2,500 *Salmonella* serotypes have been identified, the majority of which may adapt to several animal hosts, including humans. Furthermore, the persistence of foodborne pathogens in biofilms has also been reported, mainly on food contact surfaces, affecting product quality, quantity, and safety. In the meat industry, bacterial biofilms are a major concern due to accumulation in areas difficult to sanitize, leading to cross-contamination and food spoilage. Several studies have reported the influence of biofilm formation on the survival of bacteria on both biotic and abiotic surfaces, and its resistance to disinfectants to sanitizers. The objective of this work was to evaluate the glucose concentration in order to find the most suitable medium for biofilm formation. Thirteen *Salmonella* strains of two serotypes were studied: three *Salmonella* Typhimurium and 10 *Salmonella* Enteritidis. These strains were culture for 24 h at 37°C in 96 well polystyrene plates; afterward, planktonic cells were measure at 650 nm, and biofilm formation was determined by the crystal violet (CV) technique and measure at 550 nm. Three media were evaluated: Luria Bertani broth (LB, without glucose), triptycase soy broth (TSB, 0.25% glucose); and TSB supplemented with 0.25% glucose (TSBG, 0.5% glucose). The mean absorbance obtained from triplicate readings was used to determine the final optical density of each strain (ODf), which was compared with that of the negative control (ODn). The isolates were categorized into non-biofilm-forming isolates (NF) when ODf ≤ ODn, weakly biofilm-forming (WBF) when ODn < ODf ≤ 2×ODn, moderate biofilm-forming (MBF) when 2×ODn < ODf ≤ 4×ODn, or strong biofilm-forming (SBF) when 4×ODn < ODf. With the three media, all strains were able to forma biofilm under these culture conditions. The medium that favored the biofilm formation for both *Salmonella* serotypes was TSB as nine of the 13 studied strains were SBF and the other four strains were MBF. With LB, eight strains were SBF, four strains were MBF, and one strain was WFB. On contrary, with TSBG seven strains were WBF, four strains were MBF and two strains were SBF. The results demonstrate that the glucose concentration into the culture medium influence in the capacity of Salmonella spp strains to form biofilm which would contribute to greater virulence for these regional Salmonella strains.

037- ACTIVITY OF GRAS PRESERVANTS AGAINST *Yersinia enterocolitica* BIOFILM CULTURED IN BROTH SUPPLEMENTED WITH MEAT JUICE

Iriarte HJ[1,2], Di Marco NI[2,3],Colocho F[2], Favier GI[1], Maier M[4], Pungitore C[3,5], Lucero Estrada CSM[1,2]
[1]Área de Microbiología e Inmunología de la UNSL, Argentina. [2]Instituto Multidisciplinario de Investigaciones Biológicas (IMIBIO - CONICET). [3]Área de Química Orgánica, UNSL. [4]Instituto de Química Orgánica Eberhard Karls, Universidad de Tubingen, Alemania. [5]Instituto de Investigación en Tecnología Química (INTEQUI-CONICET-SL). E-mail: ***hjiriarte@email.unsl.edu.ar***

Yersinia enterocolitica is one of the five leading causes of bacterial gastroenteritis in the world. It is transmitted through contaminated food or water. Pigs are the main reservoir but it is also found in other animals. The biofilm formed on surfaces in direct or indirect contact with food is considered one of the main factors of cross-contamination in food processing. However, the *in vitro* study is very different from the natural environment conditions, being able to show different growth and/or survival behavior compared to those evaluated in the laboratory. Currently, the investigation of biofilms in a real meat processing environment is difficult due to technical challenges. Therefore, waste meat fluids (meat juice, MJ) are used to recreate such environment. According to the Food and Drug Administration (FDA), the acronym GRAS defines substances that are used as food additives generally recognized as safe. The objectives of this work were (i) to study the effect of different GRAS preservants on *Y. enterocolitica* biofilms in nutrient broth added with 50% MJ (NB:MJ), and (ii) to compare values of biofilm inhibition/eradication to minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) of planktonic cells in the same medium. *Y. enterocoltica* CLC001 bio/serotype 1A/O:7,8-8-8,19 and *Y. enterocolitica* WAP+ 1B/O:8 were screened against six GRAS: ascorbic acid (AA), citric acid (CA), lactic acid (LA), phosphoric acid (PA), acetic acid (AcA) and $NaNO_2$. The only GRAS without bactericidal activity was $NaNO_2$. For both tested strains, higher GRAS concentrations were needed to inhibit biofilm formation, except for AA and PA against *Y. enterocolitica* CLC001, than planktonic cells; among four to more than 250 folds were needed for biofilm eradication, and it was not possible to eradicate it with $NaNO_2$, AA and CA. Moreover, PA was also ineffective to eradicate the *Y. enterocolitica* CLC001 biofilm. It was more difficult to inhibit the biofilm formation of *Y. enterocolitica* WAP+ than *Y. enterocoltica* CLC001; furthermore, between AcA and LA which were able to eradicate biofilms of both strains, double concentrations were needed against *Y. enterocolitica* WAP+ compared with *Y. enterocoltica* CLC001. It is possible to conclude that the presence of MJ in NB favors *Y. enterocolitica* resistance to food-preservants agents. Furthermore, with this simulation of meat manufacturing processes it was demonstrated than some compounds able to inhibit the biofilm formation are not capable of eradicate it.

038- POLY(I:C) IMPROVED THE IMMUNE RESPONSE INDUCED BY A NUCLEOPROTEIN-BASED ANTICOVID VACCINE

Alarcón V.[1,], Pérez-Elizalde J.[1],Maritza Valerio-Chávez[1], Espul,C.A.[2],Cargnelutti,D.E.[1] ,Ortiz G[3], Mackern-Oberti J.P.[1] , Sanchez M.V.[1]*

1-Instituto de Medicina y Biología Experimental de Cuyo (IMBECU), Centro Científico Tecnológico Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)-Mendoza, Universidad Nacional de Cuyo, Mendoza, Argentina. 2-Unidad de Supervisión y Seguimiento de Laboratorios Públicos, Ministerio de Salud, Desarrollo Social y Deportes. 3-Bamboo Biotech SAS.

Email: **em.cn.alarcon.valentina@gmail.com*

COVID-19 has a major impact on public health worldwide. Although novel vaccines are currently used to prevent disease, there is still a need to develop more effective vaccines that can provide not only antibody responses but also robust cellular responses. The combination of conserved antigens capable of inducing T-cell responses with novel adjuvants may be a valuable strategy for the development of a universal vaccine capable of protecting against antigenic viral variants. The aim of this study was to explore the TLR3 adjuvant, Poly (I:C), combined with the conserved nucleoprotein antigen (NP), to elicit enhanced humoral and cellular immune responses. NP-adjuvanted and non adjuvanted vaccines were administered in C57BL6 mice intramuscularly in a two-dose regimen (day 1 and 21), and humoral and cellular immune responses were determined by different immunological techniques. Regarding humoral immune responses, it was observed that the adjuvanted formulation induced a significant increase in specific IgG NP titers compared to the non adjuvanted formulation. Analysis of IgG subclasses showed enhanced and balanced IgG1 and IgG2a titers. Regarding T cellular responses, the Poly (I:C) formulation induced good cellular immune responses evidenced by antigen specific-IFN-γ-secreting T cells measured by ELISPOT and significant IL-6 secretion determined by ELISA. Moreover, the adjuvanted formulation also showed an enhanced T-cell memory, T effector and T central memory response, measured by flow cytometry. The findings presented here have important implications for understanding the role of Poly (I:C) adjuvant and NP antigen in mounting functional immune responses for COVID-19 prevention.

039- ANTIMICROBIAL ACTIVITY OF *Yersinia* spp. BACTERIOCINS PRODUCING STRAINS ON DIFFERENT BIOTYPES OF *Y. enterocolitica*

Brarda BS[1], Iriarte HJ[1,2], Lucero Estrada CSM[1,2], Escudero ME[1], Favier GI[1]

[1]Área de Microbiología e Inmunología, FQBF, Universidad Nacional de San Luis, San Luis, Argentina. [2]Instituto Multidisciplinario de Investigaciones Biológicas del Consejo Nacional de Investigaciones Científicas y Técnicas (IMIBIO - CONICET), San Luis, Argentina.

*E-mail: **brendabrarda@gmail.com***

Bacteriocins are polypeptides that have the ability to be bactericidal or bacteriostatic against sensitive bacteria of the same or closely related species. The producing cells are immune to their bacteriocins. Non-pathogenic *Yersinia* species studied in our laboratories, such as *Y. intermedia* and *Y. enterocolitica* biotype (B) 1A, are bacteriocin producers and exhibited an inhibitory effect on pathogenic *Y. enterocolitica* strains associated with gastrointestinal pathologies and immunological sequelae in humans. The aim of this work was to evaluate the antimicrobial activity of non-pathogenic *Yersinia* spp. bacteriocins producing strains (BPS) on pathogenic *Y. enterocolitica* biotypes. For this purpose, *Y. intermedia* B1 O:35-37-40 (MEE 019) and *Y. enterocolitica* B1A O:5 (LVF 010) were used as BPS. *Y. enterocolitica* B1B (WAP+), *Y. enterocolitica* B2 (W1024, GFB002, and GFO041), *Y. enterocolitica* B3 (GFO045), and *Y. enterocolitica* B4 (MHC700, 29C/43, GFO64CH and GFO68CH), were used as indicator strains (IS). The "spot technique" was performed. Briefly, BPS and IS were cultured in trypticase soy broth at 25°C for 18 h and adjusted to a concentration corresponding to a $DO_{\lambda 610}$ 0.2. Aliquots of each BPS were placed in wells of culture media previously inoculated with IS and incubated at 20°C for 48 h, in duplicate. Halo diameters were measured in millimeters with a digital caliper and the sensible or resistance ISs were determined by the presence or absence of this halos around the BPS. WAP+, GFO041, GFB002, MHC700, 29C/43, GFO64CH, and GFO68CH were sensitive to both BPS tested. *Y. enterocolitica* W1024 was resistant to both BPS, and *Y. enterocolitica* GFO045 was sensitive to *Y. enterocolitica* LVFO10 but resistant to *Y. intermedia* MEE019. These results encourage the hypothesis that bacteriocins produced by *Yersinia* strains considered non-pathogenic have antagonistic capacity against pathogenic *Y. enterocolitica* strains and would suggest that antimicrobial effect of these bacteriocins is specific of the strain but it has no relationship with the *Y. enterocolitica* biotype.

040- PULSED FIELD GEL ELECTROPHORESIS (PFGE) IN *Yersinia enterocolitica* STRAINS ISOLATED IN SAN LUIS, ARGENTINA

Mastrodonato ACh[1], Iriarte HJ [1,2] Escudero ME[1], Lucero Estrada C[1,2], Favier GI.
[1]Área de Microbiología e Inmunología. [2]Laboratorio de Investigación en Microbiología (LABIMIC, IMIBIO-CONICET-SL).Facultad de Química, Bioquímica y Farmacia. UNSL. Email: ***gifavier@unsl.edu.ar***

Y. enterocolitica is an enteropathogen transmitted through contaminated food that causes intestinal and extraintestinal diseases in humans. Among the six known biotypes (B), B1A strains have different virulence markers and all they could produce human infection. PFGE has been shown to be a highly discriminatory, stable and reproducible subtyping technique, being useful to determine the origin of outbreaks, identify the source and to compare clonal relationships between bacterial strains. It is currently the method of choice for studying the molecular epidemiology of *Y. enterocolitica* strains isolated from food and clinical samples. In this work, PFGE technique was used to establish clonal relationship between 24 *Y. enterocolitica* B1A strains isolated from different origins: human feces, animals intended for human consumption, effluent water and different foods in San Luis, Argentina. The chromosomal DNA preparation and *Xba*I restriction were performed according to the PFGE protocol standardized by PulseNet (USA). Electrophoresis was carried out using a CHEF-DR III system at 6 V/cm for 20 h at 14°C with the following pulse times: initial time 1.8s and final time 20.0 s. *Salmonella* Braenderup H9812 and *Y. enterocolitica* W1024 B2/O:9 were used as DNA size standard and reference strain, respectively. By PFGE, *Y. enterocolitica* strains were grouped into two large clusters (A and B). The cluster A included *Y. enterocolitica* B1A strains belonging to different serotypes discriminated in 10 genomic types (GT), while the cluster B included only the reference strain. From cluster A, six GT (60%) grouped more than one isolate of the same serotype, but of different origin (GTA1, GTA3, GTA4, GTA6, and GTA9), with the exception of GTA2, which grouped two isolates from human feces. The remaining GT (GTA5, GTA7, GTA8, and GTA10) included one isolate each (40%). GTA4 was the DNA clonal pattern most frequently found, with five *Y. enterocolitica* B1A O:7,8-8-8,19 strains included in this group (20.83% of all isolates). The human *Y. enterocolitica* strains were grouped in GTA2 (two isolates, serotype O:5) and in GTA5 (one isolate, serotype O:7,8-8-8,19), with a similarity of 88%. PFGE analysis showed that most of *Y. enterocolitica* B1A isolates were discriminated by their serotype and not by their source of origin, resulting in 11 GT defined from 24 isolates and a reference strain, which shows certain homogeneity between the genomic profiles obtained. However, *Y. enterocolitica* isolates of the same serotype from human feces and food were grouped into different TG. This study demonstrated a high power of discrimination between *Y. enterocolitica* strains of the same bioserotype which could contribute to the knowledge of the epidemiology of this bacterium and represent a very valuable molecular subtyping tool in our region and worldwide.

041- EFFECT OF *Yersinia enterocolitica* O:8 INFECTION ON GLUCOSE HOMEOSTASIS

Velazquez, M[1,2], Pelegrina M[1], Di Genaro MS[1,2]
[1]Universidad Nacional de San Luis, Argentina. [2]Instituto Multidisciplinario de Investigaciones Biológicas de San Luis, CONICET, Argentina. E-mail: velazquez0104@gmail.com

The relationship between metabolism and the immune response to bacterial infection on the organismal level remains to be completely elucidated. Glucose is the key metabolite for immune cells and plays a critical role in the outcome of the infection. Here, we examined the relationship between sickness-induced anorexia and glycemia with cytokine production during the course of *Yersinia enterocolitica* (Ye) infection. C57BL/6 (WT) or TNFR1-deficient (*TNFR1*$^{-/-}$) mice were orally infected with Ye O:8 by gavage. Body weight, food intake, glycemia and serum cytokine (TNF, IL-17) levels were evaluated during the course of infection. Both Ye-infected WT and *TNFR1*$^{-/-}$ mice exhibited significant weight loss ($p<0.05$ and $p<0.001$ for WT and *TNFR1*$^{-/-}$ respectively) and a decrease in food intake ($p<0.001$ compared with non-infected control mice). Moreover, Ye infection induced significant serum IL-17 on day 3 ($p<0.05$) followed by TNF production on day 5 after infection ($p<0.001$). WT mice developed hypoglycemia as early as 24 h post-infection with Ye ($p<0.01$). Although slightly later (3 days after infection), TNFR1 deficiency did not reverse the hypoglycemia in the mice. We observed that the weight loss correlated with hypoglycemia upon Ye infection ($p<0.01$). In addition, TNF levels correlated with anorexia of mice after acute Ye infection ($p<0.05$). Our results show that Ye infection impacts on the glucose homeostasis, suggesting immune-metabolism interactions during this enteric infection Further studies are necessary to elucidate the virulent factors and immune mediators involved in the regulation of glucose metabolism after Ye infection.

042- DESMOGLEIN-4 DEFICIENCY WEAKENS OVA SPECIFIC IGA AND IGM HUMORAL IMMUNITY

Viruel LB[1,2], Sánchez MB[1,2], Michel MC[1,2], Troncoso M[1,5,6], Neira FJ[1], Campo Verde Arbocco F[1], Soaje M[1,3], Sanchez MV[1], Lucero F[7], Troncoso A[7], Moiso A[7], Pietrobon EO[1,3]; Inoccenti Badano AC[4]; Jahn GA[1]; Valdez SR[1,5], Mackern-Oberti JP[1,3].
*1IMBECU; 2UMaza; 3UNCuyo; 4H Lagomag; 5 UNCuyo, FCEN; 6 U. Mendoza; 7 UDA. E-mail: **jpmackern@mendoza-conicet.gob.ar***

Desmogleins (Dsg) are cadherin-type proteins involved in cell adhesion mechanisms carried out by desmosomes. Dsg-4 deficiency is associated with hair follicle alterations and hair loss in humans, mice, and rats. Recently, we have reported that the imiquimod topic administration to Dsg-4 deficient rats leads to an exacerbated skin inflammation. Unfortunately, the role of Dsg-4 in IgA and IgM humoral immunity has not been addressed. The focus of our work was to determine whether Dsg-4 deficiency impairs OVA-specific IgA and IgM induction. For this purpose, Dsg-4 deficient rats OFA hr/hr (Dsg4 null; n=8) and wild-type Sprague Dawley (SD; n=8) rats were intradermal inoculated with 20µg/40µl OVA/PBS. Two weeks later, serum samples were obtained to determine OVA-specific IgA and IgM levels by ELISA. Surprisingly, Dsg4 null rats displayed lower OVA-specific IgM (OD at 1/100; Dsg4 null 0.152±0.053 vs SD 0.427±0.194, t test, p=0.0383) and IgA levels compared to SD group (OD at 1/100; Dsg4 null 0.094±0.021 vs SD 0.1736±0.025, t test, p=0.0383). When we evaluated axillar lymphatic nodes expansion after topic imiquimod administration for 3 consecutive days every week for 2 weeks, we found that Dsg4 null rats (n=8) displayed a lymphatic node weight increased compared to SD rats (n=8) (imiquimod Dsg4 null 375mg ± 27 vs imiquimod SD 185mg ± 25, t test, p=0.0043; untreated Dsg 4 null 58mg ±3 and SD 43 mg ±6). These results suggest that desmoglein-4 may help in mounting specific humoral immunity. Several mechanisms may be involved in Dsg-4 deficient rats altered Ig response including alterations in: antigen lymphatic drainage, keratinocyte-derived cytokines, fine crosstalk between keratinocyte and dendritic cells, and germinal center reaction. Although further research is needed, our results assign a new role to Dsg-4 in supporting the induction of humoral immunity during an intradermal antigen exposure.

043- TWO SPECIES OF THE GENUS *ARTEMISIA* INHIBIT THE GROWTH OF PERIODONTAL BIOFILM, IN VITRO

[1]Porta MC, [1]Ciccarrelli MA, [1]Ulloa Mora AA, [1]Conill J, [1]Giménez Prolongo F, [23]Boiteux JJ, [23]Durán FF, [23]Pizzuolo PH, [23]Lucero GS, [4]López LA, [4]Fornés MW, [4]Monclus MA, [4]Saez Lancellotti TE, [4]Conte MI, Barauna AA,[4]Funes AK, [4]Avena MV, [4]Agüero R, [4]Lopez ME
[1]Cátedra de Microbiología y Cátedra de Periodoncia, Facultad de Odontología, Universidad Nacional de Cuyo, Mendoza, Argentina. [2]Cátedra de Fitopatología, Facultad de Ciencias Agrarias, Universidad Nacional de Cuyo, Mendoza, Argentina. [3]Instituto de Biología Agrícola de Mendoza (IBAM-CONICET), Facultad de Ciencias Agrarias, Mendoza, Argentina. [4]Área de Histología y Embriología, Facultad de Ciencias Médicas, Universidad Nacional de Cuyo, Mendoza, Argentina. E-mail: mariaelislopez@gmail.com

Periodontitis is a polymicrobial infection whose pathogenic organisms organize themselves in complexes forming a biofilm and develop resistance to currently used antibiotics. Plant cells synthesize defense compounds against fungi, bacteria and viruses. The botanical family *Asteraceae* includes the genus *Artemisia* whose species *A. douglasiana* (Matico) and *A. mendozana var. mendozana* (Wormwood) possess antimicrobial and antibacterial properties, among others. Dehydroleucodine (Dhl), a sesquiterpene lactone with antimicrobial and antiproliferative properties and high antibacterial capacity in vitro against *Pseudomonas aeruginosa, Bacillus cereus, Staphylococcus aureus* and *Escherichia coli*, has been isolated from *A. douglasiana*. The purpose of this work is to use natural plant compounds from the Cuyo region of Argentina to combat periodontitis. The objective is to find the adequate concentration of Dhl diluted in Dimethylsulfoxide (Dmso) and the essential oil of Wormwood to eliminate all the organisms of the biofilm that causes periodontitis, in vitro. The method consists of making antibiograms by seeding gingival biofilm on agar, making holes in the agar and adding decreasing concentrations of Dhl or wormwood essential oil and cultivating for 24-48h in anaerobiosis. The positive control is Chlorhexidine (Ch) and the negative control is Dmso. Biofilm inhibition is observed by the formation of a halo around the treatment without bacterial colonies. Halo formation is considered a positive result and can be quantified. The positive results are: Ch, Dhl 24mg/100ul Dmso, Dhl 2.4mg/100ul Dmso, and pure wormwood essential oil.

044- EVALUATION OF THE EFFECT OF THE CELL-FREE SUPERNATANT FROM *Lactococcus lactis* sl40 ON THE BIOFILM FORMED BY *Yersinia enterocolitica*

Giorggi TA, Benito Rodriguez PG, Gaido Riso N, Mitjans NM, Stagnitta PV. FQBYF, UNSL, San Luis, Argentina. *E-mail*: ***pvstag@unsl.edu.ar***

Bacterial biofilms are aggregates of microorganisms, which are in a sessile state, immersed in a matrix of extracellular polymeric substances preventing the action of antimicrobial agents. Bacterial biofilms produced by human pathogens are related with chronic infections due to its ability to resist therapeutic treatment by forming biofilms on indwelling medical devices, including implanted artificial heart valves, catheters and joint prosthetics. Furthermore, in food factory environments some biofilm-forming species are human pathogens. These pathogens are able to develop biofilm structures on different artificial substrates common in food industry. The purposes of this study were to evaluate *Yersinia enterocolitica* capacity to form biofilms and the effect of cell-free supernatant of *Lactococcus lactis* sl40 isolated from raw goat milk, on biofilm formed by *Y. enterocolitica*. For biofilm formation, Petri dishes containing sterile coverslips were used in which *Y. enterocolitica* was incubated in tryptone soya broth (TSB) medium at 37ºC. At 24 h, a mature *Y. enterocolitica* biofilm was obtained. The coverslips with biofilm were washed and placed in sterile Petri dishes. The effect of cell-free supernatant (CFS) and neutralized cell-free supernatant (NCFS) of *L. lactis* sl40 on the biofilm formed was evaluated by incubation for 24 h at 37ºC. The biofilms used as controls were incubated with MRS medium. Later, coverslips were washed with sterile distilled water and to study the planktonic cells, samples were taken from Petri dishes. Quantification of planktonic cells and sessile cells, viability of sessile cells, optical microscopy (OM) and scanning electron microscopy (SEM) tests were performed for control and treated with CFS and NCFS biofilms. The quantity of cells that remained attached to SLC-treated biofilms decreased significantly when compared to controls, as well as cell viability. By quantification, a reduction of planktonic cells was verified, being more pronounced by treatment with CFS. For both treatments, notable changes in the morphological integrity of the biofilm cells were observed by SEM. These results allow us to conclude that CFS from *L. lactis* sl40 was able to reduce both the number of sessile cells in the *Y. enterocolitica* biofilm and the viability of attached cells. In addition, the morphology of *Y. enterocolitica* cells in biofilm was modified. Besides, it was possible to establish a decrease of the quantity of planktonic cells after both treatments, with a greater effect of CFS. These data provide promising information to combat the formation of bacterial biofilms, which represents a problem in the food industry, biotechnology, medicine and other industrial sectors.

045- ANTIMICROBIAL EFFECTS OF *Origanum vulgare* AGAINST *Streptococcus mutans*: AN *IN VITRO* STUDY

Bertello MA, Vega AE, Salinas Ibáñez AG, Arismendi Sosa AC. Área de Microbiología e Inmunología, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis (UNSL). San Luis, Argentina.
Email: alebertello29@hotmail.com

Streptococcus mutans is a Gram-positive bacterium, considered as the main pathogen in the development of dental caries. This disease is one of the most frequent in the population, which affects various aspects of a person's daily life such as chewing, eating and social relationships. The use of chemical or natural agents that possess antimicrobial activity to prevent bacterial adhesion and disturb the growth of the bacteria during the formation of plaque dental is desirable. The World Health Organization propose to establish formal strategies of primary health care with traditional medicine and natural therapeutic. *Origanum vulgare* (oregano) is an aromatic herb that have antimicrobial, anti-inflammatory, antioxidant and anticancer properties. In this work, we evaluated the antimicrobial effect of an aqueous extract of *O. vulgare* (AEOV) against two strains of *S. mutans* (SM1 and SM2). The agar dilution method according to Clinical and Laboratory Standards Institute (CLSI) Guidelines was performed using brain heart agar (BHA) and concentrations of 100 mg/ml to 3.12 mg/ml of AEOV. The inoculum used was a suspension containing 1.5 x 10^8 cfu/ml of each bacterial strain and plates were incubated at 37°C for 24 hours. Minimal inhibitory concentration (MIC) was determined as the smallest amount of extract needed to inhibit the visible growth of the microorganism. The results showed a MIC value of 12.5 mg/ml for the two strains assayed. An untreated caries can lead to tooth loss and several periodontal diseases. The promising result obtained in this study encourages the use of oregano as a natural component in future formulations of toothpastes and mouthwashes. Further studies that contribute to the understanding of the molecular mechanism of inhibition of *S. mutans* growth by *Origanum vulgare* are necessary.

046- ANTIMICROBIAL ACTIVITY OF EXTRA VIRGIN OIL AGAINST *Helicobacter pylori* AND ITS EFFECT ON VIRULENCE GENES

Reyes MF, Salinas Ibáñez AG, Vega AE., Arismendi Sosa AC. Área de Microbiología e Inmunología, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis (UNSL). San Luis, Argentina. Email: acarismendi@gmail.com

Helicobacter pylori is a Gram-negative and microaerophilic pathogenic microorganism, classified by the World Health Organization as a type I carcinogen. The colonization of the gastric mucosa of the host is possible by virulence factors of this microorganism such as flagella, superoxide dismutase enzyme (SOD), vacuolating cytotoxin (VacA) and the Cag pathogenicity island. Eradication therapies with antibiotics and proton pump inhibitors are not always sufficient to eliminate the microorganism. Additionally, an increase in resistance to commonly used antimicrobials has been observed in recent years. Alternative therapies have been proposed based on the use of plant extracts and derivatives, in order to eradicate the bacterium. In this work, we evaluated the *in vitro* antimicrobial activity of extra virgin olive oil (EVOO) and organic extra virgin olive oil (OEVOO) on the growth and expression of virulence genes in *H. pylori* strains. Two strains, NCTC 11638 reference and HP661 obtained from the gastric antrum of a patient from the City of San Luis, where used for the determination of EVOO and OEVOO antimicrobial activity in 96-well plates using Mueller Hinton broth. Minimal Inhibitory Concentration (MIC) and Minimal Bactericidal Concentration (MBC) were determined. Changes in the expression of genes associated with virulence of *H. pylori* (*flaA* and *sodB*) were determined in the mRNA of the NCTC strain using RT-PCR and statistical analysis. Relative gene expression was calibrated to the expression of the *16S rRNA* housekeeping gene. For both EVOO and OEVOO, NCTC strain showed a MIC of 114.75 µg/ml and a MBC of 229.5 µg/ml, while HP661 showed a MIC of 229.5 µg/ml and a MBC of 459 µg/ml. The reference strain showed a decrease in the expression of *sodB* genes in EVOO treated samples, while a decrease in the expression of *flaA* genes was observed when treated with OEVOO. These studies show promising results of olive oil, both organic and common, as a source of compounds with great antimicrobial power against *H. pylori*. The potential use of natural compounds with antimicrobial activity for treating *H. pylori* infections in alternative therapies should not be underestimated.

047- MICROBIOLOGICAL ANALYSIS OF VINEYARD SOILS FOCUSED ON THE SEARCH FOR PLANT GROWTH PROMOTERS

Lambrese Y, Navarta G, Calvo J, Possetto P, Sansone G, Calvente V
Área de Tecnología Química y Biotecnología, Universidad Nacional de San Luis, Facultad de Química, Bioquímica y Farmacia.
E-mail:mgsanso@unsl.edu.ar

The excessive use of fertilizers and agrochemicals causes deterioration of agro-ecosystems. For this reason, eco-friendly alternatives are being investigated, such as the use of biofertilizers (beneficial microorganisms that stimulate crop growth and productivity). The soil microbiota is a natural source of microorganisms, many cultivable, that can be isolated and tested for their ability to promote plant growth. The mechanisms through which plant growth promoting microorganisms can carry out their beneficial effect are: phosphate solubilization, nitrogen fixation, production of siderophores, phytohormones and biological control, among others. The objective of this work was to carry out a study of the soil microbiota of vineyards in order to analyze the presence of microorganisms capable of promoting the growth of *Vitis vinifera* plants. Methodology: 40 soil samples of 11 grapevine farms located Valle de Uco and Luján de Cuyo, Province of Mendoza were used to isolate microorganisms. The samples were transported refrigerated and in the laboratory they were preserved in the refrigerator and processed in less than 48 hours. Three culture media were used: base medium with soil extract, Sabouraud glucose medium, and medium for phosphate solubilizers. Serial dilutions (10^{-2} to 10^{-6}) the samples were inoculated and the results were expressed in CFU/g of soil. Similar values were obtained in the counts of total heterotrophic microorganisms (from medium with soil extract and medium phosphate solubilizers) from the same farm (between 10^7 and 10^8 CFU/g of soil) in most of the samples. On the other hand, the percentages of phosphate solubilizing microorganisms ranged from less than 1% to 10%. The counts of filamentous fungi showed lower values (between 10^6 and 10^7 CFU/g of soil). The results obtained allow us to conclude that the analyzed soils present a healthy microbiota with good counts of bacteria and yeasts and low counts of filamentous fungi (possible pathogens). In addition, the presence of phosphate-solubilizing microorganisms allows us to assume that these microorganisms would have the capacity to promote growth of *Vitis vinifera* plants and could be used as a biofertilizer. In the future, these isolated phosphate solubilizing microorganisms will be tested in other biofertilizer capacities such as nitrogen fixation, production of siderophores and phytohormones.

048- STUDY OF THE DISINFECTANT POWER OF PRODUCTS USED FOR CLEANING AND SANITATION IN CRAFT BREWERY

Venturini V[1], Sánchez Peterle MB[1], Sansone G[1], Palumbo L[2], Calvente V[1], Fernandez JG[1]
[1] Grupo de Investigación, Desarrollo y Asistencia al Sector Cervecero. (GIDACER). Facultad de Química, Bioquímica y Farmacia, UNSL, San Luis. [2]Facultad de Agronomía. UNCuyo. Mendoza. Monteño Insumos. Mendoza
E-mail:jgastonfernandez@gmail.com

Beer is one of the most widely consumed beverages in the world, which reaches all social status. The craft breweries in Argentina are an innovative industrial sector that has experienced an explosive growth in the last years. The growing demands of craft beers have driven quality controls. Cleaning and sanitation of breweries is a critical point in quality. Sanitizing agents are used to reduce the number of microorganisms to acceptable levels in brewing. With the aim to generate more information to the craft breweries, it was studied the disinfectant power of commercial products used for cleaning and sanitation in craft beer production. Two commercial products were studied (ES and OP). To determine the inhibitory power, a test was designed based on the UNE-EN 1040 protocol (test for the evaluation of the basic bactericidal activity of chemical antiseptics and disinfectants). 100 µl of bacterial inoculum (beer contaminants) of 0.5 McFarland standards (1-2 × 10^8 CFU ml^{-1}) were placed in an eppendorf tube, then 900 µl of each treatment was added. The tubes were vortexes and kept at 27 + 2°C for 5 min. Next, was inoculated 200 µl in plates with YGM medium agar. The inoculated plates were incubated at 27 + 2°C for 24 hs. The colonies were then counted. The treatments were ES and OP (concentration of 1%, indicated by the seller). The products were neutralized as control (ESN and OPN). Sterile water was used as a negative control. Assays were performed in duplicate. The results indicated that in the treatment with ES and OP, there was not evidence of bacterial growth in the cultures, in the 100% of assays, while, ESN and OPN shown bacterial growth, at an average concentration of approximately 10^6 CFU ml^{-1} in both cases, after incubation. The negative control also showed growth, at a concentration of approximately 10^6 CFU ml^{-1}. In conclusion, the results showed that both commercial products inhibit the bacterial growth of beer contaminants when they are used at the recommended concentration, and according to UNE-EN 1040 protocol, are considered as disinfectants. In future studies it will be necesary to study different concentrations, or combinations of these, to give more information to the craft beer sector.

049- EFFECT OF SODIUM CHLORIDE, ACETIC ACID AND GLUCOSE ON *Escherichia coli* O157:H7 (STEC)

D'Isidoro EB, Arismendi Sosa A, Vega AE, Salinas Ibáñez AG. Área Microbiología e Inmunología, Universidad Nacional de San Luis.
Email: eugeedisidoro@gmail.com

Shiga toxin-producing *Escherichia coli* (STEC) usually causes hemorrhagic colitis (HC) and hemolytic uremic syndrome (HUS). It is primarily considered an emerging pathogen transmitted by contaminated bovine food. The O157:H7 serotype is most frequently involved in HUS and its pathogenesis is due to the existence of virulence genes such as *stx*1, *stx*2, *eae* and *omp*A. Food preservatives are currently being researched. In the present work we study the activity of 3 preservatives agents (Acetic Acid, NaCl and Glucose) against STEC. The MIC (minimum inhibitory concentration) to Acetic Acid (0.078 ml/ml), NaCl (1.25 g/ml) and Glucose (1.25 g/ml) were realized. The MBC (minimum bactericidal concentration) values were 0.31 ml/ml and 5 g/ml for Acetic Acid and Glucose respectively. The bactericidal effect of NaCl at the concentrations tested was not found. The effect of sub inhibitory concentration (MIC/2) on planktonic culture was realized. Significant decrease in the count of viable cells in treated compared to the untreated STEC cultures were observed. Different morphologies in the treated (coccoid forms and long bacilli) and untreated (short bacilli) cultures by light microscopy were visualized. Finally, we performed a molecular study (RT-PCR) to evaluate the expression of genes involved in the virulence of STEC on treated and untreated cultures. The results showed a significant decrease in the transcription of genes in treated cultures with Acetic Acid (*stx1* and *stx2)*, NaCl *(stx1*, *stx2* and *ompA)* and Glucose (*stx1)*. However, no significant variations were observed in the transcription of the *eae* gene with the mentioned treatments. In this study, the mechanism of action of the tested compounds was due to a decrease in the expression of the pathogen´s toxins. Our results could lead to the development of new strategies to control the risk of HUS and to implement effective conservation methods for the destruction of STEC strains.

050- COMPARATIVE STUDY OF THE ANTIMICROBIAL ACTIVITY OF KEFIR GROWN UNDER DIFFERENT SUBSTRATE

Amieva MI[1,1,2], Delfini CD[1], Quiroga E[2,3], Villegas LB[1,2]
[1]Instituto de Química de San Luis (INQUISAL). CONICET-UNSL San Luis.
[2]Área de Bromatología. Departamento de Farmacia. Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis.
[3]Instituto de Instituto de Física Aplicada (INFAP) - CONICET-UNSL San Luis. ***tati.amieva.81@gmail.com***

Kefir is an ancient beverage, slightly acidic and alcoholic fermented that originated in the Caucasian region of Asia. Kefir is a natural fermented product comprised of a probiotic bacteria and yeast complex that coexist in symbiotic association. Kefir consumption has been associated with many advantageous properties to general health, including as an antioxidative, anti-obesity, anti-inflammatory, anti-microbial, and anti-tumor moiety. Generally, kefir may be identified depending on the type of substrate used for fermentation, which are dairy and non-dairy kefir. The different manufacturing conditions of kefir (agitation; the inoculum concentration; as well as the fermentation time and temperature) may alter the original characteristics of the microbial composition, hence affecting their health-giving properties. Therefore, this study aims to comparative the antimicrobial activity of kefir grown under different substrate.
Kefir drinks were prepared from three different substrates: 0% milk fat (4.9 g% carbohydrates), water (4.8g% Muscovado sugar) and LB lactose (4.5g% lactose). A total of 3 g of kefir grains were inoculated in 30 mL of each substrate (10% w/v). Erlenmeyer flasks were incubated at 28°C and 100 rpm. Samples were taken at 24 (T1), 48 (T2), 72 (T3), 120 (T4) and 168 h (T5). The supernatants were obtained by centrifugation at 10,000 xg for 10 minutes. Antimicrobial activity was determined by diffusion in agar on Petri dishes containing the LB for bacteria and potato-glucose agar for fungi. The target strains used were: *E. coli*, *Staphylococcus aureus*, *Fusarium sp.*, *Aspergillus sp*. and a fungus isolated from bread without identified yet.
The antimicrobial activity varied according to the type of kefir and the fermentation time, and was found after T3. The supernatants of water kefir presented the best results of microbial activity, followed by the milk kefir, while the kefir that grew in LB-lactose did not show activity. The water kefir supernatant inhibited four of the five target strains. The most sensitive microorganisms to it were *E. coli*, followed by *Aspergillus* sp., the mold isolated from bread and *Fusarium* sp. *Staphylococcus* was not inhibited by any of the supernatants. The pH of the three types of kefirs decreased as the incubation time increased. The antimicrobial activity of milk and water artificially acidified with acetic acid and lactic acid was evaluated as control but no inhibitory activity was obtained for any of the target strains. Therefore, supernatants from kefir could be attributable to antimicrobial metabolites in supernatants rather than the low pH. Further research is necessary to study the compounds responsible for these functional properties and their stability for its use as food additive.

051- OPTIMIZATION OF PURIFICATION AND IDENTIFICATION METHODS OF IGY FROM HEN EGGS

Poggio L[1], Isaquirre A[1], Dávila S[1], Mattar Domínguez MA[1]
[1]Área Microbiología e Inmunología. Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. E-mail: ***mattardominguezmariaaida@gmail.com***

Egg yolk immunoglobulin (IgY) biotechnology has many advantages over mammalian antibodies and is used in Veterinary Medicine for passive immunization against bacterial infectious diseases. The method of obtaining IgY guarantees animal welfare and produces a high concentration of antibodies. Like IgG, IgY is a compound antibody with two heavy chains of between 67-70 kDa and two light chains of 25 kDa, linked by disulfide bridges; with a molecular weight of ~150kDa. IgY does not activate complement, does not bind to proteins A and G, does not bind to mammalian antibodies, reducing the risk of obtaining false-positive reactions in immunoassays, and does not bind to the cell surface of the Fc receptor. All these differences have allowed the application of IgY in different methods in research areas such as diagnosis, medicine, and biotechnology. The aim of this work was to optimize the protocols for the separation, purification, and identification of IgY in our laboratory. The high lipid content of egg yolk interferes with purification steps. It is for this reason that IgY purification requires an initial delipidation by centrifugation at 8000 x *g* for 12 min at 4 °C. The lipid-free supernatant was stored at -20 overnight to eliminate proteins sensitive to freezing. The fractionation was carried out with ammonium sulphate. The sample was separated by chromatography using ion exchange columns (HiTrapDEAE FF) and Tris buffer solutions (pH=8) with different NaCl molarities (0 mM to 250 mM). The proteins collected were subjected to 10% and 8% polyacrylamide gel electrophoresis under non-reducing and reducing conditions. For identification, ELISA and Western Blot assays were performed. For ELISA the plates were coated with the different eluids of IgY and subsequently, they were confronted with different dilutions of a conjugated specific anti-IgY rabbit antibody. For WB analysis, protein samples of electrophoresis were transferred to nitrocellulose membranes and subsequently, they were marked with different dilutions of a conjugated specific for subsequent determination by chemiluminescence. In SDS-PAGE, the bands corresponding to both whole molecule-IgY (141-148 kDa) and their heavy (64-73 kDa) and light (23-29 kDa) chains were obtained. The presence of IgY could be determined by ELISA and identified by WB in the eluted obtained at the different NaCl molarities tested. The eluted at the different molarities gave a significant difference compared to the negative controls in an order of 10^{-6} with the 1/5.000 conjugate, by ELISA. In WB, better results were obtained with the 1/20.000 conjugate at the different molarities. The three techniques

allowed determining the presence of IgY in the sample. These findings will be important in the evaluation of the antigenicity of plant proteins used as immunogens that provide protection against opportunistic pathogens, being a promising biotechnological product.

052- ACTINOBACTERIA RESISTANT TO CONTAMINANTS OF EMERGING CONCERN

Gonzalez Holc VG[1], Aparicio JD [1,2], Raimondo EE [1,2], Costa Gutierrez SB [1], Polti MA[1,3]
[1]Planta Piloto de Procesos Industriales Microbiológicos (PROIMI-CONICET), S. M. de Tucumán, Argentina.
[2]Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán (UNT), S. M. de Tucumán, Argentina.
[3]Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad Nacional de Tucumán (UNT), S. M. de Tucumán, Argentina.
e-mail:marta.polti@conicet.gov.ar

The Contaminants of Emerging Concern (CECs) are synthetic or naturally occurring chemicals that are not commonly monitored in the environment, but have the potential to enter the environment and cause adverse ecological and/or health effects. A promising technology to clean up environments contaminated with CECs is bioremediation using actinobacteria, which are microorganisms with great metabolic diversity and ability to detoxify different organic and inorganic compounds. In this context, the objective of the present work was to select actinobacteria resistant to CECs of regional relevance. The resistance to CECs of 12 actinobacterial strains, previously isolated from contaminated environments, was qualitatively evaluated. The CECs studied were Diclofenac (DIC), Sildenafil (SIL) and Ivermectin (IVE). These CECs were selected because they were detected in several domestic and hospital effluents in the northwestern region of Argentina, and they belong to different chemical groups. The qualitative screening assay was carried out in Petri dish plates containing 20 ml of casein starch agar medium (CSA). For the DIC and SIL assays, rectangular troughs (1.5 x 6 cm) were cut in the centre of plates and filled with 1 mL of the solution to be tested. For the IVE assays, due to its insolubility, the solution was added directly to the CSA medium. The concentrations tested were: 1, 5 and 10 mg/mL. The strains were inoculated perpendicular to the rectangular troughs (DIC, SIL) or equidistant (IVE). Plates were incubated at 30 ºC for 7 days. Control plates were also performed, using sterile distilled water instead of CECs. For each strain, growth, spore formation and pigment production were evaluated in comparison to that observed on control plates. For DIC and SIL, 2 strains, different for each CEC, were able to grow, form spores and produce pigments, at levels comparable to their corresponding controls. For IVE, 12 strains were able to grow and produce pigments, but only 9 of them formed spores. None of the strains studied showed tolerance to the three CECs, although several strains showed tolerance to 2 CECs. These results demonstrate the great potential of actinobacteria to grow in presence of several types of CECs, also indicating that the metabolic pathways involved in each type of tolerance may be different. The strains with the highest resistance to each CEC were selected for degradation tests in liquid culture media, in order to evaluate their ability to use the CEC as the only source of carbon and energy.

053- THE VEGETATION IN THE SURROUNDINGS OF THE RAMÓN CARRILLO HOSPITAL AND ITS POTENTIAL ALLERGENIC VALUE

***Gambluch Negre X*[1], Marchevsky KE[1,2], Moyano[2] FM and Moglia MM[1,2]**
[1]PROICO 03-1320- (FMN-UNSL) [2]PEIS 02-0320- (FQByF-UNSL)
e-mail: mmmoglia@unsl.edu.ar

The presence of green areas favors the physical and mental health of the population. However, some plants can also cause health problems. In this sense, the management of urban green spaces is of great importance, especially in the vicinity of health centers. Many trees, and also some shrubby and herbaceous plants, can cause pollen allergies. Among the herbaceous area The Chenopodiaceae-Amaranthaceae, which include plants common in disturbed areas such as quinoa, Russian thistle and morenita, implicated in summer and autumn allergies, and Poaceae such as *Lolium* spp. and *Cynodon dactylon*, which cause spring and summer allergies. The objectives of the work were to carry out an evaluation of the Value of the Allergenic Potential (VPA) of the species, both cultivated and spontaneous, from the surroundings of the East zone of the Ramón Carrillo Hospital, where its main entrance is located, and to make suggestions regarding to the types of plants used and their management. The methodology included: a. the exploration of the area through satellite images, using Google Earth Pro, for the delimitation of differentiated zones of vegetation, b. carrying out censuses of species *in situ* and identifying specimens in the laboratory and c. calculation of the VPA. The results indicated that the woody plants used in afforestation, both shrubs and trees, are for the most part appropriate; since they have low VPA. Among them are *Robinia pseudoacacia* (VPA: 4), *Brachychiton acerifolius* (VPA: 2) and *Albisia julibrssin*, among others. However, male specimens of *Acer buergerianum* (VPA: 8), *Fraxinus excelsior* (VPA:18) and *Salix* sp. (VPA: 18), with moderate to high VPA, were also recorded. On the other hand, the disturbed areas of the circuit that surrounds the hospital are invaded by Chenopodiaecae-Amaranthaceae and species of the *Lolium* genus were used as lawns in the landscaping near the hospital entrance (VPA: 27). Finally, it is recommended to avoid the cultivation of allergenic plants detected in the area and to carry out appropriate management practices for established species, both cultivated and spontaneous.

054- POTENTIAL ALLERGENICITY OF TREES IN THE SAN LUIS HOSPITAL GREEN SPACES

Polanco, MN y Moglia, MM
Proyecto de investigación: PROICO 03-1320- (FCFMyN-UNSL)
*e-mail: **mpolanco@unsl.edu.ar***

The identification of the city's green areas vegetation and its allergenicity, especially in health centers, is of great importance for people who suffer from allergies to pollen. The objective of the present work was to calculate, through the Index of Allergenicity of Urban Green Areas (IUGZA), the areas with different pollinosis exposure risks of the San Luis Hospital (Argentina). The methodology involved calculating the Allergenic Potential Value (APV) for each of the tree species registered in each of the 4 homogeneous areas that were delimited on the studied area. The values obtained varied from a minimum of 0.007, in zone D, to the NE of it, and 0.022 in zone B, located to the south, to a maximum of 3.7 in zone C in the extreme NW. The Addictions Care Center (ACC), is located in this area. This last IUGZA value is considered high, exceeding the threshold value of 0.3 and, therefore, sensitized people should avoid driving through it during the pollination season of the allergenic species. Among these, the main ones recorded included individuals from the Ulmaceae, Cupressaceae and Pinaceae families. From the results it is concluded that most of the studied area has low IUGZA below the threshold. The recommended access to the hospital for sensitized patients are those at the extreme NE (zone D) and south (zone B), the least suggested being the entrance through the ACC (zone C). These results, together with those obtained from the previous analysis of water quality, made it possible to characterize the water and air conditions in the San Luis Hospital area.

NUTRICION Y SALUD
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NUTRICION Y SALUD (NS)

055- NUTRITIONAL COMPOSITION OF *Pleurotus Ostreatus* HARVESTED FROM SUBSTRATES WITH DIFFERENTS AGRO-INDUSTRIAL BY-PRODUCTS, CHILECITO, LA RIOJA

Leal NIA[1], Lucero RE[1], Cantón NV[1,2], Rojas MY[1], Varas MM[1,2]
[1]Departamento de Ciencias Básicas y Tecnológicas, [2]Instituto de Ambientes y Regiones Áridas. Universidad Nacional de Chilecito. 9 de Julio Nº 22. 5360. Chilecito. La Rioja. Argentina. E-mail: mvaras@undec.edu.ar

In Chilecito, La Rioja, the main industries are based on walnut, olive and grape production, generating large volumes of agro-industrial by-products. Mushroom cultivation provides for the agro-industrial by-products an alternative employment and helps to avoid the associated environmental problems of your accumulation. Many studies have been conducted to test the ability of *Pleurotus* to grow on different agricultural wastes. These mushrooms have the ability to colonize and degrade a wide variety of lignocellulosic wastes with relatively short cycle of production. The growing and consumption interest of oyster mushroom is increasing largely due to its taste, medicinal and nutritional properties. *Pleurotus ostreatus* demands few environmental controls, diseases and pests do not often attack their fruiting bodies, and they can be cultivated in a simple and cheap way. All this makes *Pleurotus ostreatus* cultivation an excellent alternative for production of mushrooms when compared to other mushrooms. The objective of this study was to research nutritional composition of *Pleurotus ostreatus* in substrates enriched with different agro-industrial by-products. Were evaluated substrates based on pine sawdust, with aggregate of walnut shell, olive pruning remains or vine pruning remains. We used the technique of cultivation of fungi in plastic bags. Tested substrates: A) pine sawdust (PS, control), B) PS + walnut shell, C) PS + olive pruning remains, and D) PS + vine pruning remains. The experimental design was completely randomized, with four treatments and five repetitions per treatment. The protein content varies between 17.7 and 22.5 g/100g dry matter (%), and the results showed that the protein content of the mushroom harvested was higher when vine pruning residues were added to the control. The crude fiber content depends on the substrate on which *Pleurotus* is produce. Specifically, the values obtained vary between 22.8% and 12.9%. The from these results, we can notice that the lowest crude fiber content is obtained with *Pleurotus* cultivated on group C (with olive pruning remains, 1.6%), compare to harvested from PS (3.4%). On a dry basis, the carbohydrate content was higher in *Pleurotus ostreatus* grown on pine sawdust substrate with olive pruning residues (53.2%) in relation to the control treatment (44.4%). There was significant difference in values of ash content of *Pleurotus* harvested from the differents substrates. The use of vine pruning residues increases the values of ash in relation to pine sawdust (9.9% vs 6.4%). This study showed that there is variation in nutritional composition of the *Pleurotus ostreatus* grown and harvested from different substrates, which could be attributed to the nutritional composition of the substrate where these were cultivated.

056- RABBIT QUALITY MEAT: EFFECT OF DEHYDRATED OLIVE OIL WASTE IN RABBITS DIET

Müller N[1], Martínez P[2], Almirón RS[2], Ortega MG[3, 4], Varas MM[2,5]
[1]Colegio Nacional Agrotécnico "Julio César Martínez", [2]Departamento de Ciencias Básicas y Tecnológicas, Universidad Nacional de Chilecito. [3]Departamento de Ciencias Farmacéuticas, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba. [4]IMBIV-CONICET. [5]Instituto de Ambientes y Regiones Áridas. Universidad Nacional de Chilecito. 9 de Julio Nº 22. 5360. Chilecito. La Rioja. Argentina. E-mail: mvaras@undec.edu.ar

At present, the importance of rabbit meat in human nutrition is growing, for its nutritional and dietary properties. Feeding has been the most important component of rabbit production representing 70% of the costs. Diets based on commercial balanced feed increase the costs of meat production. This fact demonstrates the importance of looking for cheap alternative and feedstuffs to replace the traditional foods and reduce costs. The olive production industry in La Rioja, Argentina, produces relative big amounts of wastes generally known as olive by-products. The use of these by-products in animal feed can be of considerable economic importance. The aim of this work was to study the effect of different percentages of feeding with dehydrate olive oil waste on chemical parameters in rabbit meat. Thirty-two rabbits of the French Hyplus hybrid breed, weaned at 25 days of age, housed in individual cages, were used. The rabbits were randomly distributed at a rate of 8 animals per treatment, a completely randomized block experimental design (blocking based on weight) with 4 treatments and eight (8) repetitions was obtained. The treatments were: T1= 100 % commercial balanced feed (BC); T2= 97,5% BC + 2,5% dehydrate olive oil waste (DOW); T3= 95% BC + 5% DOW y T4= 90% BC + 10% DOW. Experimental diets were offered ad libitum during 10 weeks until the slaughter. After, dissection, fresh rabbit meat was obtained for analysis. It was determined: dry matter, proteins, fats and ashes; as a physical parameter the pH of meat was measured. Evaluation of all results we found statistically significant differences ($p < 0.05$) between the groups, in dry matter, proteins and fats. Dry matter in T1 was 27.3 g/100g dry matter (%), in T2 was 51.2%, in T3 was 48.9% and in T4 55.8%. The proteins content varies between 25.6% and 31.6%, and the results showed that the protein content was lowest when

higher percentages of DOW were added to the diet (T4). By the contrary, when higher level of DOW were added to the diet, the content of fat in the meat was higher (T1= 3.2% vs T4= 4.1%).

057- MICROBIAL PHYTASE INFLUENCE IN MONOGASTRIC ANIMALS NUTRITION

Piguillem SN[1, 2], Salinas E[1], Toledo MF[4], Ciminari ME[1], Filippa MA[3], Gómez NN[1, 4, 5]
1.-Laboratorio de Morfofisiología, FQByF – UNSL. 2.-Facultad de Ciencias de la Salud, UNSL. 3.-Laboratorio de Química Física, Facultad de Química, Bioquímica y Farmacia-UNSL. 4.-Instituto Multidisciplinario de Investigaciones Biológicas (IMIBIO)-SL/ (CONICET), San Luis, Argentina.. 5.-Facultad de Ciencias Médicas, UCCuyo.
E-mail: spiguillem@gmail.com

Phytase (3-phytase EC 3.1.3.8 and 6-phytase EC 3.1.3.26) is an enzyme present in microorganisms such as fungi, yeasts and bacteria that hydrolyze phytic acid (6-phosphate inositol or myo-inositol) releasing phosphate ions in solution. These enzymes are used as food supplement in monogastric animals, which do not have this enzyme, counteracting phytate anti-nutritional effect that decreases the other minerals availability required for animals development. This work purpose was to learn about microbial phytase effect in monogastric animals. The enzyme is extracted from yeasts (*Saccharomyces cerevisiae*). It is obtained at the end of the fermentation process and then it is cold centrifuge at 15,000 rpm and the supernatant is frozen for storage and subsequent use in food. To prepare the feed supplemented with phytase, a dilute enzyme solution is applied and sprayed on the dry and ground food, left to act for a period of 24 hours at 45 ° C, then the food is dried and the pellets are reconstituted to their original form. We used Wistar rats (females and males) N=14, separated into four groups: control (females FC and males MC) fed with common food and females and males fed with food+phytase (FF and MF). Different biochemical parameters were analyzed during two months of treatment, body weight was controlled once a week and blood pressure was monitored too. Female rats supplemented with phytase presented lower body weight (121.32 ± 10.34) than control rats (144.33 ± 15.98) ($p<0.0001$). Hematological and glycemic parameters did not show significant differences after two months of treatment, although glycaemia exhibited a trend to decrease and neutrophils to increase in phytase females. After 60 days of treatment, diastolic pressure did not exhibit significant differences, but it displayed a trend to increase in phytase treatment (117.34 ± 25.38) compared to controls (83.47 ±19.76). Perhaps, blood pressure increment especially in FF could be explained by a rise in muscle tone. Phytase addition in the monogastric animal's diet optimize energy utilization and minimize nutrient excretion, therefore body mass decreased in FF could be due to fat tissue loss and muscle gain, which is also consistent with the tendency to lower blood glucose.

058- EXTRA VIRGIN OLIVE OIL AMELIORATES HIGH-FAT DIET-INDUCED LIVER ALTERATIONS BY MODULATING THE CHOLESTEROL PATHWAY IN RABBITS

Funes AK [1], Avena MV [1,2], Agüero R [1], Boarelli PV [2], Conte MI [1], Monclus MA [1,3], Fornés MW [1,3], Saez Lancellotti E [1,3].
[1] Laboratorio de Investigaciones Andrológicas de Mendoza (LIAM), IHEM, Universidad Nacional de Cuyo, CONICET.
[2] Laboratorio de Enfermedades Metabólicas (LEM), Universidad Maza.
[3] Consejo de Investigaciones de la Universidad del Aconcagua (CIUDA), Universidad del Aconcagua.
e-mail: abikarenina@yahoo.com.ar

Hepatic cholesterol (chol) accumulation induced by lipid overload is a major public health problem worldwide, and natural products such as Extra Virgin Olive Oil (EVOO) has proven benefits, but the mechanism remains unclear. Sterol regulatory element-binding protein 2 (SREBP2) leads intracellular chol metabolism as a transcription factor and is sensitive to dietary fat intake. Our aim was to test the effects of EVOO addition to high-fat diet (HFD) on the expression of hepatic chol metabolism pathway molecules using rabbits as an experimental model of hypercholesterolemia (HC). New Zealand rabbits were fed a commercial pellet (control), a HFD (14% bovine fat, HC rabbits) or with a HFD plus EVOO (HFD 7% + EVOO 7%: protected rabbits) up to 12 months. Hepatic chol accumulation was characterized by the specific marker filipin III. The expression of SREBP2, HMGCR (3-hydroxy-3-methyl-glutaryl-coenzyme A reductase) and LDLR (low-density lipoprotein receptor) was studied by western blot and PCR. Our results show that hepatic chol increased in HC rabbits but decreased in protected animals. SREBP2 mRNA was not modified by HFD although protein expression decreased in the short term, and raised under a long term HFD. When EVOO was added, in both cases the expression increased significantly. HMGCR expression did not vary significantly with HFD, but increased with the addition of EVOO. LDLR mRNA and protein showed increased with both diets. This results indicate that fat intake deregulates SREBP2 expression, leading to lipid accumulation in rabbit hepatocytes. The addition of EVOO prevented fat diet-induced lipid increase despite rising HMGCR and LDLR expression. The former needs further research as it involves many post-translational regulators; and the LDLR increase is reasonable as the hepatocyte is the main cell involved in the removal of plasma cholesterol through LDLR activity. The improvement in hepatic lipid accumulation is probably related to other mechanisms such as bile production. Finally, all the molecules analyzed here were sensitive to EVOO supplementation, although specific studies are needed to determine the exact mechanism of protection.

059- DAILY VARIATION OF METABOLIC PARAMETERS ARE MODIFIED IN AN EXPERIMENTAL MODEL OF NUTRITIONAL OBESITY IN ADULT RATS

Alfonso JO, Salinas E, Gutiérrez Aguero A, Lopez M, Delgado SM, Perez Chaca MV, Ciminari ME, Biaggio V, Gomez NN, Navigatore Fonzo L and Anzulovich AC. Laboratorio de Cronobiología, IMIBIO-SL, CONICET-UNSL. E-mail: javieroscaralfonso@gmail.com

It is well known that the cause of Obesity (OB) is multifactorial, including genetic, environmental, and dietary factors, among which, high-calorie diets play a central role in the development of the disease. On the other hand, several investigations have related altered metabolic homeostasis and circadian parameters with the Alzheimer disease. As part of the IMIBIO-SL institutional project (P-UE 013), which studies OB as a predisposing disease to the development of chronic age-associated diseases and the search for early biomarkers with predictive potential, we obtained a nutritional model of OB in adult rats and analyze potential early biomarkers of Alzheimer disease (AD). In this framework, our objective here was to evaluate the daily variation of metabolic parameters in our model of OB in adult rats. For this, male Wistar rats were weaned at 21 days of age, and fed a normocaloric diet (NC), containing 366 Kcal of lipids / Kg diet, then, at the 2-mo-age, they were randomly separated, and fed: one group, with the NC diet (control, CO, group) and the other, with a high fat diet (HFD, 1570.7 Kcal of margarine / Kg diet, OB group), for the next 14 weeks. The animals were kept under 12h-light:12h-dark and 22-24 °C conditions, with water and food *ad-libitum*. For chronobiological studies, at least four (4) animals from each group were euthanized every six (6) hours, at the zeitgeber times (ZT): ZT2, ZT8, ZT14 y ZT20. All the experiments were performed following national and international guides for the care and use of laboratory animals and were approved by the CICUA (UNSL). Metabolic parameters such as: glucose (G), triglycerides (TG), total cholesterol (TC), HDLc, and LDLc + VLDLc levels, were determined in the serum of both, CO and OB groups, using commercial kits. Statistical differences throughout the 24-h period were analyzed by one-way ANOVA, followed by a post-hoc test, to confirm statistical differences between ZTs within each group; chronobiological statistics were used to confirm the presence of rhythm and Student t test to compare rhythm's parameters (acrophase, mesor and amplitude) between groups. We found G, HDLc and TG levels vary significant and rhythmically throughout a day in the serum of the CO group, with rhythms' acrophases occurring at the beginning of the light period. Unexpectedly, TC and LDLc+VLDLc do not display a rhythmic variation throughout a 24-h period. Noteworthy, the HFD abolished the rhythmic patterns of daily G and TG levels and induced oscillating patterns of TC and LDLc+VLDLc levels, with the TC rhythm's acrophase at the beginning of the day and the lipoproteins' peak at the second half of the night. Furthermore, daily means of G, TG and LDLc+VLDLc levels increased in the OB group ($p<0.05$, $p<0.01$ and $p<0.05$, respectively) while HDLc mesor decreased ($p<0.01$). Most of the changes observed in circulating G, TC and lipoproteins have been linked to the pathogenesis of AD, thus, our results would highlight potential early chronobiological and metabolic biomarkers for AD in an experimental model of OB in adult rats.

060- INTERMITTENT FASTING AND LOW-CARB, HIGH-FAT DIET IN OVERWEIGHT ADULTS

Garro Bustos JV[1], Bonfiglioli MJ[2], Biasi AM[1, 3, 5], Gómez NN[3, 4, 5]
1.-Facultad de Ciencias de la Salud, Universidad Nacional de San Luis (UNSL), 2.- Hospital San Luis. Servicio de Nutrición y Alimentación. 3.- Instituto Multidisciplinario de Investigaciones Biológicas (IMIBIO)-SL/ CONICET, 4.- Facultad de Ciencias Médicas (UC de Cuyo). 5.-Laboratorio de Morfofisiología, FQByF - UNSL, Argentina.
E-mail: vanigarrob@gmail.com

Overweight and obesity are currently an epidemic and represent a global public health problem. A high body mass index is related to a greater probability of developing chronic diseases such as coronary heart disease, diabetes, arterial hypertension, among others, which are increasing and represent a significant burden for the health system given the morbidity and mortality they entail. Intermittent fasting (IF) and the low-carbohydrate, high-fat diet (LCHFD) have gained considerable scientific and popular repercussions; and are postulated as effective practices for the treatment of excess weight and its comorbidities.

The objective of this study was to determine the impact on weight, changes in body composition and biochemical parameters such as triglycerides and total and LDL cholesterol, in overweight and obese people with IF treatment (16/8 protocol) and LCHFD. A longitudinal, correlational study was carried out. 80 individuals of both sexes between 18 and 59 years old (young and mature adults) participated for ten months. The sample was made up of 32.5% (n=26) men and 67.5% (n=54) women. 96% (n=77) of the individuals registered weight loss. 80% (n=64) of the sample showed a decrease of more than 25% in weight respect to their initial weight, the remaining percentage (16%; n=13) decreased from 10 to 25%. Regarding the percentage of body fat, 55% (n=44) began with a diagnosis of "very high", and at the end of the analyzed period, this percentage was reduced to 30% (n=24). 75% (n=60) began with a diagnosis of abdominal waist circumference (WC) of "very high risk", after treatment, this percentage changed to 55% (n=44). Regarding total cholesterol, 40% (n=32) decreased its value with respect to the initial value ($\bar{x}$: 280 to 187 ± 20 mg/dl), the rest did not change. Regarding LDL, 85% (n=68) decreased the value to normal parameters ($\bar{x}$: 150 to 98 ± 15 mg/dl); and in relation to triglycerides, 95% (n= 76) positively modified their values ($\bar{x}$: 180 to 78 ± 10 mg/dl). The IF and the LCHFD promote weight loss, decrease in abdominal fat mass, decrease in WC, and positively influence the biochemical parameters of the overweight and obese people analyzed, to a greater extent in the male sex and in young adults ($p<0.05$).

061- IMPACT OF DRYING METHOD ON THE POLYPHENOLS CONTENT AND ANTIOXIDANT ACTIVITY OF THE *FLAME SEEDLESS* RAISINS

Ponce Pozo, FB[1], Zaragoza-Puchol JD[1], Espíndola R[2], Feresin GE[1], Luna LC[1]
[1]Instituto de Biotecnología. Facultad de Ingeniería. Universidad Nacional de San Juan. San Juan. Argentina. [2]Estación Experimental Agropecuaria INTA San Juan. E-mail: lunalorenac@gmail.com

The grape and its products are widely consumed, especially the red ones, because they represent a rich source of nutritionally beneficial compounds, such as carotenoids, vitamins E and C, polyphenols, among the bioactive compounds. Raisins, within dried fruits, are the ones with the highest concentration of phenolic compounds, recognized for being the main responsible for antioxidant activity. In recent decades, they have shown a relevant role in consumption, especially those obtained from seedless grapes, since they allow the full use of raisins; they incorporated easily into other processed foods such as yogurts, bakery products, cereal bars, granola, etc. In addition, they have a longer shelf life, which facilitates the availability of the product throughout the year. The grape drying methods used around the world are diverse, the economic benefits and feasibility of each method used are continuously studied, but it is also important to know how each process affects the functional conditions of this food. The objective of this work is to evaluate how the content of total phenolic (TPC) and antioxidant activity (DPPH assay) varies in the raisins obtained by different drying methods. Four repetitions per sample, the TPC (Folin-Ciocateu method) and the antioxidant activity by means of the DPPH radical discoloration assay, were analyzed. The raisin extracts obtained by seven drying methods: (TI) in tall structure without rain, (TII) on transparent perforated plastic with slope, (TIII) on black perforated plastic without slope, (TIV) on black plastic without perforation with slope, (TV) on black plastic without perforation without slope with rain, (TVI) on gravel and (TVII) Dry On Vine. The extracts of the raisin samples were obtained by ultrasound-assisted extraction for 1 h, with ethanol: water (1:1). Among the results obtained the extracts: (TIV) presented 490.97 ± 18.20 mg GAE/100g raisins and 8.39 µg/mL of EC_{50} of discoloration of the DPPH radical; (TVI) showed 397.87± 14.26 mg GAE/100g raisins and EC_{50} 6.75 µg/mL; (TVII) showed 365.71± 7.82 mg GAE/100g raisins and EC_{50} 6.7 µg/mL. Those dried raisins on black plastic without perforation with slope, on gravel and by DOV; presented the best functional properties (content of bioactive compounds and antioxidant capacity). These results would indicate that the drying methods affect the evaluated parameters differently. Furthermore, such drying methods would require low investment costs for the producer, allowing him to obtain a product with a positive impact on nutritionally beneficial properties.

062- EFFECTS OF INTERMITTENT FASTING ON PHYSICAL, BIOCHEMICAL AND COGNITIVE PARAMETERS IN A D-GALACTOSE-INDUCED AGING MODEL IN RAT

Ferramola ML[1,2], Ponce IT*[1,2], Pérez CM[2], Godoy MP[2], Fernandez G[2], Anzulovich AC[1,2], Lacoste MG[1,2].*
**Equal contribution*. [1]Laboratorio de Cronobiología, IMIBIO, Universidad Nacional de San Luis, CONICET; [2]Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis. San Luis, Argentina. E-mail: lacostemariagabriela@gmail.com*

Aging is a multifactorial process that leads to the gradual deterioration of physical and mental abilities. Currently, there are no pharmacological treatments that modify the course of aging, so it is of great interest to find interventions that can delay and/or reduce the deleterious effects of this process. Due to the relationship between dietary intake and health throughout life, different nutritional interventions are being considered as possible anti-aging strategies. Intermittent fasting (IF) is a dietary intervention that alternates periods of feeding and prolonged fasting. Our objective was to investigate the effect of IF as a preventive strategy for cognitive dysfunctions associated with the aging process. 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 (DGAL) via IP and, 3) D-galactose 150 mg/kg via IP + IF protocol (DGAL+IF) for a period of eight weeks. The IF protocol consisted in the access to food *ad libitum* for 24 hours that was alternated with 24 hours without food. We evaluated the physical aspect of the animals, biochemical parameters in serum and cognitive tests such as the Barnes Maze (BM) and the Novel Object Recognition (NOR). At the end of the treatment, we observed that the DGAL group presented a yellowish and opaque hair with darker regions. This was in contrast with the DGAL+IF rats, which presented whiter and brighter hair, similar to the CTL group. Although there were no significant differences in body weight between CTL and DGAL animals at the end of treatment, weight gain in DGAL was greater ($p<0.01$). On the contrary, body weight gain was significantly lower in DGAL+IF group, in comparison to the CTL and DGAL ($p<0.0001$). Glycemia in DGAL rats was higher than in CTL ones ($p<0.05$), while there were no differences in cholesterol and triglyceride levels. Interestingly, in DGAL+IF animals, the blood glucose decreased significantly, resembling CTL group. Also, triglycerides were significantly lower in the DGAL+IF relative to the other groups ($p<0.01$). There were no significant differences in cholesterol levels between DGAL+IF and the other animals' groups. In relation to cognitive tests (BM and NOR), we found a high degree of individual variability within each group under study, which is frequently observed when working with a small number of animals (in our case, n=5 for each group), so a greater number of individuals should be evaluated to accurately compare the performance

between the groups. The findings of this preliminary study suggest that IF have positive effects on physical and biochemical parameters in aged rats. Future researches are required to assess the effects of IF on cognitive performance in this model.

063- DEVELOPMENT OF A COMPUTER APPLICATION TO ESTIMATE THE RISK OF ZINC DEFICIENCY

Ramírez MM[1], Biasi AM[2, 3, 4], Agüero WF[1], Pérez Chaca MV[5], Gómez NN[2, 4, 5]

1.- Universidad Nacional de Villa Mercedes (UNVIME), 2.- Instituto Multidisciplinario de Investigaciones Biológicas (IMIBIO)-SL/ CONICET, 3.- Facultad de Ciencias de la Salud, Universidad Nacional de San Luis (UNSL). 4.- Facultad de Ciencias Médicas (UC de Cuyo). 5.-Laboratorio de Morfofisiología, FQByF - UNSL, Argentina.

E-mail: mmramirez@evirtual.unvime.edu.ar

Subclinical zinc deficiency, that is, one that does not present symptoms, represents a serious public health problem, and can generate health complications or aggravate different clinical conditions. A computer application that estimates the risk of mineral deficiency is very useful for early detection of this problem and to be able to implement actions to prevent or reverse it. The objective of this study is to design a computer application to estimate the risk of zinc deficiency in adults from 19 years of age (adults and older adults). Computer software was designed to evaluate the amount and frequency of zinc intake/ per day. To do this, the foods to be evaluated were defined (high bioavailability zinc source foods: meat, eggs and dairy), the average portions of each food, the images of each portion and the zinc contribution of each one of them. With this data and the amount and frequency of food consumption by the respondent, the application calculates the total amount of zinc consumed in the diet. The application compares the amount of zinc consumed, with the recommended daily amount, and in this way estimates if the respondent may be at risk of deficiency of the micronutrient. This computer tool allows information to be recorded using electronic devices (computers, tablets or cell phones, with an Internet connection and Android platforms) allowing the collected data to be exported to a document with an xls extension (spreadsheet), for later analysis in statistical programs. In addition, this computerization produces significant savings in paper, helping to preserve the environment and thus contributing to sustainability. The development of computer tools with practical applications in the health area is of great benefit for large-scale population and epidemiological studies. In particular, the evaluation of zinc intake in susceptible adult populations is an ideal opportunity to identify risk factors and implement measures to prevent such nutritional deficiency in the future. In the case of older adults, the improvement in dietary quality contributes to metabolic compensation and preservation of antioxidant activity, among other functions.

064- EATING HABITS AND NUTRITIONAL STATUS ACCORDING TO: ECONOMIC INCOME OF PREGNANT WOMEN ATTENDING "DR. TERESITA BAIGORRIA" MATERNITY

Piguillem SN[1, 2],Ciminari ME[1], Zambrano G[2]

1.-Laboratorio de Morfofisiología, FQByF – UNSL. 2.-Facultad de Ciencias de la Salud, UNSL. E-mail: spiguillem@gmail.com

During pregnancy occur physical and metabolic changes, among others. Bearing in mind that there is a large percentage of impoverished people in Argentina and that this is a major factor (although not the only one) that influences food acquisition, we are interested in knowing eating habits and nutritional status, taking in account economical incomes, of 2nd trimester pregnant women that attend pre-natal medical checkups at the provincial maternity hospital. A descriptive, cross-sectional study was carried out, with qualitative and quantitative variables in pregnant women between weeks 13 to 27 of gestation who attended the "Dra. Teresita Baigorria" maternity, during; March – July 2022. From the surveys it was possible to obtain the following data: age, current employment status and stability, quantity home members, food intake and Body Mass Index (BMI). The final sample was made up of 36 pregnant women, older than 18 years, 86.11% (N= 31) between 18 to 34 years, and only 13.89% (N= 5) were older than 35 years. 58% are employed, 42% are unemployed. It was observed that 97% consume meat and only one is vegetarian and 94% consume oils and bakery products (N=34). 89% (N=32) consume tubers, legumes and sugar, Regarding economic income, most of them earn more than $60.001 in their household, in second place incomes less than $25.000, followed by those who earn among $40.001 and $60.000 and between $25.001 and $40.000. 21 respondents reported that this was not enough for living. It was concluded that evaluating the ENNyS (2007) reports in Argentina, low weight prevalence was 24.9%, normal weight 31.1%, overweight 19.7% and obesity 24.4% according to anthropometric nutritional value state of pregnant women between weeks 10 and 43 of gestation. Therefore, the data obtained from this work are not consistent with the trend of ENNyS, considering that obesity was less prevalent and there have been notoriously fewer pregnant patients with low weight.

SESION IV DE POSTERS

CLINICA HUMANA Y ODONTOLOGIA (CL)

CLINICA HUMANA Y ODONTOLOGIA (CL)

001- DISCORDANT LIPID PATTERN IN PATIENTS WITH NON-COMMUNICABLE DISEASES. IMPORTANCE OF REMNANT CHOLESTEROL

Flores MY[1,2], Moreno MS[2], Gallo CB[2], Muñoz J[2], Figueroa MF[1], Forneris M[1]. [1]Curso de Bioquímica Clínica. FQByF-UNSL. [2]Hospital Juan G. Vivas (Juana Koslay. San Luis). E-mail: yamiflores@hotmail.com

Hypertension, type 2 diabetes and dyslipidemia are established risk factors for cardiovascular diseases internationally. Remnant cholesterol (RC) is the cholesterol content of triglyceride-rich lipoproteins that consists of very low-density lipoproteins (VLDL), intermediate-density lipoproteins (IDL), and chylomicron remnants. The RC are highly atherogenic, because of their lesser size along with high cholesterol content, and increased residence period in the blood which may not be reflected by the levels of low-density lipoprotein cholesterol (LDL-C). In this work, we aimed to identify the discordant/concordant pattern between LDL-C and RC in patients with hypertension, type 2 diabetes or both. A total of 335 subjects (192 females and 143 males) with a mean age of 53.6 years (CI: 44-64) who attended in the area of chronic diseases of a primary care-hospital (Juana Koslay city, San Luis) during April 2019 to May 2022 were evaluated. Of these, 28 subjects had diabetes (DB), 100 subjects had hypertension (HT), 102 subjects had diabetes and hypertension (DB/HT) and 105 were healthy control subjects (C). Informed consent was obtained from all participants. Body mass index (BMI) was calculated as weight (kg)/height^2 (m). Fasting serum lipids were measured by enzymatic colorimetric method (autoanalyzer CM250 Wiener). LDL-C was calculated using the Friedewald formula if triglycerides (TG) were <200 mg/dL. Otherwise it was measured directly. RC was estimated as total cholesterol minus LDL-C minus HDL-C. We selected 100 mg/dL and 30 mg/dL as the cut-off points for the LDL-C and RC, respectively. Hence, we divided all the participants into four groups (Group 1: low LDL-C/low RC, Group 2: low LDL-C/high RC, Group 3: high LDL-C/low RC, and Group 4: high LDL-C/high RC). RC, but not LDL-C, was statistically lower in the C group compared with HT, DB or HT/DB ($p<0.001$). Although many individuals had concordant levels of LDL-C and RC, the prevalence of lipid discordance was 49.1%. Compared with patients in Group 3 (high LDL-C/low RC), those in Group 2 (low LDL-C/high RC) had higher BMI, glucose and TG values and lower HDL-C levels ($p<0.05$). The prevalence of HT was higher in Group 3 (53.6%) than in Group 2 (45.4%). While Group 2 and Group 3 were more common in DM patients, group 1 (low LDL-C/low RC) and Group 4 (high LDL-C/high RC) were more common in HT/DM patients. Since remnant lipoproteins may increase the expression of inflammatory proteins, adhesion molecules, and coagulation factors, promoting the formation of foam cells, it would be benefit expand the strategies in primary prevention to evaluate the cardiovascular risk using not only LDL-C levels but also RC. When discordant with LDL-C exist, RC may identify individuals who may benefit from more comprehensive lipid modification.

002- OPPORTUNITY FOR *Chlamydia trachomatis* SCREENING DURING THE STUDY OF BALANCE OF VAGINAL CONTENT IN PRIMARY HEALTH CARE SETTING

Godoy DL[1], Mendieta GH[1], Flores MY[1,2], Figueroa MF[2], Forneris M[2]. [1]Hospital Juan G. Vivas (Juana Koslay. San Luis). [2]Curso de Bioquímica Clínica. FQByF-UNSL. E-mail: yamiflores@hotmail.com

Chlamydia trachomatis (CT) is the most common etiological agent of bacterial sexually transmitted infections worldwide. Most infected women remain asymptomatic, which facilitates the spread of the pathogen and may lead to the development of a chronic infection such as cervicitis, pelvic inflammatory disease and even infertility. Although CT is of public health significance, the prevalence of CT infection in the general population is variable. Considering that vaginal dysfunction increases the likelihood of sexually transmitted diseases acquisition, this study was performed to establish the frequency of CT and its association with basic vaginal states (BVS) in women attending gynecologic outpatient service in Public Hospital (Juana Koslay city, San Luis) during 2021. The detection of *N. gonorrhoeae*, *T. vaginalis* and yeasts was also incorporated. Exclusions criteria: actual antibiotics treatment, pregnancy and recent parturition. All the patients answered a specific questionnaire which included information concerning obstetric history and contraceptive practices. Written informed consents were obtained from the participants. Endocervical samples from 146 symptomatic or asymptomatic women (31,9±10 years) were assayed for CT using polymerase chain reaction (PCR) (Roche Molecular Diagnostics, USA). Simultaneously, samples of cervico-vaginal smears were evaluated by wet mount, aGram and Giemsa stains, according to the Balance of the Vaginal Content (BAVACO) methodology. Five BVS can be recognized: normal microbiota (NM), NM associated with vaginal inflammatory reaction, intermediate microbiota, bacterial vaginosis and nonspecific vaginitis (NVI). Contingency tables were used for categorical variables, and statistical significance was determined using the Chi-Square test. A $p<0.05$ was considered significant. The patients were divided into four groups according to age: ≤25, 26 to 35, 36 to 45, and ≥46 years old. Altogether, a significant frequency of alterations of vaginal function (78.76%) and CT infection (10.3%) were detected. The prevalence of CT infection was higher in the group of ≤25 years than in those of >25 years (28.3% vs 2.0%, $p<0.001$). Of all samples, 19% were positive for *C. albicans* and 6.9% were positive for *T. vaginalis*. No cases of gonorrhea were detected. The distribution of positive cases among BVS was different: women presenting with NVI had a significantly higher prevalence of CT infection ($p<0.01$). The most commonly used contraceptive method among woman ≤25 years old was oral pills (30%) followed by subdermal implant (24%) and condoms (15%). The high prevalence of CT infection and the alteration of the normal vaginal microbiota may be a consequence of the lack of condom use and the lack of periodicity in the gynecological examination. This study highlights the importance of CT screening among the population younger than 25 years.

003- ENTEROPARASITES IN A PRIMARY CARE HOSPITAL IN SAN LUIS CITY, ARGENTINA

Camargo PG 1, Lopresti RA 2,3, González LE 2, Lapierre AV2
1 Hospital Cerro de la Cruz, 2 Parasitología y Micología, UNSL; 3 Hospital San Luis, Argentina.
E-mail: alicia.lapierre@gmail.com

Enteric parasites are common causative agents of infections in many parts of the world and are an important cause of morbidity and mortality, especially in developing countries, where they are considered a serious public health issue.This study was conducted in a primary care hospital in San Luis city, and aimed to investigate the occurrence of parasitic infection in fecal samples corresponding to individuals of both sexes from 0 to 65 years old. The study comprised 645 subjects (45.8% male, 54.2% female). In total, 1290 samples that were two per patient (serial parasitological and anal brushes, preserved in 10% formalin) were collected over a period of five years since 2017 to 2021. Some of the patients live in places without access to drinking water nor sewers. All individuals were made to sign an informed consent. The serial parasitological samples were analyzed for parasites using the Carles-Barthelemy´s enrichment technique, and the anal brushes were tested by Graham´s method. After that, sediments were observed under a microscope at low magnification stained with iodine. Enteroparasites prevalence was 33.33% (n: 215). Of the 215 positive cases, *Enterobious vermicularis* was the most frequent of the helminthes (74.97%) followed by *Blastocystis hominis* (61.76%) and *Giardia sp* protozoan (25.69%). There was no difference in prevalence by sex ($p > 0.05$) however, it was higher in individuals less than or equal to 10 years old. If we analyze the positivity data according to the years, we see that the highest percentages of positives were observed in 2018 (42.62%) and 2017 (38.1%) followed by the years 2019, 2020 y 2021 with percentages of 29.49%, 36.16% and 19.82% respectively. We compare our results with other studies and we can deduce a similar prevalence in comparison with data from other authors. Effective treatment of infected patients and improved sanitary habits is advocated.

004- IMMATURE OVARIAN TERATOMA: CASE REPORT AND REVIEW

Cassone E R[1], Baracchini M E[2], Catania M E[2], Colque Huailla A F[2], Kungis J E[2], Lopresti Cortegoso S[2], D'Angelo C R[2], Penissi A B[1], Lopresti E F[3].
[1]Facultad de Ciencias Médicas – Universidad Nacional de Cuyo. [2]Facultad de Ciencias Médicas– Universidad del Aconcagua.
[3]Hospital Central.
E-mail: ercassone98@gmail.com

Immature ovarian teratoma is a rare tumor representing less than 1 % of all ovarian malignant tumors, and is the second most frequent malignant ovarian germ cell tumor. It is found either in pure form or as a component of a mixed germ cell tumor, occurring primarily during the first two decades of life. These neoplasms are typically represented by immature/embryonic-like neural tissue. Is the only ovarian germ cell neoplasm that is histologically graded, the grade is based upon the proportion of tissue containing immature neural elements. We present a case of a 15-year-old female patient who consults for oppressive abdominal pain of 5 months of evolution, localized in hypogastrium, associated with signs of virilization. Abdominal ultrasound (US) and magnetic resonance imaging (MRI), confirmed the presence of a voluminous mass of 27.5 x 12.5 x 10 cm extending from epigastrium to hypogastrium. Serum values of cancer antigen-125 (CA-125), α-fetoprotein and testosterone were elevated. Surgical resection was performed. The anatomopathological examination revealed a grade 3 immature ovarian teratoma with omentum implants. After 6 months, the patient presented a recurrence of the tumor and a second surgery was performed, with adjuvant chemotherapy, (bleomycin, etoposide and cisplatin). MRI performed 6 months later showed no signs of recurrence. Combined treatment of surgery plus adjuvant chemotherapy can achieve remission in more than 90 % of cases.

005- PHYSICAL ACTIVITY AND DIABETES RISK IN A RURAL POPULATION

De Pauw MC[1], Salinas E[2]
[1]Facultad de Ciencias de la Salud y [2]Facultad de Química, Bioquímica y Farmacia. UNSL
e-mail: salinaseloy@gmail.com

Worldwide, the incidence and prevalence of diabetes mellitus 2 (DM2) is increasing due, among other factors, to the increase in obesity and physical inactivity. Physical inactivity and a sedentary lifestyle have a high prevalence, exceeding 70% of the population. In America, 41.4% of the population spends 4 hours or more per day sitting down; this sedentary time is independent of moderate or vigorous physical activity (PA). PA is defined as any bodily movement produced by muscles that result in energy expenditure above baseline levels. This broad concept includes exercise, sports, and physical activities carried out as part of daily life, occupation, leisure, and active transport. The risk of DM2 can be measured with various simple scales to identify subjects with undiagnosed DM or at risk of developing it in the next 10 years; one of them is the FINDRISC (Finnish Diabetes RIsk SCore), developed by the Finnish Diabetes Society. Our objective was to identify the level of physical activity, during the usual occupation, transportation, sports or exercise; sedentary time, and the risk of DM2 in a population aged 18 or over in a rural area. A descriptive, cross-sectional, observational study was carried out using a survey and physical examination of the rural population grouped in the towns of Zanjitas, Cazador, Alto Pelado and Beazley, Juan M. de Pueyrredón department, San Luis province. The risk of DM2 was identified with the FINDRISC test. PA is expressed as METs (multiples of resting metabolic rate)-minutes/week, which represent the energy expenditure of activity as low-inactive <600 Mets, moderate 600-1500 Mets, or high >1500 Mets. Results (%): Sex: female 68.14, male 31.86. Age distribution: 18-26 years 22.57, 27-59 years, 52.21 and 60 or more years 25.22. DM2 risk: low 23.89, slightly high 31.86, moderate 23.01, high 19.91, very high 1.32. AF during the transfer: low-Inactive 97.79, moderate 1.77 and high 0.44. AF during the usual occupation: low-Inactive 2.65, moderate 7.08 and high 90.26. AF by sport/exercise: low-Inactive 68.58, moderate 15.48 and high 15.93. Total physical activity: low-Inactive 1.33, moderate 3.1 and high 95.6. Sedentary time: up to 4 hours sitting 83.62, more than 4 hours 13.28, NC 3.09. PA level according to DM2 risk: low with moderate risk 0.44 and with high risk 0.89; moderate with low risk 0.88, with slightly moderate risk 0.44 and with high risk 1.78; high with low risk 23, with slightly moderate risk 31.42, with moderate risk 22.57, with high risk 17.25 and with very high risk 1.33 The population studied was predominantly female and adult and had a high level of PA, much of it performed during their usual occupation. They mostly presented a low level of a sedentary lifestyle. Half of the population with high physical activity presented a risk of DM2 in the next 10 years between low and slightly moderate, almost a quarter a moderate risk, and approximately a fifth a high to very high risk. Although the benefit of PA in reducing the risk of DM2 has been proven, there are other factors such as diet, obesity, sedentary time, and genetic load that have an important weight as risk factors.

006- ALTERATIONS DUE TO EROSION BEFORE THE ACTION OF COLA DRINKS ON ADAMMANTINE TISSUE. STUDY TO THE M.E.B.

Lazo G, Belloni F, Merlo D, Abal A , Ingeniero MJ,, Barceló A, Barrasa E, Gómez Bravo F, Guzmán MP, Motta M, Ogas C, Pérez P, Procopio Rodríguez M, Saldías A, De Landaburu R, Tanevitch A. Papasodaro J, Perez D, Lazo Ivanov B, Felipe P, Dorati P, Demaria V, Loza L,
Histología y Embriología. Facultad de Odontología Universidad Nacional de La Plata.Calle 50 e/ Av. 1 y 115 La Plata. Bs. As. Argentina. e-mail: histofolp@gmail.com

One of the most frequent problems presented to the dentist is the damage produced in the adamantine tissue, due to the increase in the daily intake of Cola beverages. In many cases dental hard tissue injuries are caused for the consumption of foods, of an acidic nature and especially commercial drinks. The erosive potential of acidic agents contained in beverages or foods depends on chemical factors, such as pH, titratable acidity, mineral content, permanence on the tooth surface, and their calcium-chelating properties. There are different techniques and protocols used to simulate *in-vitro* the ingestion of this type of beverage. The objective of the work is to compare the effects of a cola drink on the microstructure of dental enamel through two *in vitro* immersion regimens. Human teeth obtained through the corresponding informed consent were used. For the manufacture of the specimens, we used two fragments of permanent dental pieces included in polymers, in which the wear was made so that it presents a flat and smooth surface; this was achieved by sandpaper wear in decreasing granulometry from 800 to 2000. Subsequently they were polished with pumice stone and rotary instruments. Two Cola beverage immersion regimens were used: one of them for only once time, for12 minutes and the other, cycled 14 days. Group A samples were immersed in a bottle containing 100 ml of Cola-flavored drink for 12 minutes. Group B was immersed for 5 minutes, 4 times a day, for 14 days, keeping the samples in a container with 80 ml of artificial saliva, between cycles. The drink was replaced every 5 days. For observation, a SEM FEI Quanta 200 (SeM-LIMF-UNLP) with EDAX probe was used; percentage ratios of calcium and phosphorus were recorded and the data analyzed. Modifications in the prismatic structure were analyzed. In group A, a loss of mineral content was determined, how much affected the heart of the prisms in relation to the control group of healthy teeth. The C/P ratio of group B was lower than in group A. In the photomicrographic analysis at SEM, the samples of group A revealed a greater defect of prismatic substance than in group B, this may be related to the remaining salivary film in the cycle carried out in group B. Commercial cola-flavored beverages produce demineralization in the enamel microstructure and alterations in the prisms. The artificial saliva improved the conditions of the medium favoring a lower loss of minerals.

007- ANALYSIS OF HARDNESS IN THE ADAMANTINE SURFACE BEFORE ENGRAVING WITH FLAVORED BEVERAGES. COMPARISON WITH THE HEALTHY ENAMEL

Lazo G, Belloni F, Merlo D, Abal A , Ingeniero MJ,, Barceló A, Barrasa E, Gómez Bravo F, Guzmán MP, Motta M, Ogas C, Pérez P, Procopio Rodríguez M, Saldías A, De Landaburu R, Tanevitch A. Papasodaro J, Perez D, Lazo Ivanov B, Felipe P, Dorati P, Demaria V, Loza L,

Histología y Embriología. Facultad de Odontología Universidad Nacional de La Plata.Calle 50 e/ Av. 1 y 115 La Plata. Bs. As. Argentina. e-mail: ***histofolp@gmail.com***

The consumption of different beverages is part of the dietary habits of the population. The pH can act as an erosive agent of the enamel, while the presence of trace elements in the juice can favor damage or act as cariostatic agents. Various soft drinks have pH values below the critical pH of enamel. The aim was to identify the mechanical properties of the microstructure of healthy enamel exposed to non-alcoholic beverages, at the level of prisms and types of enamel, through microhardness tests. Surface hardness after treatment with flavored beverages was recorded in healthy and treated enamel in the radial zone, with Hunter Schreger bands, and in prismatic enamel. For the recording of Vickers microhardness (VH) in healthy teeth, a Future Tech FM-700 microhardness tester belonging to the Physical Metallurgy Research Laboratory (LIMF) dependent on the Faculty of Engineering (FI-UNLP) was used, using a load of 10 g with a duration time of 10". In the study of treated pieces, nanoindentation tests on human teeth were requested. The samples to be tested are called: M1, M2, M3, M4, M5. It was requested to test for each sample, 2 exterior zones and 2 interior zones. These areas are called INT1, EXT1, (the right area of the tooth) and INT2, EXT2 (the left area). A Berkovich indenter was used. The microhardness values in the radial enamel were 360.9 HV (+/- 53.0) and BHS 344.2 HV (+/- 37.5) and 301.4 HV (+/- 28.2) in permanent teeth. A significant difference was found between the microhardness of the radial enamel and BHS, in permanent teeth; no significant difference was found between the radial enamel of the permanent teeth but it was found in BHS ($p<0.05$). In cycled teeth, lower values in the reduced modulus Er indicate the formation of a softened surface layer, with BHS enamel being more vulnerable. After the action of the drink, the hardness values of radial enamel and BHS decreased and the trend observed in healthy enamel was maintained, where the highest values corresponded to radial enamel. The lower comparative graph shows a decrease in H and Er values in both radial and BHS enamel. The percentage reduction of H in the radial enamel was 59.48% and in the BHS enamel it was 63.67%. Instead, the depth of contact increased by about 50%. We conclude that the acid components contained in the flavored water produce morphological and mechanical alterations compatible with erosion phenomena of dental enamel.

008- HARDNESS STUDY ON HUMAN DENTAL ENAMEL HYSITRON TRIBOINDENTER INDENTER APPLICATIONS

Lazo G, Belloni F, Merlo D, Abal A , Ingeniero MJ,, Barceló A, Barrasa E, Gómez Bravo F, Guzmán MP, Motta M, Ogas C, Pérez P, Procopio Rodríguez M, Saldías A, De Landaburu R, Tanevitch A. Papasodaro J, Perez D, Lazo Ivanov B, Felipe P, Dorati P, Demaria V, Loza L,

Histología y Embriología. Facultad de Odontología Universidad Nacional de La Plata.Calle 50 e/ Av. 1 y 115 La Plata. Bs. As. Argentina. e-mail: ***histofolp@gmail.com***

The design of the nanohardness work is carried out within a research framework of the Histology and Embryology Department and is represented by a unit of analysis, the microstructure of tooth enamel. The levels of organization of the enamel microstructure will be evaluated considering the level of prisms (prismatic and aprismatic enamel) and the level of enamel types (radial and with Hunter-Schreger bands). To carry out this study, an immersion in non-alcoholic beverages was perform, evaluating a commercial cola-flavored beverage and a commercial orange-flavored beverage, thus analyzing the effects of the action of said beverages on the adamantine tissue. Within the regimen of exposure to beverages, a cyclical regimen was applied. This consisted of immersing the enamel in the beverage, 4 times a day for 3 minutes on 15 days. The indentation test consists of pressing an indenter on the surface, leaving an impression. Depending on the maximum load applied and the geometry of the trace left, the hardness value can be obtained, which is nothing more than the average contact pressure during the maximum load, this is equivalent to defining it as the resistance of a material to be permanent deformation. Nanoindentation tests on human teeth were requested. The samples to be tested are called: M1, M2, M3, M4, M5. It was requested to test for each sample, 2 exterior zones and 2 interior zones. These areas are called INT1, EXT1, (the right area of the tooth) and INT2, EXT2 (the left area). A Berkovich indenter was used. Lower values in the reduced modulus Er indicate the formation of a superficial softened layer, with BHS enamel being more vulnerable. We conclude that the acid components contained in the flavored water produce morphological and mechanical alterations compatible with erosion phenomena of dental enamel.

009- BIOCOMPATIBILITY AND GENOTOXICITY STUDIES OF SPORE SUSPENSIONS AND SURFACTIN EXTRACTS OF *Bacillus* spp. WITH POTENTIAL APPLICATION IN ANIMAL HEALTH

Di Giacomo AL, Azcurra LN, García GR, Dogi CA, González Pereyra ML
[1] Departamento de Inmunología, Facultad de Ciencias Exactas, Fisico-Químicas y Naturales, Universidad Nacional de Río Cuarto. Argentina.[2] Instituto de Ciencias Veterinarias -Consejo Nacional de Investigaciones Científicas y Técnicas (INCIVET-CONICET-UNRC). E-mail: mlgonzalezpereyra@exa.unrc.edu.ar

Bacillus species include beneficial strains that are used as probiotic additives to improve animal production. Thermo-resistant spores can be easily administered in water or feed to germinate in the gut and exert their beneficial effect through immunomodulation, reducing inflammation and protecting against enteric pathogens. Surfactin (SF) is a cyclic lipopeptide (LP) produced by *Bacillus* species with demonstrated anti-inflammatory, anti-microbial, anti-tumoral and immunomodulatory activity. The aim of the present study was to isolate native SF-producing *Bacillus* spp. strains and to study the biocompatibility of live bacteria and their LP extracts (LPE) with animal systems *in vivo* and *in vitro* to determine their potential to be included in products of veterinary use such as feed additives and/or health-improving treatments. *Bacillus* spp. were isolated and six isolates were randomly selected. Cell-free culture supernatants of each were extracted 1:1, v/v with n-butanol and SF content of LPE was quantified by HPLC. On the other hand, *Bacillus* spp. endospores suspensions (ES) (1 x 10^8 UFC/ml) were obtained from solid medium culture. ES, purified SF and different dilutions (1:10; 1:50; 1:100; 1:500 and 1:1000) of LPE were tested for biocompatibility *in vitro* on Caco-2 cell line using the MTT colorimetric assay. ES genotoxicity was tested *in vivo* on BALB/c mice (n=6) administered 0.2 ml of the spore suspensions (10^8 spores) orally for 10 days. Animals were sacrificed and bone marrow samples were collected for the bone marrow erythrocyte micronuclei assay. All isolates produced between 15.96 and 239.96 µg/ml SF. ES suspensions containing 10^8 UFC/ml resulted non-cytotoxic to Caco-2 cells showing viability percentages (%V) over 70 %. Likewise, SF and all dilutions of LPE showed no cytotoxicity over Caco-2 demonstrating not to harm intestinal cells. Only MFF 1.11 isolate showed V% < 70 in all dilutions tested. However, SF concentration of this extract was between the safe range that showed no toxicity for SF (10 ng/ml to 500 µg/ml) suggesting that another harmful compound was ~~be~~ produced by this isolate. SF concentration of non-cytotoxic LPE dilutions tested varied between 0.01 and 239.97 µg/ml. ES of the three tested isolates (MFF 2.2, MFF 1.11 and TC 12) did not show genotoxicity nor cytotoxicity *in vivo*. The present study allowed us to select the safe *Bacillus* spp. isolates and SF concentrations to test their beneficial and immunostimulant properties and their potential to be used in animal production and health.

010- SAFETY ASSESSMENT AND EFFECT OF SURFACTIN AND *Bacillus* spp. LIPOPEPTIDES ON MICROBICIDAL CAPACITY OF RAW 264.7 MACROPHAGES

Di Giacomo AL, Azcurra LN, García GR, Dogi CA, González Pereyra ML
[1] Departamento de Inmunología, Facultad de Ciencias Exactas, Fisico-Químicas y Naturales, Universidad Nacional de Río Cuarto. Argentina.[2] Instituto de Ciencias Veterinarias -Consejo Nacional de Investigaciones Científicas y Técnicas (INCIVET-CONICET-UNRC).
E-mail: mlgonzalezpereyra@exa.unrc.edu.ar

Bacillus species include beneficial strains that are used as probiotic additives to improve animal production for their beneficial effect through immunomodulation, reducing inflammation and protecting against enteric pathogens. Surfactin (SF) is a cyclic lipopeptide (LP) produced by *Bacillus* species with demonstrated anti-inflammatory, anti-microbial, anti-tumoral and immunostimulant activity. The aim of the present work was to study the biocompatibility of SF and LP extracts (LPE) from native *Bacillus* isolates and their effect on the phagocytic and microbicidal capacity of RAW 264.7 murine macrophages. Concentrations ranging from 10 ng/ ml to 10 µg/ml of a purified SF standard and LPE containing the same concentrations of SF (10, 50, 100 and 500 ng/ml; 1 and 10 µg/ml) were tested for cytotoxicity on RAW 264.7 cells with the MTT assay. Afterwards, non-cytotoxic concentrations were selected to perform the phagocytic and microbicidal activity tests. Macrophages were cultivated on 96-well plates and pre-treated with SF or LPE for 1 h; then 1 x 10^8 UFC/ml *Salmonella* spp. were added and incubated for 4 h. Cells were lysed and the remaining UFC/ml were counted on McConkey agar to determine microbicidal capacity. SF did not alter cell viability percentages (V%) in any of the tested concentrations. TC.12 and MFF 2.2 extracts resulted non-cytotoxic to RAW 246.7 cells, showing V% over 70 %. MF 1.11 and TC 2.5 extracts in the highest concentration resulted cytotoxic showing V<50% that differed significantly form controls (P<0.05). None of the treatments altered microbicidal capacity of RAW 264.7 cells and a microbicidal activity of 99% was observed. In conclusion, SF and LP extracted from native *Bacillus* spp. are non-cytotoxic for animal macrophages and do not alter their microbicidal capacity or their function as phagocytic cells; therefore, the immunomodulating properties of these compounds can be studied to determine their potential to be included in products of veterinary use to improve animal health and productivity.

BIOQUIMICA, FISIOLOGIA Y NEUROQUIMICA (BF)

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011- GLIAL-DERIVED NEUROTROPHIC FACTOR REGULATES THE EXPRESSION OF TREK2 IN RAT PRIMARY SENSORY NEURONS LEADING TO ATTENUATION OF AXOTOMY-INDUCED NEUROPATHIC PAIN

Peralta ED, Messina DM, Acosta CG
Laboratorio de Neurobiología del Dolor, Instituto de Histología y Embriología de Mendoza, FC Médicas, UNCuyo
peraltaemanuel0@gmail.com

TREK2 is a member of the 2-pore domain family of K^+ channels (K2P) preferentially expressed by unmyelinated, slow-conducting and non-peptidergic isolectin B4-binding (IB4+) primary sensory neurons of the dorsal root ganglia (DRG). IB4+ neurons depend on the glial-derived neurotrophic factor (GDNF) family of ligands (GFL's) to maintain their phenotype. In our previous work, we demonstrated that 7 days after spinal nerve axotomy (SNA) of the L5 DRG, TREK2 moves away from the cell membrane resulting in a more depolarised resting membrane potential (Em). Given that axotomy deprives DRG neurons from peripherally-derived GFL's, we hypothesized that they might control the expression of TREK2. Using a combination of immunohistochemistry, immunocytochemistry, western blotting, in vivo pharmacological manipulation and behavioral tests we examined the ability of the GFL's (GDNF, neurturin and artemin) and their selective receptors (GFRα1, GFRα2 and GFRα3) to regulate the expression and function of TREK2 in the DRG. We found that TREK2 correlated strongly with the three receptors normally and ipsilaterally for all GFR's after SNA. GDNF, but not NGF, neurturin or artemin upregulated the expression of TREK2 in cultured DRG neurons. In vivo continuous, subcutaneous administration of GDNF restored the subcellular distribution of TREK2 ipsilaterally and reversed mechanical and cold allodynia 7 days after SNA. This is the first demonstration that GDNF controls the expression of a K2P channel in nociceptors. As TREK2 controls the Em of C-nociceptors affecting their excitability, our finding has therapeutic potential in the treatment of chronic pain.

012- STUDY OF KISSPEPTIN AND GnRH IN THE HYPOTHALAMUS OF PLAINS VIZCACHA, *Lagostomus maximus*. EFFECT OF ESTRADIOL

Inserra PIF[1,2], Proietto S[1,2], Ochman DY[1], Llanos M[1], Schmidt AR[1,2], Vitullo AD[1,2], Halperin J[1,2], Dorfman VB[1,2,]*
[1]Laboratorio de Neuroendocrinología de la Reproducción, Centro de Estudios Biomédicos Básicos, Aplicados y Desarrollo (CEBBAD), Universidad Maimónides. [2]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET).
**E-mail: dorfman.veronica@maimonides.edu*

The South-American plains vizcacha, *Lagostomus maximus*, shows reactivation of the hypothalamic-pituitary-ovarian axis during pregnancy, with follicular recruitment and ovulation at mid-gestation. We showed that hypothalamic gonadotropin-releasing hormone (GnRH) neurons of the vizcacha are in close contact with KiNDY (kisspeptin/neurokinin B/dynorphin) neurons, and that GnRH is modulated by estradiol (E2). In the mouse, kisspeptin (Kiss) expression is modulated by E2 showing upregulation in the preoptic area and downregulation in the arcuate nucleus (ARC). The aim of the present work was to study GnRH and Kiss expression in the hypothalamus of female plains vizcacha and the possible involvement of E2 on Kiss expression levels. Two experimental approaches were employed: 1) Non-pregnant ovariectomized (OVX), OVX plus E2 treatment in physiologic (OVX+E2ph) or supraphysiologic (OVX+E2sph) levels, and SHAM. 2) Pregnant vizcachas: early-pregnant (EP), mid-pregnant (MP), and term-pregnant (TP). N=4-6 per group. GnRH and Kiss expression was studied by immunohistochemistry, GnRH secretion by RIA, and E2 serum levels by ELISA. GnRH axonic expression in the ARC and median eminence (ME) showed a significant increase in both OVX+E2 groups related to OVX and SHAM ($p<0.05$), whereas Kiss expression was significantly decreased in the ARC of OVX+E2ph related to the other groups ($p<0.05$). During gestation, a significant increase in GnRH expression was found in MP females related to EP and TP ($p<0.05$), which was concordant with GnRH secretion and pulsatile delivery increments. Kiss expression did not show significant variation throughout gestation, despite significant differences in serum E2 levels. In conclusion, increments in GnRH at MP confirm its key involvement in the reproductive axis reactivation during pregnancy observed in this species. Although Kiss expression seems to be modulated by physiological levels of E2, it appears not to be directly modulated by this hormone during gestation (Fundación Científica Felipe Fiorellino, CONICET-PIP 11220200100036CO).

013- EFFECT OF A PPARγ SYNTHETIC AGONIST ASSOCIATED WITH VALPROIC ACID ON THE 24-HOUR RHYTHMS OF INSULIN-DEGRADING-ENZYME IN AN EXPERIMENTAL MODEL OF ALZHEIMER'S DISEASE

Sanchez M, Cangiano B, Cortez M, Golini R, Alba R, Garraza M, Anzulovich A, Navigatore Fonzo L,
Laboratorio de Cronobiología, IMIBIO-SL, CONICET-UNSL. UNViMe E-mail: lorenavigfz@yahoo.com.ar.

Alzheimer's disease (AD) is the most common form of age-related neurodegenerative disorder. Numerous studies have shown that an imbalance between the production and clearance of amyloid-β (Aβ) peptides in the brain results in accumulation of Aβ. It is known that insulin-degrading-enzyme (IDE) plays a crucial role in the clearance of Alzheimer's amyloid-β (Aβ). Numerous studies have shown that pioglitazone (Pio), a PPAR-γ agonist, possesses antioxidant properties and improves cognitive deficits in AD. Valproic acid (VPA), a multifunctional drug, plays important roles in promoting the release of neurotrophic factor and improving memory deficits. In addition, evidence shows that the molecular clock function depends on the cellular redox state. Previously, we found that the treatment of Pio-VPA reestablished rhythmicity of oxidative stress parameters in the hippocampus. Taking into account these observations, the objective of this study was to evaluate the effect of Pio/VPA on the 24 h rhythms of Aβ; IDE, BDNF and its receptor in the hippocampus of Aβ-injected rats. Four-month-old male Holtzman rats were divided into three groups:1) control; 2) Aβ-injected and 3) Aβ-injected treated with Pio-VPA. Rats were maintained under 12 h-light:12 h-dark conditions and received water and food *ad libitum*. Hippocampal samples were obtained every 6 h during a 24 h period. Transcript levels of insulin-degrading-enzyme and cognition-related factors were determined by RT-PCR, and Aβ protein by immunoblotting. We found that injection of Aβ (1-42) phase-shifted Aβ, IDE and BDNF/TrkB rhythms. Remarkably, Pio-VPA reestablished rhythmicity of those temporal patterns. Thus, combination therapy with pioglitazone and valproic acid ameliorates pathologic changes observed in an experimental model of AD and might represent a potential treatment approach for AD.

014- CHARACTERIZATION OF ANTIOXIDANT DEFENSES IN SAMPLES OF *Pomacea canaliculata* FROM TWO NATURAL POPULATIONS OF LAGOONS IN THE PROVINCE OF MENDOZA

Mansilla Muñoz E[1], Albrecht EA[1], Giraud-Billoud M [2,3,4]
[1]Universidad Nacional de Cuyo, Facultad de Ciencias Agrarias, Mendoza, Argentina. [2] IHEM, Universidad Nacional de Cuyo, CONICET, Mendoza, Argentina. [3] Universidad Nacional de Cuyo, Facultad de Ciencias Médicas, Instituto de Fisiología, Mendoza, Argentina. [4] Universidad Nacional de Villa Mercedes, Escuela de Ciencias de la Salud-Medicina, Departamento de Ciencias Básicas, San Luis, Argentina. E-mail: mgiraudbilloud@gmail.com

Pomacea canaliculata (Caenogastropoda, Ampullariidae) is a freshwater snail that inhabits environments with diverse characteristics, tolerating adverse environmental conditions such as cold, desiccation, salinity or the presence of pollutants, which allows it to be highly invasive throughout the world. In Mendoza, native populations of this species can be found in Tunuyán (TU) and Lavalle (LA); in the latter as part of the Leyes-Tulumaya lagoon system. In this study, 8 specimens were collected from each water body and water samples were also taken for their physicochemical characterization (salinity through apparent electrical conductivity -CEa- and concentration of probable salts, sodium adsorption ratio -RAS-, pH, ions; INTA) and because they are agricultural production sectors, the presence of insecticides (organophosphates, organochlorines and pyrethroids; INTA) were measured. In tissue samples from the digestive gland and kidney, the activity of antioxidant enzymes was determined and statistically compared (Mann-Whitney, $P<0.05$). The water from both sources showed similar physicochemical characteristics in terms of temperature (TU: 18ºC; LA 19ºC), salinity (TU: CEa= 1.17 dS/m, salts=14.23 mEq/L; LA: CEa= 1.13 dS/m, salts=13.12 mEq/L), water quality for irrigation (TU: RAS= 1.44, RASa: 1.96; LA: RAS= 1.64, RASa: 2.12), pH (TU=7.68; LA 8.00) and concentration of various ions (TU: Na^+= 3.26, Cl^-= 2.36, HCO_3^-= 3.37, Sulfates= 7.83, Ca^{2+}= 8.89, Mg^{2+}= 1.41; LA: Na^+= 3.70, Cl^-= 2.49, HCO_3^-= 2.57 , Sulfates= 8.73, Ca^{2+}= 9.04, Mg^{2+} = 1.06, all expressed as mEq/L). No detectable levels of insecticides were found in water samples. Regarding the activities of antioxidant enzymes in the digestive gland, a significantly lower catalase activity was observed in the animals that came from LA, compared to the animals from TU, with no difference in the activity of glutathione S-transferase. In the case of the kidney, the activity of both enzymes was higher in animals from LA, compared to those from TU. The different activity of the antioxidant enzymes studied in the tissues of *P. canaliculata*, as well as the difference observed according to the sampling places, suggests that some still unidentified factor, such as the presence of another agrochemical or environmental stressor present in the Green Belt area of the Province, can produce changes in the redox balance that can potentially be used as biomarkers of the presence of these stressors in the environment. This hypothesis should be corroborated by controlled laboratory tests.

015- ASSOCIATION BETWEEN RENIN-ANGIOTENSIN SYSTEM GENE POLYMORPHISMS AND HYPERTENSION IN A SAN LUIS POPULATION

Correa MM, Arce ME, Fuentes LB.
Laboratorio de Farmacología - Facultad de Química, Bioquímica y Farmacia - Universidad Nacional de San Luis; IMIBIO-SL, CONICET. E-mail: mariamilagroscorrea@gmail.com

Arterial hypertension (HTA) is a polygenic disorder resulting from the interaction of several genetic and environmental factors. Renin angiotensin system (RAS) gene polymorphisms influence risk of developing HTA. The study of RAS polymorphisms remains controversial, and its identification in HTA patients is required. The aim was to investigate a possible association between RAS gene polymorphisms and hypertension in a San Luis population. A case-control study was performed in 397 subjects, 230 hypertensive (HTA) and 167 healthy (control), selected at Juana Koslay Hospital. Blood samples were obtained and polymorphism Angiotensinogen (AGT M235T), Angiotensin Converting Enzyme insertion/deletion (ACE I/D) and Angiotensin II type 1 receptor A1166C (AT1R A1166C) genotypes were performed by Polymerase Chain Reaction combined with Restriction Fragment Length Polymorphism (PCR-RFLP). Anthropometric, clinical and biochemical parameters were evaluated by standard methods. Blood pressure and body measurements were recorded. Mean age (years): 54.2 ± 9.3 HTA and 39.2 ± 13.7 control ($P<0.0001$), Body mass Index (kg/m^2): 31.7 ± 5.3 HTA and 27.1 ± 4.8 control ($P<0.0001$). Systolic and diastolic blood pressure (mm Hg): 152.4 ± 15.3/ 90.1 ± 9.9 HTA and 118.0 ± 11.2/ 71.0 ± 9.4 control subjects ($P<0.0001$). We found Hardy-Weinberg equilibrium in all groups studied ($P>0.05$). No significant difference was found in genotype frequency of M235T: MM 12.1%, MT 48.5% and TT 39.2% in HTA patients and MM 15.5%, MT 51.7% and TT 32.7% in controls. The allele frequency was M 0.36 and T 0.63 in HTA and M 0.41 and T 0.58 in control subjects. Chi square analysis found a statistically significant difference for T allele in HTA patients ($P<0.0002$). Carriers of T allele had an increased risk of hypertension (Odds Ratio (OR) =2.47, 95%CI: 1.55–3.92; $P<0.0002$). Significant ACE I/D genotypes differences between HTA and control were found: II: 28.2% vs. 24.5%, ID: 50.0% vs. 39.5%, DD: 21.7% vs. 35.9%, $P<0.008$. There was an association between ID, DD genotypes and hypertension (ID vs II+DD, OR=1.53,95 % IC: 1.01-2.30, $P< 0.04$ and DD vs. II+ID, OR= 0.49,95%IC: 0.31-0.77, $P<0.002$). Significant differences in OR between allele D vs. I (OR = 0.69, 95% IC: 0.52–0.92, $P<0.01$) in HTA patients and controls were found. A significant increase in ACE DD and allele D was detected in hypertensive women. No significant differences in AT1R A1166C genotypes and their alleles' frequencies were found. AGT M235T and ACE I/D polymorphisms could impact on genetic susceptibility to develop essential hypertension in San Luis population.

016- BRAIN ANGIOTENSIN II IN A CHRONIC EXPERIMENTAL MODEL OF PARKINSON'S DISEASE

Arce ME, Ochoa Munafo SG, Pulcini G, Sanchez SI, Ciuffo GM.
Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. IMIBIO-SL CONICET. San Luis.
E-mail: earce.arce7@gmail.com

Parkinson's Disease (PD) is a progressive neurodegenerative disorder characterized by the selective death of dopaminergic neurons of the *substantia nigra* (SN), loss of striatal dopamine, glial activation and development of □□□synuclein(□-Syn) aggregates. It is well known that the brain renin-angiotensin system regulates multiple physiological functions, activating Angiotensin II (Ang II) AT_1 and AT_2 receptors. *It has been demonstrated the existence* of both Ang II receptor subtypes in the SN, which are considered as involved in neurodegenerative processes. In this work, we performed an immunohistochemical analysis in an experimental animal model of PD. As it was demonstrated previously by our group, rotenone-loaded PLGA microparticles allow a slow delivery of the neurotoxin rotenone and thus a long term effect following a single-dose subcutaneous administration. Immunohistochemical staining for Ang II receptors, tyrosine hydroxylase (TH) and □-Syn were performed in brain tissue sections (at SN level) from control and rotenone-treated rats. In agreement with our previous results, we confirmed the presence of both Ang II receptors in SN of treated rats. We found loss of dopaminergic neurons and decreased immunoreactivity against anti-TH antibodies in these animals. Furthermore, we observed many nigral cells with □-Syn positive aggregates. These findings contribute to a better understanding of the potential role of brain angiotensin II in neurodegenerative diseases.

EDUCACION Y EXTENSION

EDUCACION Y EXTENSION

017- ENDOMETRIOSIS: ESTRATEGIA EXTENSIONISTA PARA SU VISIBILIZACIÓN Y LUCHA POR EL RECONOCIMIENTO DEL DERECHO A LA SALUD

Zabala AS[1], Conforti RA[1], Norris V[1], Bussetti MA[1], Marchisone MA[1], Soloa M[1], Giraudi P[1], Tempestini FE[1], Rolla E[2], Luna P[3], Casais M[1], Delsouc MB[1], Vallcaneras SS[1]
[1]Universidad Nacional de San Luis (UNSL), San Luis, Argentina. [2]San Isidro Medicina, Buenos Aires, Argentina. [3]Asociación Civil Endolazos, San Luis, Argentina. Email: ssvallca@unsl.edu.ar

La endometriosis (EDT) es una enfermedad ginecológica crónica caracterizada por el crecimiento de tejido tipo endometrial fuera de la cavidad uterina, lo que provoca inflamación y formación de adherencias. Esta enfermedad afecta aproximadamente a 190 millones de mujeres en todo el mundo, causando dolor y problemas de fertilidad. A pesar de su prevalencia, es sub-diagnosticada debido a su desconocimiento, la normalización del dolor menstrual severo, a que la anamnesis es muchas veces incorrecta y a que los síntomas son inespecíficos. Por ello, nuestro objetivo fue desarrollar estrategias interdisciplinarias que promuevan la visibilización de la EDT y el reconocimiento del derecho a la salud para mejorar la calidad de vida de las personas que la padecen. Motivados por esta necesidad, desde el Proyecto de Estímulo a la Extensión N° 013/21-UNSL se realizaron las siguientes actividades: charlas informativas en distintas localidades de San Luis, creación de una cuenta de Instagram (@labir_unsl), elaboración de encuestas con el fin de explorar el grado de conocimiento sobre EDT y entrevistas en cadenas de radio. Además, en marzo (mes de la EDT) acompañamos a distintas asociaciones de pacientes reunidas en el Congreso de la Nación y presentamos un proyecto de Ley que contempla la cobertura integral de la EDT. Aún existe una gran necesidad de educar y apoyar a las pacientes que sufren de EDT, su grupo familiar, y sensibilizar a la sociedad para superar la indiferencia ante este problema.

018- RENDIMIENTO ACADÉMICO DE LOS ESTUDIANTES DE BIOLOGÍA GENERAL EN MEDICINA VETERINARIA - UNIVERSIDAD NACIONAL DE LA PAMPA-2022

Bruni M, Castillo M, Clauzure M, Gómez MB, Williamson D.
[1]Cátedra de Biología General. Facultad de Ciencias Veterinarias. UNLPam.
biologiageneral@vet.unlpam.edu.ar

Biología General es una asignatura de primer año del primer cuatrimestre de la carrera de Medicina Veterinaria de la Universidad Nacional de La Pampa. En este trabajo se describe el rendimiento académico de los estudiantes matriculados durante la cohorte 2022. Biología General tiene una carga horaria total de 126 horas, divididas en 9 horas semanales de las cuales 6 horas corresponden a actividad teórica y 3 horas a actividad práctica. Durante el curso se utilizan prácticas teóricas, de seminario, de taller y de laboratorio/prácticas especiales. La evaluación se realiza de forma continua. Durante el semestre, los estudiantes realizan 2 exámenes parciales con sus respectivos recupera torios. La cátedra tiene dos sistemas para la regularización y aprobación de la asignatura: a) regularización y examen final y b) regularización y promoción sin examen final. Los estudiantes que cumplan con los requisitos de regularidad y no aprueben parciales o recuperaciones tienen la instancia de asistencia cumplida, donde rinden los contenidos de los parciales/recuperaciones no aprobadas; si lo aprueban se consideran estudiantes regulares. Durante la cohorte 2022 se matricularon 247 alumnos, el 19,83% (49 estudiantes) aprobaron el curso, de estos: 19 estudiantes promovieron y 30 lo regularizaron. En condición de “no regular”, el 63,15% (156 estudiantes) se quedó con la opción de asistencia cumplida y el 17,02% (42 estudiantes) no pudo acceder a ella. Los años de la pandemia han sido muy difíciles para el ámbito educativo, tanto para estudiantes como para docentes, y las consecuencias de los aprendizajes son visibles en estos resultados académicos. Dificultad para comprender textos, escribir, expresarse oralmente, incapacidad para resolver situaciones problema, falta de autogestión y responsabilidad en la tarea, son algunas de las falencias que se han detectado. Es hora de repensar y rediseñar los procesos de enseñanza y aprendizaje, generando nuevas estrategias. Se están diseñando cursos previos a la cursada en formato híbrido, mediados por tecnologías digitales, para el reconocimiento y revisión de saberes previos, para diciembre 2022 y replicarlo en el mes de febrero 2023 con seguimiento de los estudiantes a través de tutorías de pares.

019- FORTALECIENDO VÍNCULOS ENTRE LA UNIVERSIDAD Y LA COMUNIDAD

[b]Paredes MB, [c]Rodríguez SA, [a]Gómez A, [a]Heredia V, [c]Velázquez AR, [b]Roldán F, [a]Villegas Gabutti CM, [c]Paez R, [c]Avaca Gagliardi P, [a]Paredes JD. [a]FQBF. [b]FCH, [c]FCS. UNSL.
E-mail: jdparedes@unsl.edu.ar

La idea de avanzar en una intervención en espacios no formales, surgió de posicionarnos como universidad pública y democrática cuya función alcanza la extensión como forma de contribución en los procesos sociales, culturales, educativos y políticos. Englobando aspectos de integración-vinculación comunitaria, se propuso como ámbito de intervención un comedor solidario denominado "El Milagro" (Barrio República, San Luis), abordando temáticas en el ámbito de la salud y educación. Los comedores barriales han sido considerados como espacios para la satisfacción de las necesidades de los sectores más desfavorecidos, dando cauce a las demandas de la población carente para mejorar la calidad de vida. Ante esta realidad, el objetivo fue diseñar acciones de promoción y prevención de la salud para niños y niñas que concurren al comedor "El Milagro". La propuesta surgió en el marco del PROICO 2-4218 C y T, UNSL: "Evaluación Farmacológica y Toxicológica de Productos Naturales". Se realizaron charlas-talleres e instancias lúdicas con las siguientes temáticas: correcto lavado de manos, alimentación saludable, soberanía alimentaria y la concientización sobre el uso de plantas nativas y aromáticas de nuestra región. Se trabajó de manera interdisciplinaria, en el cual el equipo de trabajo lo conformaron 2 bioquímicos, 1 Lic. en Ciencias de la Educación, 5 enfermeros/as, 1 nutricionista y 4 estudiantes (uno de cada carrera ya mencionada). En los encuentros se observó la activa participación de los niños y niñas en cada una de las actividades planteadas, el entusiasmo por preguntar, jugar, interaccionar entre ellos y con los integrantes del proyecto. Apostamos a asumir nuevamente este desafío como integrantes de una universidad pública que abraza a la comunidad a través de los proyectos extensionistas, comprometiendo a cada docente/ no docente/estudiante a darle el sentido que se merecen las realidades locales y regionales.

020- RECUPERANDO TU SONRISA: EXTENSIÓN - EDUCACIÓN – DISCAPACIDAD

Od. Mongelli, H, Od. Blotto, B
Facultad de Odontología de la Universidad Nacional de La Plata hernanensenada@hotmail.com

Nuestro equipo de trabajo extensionista está integrado por docentes y alumnos de la carrera de Odontología y aborda los problemas odontológicos en una población representada por personas con discapacidad de la ciudad de La Plata mediante la atención primaria de la salud. El objetivo fue fomentar la educación para la salud con el fin de mantener y mejorar la salud oral de personas con discapacidad. Fomentar el trabajo interdisciplinario y la formación académica del profesional de la salud. Mediante talleres, ateneos de casos clínicos y la difusión de información mediante folletos y afiches creados por el equipo se permite incentivar a estos grupos vulnerables a adquirir hábitos que estimulan la conservación de la salud oral. Hasta la fecha (10 años de actividades) se ha logrado involucrar a más de 400 beneficiarios directos y sus núcleos familiares y también ha personal sanitario. Se han podido concretar medidas preventivas bucales tales como topicaciones con flúor, selladores de fosas y fisuras y detener procesos de caries e infecciones bucales. Si bien logramos establecer vínculos con dicha población y fortalecer los hábitos saludables en torno a la salud bucal, aún tenemos mucho más proyectado en el futuro como llegar a otras poblaciones vulnerables que demandan el derecho a la salud.

021- COMO QUIERES QUE ME CALLE...

Blotto B, Abal A, Castelli P, Capraro ME, Felipe P, Salvatore L, Erbicella B, Vigo F, de Vicente G, Obiols C, Capraro C, Capraro MC, Mogollón C, Correa Salinas M, Leon Rincones M, Alvo A, Marchese M, Pérez P.

Facultad de Odontología de la Universidad Nacional La Plata. patocastelli@gmail.com

Desde hace varias décadas se observan personas que pernoctan en plazas, autos abandonados, guardias de hospitales, debajo de puentes, estaciones de tren y distintos espacios de la vía pública. La situación de calle, ya bien sabemos, no es solo un fenómeno local y se enmarca en un proceso de exclusión social, donde la salud se va deteriorando. Un grupo de docentes y alumnos de la Facultad de Odontología de la UNLP comprometidos con la necesidad manifiesta de la comunidad y ante la necesidad de mejorar y elevar la salud de dichas personas, desarrollaran tareas sociales y comunitarias y de educación para la salud. Nuestro objetivo 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. Como metodología, en primera instancia se capacitó el equipo de trabajo en la nueva iniciativa. Se realizó encuestas, observación, diseño de folletería, láminas y videos. Próximamente se entregará insumos y realizarán talleres. Como resultado se espera un alto impacto emocional y educativo, aportando compañía, educación y elementos de higiene personal. Es necesario mejorar la calidad de vida de las personas en situación de calle educándolos en salud, teniendo en cuenta el trauma psicológico que genera la soledad y es el ideal a lograr en esta nueva iniciativa, con un equipo donde la formación de recursos humanos extensionista es también prioridad.

022- ESTRATEGIAS INCLUSIVAS EN DIVERSIDAD CULTURAL PARA LA PROMOCION DE LA SALUD EN PROYECTOS DE EXTENSION

Sapienza M, Hervith M, Capobianco Medrano P, Menta G, Carosillo A, Tissone S, Amestoy G, Lezcano D, Jara Ortiz M, Zaracho O, Tauil R, Perillo F, Delpretti L, Raffaeli N. Zanelli C,

Universidad Nacional de La Plata, Facultad de Odontología, Cátedra de Endodoncia A.

Email: carinazanelli@hotmail.com

El proyecto propone promocionar y atender la Salud bucodental en un sector vulnerable de la población que concurre al centro de Extensión Comunitaria N°7 de la UNLP Néstor del Sur, situado en el barrio Villa Elvira de la ciudad de La Plata, en la provincia de Buenos Aires. Las referentes del Centro de Extensión comunitaria servirán como nexo entre el personal del lugar, la población y el equipo extensionista que abordarán las actividades con énfasis en la multiculturalidad, ya que muchas familias del lugar son de origen paraguayo. El objetivo fue generar herramientas para lograr promocionar la salud bucal en esta comunidad donde la diversidad cultural es uno de los obstáculos, teniendo en cuenta la barrera lingüística y costumbrista de esta población. La metodología se encuentra definida en dos grandes etapas que involucran: la primera, a todos aquellos aspectos en los que se haga promoción de la salud y una segunda etapa en la que se realizará atención primaria en el centro de extensión. Se realizaron actividades concernientes a la promoción de la salud general y dental, tomando en cuenta que parte del proyecto se realizó durante la pandemia, se optó por la modalidad virtual, generando material audiovisual en castellano y guaraní con recomendaciones de prevención, una vez que la situación epidemiológica fue favorable realizamos las actividades de atención in situ. En esta instancia se puede destacar la fortaleza de este proyecto en relación al compromiso y participación en las actividades propuestas que fueron el nexo en la integración de la diversidad cultural y se analizan nuevas estrategias para seguir avanzando en el proyecto.

023- ABRIENDO LA PUERTA A LA SALUD BUCAL. ETAPA VI

Echagüe P, Capraro M E, Felipe P, Schuler M, Capraro M C; Sparacino S, Castelli P, Bettiol M L, Blotto B, Abal A, Felipe P, Obiols C, Tomas L, Ricciardi N, Arce D, Papel G.
Facultad de Odontología de la Universidad Nacional La Plata. patocastelli@gmail.com

La finalidad del proyecto es educar a niños de 3 a 11 años en Salud bucodental, a través de talleres, reflexiones y maniobras preventivas a fin de disminuir la exposición a riesgos y enfermedades bucales prevalentes y enraizadas en nuestra sociedad, como caries y gingivitis, entre tantas, las cuales requieren posteriores tratamientos traumáticos. Nuestras acciones extensionistas se desarrollan en 8 escuelas de los niveles inicial y primario de la ciudad de La Plata. El ámbito escolar se presenta como un espacio privilegiado para la práctica preventiva. Allí, educadores, alumnos de la facultad y profesionales de la salud, la comunicación social y las ciencias de la educación trabajan conjuntamente con los niños y su entorno socio-familiar para lograr mayor impacto desde temprana edad. El objetivo fue elevar el nivel de salud bucodental de la población beneficiaria mediante el desarrollo de actividades educativas: individuales, grupales y familiares. Así como también, a través de acciones preventivas orientadas a la disminución de los factores de riesgo que contribuyen a la aparición de enfermedades bucales. Entendemos a la salud bucal como un valor que no debe ser considerado como un privilegio, sino como un derecho de todas las personas, donde los profesionales tengan la función de brindar atención a poblaciones de difícil acceso, por este motivo, creemos que es fundamental nuestra participación para poder reducir las lesiones de caries en los niños que afectan a un sinnúmero de cuestiones como la estética, la fonética, la masticación, etc. El grupo de trabajo realizó búsqueda bibliográfica y capacitación para la formación de recursos humanos. Se elaboraron videos, láminas, folletos, banner, encuestas para padres y maestros a través del formulario google. Se están realizando talleres de educación para la Salud oral con el material didáctico elaborado. Se realizará historia clínica, odontograma, registro de placa bacteriana, topicación con flúor y sellado de fosas y fisuras según el diagnóstico registrado. Los resultados muestran de manera efectiva que se está logrando que los conocimientos impartidos queden incorporados, verificando a través de la percepción – teorización el aprendizaje logrado. Las maniobras preventivas se iniciarán a partir de la autorización escrita de los padres. El proyecto se encuentra en plena ejecución con el esfuerzo y la integración de todo el equipo de trabajo, que se desempeña en forma interdisciplinaria y con la participación activa de los directivos de los establecimientos.

024- CONDUCTAS PREVENTIVAS FRENTE A TRAUMATISMOS DENTALES. ETAPA 4

Echagüe P, Sparacino S; Capraro M E, Castelli P, Schuler M, Capraro M C; Bettiol M L, Blotto B, Abal A, Felipe P, Obiols C, Tomas L, Ricciardi N, Papel G, Capraro C, Gonzalez A, DÓnofrio A.
Facultad de Odontología de la Universidad Nacional La Plata. patocastelli@gmail.com

Los traumatismos alveolodentales son lesiones causadas por fuerzas que actúan sobre el órgano dentario y los tejidos de sostén siendo diagnosticados a simple vista o radiográficamente. Estas afecciones se dan fundamentalmente en los niños y adolescentes, e incluyen la pérdida de piezas dentarias temporales y permanentes. Provocan además una disfunción que altera, de manera conjunta, la psicología del niño, la fonética, la masticación y la estética. Son considerados como una urgencia dentro de la asistencia odontológica y deben ser diagnosticados y tratados de forma certera e inmediata por el odontólogo. Es considerada la segunda causa de atención odontológica que afecta a nuestra población infantil y juvenil, motivo por el cual se debe intervenir a través de acciones de promoción y prevención para la salud, con el fin de evitar o disminuir la incidencia y prevalencia de los traumatismos dentales. El objetivo de este proyecto pretende fomentar la educación para la salud bucal y la prevención de los traumatismos orales frecuentes en niños y adolescentes en escuelas de La Plata. Para ello, se diseñó folletería, videos educativos, banner, encuestas para recabar información, se consensuaron los talleres con las escuelas y se iniciaron los talleres con niños y maestras. Se realizará, con previa autorización de padres, el registro de odontograma, índices y factores predisponentes a traumatismos a fin de elaborar el protector bucal. Se realizará el control de los protectores ya instalados en etapas anteriores. Los resultados muestran que se está logrando que los conocimientos y acciones realizadas para la salud bucal, queden incorporadas a través de la enseñanza efectuada en los establecimientos educativos. Se pretende una alta participación de los padres a fin de proteger a sus hijos de futuros traumatismos. Este proyecto reconoce la gravedad y frecuencia de estas lesiones, así como las alteraciones patológicas que a corto y a largo plazo pueden provocar en los pacientes afectados, por ello, es necesario asesorar, a niños, padres, y directivos escolares, elevando la calidad en la atención primaria de salud, que es vital para el éxito del futuro tratamiento.

025- APRENDIENDO CON PLANTAS NATIVAS “MINI BOSQUES EN MI CIUDAD”

Torres AF, Troyas NF. N.
Proyecto “Forestando mi ciudad” (Escuela de Agricultura. Universidad Nacional de Cuyo). General Alvear (5620), Argentina. E-mail: andres.f.torres@gmail.com.

El método Miyawaiki tiene como finalidad reintroducir los bosques nativos en las zonas urbanas, además acelerar los procesos de maduración de bosque utilizando pequeños espacios y un número elevado de especies diferentes. Nuestro trabajo tiene diferentes objetivos. En primer lugar, generar conciencia ambiental frente a la pérdida de biodiversidad en el alumnado, trabajando con especies nativas y aplicando conceptos de fisiología vegetal en su proceso, además recuperar espacios abandonados de la ciudad e incluir a la sociedad en su cuidado y mantenimiento. Se trabajó en la cátedra de fisiología vegetal, donde se multiplicaron distintas especies nativas del monte y se analizaron características propias de cada especie, incluyendo conceptos de reproducción, germinación y crecimiento. Con las plantas producidas se generaron tres minis bosques utilizando el método de Miyawaki en márgenes del ferrocarril cedidas con autorización de instituciones pertinentes. Primeramente, se cercaron tres zonas de 12m2 cada una, se eliminaron exóticas y se preparó el terreno. También se realizaron pozos, se fertilizó cada uno y alrededor se colocó la primera capa de mantillo del monte para el crecimiento de herbáceas y arbustos nativos. Se plantaron distintos arboles por metro cuadrado de distintas especies para aumentar la biodiversidad. Los resultados hasta el momento se reflejan en el aumento de los conocimientos e interés de los estudiantes por las especies nativas. También en la participación de los vecinos en el cuidado de los bosques. En cuanto a los bosques, llevan transcurrido un año y los requerimientos de agua y mantenimiento han sido mínimos a pesar de la sequía. Se evidencia un crecimiento importante en algunas especies y se espera realizar un seguimiento con el alumnado durante los próximos años.

026- CONECTAR Y CONECTARSE: EL PUNTO DE PARTIDA PARA TRANSFORMAR HISTORIAS

Brandana S[1], Ferrari, GV[2], Tello JA[2]
[1]Escuela Técnica Nº 28 J.M. de Pueyrredón, La Toma, San Luis.[2] FQByF-UNSL Correo electrónico: silviabrandana.sl@gmail.com

El aula es un lugar de encuentro privilegiado: en ella hay intercambios de significados; se producen transformaciones y construcciones de conceptos y contenidos; se generan vínculos fundamentales para interactuar con otros, dentro y fuera de este espacio físico. Por ello sacar del aula lo trabajado en las clases de Química, compartirlo con otros, y enriquecer la experiencia con miradas de distintos actores sociales resulta muy interesante. Desde esta perspectiva, a través del Proyecto de Extensión de Interés Social “Las clases de Química, punto de partida para transformar historias”, se abordó: “El consumo de bebidas alcohólicas: efectos a corto plazo, riesgos y consecuencias del consumo irresponsable”, con estudiantes de 5° año del ciclo orientado de una Escuela Técnica de la Provincia de San Luis. La finalidad: conectar contenidos curriculares con temas de interés para los adolescentes y su contexto, de modo que se motiven, se informen respecto de aspectos que desconocen y se conviertan en agentes multiplicadores de concienciación entre sus pares y otros actores sociales. Las actividades propuestas en clases de química, permitieron abordar la problemática de manera multicausal. La intervención de especialistas del equipo de extensión y externos, enriquecieron la experiencia ampliando el impacto de la temática, alcanzando el fin de la extensión universitaria: llegar a la comunidad. Involucrados de manera activa, los adolescentes lograron reconocer la problemática, tomar conciencia de los riesgos a los que se exponen cuando consumen bebidas alcohólicas y lo plasmaron en publicidades de concientización para socializar a través de las redes sociales. Conectar el nivel superior con el nivel medio a través de esta propuesta desencadenó una serie de actividades que llevaron al diseño de una propuesta interdisciplinaria en la escuela. Este enfoque de aprendizaje integrado vuelve imperceptibles las fronteras entre disciplinas, superando las visiones fragmentadas de cada espacio, generando vínculos y contextualizando los contenidos a las necesidades e intereses de los estudiantes.

027- UN PUNTO DE ENCUENTRO PARA RE-PENSAR LOS PROFESORADOS DESDE LA SALUD INTEGRAL

Comerci L[1], Tello YA[2], Comerci A[3], Brandana S[4], Tello JA[1], Ferrari GV[5]
[1] FQByF-UNSL, Área Educación en Ciencias Naturales; [2]FCS-UNSL, [2]FCS-UNSL Dpto. Fonoaudiología, Área Preparatoria, [4] Escuela Técnica Nº 28 J.M. de Pueyrredón, La Toma, San Luis, [5]INQUISAL (UNSL CONICET) Área Qca. Fca.-FQBF-UNSL. Correo electrónico: gvferrari@gmail.com

La profesión docente estaría asociada a diversos trastornos de la salud, dificultando el ejercicio y disfrute de la misma. Tradicionalmente, la docencia no ha sido concebida desde un enfoque que tenga en cuenta la salud integral, sin embargo, los tiempos actuales nos interpelan e invitan a articular herramientas para construir las trayectorias docentes desde una mirada holística que promueva la salud. Es por esto que desde el Proyecto de Extensión de Interés Social "Punto de encuentro", se propusieron estrategias para promover la salud integral destinadas a docentes de nivel medio de la Provincia de San Luis. Se desarrollaron dos ciclos de charlas educativas para ofrecer herramientas para el cuidado de la salud integral en la ciudad de La Toma, planteando tres temas: el cuidado de la voz, el cuidado de la alimentación para una adecuada nutrición y el manejo del estrés, y se recolectó la opinión de los participantes a través de encuestas. Dentro de las estrategias para construir bienestar y salud integral se brindaron ejercicios de respiración consciente, ejercicios vocales y se analizó una alimentación responsable. Estas charlas permitieron generar un espacio de diálogo y encuentro entre los docentes de Nivel Medio y Universitario, redundando beneficiosamente en el intercambio de información entre ambos y en la búsqueda de soluciones conjuntas para las problemáticas que se presentan en el aula. Los resultados de la encuesta indican que, si bien el cuidado de la voz y la alimentación son aspectos que despiertan interés y conducen a la reflexión, la problemática que generó mayor preocupación en los docentes es la regulación de las emociones como estrategia para afrontar el estrés docente.

028- ADOLESCENCIA LIBRE DE ALCOHOL PARA UN DESARROLLO INTEGRAL Y PLENO

Diaz Guevara MC, Moncho Quiroga MV, Minelli MC, Rosales GJ, González E, Bach N, Ortega N, Cid F, Filippa VP, Perez E. Proyecto de Extensión "Adolescencia libre de alcohol, para alcanzar un desarrollo integral y pleno". Programa "Universidad, Cultura y Sociedad"- SPU- Ministerio de Educación de la Nación - Res. SPU Nº 2019-105-APN-SECPU#MECCYT - RESOL-2019-244-APN-SECPU#MECCYT. Universidad Nacional de San Luis, FQByF. E-mail: vpfilipp@gmail.com

El consumo elevado de alcohol por los adolescentes, es un problema social y familiar importante, así como un problema de salud. Este comportamiento actual se ve reflejado en los diferentes contextos sociales y culturales. La OMS insta a tratar esta problemática de salud pública mediante la prevención para proteger a la población. El objetivo de este proyecto fue enseñar significativamente sobre aspectos relacionados a las bebidas alcohólicas y romper mitos para prevenir el consumo en la adolescencia. Para ello se analizó el conocimiento previo y aprendizaje alcanzado de los estudiantes de 1º año de tres escuelas secundarias de la ciudad de San Luis al finalizar el proyecto. En primer lugar, respondieron una encuesta diagnóstica para indagar los conocimientos previos referidos al alcohol. Posteriormente se realizaron actividades teórico-prácticas y juegos de compresión y concientización, utilizando diversos recursos didácticos, entre ellos un modelo anatómico de cerebro humano desmontable y gafas de simulación de ebriedad, los cuales les permitieron dimensionar la complejidad del sistema nervioso y algunos de los efectos de su alteración por el alcohol. Se trabajó para fortalecer la autoestima y se mostraron estrategias para evitar el consumo ante las presiones sociales. Los estudiantes de las tres escuelas participaron y debatieron con gran interés en las diferentes actividades. Se discutieron numerosos mitos tradicionales y se dieron respuestas claras con fundamentación científica. Al finalizar las actividades se realizó nuevamente la encuesta comparándose con la primera, se observó un aumento en el porcentaje de respuestas correctas, evidenciando la comprensión y concientización de la problemática. Los adolescentes enfatizaron la relevancia del cuidado de su cuerpo y de su salud psíquica, física, social y emocional para alcanzar un desarrollo integral y pleno.

029- EXÁMENES FINALES DE LA ASIGNATURA FARMACOLOGÍA (LICENCIATURA EN BIOQUÍMICA) FQBF-UNSL, EN CONTEXTO DE PANDEMIA

Albornoz GR[1], Paredes MB[1], Moyano MF[2], Villegas CM[2], Paredes JD[2], Wendel GH[2], Fuentes LB[2].
[1]Facultad de Ciencias Humanas [2]Farmacología, Facultad de Química, Bioquímica y Farmacia. UNSL. E-mail: gwendel@unsl.edu.ar

El contexto generado por la pandemia COVID-19 es la situación más extrema a la que ha tenido que enfrentarse la sociedad mundial, en este siglo. El Poder Ejecutivo Nacional dispuso un Aislamiento o Distanciamiento Social, Preventivo y Obligatorio (ASPO) o (DISPO), que supuso en marzo del 2020, entre muchas medidas excepcionales, el cierre de las universidades, con interrupción total de la actividad presencial. La irrupción de la pandemia dispuso a equipos de cátedras a revisar en un tiempo breve los modos para garantizar la continuidad de los estudios, como también garantizar las condiciones mínimas para que los estudiantes rindan los exámenes finales de la asignatura Farmacología de la carrera de Lic. en Bioquímica, FQBF, UNSL. Éstos, se tomaron en forma a través de videoconferencias, utilizando Google-Meet, como la herramienta fundamental, que estableció la gestión de la UNSL en dicho contexto, para el desarrollo de todas las actividades académicas. En este marco, se comparó el número de estudiantes que rindieron exámenes finales durante la pandemia (2020-2021) y antes de la misma (2015 a 2019). Durante el primer año de pandemia el número de estudiantes inscriptos fue: 28 (aprobados: 12), evidenciando una tendencia decreciente, a pesar de que el número de mesas habilitadas fue similar que antes de la misma. En el segundo año de pandemia se inscribieron 30 estudiantes (aprobados: 20). En los 4 años previos a la pandemia: inscriptos: 46±4.7/año, aprobados: 26±1.7/año. Ante dichos resultados, sostenemos que la pandemia no solo obligó a los equipos docentes a organizar los contenidos, formas de evaluar y de estar en un aula que trascendía los espacios institucionales, a los estudiantes también los interpeló generando incertidumbre por la inequidad de acceso a bienes materiales fundamentales (internet- buena conectividad y computadora) para aprobar en las mesas de exámenes.

030- PREVENCIÓN EN SALUD BUCAL, LA PROBLEMÁTICA PARA SU ENSEÑANZA

Papel G, Medina M, Seara S, Saporiti F, Perez A
Facultad de Odontología – Universidad Nacional de La Plata - papel@folp.unlp.edu.ar

La educación para la salud constituye un elemento esencial, que tiene como propósito promover, organizar y orientar a la población sobre lo que debe hacer para mantener una salud óptima, sin embargo, la problemática de la enseñanza de la prevención es muy compleja, particularmente en lo que se refiere a Salud Bucal. Los objetivos son Evaluar la efectividad percibida por los estudiantes de la Carrera de Odontología de la Facultad de Odontología - UNLP respecto de las intervenciones odontológico – educacionales hacia la comunidad. Determinar la existencia de una formación docente orientada a principios fundamentados en esta corriente que sean coherentes con la transmisión de los mismos a los estudiantes. Se adopta una metodología de Análisis de carácter cuali – cuantitativo, no experimental, transversal. En cuanto a la recolección de datos, se utilizan dos instrumentos que hacen al carácter cuali – cuantitativo del estudio. El 18% de los estudiantes manifestó tener dificultades para enseñar a los pacientes prácticas preventivas, el 82% reportó no tener dificultades. Al explicar las razones de sus dificultades, indicaron: poseer un conocimiento insuficiente 12,72 %, falta de interés 3,64 % y falta de recursos 1,64%. Los docentes manifestaron, en concordancia con los objetivos de la currícula de la Carrera de Odontología de la Facultad de Odontología – UNLP que se logra contribuir a la salud oral de la población, brindar ayuda a la comunidad, sintiéndose alguna manera, identificados con la construcción de conocimientos; además se pone de relieve un importante dominio de contenidos específicos tanto de la asignatura Odontología Preventiva y Social como de los contenidos de las asignaturas clínicas de la carrera. De acuerdo con Davini "Las organizaciones sociales son mediadoras activas en el aprendizaje individual y colectivo, como producto de la participación en un ámbito determinado y de la interacción de los miembros que las integran". Aquí es necesario que haya una persona específica que enseñe algo: el foco es el sistema colectivo de aprendizaje en el que las personas adquieren los conocimientos, formas de entendimiento y habilidades.

031- DIAGNOSTICO ANTROPOMETRICO EN NIÑOS DE 10 A 15 AÑOS DE UNA ESCUELA GENERATIVA DE LA CIUDAD DE SAN LUIS

Alfonso J, Mayra C, Cangiano B, López M, Agüero A, Delgado M, Vega Orozco A, Bulacio A, Golini R, Longar B, Balmaceda Ky Sánchez M, Alba R, Navigatore Fonzo L
Proy. "Prevención de la obesidad infanto-juvenil desde un enfoque multidisciplinario"FQBF-UNSL E-mail: lnavigatore@unsl.edu.ar

En este estudio se evaluaron los índices en niños: peso/edad, talla/edad (T/E) y peso/talla o índice de masa corporal (IMC)/edad. Cada índice permite caracterizar un tipo de estándar o "normal" (percentil 50), déficit (por debajo del percentil 25) o de exceso (por encima del percentil 75). Así, talla/edad bajo se asocia con desnutrición crónica, peso/talla bajo ò IMC/edad bajo con desnutrición aguda y peso/talla alto ò IMC/edad alto con sobrepeso. Nuestro objetivo fue evaluar el estado nutricional mediante la medición de parámetros antropométricos de estudiantes que asisten a una escuela Generativa situada en Héroes de Malvinas 651. La muestra poblacional fueron 9 estudiantes varones y 7 mujeres de 10 a 15 años. Utilizando las tablas de referencias para la población Pediátrica de la OMS, identificamos que para el índice T/E, alrededor del 77,6% de los varones está por encima del percentil 75 y el 22,2 % restante en los percentiles 50 al 25. En el sexo femenino el 42,9 % está por encima del percentil 97 y el 57,2 % en los percentiles 90 al 25. Para el índice P/E, un 33,3 % de los varones están por sobre el percentil 97, el 33,2% en los percentiles 90 y 25. En el grupo femenino el 42,9 % se encuentra por encima del percentil 97, y el 57,14% en el percentil 75. El IMC, en varones fue del 33,1 % en los percentiles 97 y 50, el restante 22% en el percentil 25. Para el sexo femenino el 42,9% está por encima del percentil 97, el 57,2% en los percentiles 97 y 75. Nuestros resultados demuestran sobrepeso en ambos sexos, por lo que es fundamental implementar diferentes estrategias desde un enfoque multidisciplinario para la prevención de la obesidad infanto-juvenil como es abordado a través del presente proyecto de extensión.

032- EDUCACIÓN CON PROBIOTICOS. EL KEFIR DE LA MANO DE LA SALUD

González A, Asurmendi MC, Escudero Giacchella E, Darrigran L, Montenegro SM, Obiols CI, Ojinaga C, Ore Suaznabar M, Universidad Nacional de La Plata, Facultad de Odontología, Argentina.
e-mail: anabelmargon24@gmail.com

La asignatura Microbiología y Parasitología pertenece a segundo año de la carrera de Odontología de la UNLP. A partir de sus proyectos de extensión junto con la Facultad de Ciencias Exactas de la UNLP, busca promover la incorporación del Kéfir de leche en la dieta diaria, principalmente en comedores comunitarios, escolares y grupos familiares. El Kéfir es una leche fermentada con características probióticas que se prepara a partir de gránulos que contienen microorganismos vivos beneficiosos. Desempeña un papel importante en el correcto funcionamiento de las propiedades depurativas del organismo, puede ser preparado con leche de vaca. Tiene la gran ventaja de favorecer y equilibrar la microbiota intestinal mejorando el sistema inmune. Objetivos: 1. Implementar actividades de educación para la salud, 2. Promover los beneficios del Kéfir en la dieta del día a día. 3. Disminuir la infectividad de microorganismos asociados a enfermedades trasmitidas por alimentos. 4. Generar espacios de participación activa y motivación a los destinatarios mediante el uso de redes sociales. La metodología de trabajo se basó en charlas y talleres informativos, cómo prepararlo y como conservarlo en el Centro Comunitario "EL Chogüi y el Merendero "Los Peques del Triunfo". Resultados: Se pudo observar la necesidad de aprender por parte de los niños y familiares a mejorar su salud y hábitos alimenticios, El interés se pudo ver reflejado por la gran concurrencia de los mismos a las instituciones, la colaboración en su preparación, conservación e incorporación en el comedor como una opción de alimento saludable. Concluimos que los procedimientos, métodos y herramientas utilizados generaron compromiso y aceptación de los destinatarios, coincidimos en continuar con nuestra intervención con el fin de lograr reconfirmación de conceptos y pautas no solo del grupo abarcado, sino de nuevos beneficiarios. Como así también ampliar el grupo interdisciplinario de integrantes y la incorporación de otras unidades académicas intentando abarcar distintas áreas que posibiliten mejorar la calidad de vida de la población.

033- EL CLOZE: SU USO EN LA LECTURA COMPRENSIVA.

Tosti S B, Peñalva M A, Dettbarn J A, Domínguez Guidi R, Cecho A C, Bosi A V, Lazo M E,
Facultad de Odontología de la UNLP jorgedettbarn@gmail.com

El "cloze" consiste en un procedimiento para evaluar la comprensión lectora. Para eso se modifica un texto seleccionado, borrando sistemáticamente palabras que el alumno debe completar. Se vio la necesidad de aplicar esta metodología ya que observamos en evaluaciones escritas que la mayoría de los alumnos no colocan ningún signo de ortografía, lo cual no permite interpretar lo que escribieron ni a los alumnos entenderlo. Este test resultó útil para hacer un primer diagnóstico del grupo de alumnos de la asignatura. Objetivos: Determinar si se efectuaron inferencias o no y la coherencia global del párrafo luego de agregar las palabras faltantes en el texto. Metodología: se lleva a cabo con 92 estudiantes de Fisiología que deben completar 44 espacios vacíos (1 espacio cada 4 palabras). No se explicó previamente el tema. Se analiza estadísticamente. Resultados: los alumnos completan con el término correspondiente entre 13 y 39 espacios vacíos. La media aritmética es 25 y la moda también es 25. Discusión: este procedimiento está ampliamente aceptado y ha sido aplicado en el Octavo Anuario de Pruebas Mentales (Buros). En este trabajo la mitad de los estudiantes realizaron inferencias conformando un párrafo con coherencia global.

034- TRANSFORMACIONES DE LAS PRÁCTICAS DOCENTES DURANTE EL CONTEXTO DE PANDEMIA EN EL CURSO ANATOMÍA HUMANA DE LA LICENCIATURA EN BIOQUÍMICA

Filippa V, Díaz Guevara MC, Moncho Quiroga MV, Diego F, Zapata J, Perez E
Laboratorio de Anatomía Humana, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis, San Luis, Argentina. E-mail: vpfilipp@gmail.com

La programación didáctica (PD) es una propuesta de trabajo escrita que evidencia el accionar docente y las decisiones adoptadas para llevar a cabo un proceso didáctico. En el año 2019 se diseñó una PD para los trabajos prácticos (TP) del curso Anatomía Humana en el marco teórico de la enseñanza para la comprensión que se modificó con el aislamiento obligatorio en marzo del año 2020. El objetivo del presente trabajo fue analizar el efecto de las modificaciones en la PD en el dictado virtual de los TP (años 2020-2021) y con el regreso a la presencialidad (año 2022). Al finalizar la cursada de cada año, los estudiantes respondieron una encuesta que nos permitió detectar fortalezas y debilidades que se consideraron e incorporaron en el diseño de la PD subsiguiente. Durante el año 2020, las actividades de los TP se desarrollaron a través de un aula virtual en la plataforma Moodle y del correo electrónico. La PD presentaba algunos desempeños para la comprensión que fueron dificultosamente desarrollados. En el año 2021, se incorporaron en la PD nuevos desempeños para trabajar durante los encuentros virtuales de TP a través de Google Meet, aula virtual y correo electrónico. Se propusieron actividades más relacionadas a la práctica profesional futura, se llevaron a cabo instancias de retroalimentación y se realizó una actividad integradora final. En el año 2022 la PD se adaptó para el desarrollo presencial de los desempeños para la comprensión. Esto le otorgó un rol activo a los estudiantes, que mediante actividades como dar explicaciones, buscar ejemplificaciones, hacer justificaciones, comparaciones y contextualizando los contenidos lograron aplicar el conocimiento a nuevas situaciones. Consideramos que las modificaciones en la PD contribuyeron a mejorar los procesos de enseñanza y de aprendizaje, se visibilizaron los procesos de aprendizaje de los estudiantes en el aula universitaria y se enriqueció la comunicación con el fin de construir un aprendizaje significativo de la ciencia.

035- EN PANDEMIA SEGUIMOS CUIDANDO NUESTRA SONRISA CON COLORES

Echagüe PE,Carballeira V, Mayocchi RMl, Spada VA, Escudero Giacchella E, Bordillo CG, Jones, Darrigran L, Vijandi VR, Raquel, Ferro ML, D´Onofrio AM ,Gonzalez AM
Asignatura Microbiología y Parasitología. Facultad De Odontología De La Universidad Nacional De La Plata.
patricia_echague@hotmail.com

La Facultad de Odontología de la Universidad Nacional de La Plata desde la secretaría de Extensión promueve tareas que refuerzan la articulación docencia, investigación y extensión propiciando el intercambio de saberes interdisciplinarios. Las enfermedades prevalentes de la cavidad bucal, como caries y enfermedad periodontal pueden ser prevenidas mediante acciones de educación para salud con el uso de técnicas específicas. La carie es una enfermedad multifactorial donde el consumo de hidratos de carbono y los microorganismos que metabolizan los mismos generan un ambiente ácido produciendo la desmineralización de los tejidos del diente. La calidad de la saliva puede ser evaluada utilizando el Test de Snyder, éste presenta un indicador de color que vira del verde al amarillo cuando hay presencia de acidez, este método nos indica el grado de riesgo de un individuo. De este modo sencillo pretendimos mostrar a los destinatarios del proyecto el fundamento científico de este fenómeno. Desarrollamos el siguiente trabajo teniendo como objetivos: reducir el riesgo biológico de caries y enfermedades gingivoperiodontales. Implementar actividades de educación para la salud. Demostrar la importancia del diagnóstico de caries mediante el Test de Snyder. Racionalizar el consumo de hidratos de carbono. Aprovechar el uso de herramientas digitales. Se adaptaron las intervenciones en terreno a la situación de pandemia, realizando charlas y talleres en forma virtual. Se entregaron elementos de higiene y folletería al Centro Comunitario el Chogüi y al merendero los Peques del Triunfo, ubicados en barrios periféricos de la ciudad de La Plata. Resultados: El uso de redes sociales generó espacios de participación activa y motivación a los concurrentes. Y a partir del impacto producido, la encargada del Chogüi brindó nuevos contactos con centros comunitarios e instituciones educativas de barrios aledaños lo que posibilitó llegar a mayor cantidad de destinatarios. Conclusión: las acciones desarrolladas determinaron la incorporación de buenos hábitos de higiene para prevenir enfermedades de la cavidad bucal, como así también la utilización de medidas preventivas para evitar la instalación de otras enfermedades infecciosas.

036- LA ENSEÑANZA DE LA QUÍMICA EN LA EXTENSIÓN UNIVERSITARIA

Savio M, Cora Jofré F, Durán K, Giacomino V, Ancafilú Mendoza A.
Universidad Nacional de La Pampa. Facultad de Ciencias Exactas y Naturales Santa Rosa. La Pampa. Argentina
**katiaduran1@hotmail.com*

La actividad experimental es uno de los aspectos clave en el proceso de enseñanza y aprendizaje de la ciencia, no sólo por la fundamentación teórica que puede aportar a los estudiantes, sino por el desarrollo de ciertas habilidades y destrezas para las cuales el trabajo experimental es fundamental. El presente artículo propone comunicar las experiencias desarrolladas con estudiantes de quinto año del colegio secundario Enrique Stieben de la localidad de Anguil, La Pampa, en el marco del proyecto de extensión "La Ciencia Activa". La propuesta se desarrolló mediante la implementación de diversos talleres en los que se realizaron actividades de laboratorio referidas al concepto de pH. Las actividades se desarrollaron en 3 encuentros de 60 minutos, organizando las experiencias en estaciones, lo que posibilitó que los estudiantes trabajaran en grupos reducidos. Finalizando la actividad con el debate y reflexión de los resultados obtenidos. Este aprendizaje experiencial, permitió a los estudiantes vincular el conocimiento con su aplicación práctica y desarrollar las capacidades intelectuales de construir, aplicar y transferir el conocimiento a situaciones de la vida real.

037- ANÁLISIS DE LAS RÚBRICAS PARA LA EVALUACIÓN DEL APRENDIZAJE

Abal AA, González AM, Pérez PS, Schmidt KI, Procopio Rodríguez M, Zanelli K, Tanevitch AM
Facultad de Odontología. Universidad Nacional de La Plata. atanevitch@gmail.com

Para evaluar correctamente el aprendizaje de los estudiantes, es necesario contar con evidencias que permitan documentar y analizar este proceso para ayudarlos a perfeccionarlo. La información que nos brinda la evaluación es útil para nosotros como docentes pero también ayuda a los alumnos a conocer la apropiación que hicieron de los saberes, a ser más autónomos y responsables en su propio aprendizaje. El propósito de nuestro trabajo fue analizar la aplicación de una rúbrica de autoevaluación en función de la calificación otorgada por el docente, en un curso de la carrera de odontología correspondiente a segundo año. Esta investigación se enmarca en un estudio de caso, de metodología cuali-cuantitativa. Se diseñó una experiencia didáctica en la cual, los estudiantes, en grupos, debían idear y narrar un caso clínico de acuerdo a la temática abordada. Se construyó una rúbrica considerando habilidades comunicativas en la expresión escrita y oral, las relaciones entre unidades temáticas y el aporte bibliográfico para la creación del caso clínico. Además se contemplaron destrezas profesionales humanísticas y sociales. A cada nivel de desempeño de la rúbrica se le asignó un valor siendo: 1: Insuficiente, 2:Suficiente, 3:Satisfactorio, 4:Destacado. Se realizó el estadístico de confiabilidad y se determinaron promedios, porcentajes y el coeficiente de correlación. La rúbrica resulto muy confiable. Pudimos observar que los estudiantes que obtuvieron las notas más altas (7, 8 y 9) se habían autoevaluado con niveles de desempeño, en promedio, entre 2,2 y 3,6, mientras lo que obtuvieron calificaciones entre 4 y 5, su nivel autoevaluado fue entre 2,6 y 4, indicando en algunos casos, una subvaloración o sobrevaloración del desempeño Además recuperamos algunas de las reflexiones sobre sus aspectos a mejorar entre las que reconocen la necesidad de desarrollar una buena comunicación tanto para expresarse en clases como en la atención de pacientes. Este trabajo nos hizo plantear la necesidad de utilizar las rúbricas desde las primeras clases del curso para que a través de la retroalimentación del docente, el estudiante pueda autoevaluarse desde una apreciación más realista de su desempeño.

038- ABORDAJE DE LA DISCAPACIDAD EN DISTINTAS INSTITUCIONES MUNICIPALES Y EDUCATIVAS DE LA PROVINCIA DE SAN LUIS. UNA INDAGACIÓN A TRAVÉS DE LA ENSEÑANZA DE LA LENGUA DE SEÑAS ARGENTINA

Nuñez, MB (1), Gallardo Quiroga, MM (1), Chávez KA (2), Daguerre, A (1). (1) FQByF - UNSL. (2) Representante de la Comunidad Sorda de San Luis. Correo: betinunezi@gmail.com

Las instituciones municipales, como educativas de la provincia de San Luis (Argentina) presentan, en general, una deficiencia en cuanto al acompañamiento de la discapacidad de personas que se presentan como usuarios en sus dependencias o como trabajadores de éstas. Es así como, a través de este trabajo se pretendió indagar respecto de la situación del abordaje de personas sordas en dependencias municipales, de salud y educativas de San Luis. La importancia de esta búsqueda fue poder realizar un análisis reflexivo respecto de la importancia de la enseñanza de la Lengua de Señas Argentina (LSA). La metodología utilizada fue una encuesta de Google Forms a personas asistentes a un curso de abordaje de personas sordas en los lugares mencionados, dictado en todos los municipios de la Provincia de San Luis. A este curso, asistieron trabajadores de áreas municipales, de salud y educativas. Los resultados obtenidos fueron los siguientes: de un total de 75 personas que completaron el curso, 38 respondieron la encuesta y, de ellas, 42,1% fueron trabajadores municipales, 13,2%, docentes de nivel secundario, 10,5%, personal no docente de la Universidad, 5,3%, docentes de nivel primario, mientras que porcentajes de alrededor del 2,6% fueron acompañantes terapéuticos, personal de salud, agentes de fundaciones, personal del juzgado de faltas, etc. De los encuestados, un 57,9%, ha tenido acceso a información acerca de distintos tipos de discapacidad en sus dependencias laborales, mientras que un 10,5% nunca tuvo información al respecto y un 31,6% solo lo hizo escasamente. El 42,1% del total, recibieron capacitación formal en temas referidos a discapacidad, pero un 65,8% de ellos desconoce si la página web de su organismo o sus redes sociales tienen un fácil acceso para personas con discapacidad. Un 47,4% expresa que en sus dependencias no existen procedimientos estipulados para abordar personas con discapacidad, mientras que un 26,3% manifiesta desconocer si existen tales procedimientos y un porcentaje igual afirma que los mismos son inexistentes. El 100% del total sigue interesado en capacitarse en LSA. Se concluye que, los trabajadores municipales, de la salud y de la educación poseen un gran interés en el acompañamiento de personas en situación de discapacidad, aunque en su mayoría no poseen formación propuesta por sus dependencias estatales. Sin embargo, afortunadamente, existe una incipiente decisión política tendiente a abordar la temática.

039- METODOLOGÍA DE ENSEÑANZA DE LA LENGUA DE SEÑAS ARGENTINA MEDIANTE PAREJAS PEDAGÓGICAS DE SORDOS Y OYENTES CON DINÁMICA MERAMENTE PRÁCTICA (LSA)

Nuñez, MB (1), Chávez KA (2), Gallardo Quiroga, MM (1), Daguerre, A (1). (1) FQByF - UNSL. (2) Representante de la Comunidad Sorda de San Luis. Correo: betinunezi@gmail.com

La Lengua de Señas Argentina (LSA,) en tanto idioma perteneciente a la Comunidad Sorda, se presenta como una disciplina incipiente a ser enseñada en las escuelas de toda la Argentina. Esto se promueve desde el proyecto de Ley, presentado en Cámara de Diputados de la Nación el 11 de junio de 2019 (Expediente: 2953-D-2019) que se encuentra a la espera de ser aprobado. El mismo, manifiesta textualmente en su sumario, "Inclúyese la enseñanza de la Lengua de Señas Argentinas en la currícula escolar. Declárasela como "Lengua natural de las personas sordas", en todo el territorio argentino". El objetivo de este trabajo es exponer la metodología de enseñanza de la LSA mediante parejas pedagógicas conformadas por sordos y oyentes en un curso eminentemente práctico. Tal como propone el proyecto antes citado, la LSA no se configura sólo como un idioma a ser enseñado y aprendido, sino que representa la vehiculización de la Cultura Sorda como constructo social de una comunidad minoritaria que va más allá de la mera transmisión de la gramática idiomática. Es así como, tanto desde la Ley a ser aprobada como desde la Comunidad Sorda, se pretende que, en cada espacio de enseñanza de la LSA, exista un hablante natural del idioma como representante de la cultura inherente al mismo. La metodología que se utilizó en este trabajo fue una encuesta a través de Google Forms a los asistentes de un curso de abordaje de personas sordas que se dictó en los 9 municipios de la Provincia de San Luis. Los docentes de este fueron 2 parejas pedagógicas conformadas, cada una, por una persona sorda y una oyente y la metodología de enseñanza fue meramente práctica en donde se enseñó desde el alfabeto dactilológico hasta señas vinculadas con las profesiones de los asistentes. Al respecto se les consultó estos últimos su opinión en referencia a dicha metodología para indagar la importancia que le da desde la persona que aprende LSA a la presencia de personas sordas en el dictado y a la dinámica de los cursos en los que se enseña el idioma. De un total de 38 encuestados de diferentes localidades, el 65,78% destacaron la metodología de enseñanza de la LSA como preponderante para aprender el idioma puesto que se refirieron principalmente a la dinámica de las clases como a la presencia de heterogeneidad entre los docentes. Se concluye que el modelo de enseñanza dinámico y práctico, mediante parejas pedagógicas conformadas por sordos y oyentes es bien recibido por los estudiantes que aprenden el idioma.

040- FORTALECIMIENTO AL VALOR AGREGADO DE LAS CERVECERIAS DE LA PROVINCIA DE SAN LUIS

Sánchez Peterle MB[1], *Navarta L[1], Lambrese Y [1], Juri Ayub J[1], Fernandez C[2], Calvente V[1], Fernandez JG[1]*
[1] Grupo de Investigación, Desarrollo y Asistencia al Sector Cervecero. (GIDACER). Facultad de Química, Bioquímica y Farmacia, UNSL, San Luis. [2]Facultad de Ingeniería y Ciencias Agropecuarias. Villa Mercedes, UNSL San Luis
E-mail:jgastonfernandez@gmail.com

La cerveza artesanal en argentina es un sector establecido, que genera un polo productivo regional. La búsqueda de nuevas cervezas con identidad de origen, son innovaciones que experimentan las cervecerías para identificarse del mercado, ya que se ha generado una cultura cervecera en cada región, que demandan nuevos productos para consumir. La Provincia de San Luis no es ajena a la situación de crecimiento de la industria de la cervecería artesanal, donde cada vez hay más cerveceos, generando nuevos emprendimientos. La meta de este proyecto de extensión, es asesorar y capacitar a los cerveceros de la provincia de San Luis para que generen productos con valor agregado mediante controles de calidad en el proceso de elaboración de cerveza. Se trabajaron con dos cervecerías de la provincia de San Luis. En la primera cervecería, se realizaron controles de calidad, en el que incluyeron análisis microbiológicos en diferentes etapas del proceso y en el producto final. Con la segunda cervecería se realizaron investigaciones en el proceso, para el agregado de una materia prima no tradicional en la elaboración de cerveza, analizando cantidad de materia prima a incorporar, concentración de azúcares, graduación alcohólica. Los resultados mostraron que en la primera cervecería los análisis microbiológicos dieron positivos para contaminantes en la cerveza, como medida de corrección, se aplicaron protocolos de limpieza y sanitización. También se asesoró sobre los protocolos. Posteriormente se realizaron nuevamente los análisis microbiológicos y los resultados fueron negativos. Con respecto a los resultados de la segunda cervecería, se elaboró una receta en el cual se indicó en qué etapa del proceso es conveniente agregar la materia prima no tradicional, se estandarizó la cantidad de materia prima a incorporar, se ajustó la concentración de azúcares y se estimó la gradación alcohólica presente en la cerveza elaborada y la calidad de la misma. Podemos concluir que la vinculación con el sector socio productivo es de suma importancia, ya que se pueden mejorar procesos y productos mediante análisis, asesoramiento y capacitación, generando calidad expresada en cervezas con valor agregado y con identidad regional.

041- ENSEÑANDO A VIVIR SIN TABACO

Cecho AC, Tosti SB, Dettbarn JA, Peñalva MA, Domínguez GR, Bosi AV, Lazo M, Moneo MO.
Facultad de Odontología. Universidad Nacional de La Plata. analiacecho@gmail.com

Desde la Asignatura Fisiología de la Facultad de Odontología de la UNLP llevamos a cabo el proyecto de extensión *Fumar es un placer?...* buscando generar conciencia en 115 alumnos que concurren a las Escuelas para Adultos N° 707 y 708 de la ciudad de Berisso, visibilizando el daño que genera el consumo de tabaco, estimulándolos a alejarse del hábito e incorporar prácticas de higiene oral. La edad de los participantes varía de 18 a 65 años. Elevar los niveles de salud brindando los conocimientos necesarios acerca de los riesgos que representa el consumo de tabaco. Se utilizaron estrategias participativas e interactivas en talleres con material didáctico y audiovisual, generando espacios donde los alumnos se sientan incluidos, siendo autores del propio conocimiento a construir. El 22% disminuyeron el consumo de tabaco. 8% dejo el consumo. 37% sin variantes. 33% aumentaron las consultas odontológicas Se estimularon acciones de promoción y prevención de salud convirtiéndose en agentes multiplicadores de salud, despertando interés acerca del valor y la calidad de vida que genera el no fumar, aceptaron llevar a cabo cambios de hábitos y conductas.

042- REFLEXIÓN SOBRE LA PROPIA PRÁCTICA DOCENTE EN CONTEXTO DE PANDEMIA

Torres Basso MB, Arce ME, Ciuffo GM.
Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. San Luis.
earce.arce7@gmail.com

El proceso de enseñanza-aprendizaje en la educación superior es dinámico y complejo. Debido al aislamiento social, preventivo y obligatorio impuesto por la pandemia por Covid-19, la UNSL como todas las instituciones de educación superior, se vieron obligadas a implementar la modalidad virtual para adecuar la enseñanza presencial a un entorno digital y ofrecer así la misma calidad académica. En este trabajo se describen las diferentes estrategias propuestas en el cursado cuatrimestral (1er cuatrimestre) de la asignatura Fisiología Molecular del quinto y último año de la carrera Licenciatura en Biología Molecular de la UNSL. Se detallan las adecuaciones implementadas durante el periodo 2020-2021 para adaptar el dictado presencial al virtual. Se busca reflexionar y compartir la experiencia en el contexto de pandemia. Se planificó un cronograma para el desarrollo de los contenidos teóricos y de trabajos prácticos de aula con sus correspondientes guías de estudio. Se acordó respetar los horarios habituales de la modalidad presencial para no interferir en el cursado de otras asignaturas. Se logró la adecuación de los materiales didácticos y la adopción de nuevas formas de comunicación tales como *Google classroom*; siendo éste muy útil como repositorio de textos y videos, además de permitir a los estudiantes subir sus tareas / guías de estudio y al docente, realizar las devoluciones correspondientes. Se realizaron modificaciones en las instancias de seguimiento y evaluación del proceso de aprendizaje. La pandemia por Covid-19 impactó directamente en las prácticas docentes universitarias, exponiendo la necesidad de cambios en la Educación superior.

043- EXPERIENCIA DE TRABAJO E INTERCAMBIO DE SABERES CON PRODUCTORES GANADEROS DEL SUR DE SAN LUIS

Rodríguez Rivera M[1-2], Osses R[2], Becerra R[2] y Rosa S[2], Villarreal V[1], Sosa L[1] y Ocampo E[3].
[1] PROICO 14-1420. Facultad de Química, Bioquímica y Farmacia- UNSL. [2]PROIPRO 14-1420. Facultad de ingeniería y Ciencias Agropecuarias- UNSL. [3] Docente/Investigador Asesor retirado-UNSL. mfrodri@gmail.com

El departamento Gdor. Dupuy, San Luis, concentra una gran cantidad de pequeños y medianos productores ganaderos que hacen uso del pastizal natural (PN) como fuente forrajera, siguiendo "usos y costumbres" que no les permitiría hacer un uso eficiente del recurso de acuerdo a las buenas prácticas de manejo. En el marco de la extensión critica, el objetivo de este trabajo es propiciar un acercamiento entre productores ganaderos de distintas localidades del Dpto. Dupuy, con investigadores de la UNSL para lograr un intercambio de conocimientos populares y científicos sobre la importancia de conocer los PN y lograr un manejo sostenible. Mediante encuentros presenciales con formato de "Taller" y cuestionarios semi-estructurados se indagaron conocimientos de los productores sobre el rol ecológico de los PN y el uso y manejo que hacen de este recurso. Se generaron espacios de debate para contrastar ideas y saberes de los productores con resultados de investigaciones científicas propios de la zona. Se detectaron algunos "usos y costumbres" o "ideas" por parte de los productores que no serían compatibles con el manejo sostenible del PN. Se observó además que no todos los productores conocen los impactos que provocan el pastoreo del PN sobre la vegetación en general, el suelo y la biodiversidad. Del intercambio surge la necesidad de seguir abordando temáticas relacionadas al manejo de los PN para darles un uso sostenible a escala regional.

044- EL APRENDIZAJE DE LA QUÍMICA EN EL NIVEL SECUNDARIO

Daquerre A[1,2], Villegas M[1].
1: Proyecto Nº03-2720 "Estrategias de enseñanza basadas en Aprendizaje Activo para Física, Matemática y Ciencias de la Computación" FCFMyN – UNSL. 2: Escuela Técnica N°7 Dr. Manuel Sadosky (San Luis) aldobqca@gmail.com

La Química presenta frecuentemente dificultades al momento de su aprendizaje. El objetivo de trabajo fue indagar entre estudiantes de nivel secundario acerca de su concepción sobre la construcción de saberes de esta disciplina. La metodología que se utilizó fue una encuesta de Google Forms enviada a través de la plataforma Classroom. En dicha encuesta participaron 29 estudiantes de 5° y 6° año de la Escuela Técnica N°7 "Dr. Manuel Sadosky" de la ciudad de San Luis. Del total de encuestados, el 69% consideró que la Química es una disciplina difícil de aprender frente al 31% que la consideraron una asignatura de fácil aprendizaje. El 62,1% de los alumnos consideraron que la química inorgánica presenta más dificultades para ser aprendida, mientras que un 27,6% se inclinó por una mayor dificultad en el aprendizaje de la química orgánica. Solo un 10,3% refirió cierta dificultad para aprender la química general (introductoria). Un 24,1% manifestó acuerdo en que la química puede ayudar a resolver o entender cuestiones de la vida cotidiana, un 69% de los estudiantes afirmó que esta situación se da "solo a veces" y el 6,9% de los encuestados, aseveró que esto nunca ocurre. Finalmente se indagó respecto de los contenidos de la química que resultaron atractivos e interesantes y casi el 100% de los estudiantes se refirió a aquellos que se vinculan a la química orgánica como: alcanos, alquenos, compuestos aromáticos y hormonas sexuales en referencia, estas últimas, a lípidos esteroides en una clara relación con Educación Sexual Integral (ESI). Se concluye que, si bien los estudiantes consideran a la química como una disciplina de difícil aprendizaje, muchos de ellos destacan su utilidad para comprender el funcionamiento del organismo de los seres vivos, especialmente el hormonal en el hombre (ESI). Además, muchos estudiantes reconocen en la química una disciplina que permite comprender cuestiones de su vida cotidiana.

045- LA EVALUACIÓN DE LOS APRENDIZAJES DE LA QUÍMICA EN EL NIVEL SECUNDARIO

Daguerre A[1,2], Villegas M[1]. 1: Proyecto Nº03-2720 "Estrategias de enseñanza basadas en Aprendizaje Activo para Física, Matemática y Ciencias de la Computación" FCFMyN – UNSL. 2: Escuela Técnica N°7 Dr. Manuel Sadosky (San Luis) aldobqca@gmail.com

La evaluación de los aprendizajes de Química presenta habitualmente importantes inconvenientes dentro del contexto del nivel secundario. La dificultad radica en que, si bien es una asignatura flexible para trabajar en la inter-disciplina que proponen ciertas estrategias de enseñanza como el aprendizaje basado en proyectos, la salida de campo, el estudio de casos, entre otras, la mayoría de los docentes consideran que su dictado debe ser tendiente al aprendizaje de la formulación, nomenclatura, propiedades físicas y químicas de los diferentes compuestos. Este modelo de enseñanza propone una evaluación tradicional, que es susceptible de ser analizada de acuerdo con la opinión de los estudiantes. Para ello, se propuso indagar mediante una encuesta de Google Forms, la concepción de los estudiantes frente a las evaluaciones de química en la escuela. La encuesta fue respondida por 29 estudiantes de la Escuela Técnica N°7 "Dr. Manuel Sadosky" de la ciudad de San Luis, que cursan 5° y 6° año. Como resultado se puede detallar que el 41,4% de ellos reconocen a la evaluación como un instrumento de autocontrol. El 27,6% de los alumnos aseguran que las evaluaciones los estimulan a estudiar y un 24,1% asevera que las mismas constituyen una instancia de aprendizaje. Solo el 6,9% estableció que las evaluaciones "no le sirven para nada". El 62,1% aseguró que, si no existieran las evaluaciones, no estudiarían, mientras que el 37,9% afirmó que, si las evaluaciones no se llevaran a cabo, estudiarían del mismo modo que cuando estas se llevan a cabo. Se concluye que, de acuerdo con el modelo de enseñanza tradicional de la química, basado en la formulación, el reconocimiento de compuestos químicos y sus propiedades, las evaluaciones son consideradas por los estudiantes como una instancia importante a nivel de autocontrol y aprendizaje. Además, las evaluaciones de la disciplina fomentan, según los encuestados, una mayor responsabilidad frente al estudio de la Química.

046- ¿LA EVALUACIÓN ME OBLIGA A ESTUDIAR? INTERPELANDO A LOS ESTUDIANTES RESPECTO DE SU PROPIO APRENDIZAJE

Ferreira PJ, Daguerre A, Jofré MB. Email: ferreirapamelaj99@gmail.com Área de Biología - Facultad de Química Bioquímica y Farmacia – Universidad Nacional de San Luis.

Las diferentes instancias de evaluación, desde siempre, fueron una forma de acreditación de saberes utilizadas por los docentes de diferentes niveles educativos. Además, el hecho de que los estudiantes fueran evaluados, se consideraba una garantía de dedicación al estudio de las disciplinas. Sin embargo, en la actualidad, se pretende que la evaluación forme parte de una instancia para aprender. Esto significa que tienden a emplear otras metodologías como la evaluación continua en las que los exámenes no se presentan de manera tradicional, sino que se realizan seguimientos a través de rúbricas u otros instrumentos. Si bien los estudiantes están de acuerdo con este tipo de evaluación formativa, los docentes evidencian que sus alumnos no dedican suficiente tiempo al estudio de la disciplina por lo que, generalmente fracasan en los exámenes que se llevan a cabo durante y al final de la cursada. El objetivo de este trabajo fue indagar acerca de la opinión de los estudiantes en referencia a la importancia de la evaluación para asegurar un estudio continuo de la asignatura. También se contrastó dicha opinión con los resultados de sus evaluaciones durante la cursada de Biología General para la Tecnicatura Universitaria en Esterilización (FQByF - UNSL). Se realizó una encuesta a través de un cuestionario de Google Forms a la cual accedieron los alumnos de dicha carrera. Además, se contrastó con las calificaciones que estos alumnos obtuvieron durante en la primera y en la segunda evaluación parcial. Cabe destacar que, entre ambas evaluaciones, la metodología de evaluación cambió. Antes del primer examen parcial, se impartía una evaluación formativa a través de rúbricas de seguimiento y luego de dicho examen se comenzó a tomar cuestionarios evaluativos obligatorios luego de cada actividad de laboratorio. Los resultados entre los exámenes fueron los siguientes: de un total de 31 alumnos, en el primer parcial, sólo aprobó el 21%. En la segunda examinación parcial, aprobó el 47% del estudiantado. Contrastando con la opinión de los estudiantes, el 53,8% opinó que, si las evaluaciones de tipo cuestionario no estuvieran, estudiarían de la misma manera mientras que un 46,2% de los alumnos opinó que el hecho de que se les tome evaluación de tipo cuestionario los obliga a estudiar y tener seguimiento continuo de la asignatura. Se concluye que, si bien la metodología formativa de evaluación es una tendencia a utilizar entre los estudiantes, lo cierto es que los resultados no son los esperados por parte de los docentes.

047- COMPENDIO DE LAS ACTIVIDADES IMPLEMENTADAS PARA EL DESARROLLO FRUTÍCOLA EN LA PROVINCIA DE SAN LUIS (ARGENTINA).

Lucero, Rolando A[1], Martinez Espeche, Mario E.[1], Monti Facundo[1]
1FICA, Universidad Nacional de San Luis. Ruta Provincial N° 55 S/N extremo Norte, Villa Mercedes, San Luis.
rolandolucero1962@gmail.com

La provincia posee características edáficas y climáticas, que permiten el desarrollo de proyectos frutícolas como una actividad para el fortalecimiento económico, generando empleos genuinos y fomento del consumo. El desarrollo del sector requiere de un plan orientado a la implementación de buenas prácticas agrícolas, trabajo cooperativo, basado en nuevas regulaciones. El objetivo del trabajo es difundir las acciones realizadas para elaborar el Plan Provincial de Desarrollo Frutícola, que tiene como objeto aumentar la superficie y mejorar los sistemas actuales con fortalecimiento de las economías regionales. Analizar la información generada y las demandas de las diferentes instituciones del sector (Ministerio de Producción, Universidad Nacional de San Luis, INTA, INTI, Universidad de la Punta, San Luis Agua), desde que se aprobó la ley de promoción frutícola (2009), con el desarrollo de 35 proyectos financiados y más de 25 proyectos que se realizaron con financiamiento privado; foros con productores, actores ambientales e instituciones educativas provinciales. Como resultado de estas relaciones, en 2020 se formalizó la creación de la Mesa FRUTIHORTICOLA de la Provincia de San Luis, donde se está trabajando en conjunto en los lineamientos y contenidos de una nueva ley para el Fomento de la Fruticultura a base de especies prunoideas (durazno, ciruelo y almendro), otras especies: olivo, vid y nogal entre otras, estrategia de promoción del cultivo y generación de nueva información. Como conclusión preliminar, ha habido una marcada demanda de información técnica para llevar a cabo plantaciones a pequeña escala, por parte de productores de la provincia para mejorar sus plantaciones, y nuevos inversionistas para aumentar el área actual.

048- ¡CUIDÉMONOS ENTRE TODOS! PARTE II

Mongelli H, *Alfaro G, Arcuri A, Nucciarone JJ, Sparacino S, Brown M, Dorati P, Rueda, L, Blotto B, Caimmi L, Colapinto Ana, Cruz J, Gauzelino G, Farnos J, Lamas J, Varela J, Ferro M, Scazzola M, Palau JP, Castelli P, Pertino MR, Segatto R, Cainzos S, Barrasa E, Hernandez F, Lambruschini V, Ondarcuhu M, Nucciarone M, Montefiori S, Meji D.*
Facultad de Odontología. Universidad Nacional de La Plata hernanensenada@hotmail.com

Es de vital importancia la bioseguridad, ya que se encarga de disminuir el riesgo para la salud y el medio ambiente proveniente de la exposición a agentes biológicos causantes de enfermedades. Nuestras acciones en el marco de la Pandemia Covid-19, fueron orientadas a lograr actitudes y conductas responsables, que disminuyan la posibilidad de adquirir infecciones. El objetivo fue: proporcionar información sobre el manejo preventivo frente a los microorganismos potencialmente patógenos con poder de riesgo de contaminación biológica como lo es el virus Sars-cov2. Las actividades se realizaron mediante la organización de charlas virtuales, producción de videos informativos, armado de power point, preparación de material didáctico, diagramación de folletos, instructivos y elementos de bioseguridad para la higiene de manos. El proyecto contó con muy buena predisposición y participación de las instituciones como también de la comunidad. Los logros fueron notables, se continuará trabajando y de esta manera seguir generando agentes multiplicadores de salud. El aporte del proyecto fue propiciar prácticas bio-seguras en terreno e instaurar modificaciones en las conductas de distintos actores de la comunidad, creando conciencia y responsabilidad. El riesgo de contagio es mayor en especial aquellos que están en primera línea de respuesta a la emergencia, los servicios esenciales, etc. Las medidas de control de riesgos deben adaptarse específicamente a las necesidades y demandas de los diferentes trabajadores. Resaltamos la importancia de la educación, prevención y concientización en tiempos de Pandemia de COVID 19 y de otras enfermedades infecciosas.

049- DIFICULTADES EN LA ENSEÑANZA DE LAS CIENCIAS NATURALES EN CONTEXTO DE RURALIDAD

Azcurra, LF[1]. y Daguerre, A[2]. 1 Instituto de Formación Docente Continua (IFDC). 2. Proyecto Nº03-2720 "Estrategias de enseñanza basadas en Aprendizaje Activo para Física, Matemática y Cs de la Computación" FCFMyN – UNSL. lorenafazcurra@sanluis.edu.ar

La enseñanza de las ciencias naturales presenta particularidades en el contexto rural puesto que, los diseños curriculares no logran ser del todo contextualizados como para enseñar contenidos significativos destinados a estudiantes de estos ámbitos. El objetivo de este trabajo fue indagar entre practicantes del Profesorado de Enseñanza Primaria, dictado a través del Instituto de Formación Docente Continua (IFDC), con sede en el interior de la provincia de San Luis, como La Toma y San Francisco del Monte de Oro, acerca de las dificultades que presenta la enseñanza de las ciencias naturales en contextos rurales. La metodología utilizada fue una encuesta de Google Forms difundida entre los 26 practicantes de la carrera. Los resultados indicaron que el 73,1% de los practicantes manifestó como principal dificultad para enseñar ciencias naturales, la descontextualización del diseño curricular para el ámbito rural, el 11,5% consideró que el problema en la enseñanza de estas disciplinas radica en los saberes previos incorrectos de los alumnos de primaria, mientras el 7,7%, contradictoriamente, manifestó que los saberes previos de éstos, son superadores en relación a los que poseen los docentes en referencia a las ciencias de la naturaleza. Es importante destacar, en claro vínculo con este último resultado, que un 7,7% de los practicantes declaró que encontró limitaciones en referencia a su propia formación en ciencias naturales lo que le dificultó la enseñanza. También, en este trabajo, se indagó en referencia a obstáculos epistemológicos en la enseñanza de las ciencias de la vida y de la Tierra y el 76,9% de los encuestados expuso que el principal obstáculo se refiere a la incongruencia de la metodología de enseñanza del modelo científico en referencia al modo de aprendizaje de los estudiantes, mientras que el 15,4% del total se refirió a los errores conceptuales como ideas previas en los alumnos de primaria como el principal impedimento epistemológico. Otro tipo de situaciones que expusieron los practicantes fueron: problemas socioeconómicos (más del 53,8%), inconvenientes con el transporte de los alumnos hacia los establecimientos escolares (más del 30,8%), entre otros problemas menores. Se concluye que, los principales aspectos obstaculizadores de la enseñanza y, por su parte, del aprendizaje de las ciencias naturales en contextos rurales son: la descontextualización curricular, los problemas socioeconómicos y los errores conceptuales como ideas de anclaje. Además, tiene una gran influencia al respecto la condición socioeconómica de los estudiantes que afecta directamente a su aprendizaje en general.

050- ESTRATEGIAS DE ENSEÑANZA E INSTRUMENTOS DE EVALUACIÓN EN CIENCIAS NATURALES QUE PRESENTAN MAYORES DIFICULTADES EN CONTEXTOS RURALES

Azcurra, LF[1]. y Daguerre, A[2]. 1 Instituto de Formación Docente Continua (IFDC). 2. Proyecto Nº03-2720 "Estrategias de enseñanza basadas en Aprendizaje Activo para Física, Matemática y Cs de la Computación" FCFMyN – UNSL. lorenafazcurra@sanluis.edu.ar

Existen diferentes estrategias para enseñar las ciencias naturales, pero algunas de ellas presentan mayores dificultades al momento de ser llevadas a cabo en contextos rurales. Algo similar sucede con la evaluación de los aprendizajes en dichos contextos en los que el abordaje del estudiantado difiere de aquel llevado a cabo en ámbitos urbanos. Este trabajo tiene como objetivo reflexionar acerca de las dificultades que se producen en relación a las estrategias de enseñanza de las ciencias naturales como también de la evaluación de los aprendizajes en estas disciplinas en ámbitos rurales. Para ello se encuestó a practicantes del Profesorado de Enseñanza Primaria, dictado por el Instituto de Formación Docente Continua (IFDC) con sede en La Toma y San Francisco del Monte de Oro, ambas, del interior de la provincia de San Luis. La metodología utilizada fue una encuesta mediante Google Forms difundida entre los 26 estudiantes de la carrera. Los resultados arrojados por la pesquisa, en la que se podía elegir más de una opción o agregar alguna que no se encuentre en el cuestionario, mostraron que el aprendizaje basado en proyectos (ABP), tanto como las salidas de campo (SC), presentan mayores dificultades (ambas fueron elegidas por un 34,6% de los practicantes), mientras que el aprendizaje basado en problemas (ABPr) y el estudio de casos (EC), fueron sugeridas en segundo lugar como más dificultosas por el 30,8 % de los encuestados. Solo el 11,6% afirmó que el aprendizaje lúdico ofrecía problemas para ser desarrollado en contexto rural. Respecto de la evaluación, un 50% de los practicantes, resaltó que los contenidos a evaluar están totalmente descontextualizados de la realidad cotidiana del alumno, mientras que un 42,6% afirmó que dichos contenidos no responden a una relación de teoría - práctica adecuada. Finalmente, un 7,4 % manifestó que otra de las dificultades que se presentan tienen que ver con las carencias respecto del lenguaje disciplinar que se solicita en los procesos evaluativos en ciencias naturales. Se concluye que, las estrategias de enseñanza que presentan más dificultades en el ámbito rural son: ABP, SC, seguidas por el ABPr y el EC. Además, los principales aspectos obstaculizadores de la evaluación son: la descontextualización curricular, relación teoría/práctica y vocabulario disciplinar. Es pertinente vincular estrategias de enseñanza con particularidades del ámbito rural para comprender la razón del fracaso de las mismas. Asimismo, la evaluación inherentemente vinculada a las estrategias y el contexto debería ser revisada para poder implementarse como instancia de aprendizaje continuo.

051- CLASES PRESENCIALES VS. CLASES VIRTUALES EN LA ENSEÑANZA DE LA BIOLOGÍA

Daguerre A[1], Dávila SV[1], Daruich GJ[1], Videla, AM[1], Bach, N[1].
[1]Área de Biología Facultad de Química Bioquímica y Farmacia, Universidad Nacional de San Luis.
aldobqca@gmail.com

La llegada de la pandemia precipitó el uso de clases virtuales que se volvieron omnipresentes en todas las aulas del mundo. En este trabajo se indagó a un grupo de 41 estudiantes de primer año de las carreras de Licenciatura en Bioquímica y Tecnicatura Universitaria en Laboratorios Biológicos de la Facultad de Química Bioquímica y Farmacia en la Universidad Nacional de San Luis, para conocer sus preferencias respecto de la modalidad del dictado de las asignaturas. Las clases teóricas de Biología se realizaron de modo virtual sincrónico a través de un canal de YouTube, quedando disponibles las grabaciones una vez finalizadas. Los trabajos prácticos de aula y laboratorio fueron realizados de modo presencial. La metodología utilizada para indagar a los estudiantes fue una encuesta confeccionada con Google Forms, que se envió a través de diferentes medios de comunicación. Los resultados de la encuesta indicaron que un 98% de los estudiantes prefiere las clases teóricas presenciales. El 100% de los estudiantes afirma que en los trabajos prácticos aprendió más que en las clases teóricas vinculando la presencialidad a una mayor construcción de saberes. Un pequeño porcentaje de estudiantes manifestó como ventaja la posibilidad de disponer de las clases grabadas. Se concluye que la modalidad presencial de los trabajos prácticos ayudó a la comprensión de los temas desarrollados en la teoría virtual. La educación virtual, sostenemos, se ha vuelto necesaria en la actualidad, aunque aún no presenta la suficiencia requerida para una completa construcción de conocimientos, al menos, en el aprendizaje de las ciencias naturales.

052- LA EVALUACIÓN DE APRENDIZAJES DE BIOLOGÍA EN LA EDUCACIÓN SUPERIOR

Daruich GJ[1], Videla AM,[1] Bach N[1], Dávila SV[1], Daguerrre, A[1]
Área de Biología Facultad de Química Bioquímica y Farmacia, Universidad Nacional de San Luis
aldobqca@gmail.com

La evaluación de los aprendizajes siempre genera tensiones, no solo en estudiantes, sino también en docentes. El intento, por parte de estos últimos, de generar una instancia de aprendizaje cuando se evalúa, no siempre es un éxito en la práctica. Con este trabajo se indaga a un grupo de 41 estudiantes de las carreras de Lic. en Bioquímica y Tecnicatura Universitaria en Laboratorios Biológicos, de la Facultad de Química Bioquímica y Farmacia (Universidad Nacional de San Luis), acerca de su opinión respecto de la evaluación que se realizó en la cursada del ciclo lectivo 2022, de Biología General y Celular, asignatura del primer cuatrimestre y del primer año de la carrera. También, en este trabajo fue considerada la opinión de los docentes acerca de las instancias evaluativas en la asignatura con una mirada reflexiva desde la praxis. La metodología que se utilizó para la consulta a los estudiantes fue un formulario de Google Forms enviado a través de diferentes medios como *Whatsapp*, correo electrónico o la plataforma Classroom. De los resultados de la encuesta, se desprende que un 92,6% de los estudiantes consideró que las evaluaciones del curso fueron una instancia más de aprendizaje. Además, un 53,7% de los estudiantes consideró que, de no existir evaluaciones tal como se llevaron a cabo durante la cursada, estudiarían los contenidos de la misma manera. Otra cuestión que se indagó es acerca de la complejidad de las evaluaciones en relación al dictado de las clases teóricas y trabajos prácticos. El 61% manifestó estar de acuerdo en dicha correspondencia clase-evaluación. Se concluye que la evaluación, aún causando tensiones entre docentes y estudiantes, es necesaria como instancia de aprendizaje y como generadora de una actitud responsable frente al estudio.

053- PERCEPCIONES Y REPRESENTACIONES DE LOS INSECTOS CON ESPECIAL ENFOQUE EN COCCINELLIDAE DE ESTUDIANTES DE SECUNDARIA DE LA PROVINCIA DE SAN LUIS

Nuñez Sada MF[1], Fernández RA[1], Ripa RR[2,3], Baudino F[2], Lapadula WJ[4], Werenkraut V[2]
[1]Facultad de Química, Bioquímica y Farmacia (UNSL). [2]Instituto de Investigaciones en Biodiversidad y Medioambiente (CONICET-UNComa). [3]Instituto de Evolución, Ecología Histórica y Ambiente (CONICET). [4]Instituto Multidisciplinario de Investigaciones Biológicas de San Luis (CONICET). E-mail: mfnunez@email.unsl.edu.ar

La percepción y el interés por la naturaleza están fuertemente correlacionados con la representación del mundo natural en la cultura, la educación y la literatura. Particularmente, en el caso de los insectos, existen opiniones contrapuestas enfocadas tanto en aspectos negativos como positivos de la percepción humana sobre este grupo. Incluso, existen sesgos de apreciación dependiendo del grupo taxonómico (por ejemplo: apreciación negativa para mosquitos y positiva para mariposas). En este estudio exploratorio, encuestamos a estudiantes de escuelas secundarias de la provincia de San Luis con el fin de estudiar su percepción acerca de los insectos en general y de las vaquitas de San Antonio (Coccinellidae) en particular. La encuesta incluyó tanto preguntas abiertas como cerradas. Se encuestó a un total de 280 estudiantes de entre 11 y 18 años, en escuelas de siete localidades de esta provincia. Los resultados sugieren que las percepciones de los insectos están influenciadas por el carisma del grupo taxonómico, la edad de los estudiantes y el grado de urbanización de la localidad. Asimismo, en la mayoría de los casos (61%) los estudiantes destacaron la importancia de los insectos, haciendo foco en su rol como polinizadores y su relación con las plantas. En el caso de las vaquitas de San Antonio, más del 80% de los estudiantes las definieron con términos de connotación positiva, haciendo hincapié en su "belleza" y en sus bondades como controladores de plagas. Las experiencias escolares son fundamentales para construir la percepción acerca de la naturaleza y para fomentar la proactividad medioambiental. Consideramos importante el desarrollo de estrategias y herramientas didácticas que aborden la forma en que los humanos interactuamos y percibimos a los insectos.

054- ¿QUÉ NOS DEJÓ LA PANDEMIA EN EL AULA DE BIOLOGÍA?

Nuñez Sada MF[1], Isaguirre AC[1], Guerrero M[1], Gutiérrez V[1], Polak NP[1], Cangiano A[1], Moglia MM[1]
[1]Facultad de Química, Bioquímica y Farmacia. Universidad Nacional de San Luis. E-mail: mfnunez@email.unsl.edu.ar

En el trabajo se analizan las consecuencias negativas y positivas de las modificaciones en el dictado de clases impuestas por la pandemia de COVID-19. Durante el año 2022, el regreso a la presencialidad en un curso de primer año de Biología General y Celular de la Universidad Nacional de San Luis, implicó una readaptación del aula a las nuevas condiciones de dictado de la asignatura. El dictado de clases teóricas, prácticas y evaluativas fue presencial durante 2022; si bien se desarrollaron consultas y recuperaciones virtuales. A través de la técnica de encuesta cerrada con ítems de lista de respuestas realizada entre 2018 a 2022, se recabó información acerca de conocimientos, necesidades y percepciones del estudiantado del dictado de la asignatura bajo diferentes condiciones. Los resultados mostraron que: los porcentajes de estudiantes libres, promocionales y regulares no variaron significativamente entre los años de pandemia (2020-2021) y pospandemia (2022). Además: un 85% de los alumnos prefieren las clases presenciales a las virtuales, el número de estudiantes que trabajan fue mayor durante la pandemia -solo un 4% en la actualidad en comparación con más de un 10% en virtualidad- y disminuyó la edad media del estudiantado de 21 años en pandemia a 19 en la actualidad. Por otra parte, el mayor problema percibido por el alumnado para su desempeño en la asignatura se relacionó con los tiempos, con la educación recibida previo a la universidad y con miedos a la vida universitaria, que se incrementaron con respecto a años anteriores. Como efectos positivos, el equipo docente rescató una mayor fluidez en la utilización de herramientas virtuales, validando la plataforma Classroom, a la cual ya están familiarizados y su uso no les presenta problemas. Además, existió un mayor interés y participación en el abordaje del tema virus, viroides y priones y la posibilidad de utilizarlo como disparador y globalizador en actividades integradoras. Se concluye que, si bien la educación virtual durante casi dos años, impuesta por la pandemia de COVID-19, produjo consecuencias negativas en la enseñanza y el aprendizaje de Biología en primer año, también permitió la adquisición de nuevas capacidades y competencias tanto para docentes como para estudiantes, que pudieron ser utilizadas de manera positiva en el dictado de la asignatura en la pospandemia.

055- EFECTO DEL ESTRÉS DEBIDO A LA PANDEMIA POR COVID-19 EN LA CALIDAD EDUCATIVA DE UN GRUPO DE ESTUDIANTES ADOLESCENTES DE LA CIUDAD DE SAN LUIS

Orozco Reina A[1,], Spina C[1,], Guizzardo V [1,], Valerio E[1,], Pressello J[1,], Villegas L [1,], Rosales L[1,], Bulaccio A[1,],, Vega Orozco A[1,],
Proyecto de estímulo a la Extensión PEEX- 0021:"Impacto del estrés producido durante un año de pandemia por covid-19 en la calidad de vida y educativa en un grupo de adolescentes en la ciudad de San Luis. Enfoque multidisciplinario". [1] Facultad de Química, Bioquímica y Farmacia-UNSL-San Luis- Argentina. E-mail: asvega@email.unsl.edu.ar

Según una encuesta realizada por UNICEF en adolescentes en diferentes países de Latinoamérica, demostraron que los mismos presentaron síntomas de estrés en los primeros meses de la pandemia. El 27% reportó sentir ansiedad y 15% depresión. Teniendo en cuenta las numerosas evidencias científicas del impacto del estrés durante la pandemia en los niños y adolescentes a nivel físico y emocional y su rendimiento académico. El objetivo de este trabajo fue promover acciones que permitan a un grupo de adolescentes de la escuela técnica N° 9: Domingo Faustino Sarmiento adquirir un mejor conocimiento acerca del estrés y de sus consecuencias en la calidad de vida y a nivel educativo durante un año de pandemia por Covid-19. Para ello se realizaron charlas- talleres acerca de que es el estrés, sus consecuencias a nivel físico y emocional. Al final de cada charla se estimuló al debate y la participación de los alumnos mediante la observación de videos. Además, se evaluó el efecto del estrés por la pandemia a nivel educativo mediante realización de encuestas a los alumnos. En cuanto a los resultados obtenidos de la encuesta fueron que el 20% de los encuestados no tenían internet en sus hogares durante las clases virtuales, el 50% nunca había utilizado una plataforma virtual antes de la pandemia, y el 20 % que utilizó alguna de las plataformas virtuales no tuvo ayuda y le fue difícil acceder a ellas. El 35% consideró que no alcanzó los conocimientos básicos y un 20% consideró que alcanzó muy pocos conocimientos básicos en las diferentes materias. El 45% de los alumnos reportaron que los profesores no habían utilizado previamente las plataformas virtuales. El 50% consideró que las clases virtuales no fueron tan efectivas como las clases presenciales para un buen aprendizaje. El 45% expresó que fue muy estresante adquirir nuevos aprendizajes sin el acompañamiento presencial de los profesores. Dado a los resultados obtenidos consideramos muy importante tener en cuenta el estrés en los alumnos y su impacto a nivel educativo desde un punto de vista multidisciplinario y además considerar la importancia de la actualización continua de los docentes en plataformas virtuales que permitan un mejor aprendizaje.

056- INVESTIGACIÓN Y EXTENSIÓN EN VIÑEDOS DEL DEPARTAMENTO SAN MARTÍN, MENDOZA

Duplancic MA[1,2], Aguilar FM[1], Carletto A[1], Flores LC[1], Palermo A[1], Fernández C[1]
[1]Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Cuyo. [2]Grupo de Investigación Geobotánica y Fitogeografía – IADIZA, aduplancic@gm.fcen.uncu.edu.ar

Los proyectos "Jorge Alberto Sábato" buscan estimular actividades científicas y tecnológicas en las diferentes extensiones áulicas de la Facultad de Ciencias Exactas y Naturales de la Universidad Nacional de Cuyo. Pretenden promover asociaciones entre grupos de trabajo de las extensiones áulicas de la Facultad y organizaciones o instituciones de la sociedad, que aporten a la construcción y aplicación de conocimiento científico y tecnológico en la búsqueda de la satisfacción de las demandas y/o necesidades de la comunidad local. En el proyecto "Vegetación adventicia asociada a sistemas productivos de viñedos de bodegas en San Martín", aprobado en la convocatoria 2021, se trabajó en dos ejes. Por un lado, en el estudio de la flora adventicia, ya que estas especies generalmente son eliminadas de las zonas de cultivo por acción mecánica o aplicación de agroquímicos, con los costos ambientales asociados. Se buscó generar evidencia para recomendar a los productores reducir estas prácticas, cuantificando los beneficios que las especies acompañantes aportan al ecosistema cultivado: aumento de la biodiversidad, de la cobertura vegetal, del contenido de humedad del suelo y disminución del albedo. Por otro lado, se buscó incentivar vocaciones científicas tempranas, con la participación de estudiantes de primer año del Ciclo General del Conocimientos Básicos en Ciencias Exactas y Naturales, mediante un trabajo práctico optativo del espacio curricular Biología General que consistió en un muestreo de vegetación y elaboración de un herbario didáctico. Además, participaron estudiantes avanzados de la carrera Licenciatura en Ciencias Básicas con orientación en Biología, que hubieran iniciado sus estudios en la extensión áulica de San Martín, lo que estimuló la interacción entre compañeras/os de distintos tramos de la carrera. Esta actividad respondió al principio general de la convocatoria, de que la investigación científica, tecnológica y la innovación son motores del desarrollo humano, social y económico, favoreciendo el trabajo interdisciplinario con especial énfasis en aspectos humanistas.

057- PROMOCIÓN Y PREVENCIÓN DE LA SALUD SEXUAL Y REPRODUCTIVA. ESTRATEGIAS EDUCATIVAS QUE ARTICULAN CON LA ATENCIÓN PRIMARIA

Mendoza G, Flores Y, López MJ, Furlong M, Giordani R, Chavez Gonzalez K, Gambluch Negre Y, Azor MI, Chirino G, Sibona L, Figueroa F, Forneris M.
Cátedra de Bioquímica Clínica. FQByF-UNSL. E-mail: mlforneris@gmail.com

En los últimos años se ha observado una tendencia en aumento de las infecciones de transmisión sexual (ITS), en que los más afectados son adolescentes y jóvenes, comprometiendo su salud sexual y reproductiva. La dimensión del problema en la provincia de San Luis y el desconocimiento del tema, motivó a la presentación en el año 2014 de un Proyecto de Extensión Universitaria (aún vigente) orientado a contribuir a la problemática en el ámbito de la escuela media. Dentro de las actividades desarrolladas por un equipo multidisciplinario: 1) se realizaron talleres sobre prevención de las ITS, VIH/SIDA, métodos anticonceptivos y embarazo, 2) se elaboró y distribuyó folletos y se trabajó con redes sociales, 3) se promovieron espacios de consejerías y diagnóstico de ITS, 4) Se coordinó con Programas provinciales vigentes y 5) se incorporaron los saberes prácticos a los alumnos de la FQByF mediante aprendizaje en Servicio. Como indicadores de resultados: 1) el grado del conocimiento sobre el tema, se evaluó a través de encuestas pre y post test en cada taller, resultando satisfactorio, 2) se incrementaron las consultas en APS por adolescentes y 3) las intervenciones del proyecto permitieron fortalecer los vínculos con diferentes instituciones. Estamos comprometidos con el abordaje de la sexualidad adolescente no solo desde una mirada biológica, sino desde una perspectiva más amplia que incluya aspectos psicológicos, afectivos, éticos, sociales y culturales.

058- TALLERES DE CIENCIAS NATURALES EN EL NIVEL EDUCATIVO PRIMARIO

Teves M[1], Escudero L[1], Panini A[1], Giraudo E[1], Príncipe M[1], Petenatti M[1], Villegas L[1], Villegas M[2]
[1] FQByF – [2] FCFMyN - Universidad Nacional de San Luis. Email: maurote@unsl.edu.ar

Las actividades prácticas de laboratorio en ciencias naturales fueron afectadas en la virtualidad motivada por la pandemia de COVID-19, resultando ciertamente insuficientes y hasta nulas en determinados casos. Motivado por esto, y en el marco de un proyecto de extensión universitaria, nos permitimos efectuar un aporte, desde nuestro lugar, para subsanar tales deficiencias en las prácticas del conocimiento. A tal fin, se seleccionaron seis escuelas estatales provinciales alejadas de grandes centros urbanos y/o con características de escuelas rurales. Se planificaron distintos tipos de talleres que resulten adecuados para niños del nivel educativo primario y dentro de ellos, se trabajó con dos talleres relacionados con la biología y específicamente con los vegetales. El taller *"¿Sabes si la verdura o fruta que consumimos es una raíz, un fruto, una hoja, un tallo, una semilla o una flor?*" permitió reconocer a las plantas como seres vivos y sus distintas partes, diferenciar órganos vegetativos de reproductivos, distinguir en muestras suministradas a qué parte de la planta corresponden y ejemplificar mismos órganos vegetales que nos sirven de alimento y que podemos encontrarlos en comercios u obtenerlos de la huerta. Por otra parte, con el taller *"Conociendo las partes de las plantas que no podemos ver con los ojos"*, se realizó una pequeña salida para recolectar muestras vegetales y ser observadas con lupa de mano y de pie; se observaron estructuras epidérmicas no distinguibles a simple vista (con lupa y microscopio) y preparaciones microscópicas de epidermis foliar, granos de polen y cortes transversales de tallo. Las actividades permiten recuperar el trabajo práctico, que fue muy perjudicado por la dificultad de buscar opciones alternativas de reemplazo durante la virtualidad, por lo que consideramos que nuestra actuación contribuye a mejorar la alfabetización científica en el campo de las ciencias naturales.

059- PROPUESTA DE INTERPRETACIÓN AMBIENTAL PARA EL SENDERO DEL JARDÍN BOTÁNICO EL PANTANILLO

Genovese MC, Costa M, Sender MB & Suyama A
Facultad de Turismo y Urbanismo - Universidad Nacional de San Luis - E-mail: mcgenovese@unsl.edu.ar

La interpretación ambiental es una forma de comunicación que permite motivar a la exploración y descubrimiento de la naturaleza, a través de experiencias sensoriales, lúdicas y amenas. A partir de la necesidad de poner en valor el Jardín Botánico El Pantanillo (Campus de Barranca Colorada de la FTU-UNSL) y contar con un espacio para la educación ambiental y el conocimiento del bosque serrano, se trabajó en una propuesta de interpretación destinada a estudiantes y docentes de la FTU, a la comunidad local y a turistas que visiten la zona. Bajo el tema "las plantas son el sustento de la vida", se establecieron 5 estaciones de interpretación a lo largo del sendero que recorre el Jardín Botánico: 1°- Introducción y presentación del sendero: contexto ambiental y principales características de biodiversidad; 2°- Interacciones: ejemplos de interacciones ecológicas; 3°- Adaptaciones de las plantas al clima semiárido: estructuras vegetales especiales vinculadas a las condiciones ambientales; 4°- Interacciones bioculturales: usos y vinculaciones de los seres humanos con las especies del bosque; 5°- Biodiversidad: análisis comparativos entre ambientes antropizados y no antropizados. La propuesta permite conocer el bosque, a través de la participación activa del visitante mediante actividades de interpretación, recursos visuales, sensibilización y reconocimiento de relaciones y funciones del bosque de manera autoguiada. Para cada estación se propuso el diseño de cartelería y equipamiento que se vincula a través de códigos QR con textos, audios e imágenes que proponen la actividad y brindan información sobre la flora y fauna presentes en el sendero. La segunda etapa del proyecto definirá la vinculación de la información a través de códigos QR y la traducción de la misma al idioma inglés.

060- CONSTRUCCIÓN CONJUNTA ENTRE UNIVERSIDAD Y ESCUELA BARRIO LOS HORNOS: APRENDEMOS A SEPARAR LOS RESIDUOS SÓLIDOS ESCOLARES Y DOMICILIARIOS I

Rocha AM[1], Ostertag BR[1], Blanco AM[1], Ramírez Astudillo LA[1], Cornejo L[1], Aguilar L[1], Ravena M[1], Spina AG[1], Sosa M[1], Alba E[1], Córdoba L[1], Doma I[1]
[1]Univ. Nac. de La Pampa, Fac. de Ciencias Exactas y Naturales, Santa Rosa, La Pampa, Argentina. E-mail: rochaale64@hotmail.com

Los integrantes de este equipo han trabajado en distintos niveles escolares dentro de la escuela primaria y con diferentes actores sociales en torno a actividades de extensión. Desde el paradigma: no se puede cuidar lo que no se conoce, continuamos en torno a actividades de extensión y específicamente en relación a los Residuos Sólidos Escolares y Domiciliarios (RSEyD). Resulta para este equipo significativo despertar e incentivar la curiosidad de los estudiantes, quienes están ávidos por conocer, mirar y explorar el mundo. Consideramos importante trabajar en proyectos de extensión en donde todos los actores puedan aprender - enseñar y vincular la Universidad con la Sociedad. El objetivo de la presente propuesta estuvo centrado en trabajar con docentes, no docentes, graduados, estudiantes universitarios y alumnos/as de nivel primario de la escuela N°97 del Barrio Los Hornos de la ciudad de Santa Rosa (La Pampa) en torno a los RSEyD. Nuestra mirada estuvo focalizada en construir en forma conjunta el respeto, apropiación y cuidado por el medio ambiente donde habitamos. Las actividades desarrolladas pretendieron acompañar procesos de abordajes participativos, en donde todas las partes pudieron aprender – enseñar - compartir y sufrir micro-transformaciones en sus hábitos cotidianos en relación al cuidado del medio ambiente. Los estudiantes tuvieron un rol significativo en la ejecución del proyecto; separamos los residuos sólidos de nuestra escuela como así también de nuestro hogar, armamos material de difusión y realizamos campañas de concientización en nuestra escuela y nuestro barrio. Este tipo de actividades extracurriculares propulsan y catapultan la curiosidad, interés y compromiso por parte de las/os niñas/os en relación al cuidado y protección del territorio donde habitan, transformándose así en difusores naturales de buenas prácticas y de saberes específicos.

061- PRÁCTICAS EDUCATIVAS A CAMPO EN LA ENSEÑANZA DEL CONTENIDO ECOLOGÍA DE LA MATERIA BIOLOGÍA GENERAL EN MEDICINA VETERINARIA-UNLPam

Gómez MB, Castillo M, Clauzure, M, Williamson D, Bruni M
Cátedra de Biología General. Facultad de Ciencias Veterinarias. UNLPam.
biologiageneral@vet.unlpam.edu.ar

Biología General es una asignatura de primer año del primer cuatrimestre de la carrera de Medicina Veterinaria de la Universidad Nacional de La Pampa (UNLPam). Durante el 2022, se inscribieron 247 estudiantes. Las prácticas educativas respecto a los contenidos de ecología de la asignatura de Biología General fueron modificadas con el objetivo de buscar otras estrategias didácticas en los procesos de enseñanza-aprendizaje para que los estudiantes se apropien de los conocimientos a través del trabajo colaborativo a campo. Se planificó una actividad orientada al aprendizaje a partir de una situación problema real referente al estudio de las propiedades emergentes de una población. Se escogió una población ovina o caprina. Los estudiantes acudieron a la Unidad Experimental Productiva Demostrativa (UDEP) de la Facultad de Ciencias Veterinarias-UNLPam para realizar la actividad a campo. Asistieron un total de 172 alumnos que se los dividieron en 6 comisiones, tres por la mañana y tres por la tarde. Se realizó una caracterización etnozootécnica en terreno. Se recolectaron datos sobre la proporción de edad de los ovinos o caprinos a través de la práctica de boqueo, sexado, variabilidad genética, identificación de biotipos, medición del estado físico nutricional de los animales a través de la condición corporal. Los datos se volcaron en un formulario de campo proporcionado previamente que fue modificado por los estudiantes de acuerdo a sus requerimientos. Los alumnos procesaron los datos obtenidos, realizaron gráficos y los analizaron. Se realizó la presentación oral del informe, mostrando varias alternativas a los problemas poblacionales bajo un esquema de producción sostenible. Esta práctica se llevó a cabo al final de la cursada, y permitió a los estudiantes apropiarse del conocimiento de la ecología al articular el contenido teórico con la práctica de campo. Lograron regularizar la materia 79 estudiantes.

062 – Educando con probioticos el kefir de la mano con la salud

Gonzalez Anabel