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C1.**PSYCHOTHERAPEUTIC DRUGS UTILIZATION IN MENDOZA**

Kaiser L, Rodríguez C, Riestra E, Sacchi O, Dalmau G, Rodríguez Echandía EL. UFURM, Área de Farmacología, Departamento de Patología. FCM. Universidad Nacional de Cuyo.

This is a descriptive and retrospective analysis of psychotherapeutic drugs utilization in the Health Care Organization of the University (DAMSU) and the Neuropsychiatric Hospitals in Mendoza (H. Carlos Pereyra and H. El Sauce). The report highlights the evolution of utilization of antianxiety, antidepressants, hypnotics, antipsychotics and antiepileptic drugs in 7 consecutive years. The DURG methodology was used and the dates were collected and processed by an EPI INFO program. DDDs/1000 for each psychotherapeutic drug group were obtained. Results show the occurrence of a constant over utilization of ant anxiety drugs in DAMSU and a progressive increase in the use of these drugs in both hospitals. As to antidepressants, a year to year decrease in their utilization in DAMSU but a significant increase in the Hospitals was detected. Utilization of antipsychotics in DAMSU was always low but significantly higher in the hospitals, especially in the last 2 years. The use of anticonvulsant drugs increased and the utilization of hypnotics decreased in the 3 institutions studied. Differences between psychotherapeutic drugs utilization in DAMSU and Neuropsychiatric Hospitals are discussed in relation to the specialization of prescribers and rationality in their use.

C2.**PROMOTION OF THE RATIONAL USE OF MEDICINES IN DIFFERENT AREAS. IMPORTANCE OF INCLUDING SOCIAL COMMUNICATORS**

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Pharmaceutical promotion is defined as all informational and persuasive activities by the manufacturers of drugs to induce the prescription, supply, acquisition or use of drugs. Includes advertising, free samples, organization and sponsorship of scientific meetings, travel funding and various gifts. Is being promoted on the Internet, are funded patient groups, are promoted public awareness campaigns about disease. This leads to unnecessary drug use, or of risk-benefit or cost unfavorable. For this reason, pharmaceutical promotion is often identified as a threat to the proper use of medicines. To counteract their negative effects have been proposed and implemented strategies to apply in different areas, such as health professionals, the students and the community through an Extension Program for the rational use of medicines. Social communicators have recently joined as key participant in this joint action with pharmacists, biochemists, psychologists and advanced students of such schools. Among the proposed strategies and actions are implemented training courses and workshops, and other communication strategies that allow us to understand and avoid the actions of pharmaceutical promotion and promote the appropriate use of medicines.

C3.**STRATEGIES FOR RATIONAL USE OF MEDICINES IN THE AREA OF THE DEPARTMENT OF HEALTH OF MENDOZA**

Manassero CA. Pharmacology and Drugs and Medicines Policy Director Mendoza. Professor of Chair of Pharmaceutical Practice - Univ. Juan A. Maza. Mendoza, Argentina.

In the province of Mendoza - Argentina, by the Provincial Law 5897 the medicines are established as social present goods in the Therapeutic Medicines Formulary (FOTIP) and the Commission of Medicines Adviser (CAM) as the organ adviser in charge of his confection and update, besides the production of prescriptive procedure. The FOTIP together with Farmacovigilancia's Program, they are the frame of reference to guarantee the access essential effective, sure medicines and cost/effective. The normative legal frame of use of medicines is fitted in: Provincial Law 7037/02 of prescription for generic name, National Law 17565, 19303, 17818 and Provincial Law 7303 and Regulation decrees that norman the dispensation of the medicines. The FOTIP possesses 635 drugs, of de universe of 2035 drugs, used for high, medium and low complexity and primary care, inside which every center can elaborate his own list adapted to his epidemiological and welfare reality, minimizing of the expense and establishing sure parameters of assistance in medicines.

C4.**MOLECULAR MECHANISMS OF MOUSE OOCYTE DURING FERTILIZATION**

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Oocyte meiotic maturation is a complex process that involves coordinated nuclear and cytoplasmic modifications that prepare the oocyte for fertilization. Nevertheless, oocyte maturation and fertilization are still poorly understood. In mouse, oocyte maturation is defined by the transition between prophase I and metaphase II, and is accompanied by nuclear envelope breakdown, meiotic spindle assembly, migration of cortical granules and rearrangement of the cortical cytoskeleton. Cytoskeleton reorganization and spindle function are affected when PKC is activated during meiotic maturation of mouse oocytes, suggesting that PKC is involved in meiosis. Our aim is understand how meiotic spindle is assembled during oocyte maturation. We have identified a PKC substrate as a new centrosomal component that also defines a peripheral subdomain of the cortical actin cap in mouse oocytes. Furthermore, oocyte maturation ensures the production of competent oocytes capable of being fertilized and supporting the early stages of embryonic development. The success of these events depends on the oocyte property of blocking polyspermy during cortical reaction. The molecular mechanism of the cortical reaction is still unknown. Our interest is to characterize the molecular machinery involved in this process to further understand the signal transduction pathway that blocks polyspermy in mammalian oocyte fertilization.

C5.**OXIDATIVE STRESS AND ITS RELATIONSHIP WITH THE TOLERANCE TO ABIOTIC AND BIOTIC STRESS***Luna C.**Institute of Phytopathology and Plant Physiology (IFFIVE-INTA), Córdoba, Argentina.*

Reactive oxygen intermediates (ROIs) are partially reduced forms of atmospheric oxygen (O₂). They typically result from the excitation of O₂ to form singlet oxygen or from the transfer of one, two or three electrons to O₂ to form, respectively, a superoxide radical, hydrogen peroxide or a hydroxyl radical. In plants, ROS are continuously produced predominantly in chloroplasts, mitochondria, and peroxisomes. In addition, pathogens and wounding or environmental stresses (e.g. drought, osmotic stress, high temperature) have been shown to trigger the active production of ROIs by NADPH oxidases. In that sense, ROIs act as signals for the activation of stress-response and defense pathways. Thus, ROIs can be viewed as cellular indicators of stress and as secondary messengers involved in the stress-response signal transduction pathway and the production and removal of ROS must be strictly controlled. Major ROI-scavenging mechanisms of plants include superoxide dismutase (SOD), ascorbate peroxidase (APX) and catalase (CAT). The balance between SOD and APX or CAT activities in cells is crucial for determining the steady-state level of superoxide radicals and hydrogen peroxide. Antioxidants such as ascorbic acid and glutathione, which are found at high concentrations in chloroplasts and other cellular compartments (5–20 mM ascorbic acid and 1–5 mM glutathione), are crucial for plant defense against oxidative stress. Our work is related with to use oxidative stress as a tool to identify more tolerant genotypes to abiotic and biotic stress. We are studying if oxidative stress and antioxidant defences are related with tolerance to high temperature stress in *Cenchrus ciliaris* genotypes. Also we have results about oxidative damage in mycorrhizal-soybean plants during biotic and abiotic stress.

C6.**THE SALT STRESS DURING GERMINATION IN HALOPHYTES PLANTS***Sosa L.**Laboratorio de Fisiología Vegetal, Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis, 5700 San Luis, Argentina.*

Environmental abiotic stress conditions, especially drought and salinity, are currently the major factors that reduce crop yield worldwide. Salinity, in particular, is an increasing problem affecting 20% of the world's cultivated land and nearly half of the area under irrigation. Breeding of salt-resistant crop varieties will require a clear understanding of the complex mechanisms of salt-stress tolerance.

While all major crops, as well as most wild species, are glycophytes, i.e. sensitive to relative low salt concentrations, there are also plants naturally adapted to conditions of high salinity in the soil. These plants, known as halophytes, include a large taxonomic variety and occupy diverse habitats, from extremely dry to temporarily waterlogged sites or salt marshes. These plants are capable of growing and reproducing in saline conditions, as groups have several physiological adaptations that facilitate their survival in saline environments.

The information available on the germination of halophytic seeds is far from complete. From a total of about 2400 species reported; patchy data is available for only about a few hundred species.

Germination is an important stage in the life cycle of species growing in saline environments because it determines the soil conditions to which later stages in the life cycle will be exposed.

C7.**PROBIOTICS FOR PREVENTION OF REPRODUCTIVE DISEASES IN CATTLE***Otero MC^{1,2}, Nader-Macias ME¹.**¹CERELA-CONICET. ²UNT. Tucumán, Argentina. E-mail: cotero@cerela.org.ar*

Infectious metritis is one of the main causes of infertility in postpartum cows. They increase the interval from calving to first recorded estrous and the rate of services to conception. These situations reduce the reproductive performance in the dairy herd. Postpartum metritis is associated with an unbalanced microbiota in the reproductive tract with prevalence of those microorganisms recognized as pathogens and potentially pathogens (*Actinomyces pyogenes*, *Escherichia coli*, *Fusobacterium necrophorum* and *Bacteroides melaninogenicus*, etc). In these cases the conventional therapies include the administration of hormones or antibiotics, with some disadvantages such as: high costs, the appearance of antibiotic residues in milk (which must be discarded affecting the milk yield) and the increased resistance of microorganisms to antibacterial drugs. Furthermore, they resolve the infection but not improve the fertility of the treated cows. Moreover, the FAO/OMS guidelines limit the application of these veterinary drugs in animals for the production of foods. For the cited reasons, there is a wide interest to apply alternative therapies. The main objective of our research is the design of a veterinarian probiotic (live microorganisms that, when administered in adequate amounts confer a health benefit on the animal) for the reestablishment of the indigenous microbiota of the bovine reproductive tract. In this way, these populations could promote the beneficial effects and prevent the income or colonization of potentially pathogenic microorganisms responsible of infections in uterus. Based on the species-specificity of the indigenous microbiota, the isolation and taxonomic identification of autochthonous microorganisms from healthy cow vagina was performed. Later, the characterization of their beneficial properties associated with the colonization ability (surface properties and adhesion) and inhibitory activity against bovine pathogens, allowed the selection those better strains as candidates for their inclusion in a veterinary product. Also, the physiological and technological properties were evaluated to predict the stability of the beneficial microorganisms in the pharmaceutical forms and in the animal tract conditions. The application of this probiotic in herds will improve their productivity, health status and welfare of animals and will allow advancing in the production of safe foods from animal origin.

C8.**INTRA-CITOPASMATIC SPERM INJECTION (ICSI) WITH EPIDIDYMAL SPERM FOR INFERTILITY TREATMENT OF PATIENTS WITH OBSTRUCTIVE AZOOSPERMIA***Ortega S, Martínez AR.**Instituto de Medicina Reproductiva, Mendoza. Argentina. E-mail: amartinez@imreproductiva.com*

Azoospermia is present in about 5% of childless couples. An obstruction in the male genital efferent tract as the cause of azoospermia occurs in nearly 30-40% of azoospermic males. Infertility by this condition can be treated with intracytoplasmic sperm injection (ICSI) using epididymal or testicular sperm.

The aim of this study was to evaluate the relative effectiveness of *in vitro* fertilization combined with ICSI for the treatment of infertile patients with obstructive azoospermia, compared to the ICSI results obtained in couples with tubal occlusion infertility.

The two groups analysed consisted of: Group A: a total of 31 cycles ($X 1.2 \pm 0.5$) of ICSI using epididymal sperm performed in 22 couples with obstructive azoospermia; Group B: 51 ICSI cycles ($X 1.1 \pm 0.5$) with ejaculated sperm in 41 couples with tubal factor infertility. The main outcomes measured were fertilization rates, implantation rates and clinical pregnancy.

Fertilization rates were 71.5% and 76.7% ($p=0.18$); implantation rates were 15.9% and 12.6% ($p=0.55$) and clinical pregnancy rates were 35.4% and 29.4% ($p=0.80$) for groups A and B respectively. None of the outcomes measured differed significantly.

We conclude that ICSI with epididymal spermatozoa for treatment of obstructive azoospermia infertile patients is as effective as ICSI with ejaculated sperm in tubal infertility.

C9.**METALS AND PLANTS: BETWEEN NUTRITION AND TOXICITY***Benavides MP, Pena LB, Azpilicueta CE, Gallego SM.**Cát Química Biológica Vegetal, FFyB, UBA. IQUIFIB-CONICET. E-mail sgallego@ffyb.uba.ar*

Metals represent an essential fraction of the elements required by plants to carry out their life cycle. However, an excess some of these metals in the soil or the presence of others considered as non-essential ones can be toxic for the plants. Metal toxicity is associated with the generation oxidative stress, evidenced by an increase in lipid and protein oxidation and modification of the antioxidant defence system. Although phytochelatin production is a mechanism involved in plant cell metal detoxification, their syntheses can decrease glutathione content, one of the main soluble antioxidants. Metals mediated protein oxidation can alter protein functionality. In this sense, inactivation of catalase (CAT) enzyme by protein oxidation was observed in sunflower plants treated with Cd and Cu. Interestingly, in this plant species, genes coding for CAT isoforms less sensible to oxidation were up-regulated. On the other hand, both Cd and Cu proved to alter proteasome system through oxidative modification of the 20S proteasome complex, which prevents accumulation of oxidative damaged proteins in the cell. Under severe Cd stress, sunflower proteasome activity is reduced and this results in accumulation of oxidized proteins. Although plant cell proteolysis is modified by the presence of metals, no correlation could be observed between proteolysis extent and metal toxicity. Data relating the oxidative status of the cell to plant growth will be presented and discussed.

C10.**GENETICS ANALYSIS OF THE EXTANT POPULATION OF ARGENTINA***Corach D^{1,2}**¹Servicio de Huellas Digitales Genéticas, Facultad de Farmacia y Bioquímica, UBA; ²CONICET. E-mail: shdg@ffyb.uba.ar*

The advent of molecular methodologies based on the study of DNA polymorphisms, with particular application in the human identification, extended the scope of human population's genetics. Traditionally, this area of genetics used diverse phenotypic characteristics like those associated to erythrocyte markers, blood groups, and other associated serum and plasmatic polymorphic proteins. Although the data obtained from such systems contributed as much to the knowledge of the Genetics of the human populations in Argentina, as at world-wide level, the use of non-coding genetic markers has contributed in great refining the knowledge of the populations. The necessity to create Reference Databases of diverse genetic systems used in identification has allowed generating a great amount of information that make possible to reinterpret the populations from the genetic point of view. The multiplicity of genetic systems employed in the forensic field has allowed investigate the possible genetic substructure of the Argentine population. Additionally, the inter-continental genetic contributions was investigated and quantities. Based on the gathered genetic information it became possible to re-interpret the historical process underlying the population build-up of Argentina.

C11.**MAPKS IN THE REGULATION OF GENIC EXPRESSION AND CELL EQUILIBRIUM***Caso OA.**IFIBYNE-CONICET, Laboratorio de Fisiología y Biología Molecular, DFBMC - FCEN, UBA. Argentina.*

Living cells respond to extracellular stimulus changing their metabolism, modifying their cytoskeleton and a repertory of expressed proteins (or genes). MAPKs and its signal transduction associated systems regulate gene expression control. The latter is fast and momentarily induced by growth factors in immediate early genes like c-fos or c-jun. We studied mechanisms used by MAPKs to phosphorylate proteins and to regulate its effects on gene promoters, occasionally through successive cascades.

The inclusion of exons in ARN transcript processing is also regulated by a reduced number of proteins that joins to specific RNA base sequences and in addition, becomes a signal target. Stability of mRNA, a third gene expression control process, is regulated similarly by phosphorylation of another group of proteins: AUBPs. Our results show that the same growth factor is able to turn on a gene promoter via transcription factors activated by early MAPK cascades, meanwhile late MAPKs can modulate AUBPs that control ARN transcript degradation, giving an interesting example of cellular homeostasis.

C12.**CLIMATE CHANGE IMPACTS ON NATURAL RESOURCES IN THE CORDILLERA DE LOS ANDES***Villalba R.**IANIGLA-CONICET, CC 330, (5500) Mendoza, Argentina. E-mail: ricardo@mendoza-conicet.gob.ar*

Present climate variability is modulated by a combination of natural and anthropogenic forcings. The Earth's mean temperature has increased between 0.6 and 0.7°C since the beginning of the 20th century. Vast regions of the planet have experienced prolonged droughts or catastrophic floods over the past century. These changes in temperature and in the spatial distribution of precipitation severely impacted natural ecosystems and socioeconomic activities worldwide. In this presentation, we review the major climate changes recorded during the past decades along the Andes and adjacent regions in Argentina and Chile. High-resolution paleoclimatic records from the Andes show substantial inter-centennial changes, however, they point out how unusual climate conditions during the 20th century have been in the context of the past centuries. There is clear evidence that glaciers in the Cordillera de los Andes are experiencing a marked retreat in response to warmer conditions, associated in some cases with negative trends in snowfall. Events of episodic tree mortality in relation to climate variations have been recognized for native forests growing in the Patagonian Andes. It is crucial to understand the effects of recent climate variations on both physical and biological systems to properly predict ecosystem responses to future climate changes.

C13.**STUDY OF A NEW ALTERNATIVE ANTIOXIDANT IN SOYBEAN PLANTS SUBJECTED TO ABIOTIC STRESS***Zilli C, Santa Cruz D, Caggiano E, Romanello M, Tomaro M, Balestrasse K.**Facultad de Farmacia y Bioquímica, UBA. Buenos Aires. E-mail: kbale@ffyb.uba.ar*

We have recently, demonstrated that the induction of heme oxygenase-1 (HO-1) plays a protective role for soybean plants against oxidative stress produced by cadmium and UV-B radiation. At this moment we propose to investigate if the enzyme has the same capacity against another type of abiotic stress, such as drought, for to demonstrate that heme oxygenase acts as an enzyme of plant antioxidant defense system under several different stress situations, as occur in mammalian tissues. To carry out this objective we propose to study, in leaf, root and nodule of soybean plants, the oxidative stress generation; the behavior of classical antioxidant system; the behavior of HO-1 activity and protein and gene expression; the effect of its reaction products and inhibitors on the oxidative stress parameters; the signaling mechanism that produce HO-1 induction and the immunohistochemistry localization of the enzyme in the different plant tissues. The results obtained let us undoubtedly demonstrate the involvement of HO-1 in the antioxidant defense system in plants. This finding will allow the increase in the knowledge of the defense mechanisms in interesting economic plants for our country, such as soybean, and against drought, an abiotic stress considered one of the most important factors limiting plant performance and yield worldwide.

C14.**HEAT SHOCK PROTEINS AND CANCER***Ciocca DR*, Cayado-Gutiérrez N.**Oncology Laboratory, IMBECU-CCT-CONICET. Casilla de Correo 855, Mendoza, Argentina.**E-mail: dciocca@mendoza-conicet.gov.ar*

In 1962 F. Ritossa was studying the giant polytene chromosome in larvae of *Drosophila melanogaster* and described for the first time a chromosome puff caused by a mild temperature rise. Latter it was found that this puff indicative of gene activity, specifically DNA and RNA synthesis, caused the induction of a group of proteins known as heat shock proteins (Hsps, given name due to the first stimulus). Today we now that the Hsps belong to a large family of proteins characterized by their molecular weights, having in common molecular chaperone abilities and cytoprotection. In cancer, the Hsps induced by cell stress (like hypoxia, acidosis) are overexpressed in a wide range of tumors, moreover the increased transcription of Hsps may be due to loss of p53 function and to higher expression of the proto-oncogenes Her2 and c-Myc. The Hsp family members play overlapping, essential roles in tumour growth both by promoting autonomous cell proliferation and by inhibiting death pathways; therefore they can be associated with a poor prognosis and resistance to therapy. Hsps can be targets for anticancer drugs. In addition, several of the Hsps have important roles in the immune response, they display an innate ability to function as biological adjuvants and to chaperone tumour antigens creating an opportunity for cancer immunotherapy.

C15.**CD4⁺ T CELL RESPONSE AGAINST A NON-TUMOR ANTIGEN IS UNAFFECTED IN MELANOMA BEARING MICE***Duarte de Souza AP, Borges T de J, Pillat MM, Bonorino C.**Departamento de Biología Celular e Molecular (FABIO) and Instituto de Pesquisas Biomédicas, PUCRS, Porto Alegre RS Brasil. E-mail: cbonorino@pucrs.br*

The tumor microenvironment is complex and creates an immunosuppressive network in order to tolerize tumor-specific immune responses, however little information is available regarding the response against non-tumor antigens in tumor bearing individuals. The goal of the present study was to evaluate if tumor burden could influence a CD4⁺ T cell response against a soluble protein, not expressed by the tumor, in the absence of *in vitro* stimulation. Using an experimental system in which we can compare CD4⁺ T cell responses to the Ea antigen when it is either expressed by B16F10 melanoma cells (B16EaRFP cells) or is an exogenous, non-tumor antigen (soluble EaRFP protein), in immunizations of B16F10 tumor bearing mice, we observed that the tumor can modulate the CD4⁺ T cell specific response to

the antigen when it is expressed by the tumor cells. TEa cells proliferated poorly and produced less IFN- γ in mice bearing B16F10 melanoma expressing Ea peptide, and tumor growth was impervious to this response. However, in mice bearing 7 day B16F10 tumors, not expressing the Ea antigen, priming of TEa cells was similar to what was observed in tumor-free mice, based on the total number of cells recovered and proliferation assessed by CFSE dilution after EaRFP immunization. We also investigated if tumor burden could influence recall responses of already differentiated effector cells. We immunized mice with EaRFP antigen and a few days later injected B16F10 cells, later challenging the mice with the non-tumor antigen. We found that the number of TEa cells producing IFN- γ in tumor bearing mice was not different compared to tumor-free mice. No differences in antigen presentation, assessed by YAc antibody staining, were verified in the draining lymph node of these two groups. Collectively, our data indicate that tumor burden does not affect immune responses to non-tumor antigens. These results have important implications in the design of anti-cancer therapy.

C16.

NOVEL STRATEGIES TO DEVELOP AN ANTITUMORAL THERAPY WITH VACCINES

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Immunotherapy is having an important role in anticancer therapy mainly due to the use of monoclonal antibodies. The development of vaccines is the new frontier, they can be classified as passive (or adaptive) implicating the administration of cells *ex vivo*, and active represented by vaccines directed to obtain a specific immune response against tumour-specific antigens (TSAs) and tumour-associated antigens (TAAs). The goal is to "teach" the patient's own immune system to specifically recognize and eliminate tumour cells. The strategies include: a) viral vectors, b) peptides, c) tumour/lysated cells, and d) based in DNA or RNA. We conducted a pilot study to produce an autologous therapeutic vaccine using hydroxyapatite (HA). This novel approach involved (1) the purification of part of the self-tumor antigens/adjuvants using column chromatography with HA, (2) the employ of HA to attract antigen-presenting cells (APCs) to the vaccination site, and (3) the use of HA as a vector to present *in vivo* the tumour antigens and adjuvants to the patient's APCs. The vaccine was prepared using and combining HA particles with at least 3 heat shock proteins. We have demonstrated the feasibility and safety of the vaccine, the toxicity was very low. A positive response was noted in certain patients activating the T-cell response. In conclusion, this therapeutic vaccine based on HA ceramic particles and self-antigens can be safely administered and is showing some encouraging clinical results in cancer patients.

C17.

CALCINEURIN DEPHOSPHORYLATES CALNEXIN AND INTERACTS WITH PERK TO RELIEVE ER STRESS

Bollo M.

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The accumulation of unfolded proteins into the Endoplasmic Reticulum (ER) activates a signal transduction cascade called Unfolding Protein Response (UPR), which attempts to restore homeostasis in the organelle. An immediate response is the attenuation of protein translation. Protein folding is optimal when luminal Ca²⁺ stores are full (Li and Camacho, 2004, *J. Cell Biology*, 164: 35). Cytosolic phosphorylation of calnexin (CLNX) controls Ca²⁺ uptake into the ER via the sarco-endoplasmic reticulum Ca²⁺-ATPase (SERCA) 2b (Roderick *et al.*, 2000, *J. Cell Biology*, 149: 1235). We demonstrate that CLNX is dephosphorylated by calcineurin A/B (CN-A/B), an heterotrimeric phosphatase, when cytosolic Ca²⁺ as well as CN levels are increased during ER stress. CN also associates with the (PKR)-like ER kinase (PERK), promoting PERK auto-phosphorylation and consequently increase phosphorylation level of eukaryotic initiation factor-2 alpha (eIF2-alpha), which further attenuates protein translation. This role is further supported by *in vivo* data showing that a knockdown of CN predisposes *Xenopus* oocytes to rapidly induce apoptotic signaling. Moreover, we report that the interaction of CN-A/B and PERK is significantly increased after 30 minutes of Oxygen and Glucose Deprivation (OGD) treatment in astrocytes. These cells express two CN-A isoforms, CN-Aalpha and CN-Abeta. Astrocytes deficient in CN-Abeta isoform exhibited constitutively active UPR. OGD treatment did not further increase cell death or eIF2alpha phosphorylation in CN-Abeta^{-/-} cells, but did so in both CN-Aalpha^{-/-} and wild-type controls. Our findings indicate a central role for CN in ER stress management and specifically during in ER stress induced by OGD in astrocytes. Notably, this new function of CN is neuroprotective, which could lead to novel therapeutic treatments for cerebral brain ischemia.

C18.

DIET AND CHOLESTEROL EFFECTS ON RABBIT SPERM PHYSIOLOGY

Fornés M, Saez Lancellotti T, Boarelli P, Cid Barria J, Cid Barria M.

LIAM – IHEM, CONICET-UNCuyo e IdeI - FCM, UDA. Mendoza.

Today the negative effects of high cholesterol intake by grease diets (GD) were extended to less classical tissues and cells, as male tracts and sperm cells. Moreover some papers include obesity as a negative factor in male infertility. Beside the tissues and cells damage the specific mechanisms involved are completely unknown. Interesting, Mediterranean diets containing olive oil are protective to the negative illness promote by hypercholesterolemia, as vascular related diseases. Our models included rabbits feed with: normal rabbits diets, normal diets plus grease (DG) and / or olive oil (OO) to mimic both type of diets. DG promotes an increment of serum and sperm membrane cholesterol. A decrease in acrosomal reaction and capacitation status was also detected. But OO supplementing diets back off these results. Our studies stimulate to consume OO to preserve vascular and sperm health. The knowledge of this healthy behavior by community would increase the consumption of OO and generate a positive effect (social, economic and regional).

C19.**ANGIOGENESIS IN THE OVARY: WHAT HAPPENS WHEN IT FAILS?***Parborell F.**Lab. Fisiología Ovárica- Instituto de Biología y Medicina Experimental (IByME) CONICET. Buenos Aires, Argentina.*

In the adult, the ovary is one of the few organs where development, maintenance and regression of blood vessels occur. While preantral follicles do not possess vasculature itself, as the antrum develops during folliculogenesis, thecal tissue acquires an external and internal capillary networks. It has been postulated that the development and growth of these capillaries would be controlled by angiogenic factors produced by granulosa and theca cells. These factors act together to stimulate vascular development in the ovary. Among these factors, we highlight the vascular endothelial growth factor (VEGF) and angiopoietins (ANGPTs).

The defects in ovarian angiogenesis may contribute to a variety of disorders such as anovulation and infertility, pregnancy loss, Ovarian Hyperstimulation Syndrome (OHSS) and Polycystic Ovary Syndrome (PCOS). One of the features from OHSS and PCOS patients is to possess high levels of VEGF in serum, peritoneal and follicular fluid.

Therefore, the study of biochemical and molecular mechanisms involved in the development of these disorders with an impaired angiogenesis will allow better management of those patients with reproductive endocrine disorders.

C20.**CHIA (*SALVIA HISPANICA* L.) DE CULTIVO MILENARIO A CULTIVO ACTUAL***Bueno M¹, Di Sapio O², Busilacchi H¹, Severin C^{3*}**¹Biología y ³Fisiología Vegetal, Facultad Cs. Agrarias, CC 14, (S2125ZAA) Zavalla. *CIUNR. Universidad Nacional de Rosario. ²Area Biología Vegetal, Fac. Cs. Bioquímicas y Farmacéuticas, Suipacha 531 (S2002LRK) Rosario. E-mail: mbueno@unr.edu.ar*

El género *Salvia* incluye unas 900 especies que se distribuyen en varias regiones del mundo. Las plantas pueden ser herbáceas o leñosas. *Salvia hispanica* L. conocida como “chía”, es una planta herbácea, anual, originaria de las áreas montañosas del oeste y centro de México. Para los Mayas era uno de los cultivos sagrados. A fines del siglo pasado resurgió el interés por la “chía”, ya que se la considera una buena fuente de fibra, proteínas y antioxidantes. Las flores son hermafroditas, purpúreas a blancas y aparecen en cimas terminales. Los frutos, habitualmente llamados “semillas”, contienen ácido linoleico y á-linolénico, representando la mayor fuente natural de ácidos grasos omega-6 y omega-3, importantes en la nutrición humana por reducir los riesgos de padecer enfermedades cardiovasculares. La comercialización de productos que la incluyen está creciendo rápidamente alrededor del mundo. Debido a que existe escasa información sobre esta especie, se realizaron estudios para determinar la calidad de las “semillas” comercializadas en la ciudad de Rosario (Santa Fe, Argentina) y paralelamente se plantea la posibilidad producir plantas élite.

C21.**TESTICULAR TOXICANTS***Bustos Obregón E.**Laboratory of Biology of Reproduction, ICBM, University of Chile, Medical School, Santiago-Chile.*

This review briefly considers the testicular damage elicited by environmental chemical pollution. It includes a short comment on environmental toxicology as an introduction to environmental chemical pollution, highlighting the importance of this current field of study and its impact on male reproductive health. Furthermore an experimental animal model addressing the effect of organophosphorated agropesticides as a testicular toxicant is presented. Moreover two relevant chemical contaminants and their effect on the testis, such as the classical case of lead and the rarely reported case of Boron on spermatogenesis, are considered. Additionally, the subject of biosentinel species and their relevance for the monitoring of pollution in aquatic and/or terrestrial ecosystems is considered. In conclusion, it should be stressed that environmental health is closely related to the reproductive health of all living beings.

1. EFFECT OF PHOTOPERIOD AND MELATONIN ADMINISTRATION ON FOLLICULOSTELLATE CELLS OF VISCACHA PITUITARY PARS DISTALIS

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Numerous reports have shown the effect of photoperiod and melatonin administration on the different hormone secreting cell types in the pituitary pars distalis. The viscacha (*Lagostomus maximus maximus*) is a rodent with photoperiod-dependent seasonal reproduction. The aim of this study was to examine the effect of photoperiod seasonal variations and melatonin administration on the folliculostellate cells (FSC) in pituitary pars distalis of adult male viscacha. Immunohistochemistry and image analysis were used to measure the percentage of S-100-positive area (total, cellular and colloidal) and the number of FSC. The S-100 protein was immunolocalized at intracellular (FSC) and extracellular (follicular colloid) levels. The morphometric parameters analyzed exhibited seasonal variations with highest values in the summer (long photoperiod) and lowest values in the winter (short photoperiod). The administration of melatonin provoked a significant decrease of immunostaining. Results suggest that the natural photoperiod, through melatonin, might be the most important environmental signal causing the decrease in FSC immunostaining observed in the winter. These findings agree with seasonal changes previously reported in endocrine cells and suggest that FSC may be involved in the paracrine regulation of the secretory activity of pituitary pars distalis through S-100 protein production.

2. PROXIMAL CHEMICAL COMPOSITION OF NEW REGIONAL VARIETIES OF AMARANTH

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The amaranths were relevant in the pre-colombian civilizations and were considered one of the staple foods, as important as maize and beans. At present, the grain has been reused for their excellent nutritional quality. The amaranths are dicotyledonous plants that performs C4 photosynthesis leading to high yield and wide adaptability to poor soils and to adverse climate. New regional varieties have been obtained, which increase the agronomic performance. To provide knowledge about the proximate chemical composition of seeds of *Amaranthus* H17a, *Amaranthus cruentus* var. *candil*, *Amaranthus hypochondriacus* var. *dorado* and *Amaranthus* ACRU-G6/17a (2009 crop), were made determinations of moisture, ash and total lipids according to AOAC, protein (N x 6.25) by Kjeldahl modified by Winkler and total carbohydrates by difference. Moisture values range from 8.61 to 10.50%; ash from 4.15 to 6.35%; total lipids from 10.32 to 13.78%; proteins from 18.76 to 25.99% and carbohydrate from 45.28 to 57.22%. The results indicate that these new varieties of amaranths have a chemical composition that is distinguished by its high content protein, lipid and mineral, emphasizing in this aspect to *Amaranthus* H17a.

3. ENVIRONMENTAL SIGNALS CONTROLLING PRODUCTION OF PROTEASE IN *VIBRIO CHOLERAE* NON-O1

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Vibrio cholerae non-O1 is the causative agent of sporadic outbreaks of watery diarrhea or inflammatory enterocolitis in humans. Produces an hemagglutinin/protease (Hap), which is an important colonization factor of the small intestine. The aim of this work was to study the effect of different environmental factors on the Hap production. Microorganism: *V. cholerae* non-O1. Culture medium (CM) g/l: proteose peptone 30, yeast extract 5, trypticase 5, glucose 2, pH 7.6. Overnight cultures grown in CM with agitation were diluted 1:1,000 in 100 ml of fresh CM in two 500-ml flasks and incubated at 37°C with shaking (120 rpm) and static conditions respectively, for a total period of 10 h. Growth was monitored by reading the optical density (OD) at 600 nm. The glucose remaining and protease activity (PA) with azocasein 0.5% were determined in culture supernatants.

Biomass (OD), PA (U/l) and glucose (g/l) obtained at the end of cultures with shaking were: 4.71, 340, 0, respectively, and without shaking were: 1.01, 9.5, 1.5, respectively. The striking difference observed in levels of Hap produced between both culture systems should be at least to three causes or combination of them: i) more biomass produced, ii) glucose repression, and iii) process in which bacteria monitor their cell-population density by measuring the concentration of small secreted signal molecules, called autoinducers, effect widely studied for other *Vibrio* species.

4. *NEPETA CATARIA* AQUEOUS EXTRACTS ACTIVITY AGAINST *HELICOBACTER PYLORI*

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Nepeta cataria L. (Lamiaceae) has been used for its carminative, antispasmodic, and sedative properties in folk medicine. *Helicobacter pylori* is a bacterial pathogen that persistently inhabit the human stomach, it induces inflammation of the gastric mucosa that may progress into peptic ulcer diseases or cancer. The aim of this work was to evaluate the bioactivity of *N. cataria* against *H. pylori*. To achieve more stable solids with improved technological properties for pharmaceutical use, spray-drying (SE) and lyophilization (LE) were applied to *N. cataria* aqueous extracts. SEs were obtained using a BÜCHI 290 Mini-spray Dryer. The reference strain of *H. pylori* (NCTC 11638) and two clinical isolate samples were used for this study. The minimum inhibitory concentration was assayed by agar dilution method, according to Clinical and Laboratory Standards Institute. The *in vitro* antibacterial activity of *N. cataria* extracts in the range of 25 to 100 mg/ml was assayed. AMX, (0.05 mg/ml) was used as positive control. After 72 h for incubation at 37°C under the microaerophilic condition, the inhibition zone was determined in diameter. The LEs (10% and 15%) were active and they inhibited *H. pylori* with a diameter average of 15-18 mm and 27-30 mm at concentration of 100 mg/ml, respectively. The SEs did not show antimicrobial activity in the investigated concentration. The lyophilized extract of *N. cataria* can inhibit the growth of *H. pylori* and can reduce the colonization of gastric mucosa.

5. ROSMARINIC ACID MONITORING IN MEDICINAL HERBS OF LAMIACEAE FAMILY BY CAPILLARY ELECTROPHORESIS

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Rosmarinic acid (RA) is an ester of caffeic acid and 3,4-dihydroxyphenyllactic acid and is a common constituent of the Lamiaceae family. Adstringent, antioxidative, antiinflammatory, antimutagen, antibacterial and antiviral activities were reported for RA. Therefore, its quantification may be a tool for the quality control assays of vegetal drugs because of its chemotaxonomic significance in the family. For this reason, a capillary electrophoresis (CE) method was developed for the RA monitoring in medicinal herbs commercialized in the local market belonging to Lamiaceae. The electrophoretic analysis was applied to the separation and simultaneous determination of RA in presence of related compounds. The analysis time was less than 12 minutes and RA was found in *Rosmarinus officinalis*, *Origanum vulgare*, *Salvia officinalis*, *Hyssopus officinalis*, *Lavandula officinalis*, *Ocimum basilicum* and *Mentha sp.* samples in several concentration levels. By the other hand, RA was not detected in *Thymus vulgaris* and *Marrubium vulgare* samples. The aim of this work is to propose a fast, accurate and reliable way for RA monitoring in drug herbs of Lamiaceae family by CE. Also, the present method represents a useful tool for the routine quality control of medicinal herbal drugs.

6. EFFECT OF TNFRP55 DEFICIENCY ON THE CIRCADIAN LOCOMOTOR ACTIVITY AND THE ESTROUS CYCLE IN MOUSE

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The master clock in the suprachiasmatic nucleus synchronizes peripheral clocks through diffusible signals and behavioural rest-activity cycles. However, such signals are not still completely elucidated. It is known that the TNF suppresses clock genes expression. Our objective was: to analyze the effect of *TNFRp55* deficiency on the clock-controlled rhythmic locomotor activity as well as on the day-night variation of the estrous cycle in C57BL/6 mice. Circadian locomotor activity was registered during 20 days using the Archon system. Analysis and characterization of the estrous cycles were performed on vaginal smears obtained during 12 days at ZT2 (9h) and ZT14 (21h). The data were analysed by Mann-Whitney test, significance $p < 0.05$. We observed nocturnal activity decreased and desynchronized in the *TNFRp55*^{-/-} mice. Estrous cycles last 6.0 ± 0.6 vs 5.15 ± 0.5 ($p < 0.03$) days in wild type and *TNFRp55*^{-/-} mice, respectively. TNF regulates the endogenous clock activity and the daily occurrence of the estrous cycle through its *TNFRp55* receptor.

7. POTENTIAL ROLE OF ANGIOTENSIN II AND NERVE GROWTH FACTOR IN NEURO2A CELL'S DIFFERENTIATION

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In addition to regulate blood pressure, Angiotensin II (Ang II) modulates cell growth by interacting with specific receptors, called AT₁ and AT₂. It has been shown that Ang II-induced Erk1/2 activation is essential for neurite outgrowth and cell migration in NG108-15 cells. Nerve Growth Factor (NGF) also modulates neurite outgrowth and induces differentiation of neurons, which prompted us to examine the possible crosstalk between NGF and Ang II receptors in regulating Erk1/2 phosphorylation and neurite outgrowth. To this end, Neuro2a cells, which express both AT₁ and AT₂ receptors as determined by RT-PCR and western blotting, were pretreated with the AT₁ antagonist Losartan (10^{-5} M) or with the AT₂ antagonist PD123319 (10^{-5} M) for 40 min before stimulation with NGF (100 ng/ml), or with Ang II (10^{-7} M) for 5 min. Cell lysates were prepared, proteins resolved by SDS-PAGE and western blots developed with anti-p-Erk 1/2 antibodies. As expected, NGF induces phosphorylation of Erk1/2 in a time dependent manner. Likewise, Ang II stimulation induces phosphorylation of Erk1/2, which is dependent on AT₂ receptor activation. Preliminary results also suggest that Ang II promotes Neuro2a differentiation. Currently, our efforts are focused in identifying the intracellular signaling pathways involved in this process, with special emphasis in those related to Ang II and NGF crosstalk.

8. ANTINUTRITIONAL FACTORS IN SOYBEAN

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The antinutritional factors (ANF) are compounds that limit the use of the diet nutrients, promote the loss of endogenous protein, produces pancreatic hypertrophy and the growth inhibition. In soybean the ANF of more activity are the Kunitz trypsin inhibitors that conforms a codominant allelic serie represented by Ti^a, Ti^b, Ti^c, ti. The ti recessive allele is the one that presents smaller activity of the inhibitor, and in the U.S.A Germplasm Collection, genotypes that they have it were found. With the objective of developing soybean germplasm with reduced quantity of ANF, in the 2007 in UNSL biparental crosses with germplasm carrying ti gene were performed. In 2009 was carried out the genetic analysis of the F₃ families to characterize the developed germplasm. Days to flowering (DF), days to maturity (DM), plant height (PH), pods number (PN) and grain yield (GY) were determined. The phenotypic, genotypic and environmental variances were estimated and the Heredability Coefficient (h²) was determined. For all the evaluated characters significant differences ($p < 0.05$) among the families were detected. The values of genetic variance were superior to those of environmental variance, for what high h² values were obtained: DF (0.79), DM (0.76), PH (0.25), PN (0.70) and GY (0.74). In F₄ we will carry out molecular markers assisted selection designed to detect the gene it and to identify the families with smaller quantity of ANF.

9. IMPROVEMENT OF THE NUTRITIONAL QUALITY OF THE SOYBEAN GRAIN FOR HUMAN CONSUMPTION

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The varieties of soybean have been mainly selected by its yield potential and due to the negative genetic correlation between yield and protein, they have low protein content. The Argentine germplasm has registered a decrease of 1.5 - 2% of protein content so it is necessary to improve genetically its content (minimum 40%), to satisfy the demanded quality by the food industries of special soybeans. With the objective of developing germplasm of soybean with high protein content and quality attributes, biparental crosses were carried out between progenitors with characters for human consumption: light hilum, high protein, big grain and not transgenic. In 2009, 54 families F₃ were evaluated in V. Mercedes (San Luis) and it was determined: number of days to flowering (NDF), number of days to maturity (NDM), plant height (PH), yield grain (GY) and number of pods (NP). The phenotypic variance and their components and also the heritability coefficient (h²) were estimated. The analysis of the variance detected significant differences (p<0.05) among the families for all the characters. The h² values obtained were: NDF (0.39), NDM (0.61), PH (0.59), NP (0.61) and GY (0.71). The genetic variability detected shows that genetic potential exists so that in advanced generations (F₄-F₅) you can evaluate the protein content and to design a selection index.

10. STUDIES OF VARIABLES FOR INCREASING THE QUALITY AND PERFORMANCE OF INULIN EXTRACTION

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Helianthus tuberosus is a plant containing polysaccharides within the tubers. The most industrially relevant is inulin, which is a polymer composed mainly of fructose units, and has a terminal glucose.

The inulin is an emerging product in the sweeteners market as prebiotic food additives.

The present work studies the influence of temperature, pH, time and solid: liquid ratio on inulin extraction from sunroot.

Tubers were cut into thin layers to increase the contact surface. The extraction was achieved by countercurrent diffusion using an antioxidant solution at 80°C for 1 h (pH = 4) to inhibit the polyphenol oxidases effects, process known as enzymatic oxidation. The inulin quantification for each sample was carried out by HPTLC using silica gel plates.

Assays with various solid: liquid ratios were conducted and 1:3 resulted in the maximum extraction.

The highest performance (73%) and quality (polymerization grade of 12%), were obtained by using a mixture of antioxidant agents (ascorbic and citric acid) in a 2:1 ratio.

Under these conditions was achieved a well extraction of inulin and the enzymatic activity was reduced.

11. MATERNAL TREATMENT WITH ENALAPRIL DELAYS ALVEOLARIZATION IN RAT LUNG DEVELOPMENT

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We investigated the potential role of angiotensin-converting enzyme (ACE) in lung development. Wistar rats were treated with enalapril (2.85 mg/kg day) delivered by subcutaneous osmotic minipumps during the last week of pregnancy (G13-G21). Pup's lungs at four different postnatal ages (PND0, PND8, PND15 and PND30) were evaluated by morphological, morphometric, and immunohistochemistry staining analysis. Enalapril treatment significantly affected pulmonary morphology in PND0 rats compared to control group. Terminal air sacs remained larger as consequence of retarded growth of secondary septal structures in enalapril-treated PND0 lungs. This effect seems to be reversible, since no significant differences were observed later in the development. Lung proliferation was evaluated using the proliferation marker PCNA (proliferating cell nuclear antigen). PCNA-immunopositive nuclei were lower in PND0 enalapril-treated lungs than in controls, suggesting a delayed alveolarization. In contrast, in PND15 enalapril-treated lungs PCNA-positive cells were maximal in coincidence with high α SMA (α -smooth muscle actin) staining of the tips of developing secondary septal structures, suggesting a reversible effect of ACE inhibition. These findings support the hypothesis of a functional Renin-Angiotensin-System required for normal alveolarization during lung development.

12. STRUCTURAL STUDIES OF TRYPANOSOMA CRUZI FIP-1 POLYADENYLATION FACTOR

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Chagas' disease is a potentially life-threatening illness caused by the protozoan parasite *Trypanosoma cruzi*. This disease affects 18 million people in Latin America. Available drugs are highly toxic and often ineffective, particularly those used to treat the chronic stage of the disease. The objective of our work is the resolution by X-ray crystallography of the three-dimensional structure of proteins, which are vital for *T. cruzi*. This information may provide new drug targets for the treatment of the disease. TcFIP-1 (factor interacting with Pap1) is involved in mRNA cleavage and polyadenylation. This process is essential for cell viability. A truncated protein of TcFIP-1 (TcFIP1t) including 1 to 139 aminoacids was cloned into pTrcHis-TOPO vector and expressed in *Escherichia coli* TOP 10 fused to an N-terminal His-tag. The gene expression was induced with IPTG and protein over-expression was optimized. Primary observations and *in silico* analysis suggest that both FIP-1 and FIP-1t would be IUPs (Intrinsically Unstructured Protein). An *in silico* three-dimensional TcFIP1 model was obtained using the MODELLER 9v7 software. This model was validated using the PROCHECK and ERRAT software.

13. EFFECTS OF HYPOTHYROIDISM ON OXIDATIVE STRESS IN HEART OF PREGNANT RATS

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Hypothyroidism is associated to alterations in physiological functioning of heart muscle. Various studies on the effects of thyroid status on heart oxidative stress have produced conflicting results. In this work we studied the effect of hypothyroidism on oxidative stress in ventricles of heart from pregnant rats. The hypothyroid state was induced by 6-n-propyl-2-thiouracil (100mg/g body wt) in drinking water given to female Wistar rats (150-180 g body wt) starting 8 days before mating until day 21 of pregnancy (HP group) or for 30 days in virgin rats (HV group). The mRNA expressions (by RT-PCR, using β -actin as internal control) and activities of NADPHoxidase (Nox2), superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPx) were measured in the heart. Also, TBARS (as MDA) and carbonyl groups content were determined. In HP rats, the hypothyroidism did not have an effect on all these parameters, while in HV rats the hypothyroidism increased carbonyl content and GPx activity ($p < 0.05$), compared with control. The pregnancy induced an increase of TBARS content ($p < 0.001$), SOD and CAT activities ($p < 0.001$) and mRNA levels of Nox2, CAT and SOD, and a decrease of carbonyl content, compared with virgin rats. In our experimental model the redox changes induced by pregnancy in the heart are not affected by the hypothyroidism.

14. HEMOLYSIN PRODUCTION IN RESPONSE TO CARBOHYDRATES BY *LISTERIA MONOCYTOGENES*

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Listeria monocytogenes is a Gram-positive bacteria frequently encountered in nature, mainly on plants and in soil. Cause severe systemic infections in human that include septicemia, meningitis, stillbirth and others. The goal of this work was to examine how carbohydrates can affect the listeriolysin O (LLO) production. *L. monocytogenes* CLIP 74902 was grown in brain heart infusion under aerobic conditions. Overnight cultures were diluted 1:25 in different Erlenmeyer flasks contained 100 ml of basal medium (g/l): proteose peptone 30, yeast extract 5, trypticase 5, pH 7.6, supplemented with (g/l): glucose 2; mannose 2; maltose 1; cellobiose 1. Cultures were grown at 37°C for 10 h, with shaking (80 rpm). Biomass was estimated by dry weight (DW) determinations at the end of cultures from samples centrifuged at 10,000 x g for 20 min. In the supernatants, remaining glucose was quantified by enzymatic method and hemolytic activity (HA) was determined spectrophotometrically at 540 nm using sheep erythrocytes. The results were expressed as percentage of hemolysis. All sugars were used by *L. monocytogenes*. The DW values obtained with glucose, mannose, maltose and cellobiose were (g/l): 1.4, 1.35, 1.31, 1.05, and HA (%): 62, 44, 32, 0. No residual glucose was detected. The cellobiose, a plant-derived carbohydrate, had a repressive effect on LLO synthesis. The ability of this pathogen to sense the environment and to switch on and off the appropriate genes to metabolize sugars may be keys to its survival.

15. SEASONAL VARIATIONS IN SEMINAL VESICLES OF VIS-CACHA (*LAGOSTOMUS MAXIMUS MAXIMUS*) MORPHOMETRIC AND IMMUNOHISTOCHEMICAL STUDY

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The seminal vesicles (SV) are annexes gland of the reproductive masculine system that morphofunctionally depends of the levels of circulating testosterone (T). The viscacha is a seasonal reproduction rodent, with maximal activity in summer and minimal in winter. The objective of the present work is to study seasonal variations in the reproductive cycle. SV of adult male viscachas were processed by optical microscopy. The androgen receptor (AR) was immunohistochemically identified by using the antibody AR (N-20): SC-816. Serum T concentration was measured by chemiluminescence. The morphometric study of epithelium height, fold height, luminal diameter and muscle layer are detailed in the table below. Moreover, percentages of immunomarked cells for AR and values of serum T are compared in this table.

	Activity	Regression	P
Epith. Height	16.95 ± 1.8	11.25 ± 0.36	<0.0001
Lum. Diameter	2220 - 1935	1050 - 1470	<0.0001
Layer muscle	160 ± 9.75	318 ± 6.9	<0.0001
Immuno. Cells	43.3 ± 2.5	80.21 ± 0.39	<0.0001
Testosterone	490.66 ± 40.76	127.66 ± 14.31	<0.001

According to the results presented, we conclude that during the active period the greater epithelial height would correspond to a state of maximum cellular activity. On the other hand, the variations observed in the immunostaining of AR would be associated with changes in serum T levels.

16. CONSTITUTIVE PRODUCTION OF *TRANS*-RESVERATROL VIA CALLUS INDUCTION FROM *VITIS VINIFERA* CELLS

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Grapevine (*Vitis* spp.) is one of the most important fruit crops cultivated worldwide. Its more relevant phytoalexins comprise a group of molecules belonging to the stilbene family such as *trans*-resveratrol (3,5,4'-trihydroxystilbene). Consequently, we undertook the production of *trans*-resveratrol using *Vitis vinifera* L. cell cultures in order to investigate its constitutive production. Explants from Red Globe vineyard plants were excised from leaves and stems prior to surface sterilization. The cuttings were placed on autoclaved solid MS medium containing growing regulators such as 0,5 ppm ANA; 1:0,1 ppm BAP/2,4-D; 4:4 ppm IBA/BAP; 2:0,1 ppm ANA/Kin; 1 ppm 2,4-D; and 2-3% sucrose concentrations. Cultures were incubated at 22 ± 2°C in the dark and were transferred every 4 weeks to fresh medium. Liquid medium was used for the production of secondary metabolites. The extracts for analysis were obtained from the growing medium by liquid-liquid partition with EtOAc. Samples were analyzed by GC prior to permethylation using (CH₃)₂SO₄. The composition of the MS medium supplemented with 1:0,1 ppm BAP/2,4-D and 2% of sucrose was found suitable for this aim. Indeed, grape cell suspension cultures synthesized detectable levels of *trans*-resveratrol. Results show an appropriate method for callus induction and culture maintenance with production of the stilbene resveratrol. We will searching for some elicitors that could yield a higher resveratrol accumulation than without induction.

17.

SUBCLONING OF HUMAN TOPOISOMERASA I IN *E. COLI*
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Human topoisomerase I (hTopo I) is a 91 kDa protein of 765 aa bearing three structural domains. The catalytic activity of the enzyme resides in both core and C-terminal domain containing the active Tyr 723. It has previously been described a yeast model for the study of eukaryotic Topo I. Therefore, in the present work we intended to develop an *E. coli* system for the expression of hTopo I. Sequences encoding the C-terminal active domains were obtained from the full length cDNA using the polymerase chain reaction and cloned into the pTrcHisTOPO expression vector. Recombinant vectors were transformed in *E. coli* BL21 (DE3) pLysS. Induction of protein expression with IPTG led consistently to the expression of truncated proteins, strongly suggesting that the enzyme was toxic for bacterial cells. In light of these results, other experimental approaches will be needed for obtaining recombinant hTopo I, such as periplasmic expression using exportation signals, or vectors based in T7 RNA polymerase in order to reduce basal expression.

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18.

ANTIBACTERIAL ACTIVITY OF EXTRACTS OBTAINED FROM *MULINUM SPINOSUM* AND *MULINUM ECHEGARAYII*

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Mulinum spinosum (Cav.) Pers and *Mulinum echeagarayii* Hieron (Apiaceae) are shrubs widely distributed in the Argentina Patagonian steppe. *M. echeagarayii* is argentinean endemic specie. *M. spinosum* is used in folk medicine as cholagogue for liver affections, and in the treatment of diabetes and intestinal diseases. Different extracts from each species were prepared using mixtures of ethyl acetate and n-hexane on flash chromatography. The aim of this study was to evaluate the antibacterial activity of *M. spinosum* and *M. echeagarayii* against methicillin resistant *Staphylococcus aureus* ATCC 43300, *Pseudomonas aeruginosa* ATCC 27853, *Listeria monocytogenes* ATCC 74902, *Klebsiella pneumoniae* and *Bacillus cereus*. The antibacterial activity was assayed *in vitro* using microwell dilution assay method. Suspensions of 10⁷ UFC/ml strains were used. Organic extracts were dissolved in DMSO and tested in a concentration ranging from 8 to 1 mg/mL. TTC was used as visual indicator of bacterial growth. After 24-hour incubation at 37°C, the antibacterial activity of the extracts was defined as absence of red in the wells. Extract *M. spinosum* at 10% ethyl acetate/n-hexane and *M. echeagarayii* n-hexano showed significant activities against *S. aureus* methicillin resistant at doses of 2 mg/mL. The other strains tested were not inhibited by these extracts. The results open a path for future studies of compounds of *M. spinosum* and *M. echeagarayii* for medical purposes.

19.

ANTIOXIDANT ACTIVITY OF *ZINNIA PERUVIANA* (L.) L. (ASTERACEAE)

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Plants are potential sources of natural antioxidants. In the present work we investigate the antioxidant activity of *Zinnia peruviana* (L.) L. (Asteraceae). *Z. peruviana* “chinita del campo” is a traditional argentinean herb. Antimalaric properties have been reported. Aerial parts of *Z. peruviana* were extracted with acetone at room temperature. Acetonic extract was subjected to “flash” chromatography. 13 fractions were separated. TLC autographic assay was performed. The radical scavenging activity was evaluated using DPPH assay. Experiments were carried out according to the method of Blois with a slight modification. Briefly, a 0.1 mM solution of DPPH radical solution in MeOH/H₂O (8:2) was prepared. Then 1 ml of this solution was mixed with sample solution (3 ml)(1mg/ml final conc.). Finally, after 30 min, the absorbance was measured at 517 nm. Tests were carried out in triplicate. The results showed antioxidant activity for fraction 10 (n-hexane-AcOEt, 50:50)(%DPPH=60,23±2,07). As Positive control were used Ascorbic Acid (%DPPH= 95,75 ± 2,01) and Caffeic Acid (%DPPH=95,25±1,61). DPPH radical scavenging activity was calculated by the equation: %DPPH radical scavenging=($\frac{A_{control} - A_{sample}}{A_{control}}$)x100. On the other hand preliminary phytochemical analysis was performed using TLC reagents. Different flavonoids were identified by NMR spectral data.

20.

DRUGS USED IN PREVALENT DISEASES DETECTED IN A PHARMACY IN THE CITY OF SAN LUIS

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In a pharmacy of San Luis city, the prevalent diseases recorded were hypertension (H) and gastritis (G), accounted for 13.20% and 6.54% of total diagnoses. Within the group of diseases of the circulatory system, H reached 78.63%, and G reached 35.17% in the group of diseases of the digestive system. Our objective was to analyze the drugs consumed with and without a prescription (P, NP) for them. An observational, transversal, retrospective, indication-prescription was made for two months. The drugs and diagnoses were classified according to ATC classification and ICD-10. Prescriptions (%): H: enalapril 16.5, bisoprolol 10.7, carvedilol 10.7, losartan 9.7, enalapril+hy-drochlorothiazide (HTZ) 6.8, losartan+HTZ 5.8, atenolol 3.9, lisinopril 3.9, amlodi-pine+benazepril 3.9. Fixed Dose Combinations (FDC) 26.21, FDC with HTZ 81.5. NP: 17.5, P: 82.5. G: omeprazole, 27.5, ranitidine 19.2, lansoprazole 17.7, pantoprazole 11.8, rabeprazole 5.9, aluminum hydroxide+associates 5.9. NP 29.4, P 70.6. Drugs that working on the system of angiotensin converting enzyme and beta-blockers were prescribed primarily in H. Addition, a large number of FDC primarily with thiazide diuretics were used. The drugs most used in G were the inhibitors of the proton pump and the H₂ antagonists. Self-medication was significant, implying potential health risks. The use of drugs “me too” was high, being that these do not provide any additional benefits, increases costs and risk/benefit ratio is not sufficiently known.

21. CHANGES IN THE FATTY ACYL CONTENT OF POLYMORPHONUCLEAR LEUKOCYTES BY HYPOTHYROIDISM

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The thyroid hormones are important regulators of lipid metabolism. Our goal was to determine if hypothyroidism in female Wistar rats (200 g) obtained by 0.1g/l propyl-2-thiouracil in drinking water for a month, affects the relative content of fatty acids of complex lipids from polymorphonuclear (PMN) leukocytes. Total lipids from PMN were extracted with chloroform-methanol (2:1) by Folch method and redissolved in n-hexane. The PMN fatty acid composition of complex lipids from was determined by capillary gas-liquid chromatography (c-GLC). The fatty-acyl methyl esters (FAMES) were prepared using a capillary column. Before injection into the c-GLC system, the FAMES were purified by HPTLC chromatography and patterns of the FAMES were identified by comparison of their relative retention times with standards running in parallel. Relative mass distribution of each analysis was calculated electronically by quantification of the peak areas. We observed a decreased amount of palmitic, stearic and arachidonic acids, and an increased content of miristic and linoleic acid. The unsaturation index increased in the HT group compared with controls. The hypothyroidism causes important changes in the relative content of fatty acids in complex lipids of PMN. These lipid alterations should alter the physiology of these cells and therefore modify the host defense mechanism.

22. EFFECTS OF MELATONIN ON THE EXPRESSION OF ANDROGEN RECEPTORS (AR) IN THE EPIDIDYMAL CORPUS OF VISCACHA (*LAGOSTOMUS MAX. MAX.*)

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The hormone melatonin, secreted by the pineal gland, modulates the reproductive activity in photoperiod-dependent animals. The epididymis, organ androgen-dependent, is site of maturation and storage of sperm. In our experimental model, viscacha, the adult male has an annual reproductive cycle with a period of maximal gonadal activity in summer-autumn and a period of minimal gonadal activity or regression in winter. The objective of this work was to evaluate the effects of exogenous melatonin on the expression of androgen receptors in the epididymal corpus. Animals captured during the period of maximal reproductive activity were divided in two groups: 1) experimental group (n=4) received two daily subcutaneous injections of melatonin (Sigma, 100µg/kg body weight in oil solution) at 09:00 h and 17:00 h for 9 weeks, and 2) control group (n=4) received only the diluent. Epididymides of adult male viscacha were removed and processed by optical microscopy. The ARs were immunohistochemically determined by using the antibody AR (N-20): SC-816. The results obtained in the experimental group shown a significant reduction of nuclear and cytoplasmic immunostaining of AR in epithelial cells in relation to the control group. In conclusion, these results suggest that the changes in the expression of AR in the epididymal corpus are due to the melatonin effects.

23. DETECTION OF SLIME PRODUCTION IN REGIONAL STRAINS OF *LISTERIA* SPP

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Biofilms can be defined as a community of microbes embedded in an organic polymer matrix, adhering to a surface. The food-borne pathogen *Listeria monocytogenes* is able to form biofilms in food processing environments. Since biofilms are generally more difficult to eradicate during clean-up procedures, they pose a major risk for the food industry. The aim of this study was to detect slime production in strains of *L. monocytogenes* (10), *L. ivanovii* (1), *L. welshimeri* (1) and *L. innocua* (1). Control strains *S. aureus* ATCC 35556 (slime-producing strain) and *S. epidermidis* ATCC 12228 (non slime-producing strain) were included. The slime production was tested using qualitative Congo red Agar (CRA) technique. Colonies grown 24 h in trypticase soy agar plates were streaked onto CRA plates, containing sucrose at 1% and 5%. The plates were incubated for 24h at 37°C and subsequently overnight at room temperature. Plates were inspected for the color of the colonies at 24 and 48 h. For colonies color evaluation, a four-color reference scale was used: black, bordeaux almost black as slime-producing strains, and bordeaux and red as non slime-producing strains. *L. monocytogenes* isolated from ice cream was slime positive by CRA technique showing black colonies and bordeaux almost black colonies in the ARC added with 1% and 5% sucrose respectively. Attachment of bacteria to the product contact surfaces or the food product leads to serious hygienic problems and economic losses due to food spoilage.

24. PHARMACOBOTANIC CHARACTERIZATION AND QUALITY CONTROL OF *ACHYROCLINE TOMENTOSA* AND *GNAPHALIUM CHEIRANTHIFOLIUM* (ASTERACEAE)

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Achyrocline tomentosa Rusby and *Gnaphalium cheiranthifolium* Lam. are two of the medicinal plants called "Marcelas", widely ranged in Southern South America, being used in popular and official medicine, even in the cosmetics industry and the manufacture of bitter beverages.

Pharmacobotanic and micrographic standard methods were applied. Voucher specimens are preserved in Herbarium UNSL.

Both species are used in ethnomedicine mainly for its digestive properties, such as simple drug or mixed with other herbs. Crude drug derives from natural populations. Species can be distinguished among themselves and other species of both genera by means of exomorphological characters, as well as anatomical and quantitative micrographic features. We describe for the first time both the stem anatomy of *A. tomentosa* and stem and leaf anatomy of *G. cheiranthifolium*, the macroscopic characteristics of the drug, the features of dissociated tissue, the relative share of both drugs on the market, and micrographic parameters of the two species, as a contribution both to pharmacobotanic characterization and quality control of these drugs.

25. CONSERVATIONAL STATUS, EXPLOITATION AND SUSTAINABILITY OF SOME ARGENTINEAN "MARCELAS" (ASTERACEAE : GNAPHALIEAE)

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South American medicinal plants called "marcelas" (*Achyrocline* spp., *Gnaphalium* spp.) are common in Argentina, but are subject to strong extractive pressure and drastic anthropogenic changes in their habitat, so they can all be considered somehow threatened. It has been identified major actual and potential risk factors acting on their populations, standing for extractive production of crude drug, the human modification of habitat, fluctuations and climate change and mismanagement of resources. Was determined for each species the conservation status according to the criteria of inclusion to local or regional level suggested by the IUCN.

Species	Category of threat	Inclusion criteria*
<i>Achyrocline satureioides</i>	NT-VU	A2(a)+(d); A2acd+3cd; A3(d)
<i>A. tomentosa</i>	VU	A4(a)+(c)+(d)
<i>A. alata</i>	NT-VU	A4(a)+(c)+(d)
<i>Gnaphalium cheiranthifolium</i>	LC-NT	-
<i>G. gaudichaudianum</i>	LC-NT	-

Ref.: LC=least concern; NT=near threatened; VU=vulnerable *Achyrocline satureioides* is more resistant to harvest and fire; *A. tomentosa* is more sensible and *A. alata* recover better in temperate zones. *Gnaphalium* spp. are less exploited, therefore less threatened. It is imperative to improve the conditions for sustainability of the exploitation, and introduce these species to industrial farming.

26. THE CHOLINERGIC AGENTS MODIFY THE LUTEAL REGRESSION AT THE FIRST DIESTROUS IN THE RAT

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Using the *ex vivo* coeliac ganglion-superior ovarian nerve-ovary (CG-SON-O) system, we have shown that the CG stimulation with cholinergic agents, modifies the secretion of ovarian steroids in rats at different stages of the reproductive life. The aim was to elucidate the effect of Acetylcholine (Ach), as cholinergic agonist, Atropine and Hexametonium, as muscarinic and nicotinic antagonist respectively in CG on the luteal regression at the first diestrus of estrous cycle. The system was incubated in Krebs Ringer-glucose at 37°C. The cholinergic agents (all in 10⁻⁶M concentration), were added in the CG compartment. Controls were not stimulated. Release of ovarian Progesterone (P) was measured by RIA at 15, 30, 60 and 120 min. At 120 min, ovarian mRNA expression of bax and bcl-2 (apoptosis regulators) were assessed by RT-PCR. ANOVA 1 followed by Tuckey test with a statistical significance of p<0.05 was used. The addition of Ach and Hexametonium in CG, decreased the release of ovarian P at all the time. Atropine decreased the P at 15', 30' y 60' and increased it at 120'. The three cholinergic agents tested increased the expression of bax and bcl-2 and decreased the ratio of bcl-2: bax respect to Control. The ganglion cholinergic stimulus in the first diestrus favours the apoptosis induction.

27. DNA RESTRICTION PROFILES OF SALMONELLA ENTERITIDIS STRAINS ISOLATED FROM CHICKEN IN SAN LUIS, ARGENTINA

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Pulsed field gel electrophoresis (PFGE) is a powerful tool applied to investigate the heterogeneity of the genomic restriction profiles of bacteria belonging to the same species and establish relations of epidemiological relevance. In the present work, this technique was used for subtyping of *Salmonella* Enteritidis strains isolated from 113 chicken intended for consumption in San Luis, Argentina. The preparation of chromosomal DNA of each strains in agarose plugs, digestion with *Xba*I, and electrophoresis of the resulting macrorestriction fragments were performed according to the PFGE protocol standardized by PulseNet (Centers for Disease Control and Prevention, CDC, USA). Electrophoresis was carried out using a CHEF-DR III system (BioRad) at 6 V/cm at 14°C for 20 h with the following pulse time: initial time 2.2 s and final time 63.8 s. The gel was stained with Gel Red (Biotium) and observed with a UV transilluminator. *Salmonella* Braenderup H9812 were used as DNA size standards. Identical DNA restriction patterns were observed for seven local *S. Enteritidis* strains. The similarity of DNA profiles of these strains suggested a common contamination source which might be located in the farm, the slaughterhouse or the retail store.

28. ANTIMICROBIAL ACTIVITY OF BACCHARIS SPECIES

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In Argentina folk medicine *Baccharis* species such as *B. articulata* (Lam.) Persoon, *B. trimera* (Less) DC, and *B. crispa* Sprengel are used due to its digestive, choleric, diuretic, anti-inflammatory, and antiseptic properties. The objective of the present study was to test the antimicrobial activity of both aqueous and ethanolic extracts. Microbiological assay: the minimum inhibitory concentration (MIC) of the extracts against *Staphylococcus aureus*, *Pseudomona aeruginosa*, *Listeria monocytogene* and *Klebsiella pneumoniae* was determined. Broth microdilution test using 96-well microplates was employed. In each well 95 µl Mueller Hinton broth, supplemented with 0.01% 2,3,5,-trifenylnitrazolium as visual indicator of bacterial growth, 5 µl of a suspension of 10⁷ UFC/ml strains and 100 µl serial dilution in base two (2500 to 156.25 µg/ml) of different extracts were added. Media, extract and strains controls were included. The test was performed in triplicate. The plates were incubated at 37°C 24 h, and read visually. The results showed antimicrobial activity of all extracts against *S. aureus* and *L. monocytogene*. The range of MIC values was 1250 to 2500 µg/ml. The ethanolic extracts were most active and any particular action against gramnegative bacteria was no observed. The antibacterial activity found can be attributed to flavonoids. Furthermore, flavonoids of these species could be considered the main responsible of their popular use for healing and treating wounds and microbial infections.

29. CAPILLARY ELECTROPHORESIS FOR GLUTATHIONE AND GLUTATHIONE DISULFIDE QUANTIFICATION TO MONITOR OXIDATIVE STRESS BY CADMIUM IN *GLYCINE MAX* LEAVES

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Antioxidant defense systems allow plants to develop a tolerance to contamination with cadmium (Cd). A rapid and accurate capillary electrophoresis (CE) method for the simultaneous determination of GSH and GSSG in *Glycine max* L. leaves was developed. The method was applied to monitor the oxidative stress after Cd adding. Soybean seeds were germinated under controlled conditions. On the 4th day were placed in hydroponic conditions, with Hoagland nutrient solution. On the 10th day were subjected to Cd poisoning (40 μ M) for 4, 6, 24, 72 h and 6 days. To obtain extracts, 250 mg of leaves were homogenized under ice-cold conditions in HCl 0.5M. Homogenates were centrifuged for 10 min and the supernatants were analyzed. A Beckman P/ACE MDQ instrument equipped with a DAD and P/ACE System MDQ Software was used. Linear relationships were obtained between corrected peak areas and concentrations of the analytes. Detection was performed at 214 and 198 nm GSH and GSSG were baseline separated in less than 6 min, the corresponding migration times were 4.97 and 5.41 min, respectively. Along the time curve GSH levels were higher than in the respective controls, while GSSG was always lower. GSSG content in the analyzed samples was low and GSH content was high. However, both compounds could be separated and quantified fast and accurately without interference. The increased levels of GSH showed that the antioxidant mechanisms in the plant are working, defending it, and presenting a level of tolerance to Cd stress.

30. LYSOZYME SEPARATION FROM EGG WHITE BY AFFINITY CROSS-FLOW FILTRATION

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The principle of the affinity filtration relies on the binding of the target protein to a macroligand by specific adsorption and the use of a membrane, which pore size is able to retain only the protein-macroligand complex and allows the passage of other proteins from the mixture. Affinity macroligand for protein purification was prepared from yeast cells modified by chemicals and the Cibacron blue F3GA ligand molecule immobilized to the cell wall by covalent bond. The amount of ligand immobilized to the wall cell was determined by spectrophotometric method. The affinity macroligand and the hen egg white homogenized and diluted were contained in a 2 L stirred bioreactor. A tubular inorganic membrane of 0.45 μ m pore size was coupled to bioreactor through a peristaltic pump. The filtrate was collected and the retentate was recirculated to the bioreactor until the achievement of the desired separation. The purity of Lysozyme was assayed by gel electrophoresis (SDS-PAGE). The maximum attachment of ligand on the wall cell was 224 μ mol g^{-1} . Preliminary experiments indicated that lysozyme was purified with high purity (more than 80%) from hen egg white. Cibacron Blue F3GA, shows affinity towards NAD^+ -dependent enzymes. This is due to the conformational and charge-distribution resemblance between the Cibacron blue and nucleotides.

31. ADSORPTION OF SERUM ALBUMINS TO IMMOBILIZED CIBACRON BLUE F3GA

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Dye-ligand molecules are known to bind several proteins through the so-called pseudo-biospecific adsorption. The objective of this work is to study the adsorption and selectivity of Cibacron blue F3GA dye with bovine (BSA) and human (HSA) serum albumin. Affinity macroligand from yeast cells modified by chemicals and with the dye-ligand molecule covalently coupled to the cell wall were prepared. The amount of ligand immobilized to the cell wall was determined by spectrophotometric method. Proteins adsorption from serum with Cibacron blue-macroligand was studied in batch-wise at 25°C. The effect of ionic strength on non-specific adsorption of the macroligand was studied. The purity of BSA and HSA was assayed by gel electrophoresis (SDS-PAGE). The maximum attachment of ligand on the cell wall was 224 μ mol g^{-1} . Results of adsorption from serum indicate that BSA and HSA were the main proteins adsorbed. Effect of ionic strength was significant to the BSA and HSA adsorption. Adsorption of other serum proteins on the dye-macroligand was negligible. The affinity macroligand is more effective with human serum than with bovine serum. The adsorption of albumins to the dye is attributed to the structural similarity of bilirubine with the ligand, thus, the ligand occupies the protein site for binding and transport of bilirubine.

32. PROGESTERONE PRODUCTION OF POLYCYSTIC OVARY IS ASSOCIATED TO CHANGES IN THE MACROPHAGE CYTOKINE EXPRESSIONS IN RAT

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We have showed that progesterone (P) release from rat polycystic ovary (PCO) is modified by secretions of spleen macrophages (M Φ). In this work we study if steroidogenic ability of M Φ secretions from PCO rats is associated to changes in the M Φ cytokine expressions. The PCO was induced in adult rats by a single i.m. injection of estradiol valerate, 2 mg/rat. After 2 months, the rats were sacrificed. M Φ (1×10^6 cells) from PCO and no-PCO (control) rats were cultured for 24 h in RPMI medium added with 10% of FBS. Those secretions were used to incubate PCO ovaries for 3 h in metabolic bath. Ovarian P release was measured by RIA and the mRNA levels of 3 β -hydroxy esteroide dehydrogenase (3 β -HSD) -enzyme of P synthesis- in ovary, by RT-PCR. In MF, the mRNA expression of interleukin (IL) 1 β , IL-6, TNF α and IL-10 were determined by RT-PCR, and nitrites (NO) release by Griess reaction. The PCO-MF secretions on PCO ovary increased the P release and 3 β -HSD mRNA in ovary, compared with C-MF secretions. PCO-MF showed a higher mRNA levels of IL-6 and TNF α ($p < 0.001$) and a lower mRNA expression of IL-1 β and anti-inflammatory IL-10 than C ($p < 0.01$). NO release from PCO-MF was increased compared with that of C-M Φ . The increase of pro-inflammatory cytokine expressions in PCO-M Φ is involved in the P production from PCO ovary.

33. EFFECT OF CASTRATION ON ANDROGEN RECEPTOR IN PITUITARY PARS DISTALIS OF ADULT MALE VISCACHAS

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Androgens are involved in numerous functions after binding to their intracellular receptors. It is well document that androgen receptors (AR) exist in the rodent pituitary. The aim of this work was to study the effect of castration on pituitary AR. Eight viscachas which were either intact or surgically castrated six weeks before were used. The pituitaries were processed for light microscopy. The ARs were immunostained by means of the primary antibody AR (N-20):SC816. The percentage of AR-positive cell (%AR-cells) was calculated in each region of PD. The ARs were distributed throughout the PD, in caudal end and dorsal region the immunostaining was more intense, and in the former the %AR-cells was significantly higher in relation to other regions. In castrated, a significant decrease ($p < 0.05$) of %AR-cells in ventral region and cephalic end was observed.

	Ventral region	Central region	Dorsal region	Cephalic end	Caudal end
Intact (n=4)	16.19 ±0.80	13.56 ±1.20	19.85 ±0.82	16.88 ±1.66	28.03 ±2.14
Castrated (n=4)	9.13 ±1.90*	12.41 ±3.13	16.27 ±2.82	10.36 ±0.78*	27.87 ±0.86

These results indicate that castration affects the %AR-cells in the pituitary PD of viscacha. Probably, the differences observed in the pituitary regions are related to blood irrigation and paracrine factors that regulate the activity of pituitary cells in each sector.

34. DETERMINATION OF FUNGAL COLONIZATION IN THE ORAL CAVITY OF COLLEGE STUDENTS

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In recent years it has been observed an increase in opportunistic fungal colonization in the oral cavity in immunocompetent patients (IC). In the bibliography, *Candida* is the genre mostly found, and some other opportunistic ones such as *Aspergillus*, *Rhizopus*, *Cryptococcus*, are less frequently found. In this study we determined the presence of fungi in the oral cavity of IC students, and its relationship with the concentration of secretory IgA in saliva. To this end, we collected 50 samples of oral cavity swabs, which underwent a direct examination and culture in Sabouraud dextrose agar with chloramphenicol. For its identification, CHROMagar Candida and API Candida (BioMerieux) were used. We obtained nine positive cultures (7 *Candida albicans* and 2 *Saccharomyces cerevisiae*), which represented 18% of the studied population. Throughout radial immunodiffusion (RID plates - PLATE), we determined the concentration of secretory IgA. No significant differences were found between the colonized and not colonized groups. The colonization rate found is below the one described in the bibliography (30 to 50%). However, these opportunistic fungi, cause transitory colonization with no clinical relevance in IC patients and its percentage can vary according to the studied population.

35. EFFECT OF STARVATION IN SUCRASE-ISOMALTASE EXPRESSION IN PASSER DOMESTICUS

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Starvation often affects animals in nature being gastrointestinal tract the first organ system that displays faster and dramatic changes to nutrient deprivation. To date, little is known about the effect of long starvation (phase III) on the digestive functions (i.e. enzyme expression) in small passerine birds. Our objective was to determine the effect of starvation in the expression (activity and mRNA abundance) of sucrase-isomaltase (SI). To test our goal, eight *Passer domesticus* were acclimated to laboratory conditions with water and food *ad libitum*, then four animals were fasted around 34 hs (phase III of starvation). The small intestines were removed and sectioned in three portions (proximal, medial and distal) and enterocytes were isolated for enzyme assays and total RNA extraction. The RT-PCR was achieved with a specific primer designed in our laboratory for SI gene of house sparrow using GAPDH as reference gene. We found a significant increase of the SI activity (~150% ANOVA $p < 0.001$) and V_{max} of the enzyme ($p < 0.02$) in fasted animals compared with controls; however there was not a significant increase in the mRNA of SI ($p > 0.55$). We concluded that it could be involved a post-transcriptional up-regulation of SI expression in long-term fasted passerine birds.

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36. OVARIAN PROGESTERONE IN RATS ON DIESTRUS 2 IS REGULATED BY VASOACTIVE INTESTINAL PEPTIDE AND SUBSTANCE P IN CELIAC GANGLION

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We have showed in Holtzman rat on Diestrus day 2 (D2) that stimulation of celiac ganglion (CG) with Vasoactive Intestinal Peptide) or Substance P (SP) in the ex vivo integrated system CG-superior ovarian nerve (SON)-ovary incubated with K-R buffer in a metabolic bath, increases the ovarian progesterone (P), which is reverted by addition of norepinephrine (NE), NE+VIP or NE+SP in CG. To study in the same system a possible mechanism involved in the P response, 50 ng/ml VIP or 50 ng/ml SP, with or without 10^{-6} M of NE, were added in CG. Samples from the ovarian cuvette were taken at 30, 60, 120 y 180 min of incubation to measure P (by RIA), and the ovaries after 180 min of incubation were used to measure the mRNA levels of nerve growth factor (NGF) and its trkA receptor, 3β -hydroxysteroid dehydrogenase (3β -HSD), IL-1 β , mPGES2, and GAPDH, as internal control (by RT-PCR). SP alone on CG caused an increase of the ovarian 3β -HSD, IL-1 β and mPGES2 RNAm levels ($p < 0.01$), while VIP alone on CG decreased the ovarian NGF and trkA mRNA ($p < 0.001$), compared with control. The gamma aminobutyric acid (GABA) A receptor antagonist bicuculline (20 μ M) added on ovary prevented the inhibitory effect of ganglionic NE on P. The results suggest that, at D2, VIP and SP in CG modulate the ovarian P by different mechanisms.

37. EFFECT OF EUPHORBIA SERPENS ON DIURESIS IN RATS

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Euphorbia serpens H. B. K. var. *Mycrophylla* J. Mueller (Euphorbiaceae) is known popularly as “cola de novia”, “leche de paloma” or “rompepiedras”. *E. serpens* has been used in folk medicine as diuretic. This study was designed to determine the diuretic activity of *E. serpens*. We employed Wistar rats of both sexes (200-250 g). The method described by Lipschitz *et al.* (1943) was followed. The treated rats received 5% and 10% infusions (*p.o.*) of the aerial parts of *E. serpens* or furosemide as standard drug (10 mg/kg, *p.o.*). The control group received only the NaCl isotonic solution (50 ml/kg, *p.o.*). Urinary volume was measured at 15 min intervals for 3 hours to determine urinary volumetric excretion (UVE). All values were expressed as the mean \pm SEM. Student's *t*-test was performed to evaluate the statistical differences between the control and the experimental samples for each time point. The lots treated with 10% infusion of *E. serpens* showed diuretic activity (between 45 and 60 min, $p < 0.01$ vs. control; 75 min, $p < 0.05$ vs. control). There was no effect with 5% infusion (NS vs. control). Saline solution vs. furosemide showed significant difference starting at 15 min ($p < 0.001$). The urine samples presented normal chemical parameters in all the cases. The data reported in this work indicate that the 10% infusion of *E. serpens* showed a moderate diuretic activity. This facts support the use in traditional medicine of *Euphorbia serpens*.

38. REPELLENT AND TOXIC PROPERTIES OF CAPPARIS ATAMISQUEA KUNTZE ON TRIBOLIUM CASTANEUM

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In continuous with our studies in bioactive natural products we investigate toxic and repellent properties of *Capparis atamisquea* Kuntze against *Tribolium castaneum* Herbst, a worldwide pest of stored grains. Four crude organic extracts (*n*-hexane, chloroform, acetone and methanol) and aromatic water of *C. atamisquea* “Matagusanó”, a traditional Argentine plant, were tested. Aerial parts were subjected to steam distillation and extracted with organic solvents. Preliminary phytochemical analysis was performed using TLC reagents. Repellent bioactivity was tested using a two-choice bioassay experiment. Acetone solutions were prepared at doses of 407 $\mu\text{g}/\text{cm}^2$. Controls were treated with solvent. Response Index (RI) was calculated. (RI=-100 indicate complete repellency and RI=+100 complete attraction). The results showed significant repellence properties for volatile compounds with RI=-70(30min); -76(1h); -80(1.30h); -86.6(2.30h). Crude organic extracts exhibited the same repellence effects that the control.

In addition toxic properties were investigated by topical application. Among the extracts tested only methanolic extract revealed insect growth regulator (IGR)-like properties caused morphological deformities in adults at doses of 1 μL (50 $\mu\text{g}/\mu\text{L}$). Methanolic extract could be a potential agent for integrated pest management (IPM).

39. STUDY OF ALLELOPATHIC EFFECTS ON HETEROTHECA SUBAXILLARIS

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In the last decade, the study of the allelopathic effects has derived into a source of new herbicides with different kinds of structures and modes of action. Allelopathy is characteristic of certain plants and allelopathic interactions are an important factor in determining species distribution and its abundance within plant communities.

In this work we evaluate the allelopathic activity of *H. subaxillaris* (Lam.) Britton & Rusby extracts as potential bioherbicides. The dried plant material was extracted successively with *n*-hexane, chloroform, and methanol. The *n*-hexane fraction was fractionated by CC using *n*-hexane (Fraction I), *n*-hexane: EtOAc (99:1) (Fraction II), and *n*-hexane: EtOAc (95:5) (Fraction III). We used a growth bioassay of roots, stems and leaves from lettuce (*Lactuca sativa* L.) to determine effects of extracts and chromatographic fractions. Extracts and chromatographic fractions were weighed and dissolved in acetone for introduction into 25 ml solution of hot agar in glass tubes. Agar layers were cooled and five lettuce seeds were placed in each tube. Length of the roots and stems of each seedling were measured using the program Image J. Interesting results were observed using *n*-hexane extract which reduced the long of the roots and stems. Fractions I and III were the most actives. Genotoxicity studies are being carried out to observe the mechanisms at DNA level.

40. MICROGRAPHIC ANALYSIS OF THYMOPHYLLA PENTACHAETA VAR. BELENIDIUM (ASTERAC.: TAGET.)

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Thymophylla pentachaeta var. *belenidium* is known under the vernacular name “perlilla”. It is used in popular medicine as an anti-inflammatory, a diuretic, and in the treatment of conjunctivitis. The present work was carried out with the aim of perform the botanical quality control of the commercialized products.

Fresh and preserved (formaldehyde: acetic acid: ethanol, FAA) wild samples were used for the studies of leaf epidermis and quantitative micrography. Diaphanization was made according to Dizeo technique. Measured parameters were: stomatal number (NE); stomatal index (IE), palisade ratio (RE), vein-islet number (NI) and veinlet-termination number (NT). Voucher specimens are preserved at Herbarium, Universidad Nacional de San Luis (acronym: UNSL). Mean values found were: NE upper surface (us) = 2.5 ± 0.52 ; IE (us) = $3.64 - 5.5$; NE lower surface (ls) = 4.83 ± 0.38 ; IE (ls) = $7.51 - 9.55$; RE = $3.09 - 4.15$; NI = 4.66 ± 0.77 and NT = 2.33 ± 0.77 . This study contributes to an effective quality control of the drug mainly when it presents finely crushed or reduced to powder.

41. ACUTE TOXICITY OF THE AQUEOUS EXTRACT OF *ARTEMISIA DOUGLASIANA* BESSER IN RODENTS

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Artemisia douglasiana Besser (*Ad*) popularly known as “matico” has been used in folk medicine as panacea for a great diversity of health problems, being necessary a toxicological evaluation to confirm its safety, according to therapeutic use. The aim of this work was to study the acute toxicity in mice and rats. All animals had free access to water and food throughout the experiment, except for 4 h before the administration and given increasing doses: 5, 50, 300 and 2000 mg/kg of lyophilized water infusion. The infusion was intraperitoneally administered to Rockland mice (25-30 g.), and orally to Wistar rats (200-250 g) at dose ranging from 5-2000 mg/kg. It was administered to five groups of 6 animals each (3 male and 3 female), one group served as control. They were then kept under observation up to 14 days after drug administration to find out the mortality if any or other toxic symptoms and to register body weight. The *Ad* infusion, at the dose of 2000 mg/kg killed all mice at 24 h; however, it showed any visible symptoms of toxicity at dose as 5, 50 and 300 mg/kg. The *Ad* infusion was found to be non-toxic in rats when administered orally in all doses: there were no signs on symptoms of restlessness, respiratory distress, diarrhea, convulsions, coma and did not induce change on the spontaneous activity. Relative wet weights of organs were not statically different. Mortality and other adverse effects occurred only in the mice receiving the highest dose of *Ad* infusion.

42. EPIDEMIOLOGY OF HEMOLYTIC SYNDROME AND CHARACTERIZATION OF STRAINS OF *ESCHERICHIA COLI* SHIGA TOXIN PRODUCING (STEC) IN SAN LUIS

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The typical endemic hemolytic syndrome (HUS) is a disease characterized by a prodromal period of bloody diarrhea. STEC has been recognized as a causative agent of post-enteric diarrhoea. The aim of this work was to describe the epidemiology of HUS, to determine the rate of incidence and mortality compared with the national average, and to establish the association between STEC and HUS in San Luis city. We analyzed the medical reports of patients who met clinical and laboratory criteria of HUS admitted to our hospital, period 2007-July 2010. Blood, stool and serum samples were obtained from all patients. Stool and serum samples were referred to Malbran Institute for molecular characterization of virulence factors and detection of shiga toxin antibodies (stx). 15 patients were admitted to the Hospital with a diagnosis of HUS during the studied period. The incidence in 2009 was 6.7/100.000 children under 5 years old. Fatality rate for HUS was 6,5% (1 patient died). STEC was isolated in 6 patients (40%), 2 STEC O145, and 4 STEC O157:H7. Free stx was detected in stool samples in 3 patients and none of them showed evidence of antibodies stx. HUS is a disease of high incidence and mortality in our city. To determine the etiologic agent and its virulence factors is vital to establish an early treatment, and to study their contacts and sources of infection to prevent new cases and outbreaks.

43. INSECTICIDAL ACTIVITY OF ESSENTIAL OILS ISOLATED FROM PLANTS OF THE CUYO REGION ON THE MAIN VECTOR OF CHAGAS DISEASE

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The chemical control of *Triatoma infestans* Klug., the main vector of Chagas disease in Argentina, started in the last century. The application of pyrethroids began in the 1980s. These insecticides represent the current alternative of chemical control to vectors of the Chagas disease, but, their use developed resistance. New types of selective insect-control alternatives are necessary. As part of a program directed to study the plant essential oil and its interactions with different types of insects, we have studied the essential oils from *Baccharis salicifolia* Ruiz & Pavon, *Eupatorium buniifolium* Hook. et Arn and *Fluorensia oolepis* Blake, species (Asteraceae). The oils were analyzed using GC-MS techniques. We determined the toxic properties of the whole essential oils toward *T. infestans* nymphs and adults. Test solutions (0.5, 1.0, 2.0, 5.0 µg/ul) were topically applied to the ventral thoracic segments with a micro syringe (2 µl/larvae). The mortality was recorded daily along the three days for each experiment. Percentage of insect's mortality was corrected (Abbott formula). Contact toxicity assays showed that all the evaluated essential oils were toxic and dose dependent. The *B. salicifolia* essential oil caused the main deleterious effect after 24 h of treatment against both nymphs and adults. The results suggest that this essential oil would be considered as a potential alternative to control the main vector of the Chagas disease.

44. INFLAMMATORY RESPONSE IN LUNG OF WILD TYPE AND IL-12P40 KNOCKOUT MICE AFTER ORAL *YERSINIA ENTEROCOLITICA* O:3 INFECTION

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Yersinia enterocolitica is a Gram-negative bacterium that affects both humans and rodents. This pathogen can spread in systemic way causing injury in liver, spleen and lung. IL-12 plays a principal role in the protective immune response. The purpose of this work was to determine if IL-12p40 deficiency would contribute with the lung injury due to weak and inappropriate immune response. C57BL/6 (WT) and C57BL/6 IL-12p40^{-/-} (KO) mice were orogastrically infected with 2x10⁷- 2x10⁸ colony-forming units (CFU) of *Y. enterocolitica* O:3. Mice were sacrificed at day 14 postinfection. Uninfected mice were used as control. RT-PCR was performed from lung tissue and the mRNA expression of TLR-2, TLR-4, I-CAM, IFN-γ, TNF-α genes were measured. Histological changes in lung were also analyzed. We observed increased expression of TLR-2 ($p < 0.05$), and I-CAM ($p < 0.05$) in KO compared with WT mice and TLR-4 and IFN-γ increased but not significantly in KO; but TNF-α don't change. Histopathological change reflected this situation. These results suggest that increased expression of TLR-2 and TLR-4 could lead at KO group to an exacerbated inflammatory response that in addition with increased I-CAM, which participates in lymphocytes rolling to the infection site, contribute with the increased cellular infiltration. Therefore, IL-12p40 contributes in protection against lung injury.

45. INFLUENCE OF GLUCOSE CONCENTRATION IN CLOSTRIDIUM PERFRINGES BIOFILMS

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Clostridium perfringens causes food poisoning in both humans and animals. Biofilms are defined as microorganisms that grow in communities attached to an inert or living tissue surface. The capacity of *C. perfringens* to form biofilms could be a potential problem for human and animal health because it is known that bacteria within biofilm increase resistance to a variety of stress. The aim of this work was to study the capacity of enterotoxigenic (E) and non-enterotoxigenic (NE) *C. perfringens* strains isolated in San Luis, Argentina, to form biofilm. The E and NE strains were incubated in an optimized clostridia medium (OCM) at different glucose concentrations (0%, 0.1%, 0.5%, 1%) under anaerobic conditions and 37°C during 7 days. The distribution between sessile (biofilm) and planktonic (free-floating) cells was determined by reading the A 570 nm of the methanol-extracted dye, and the OD580 of the culture supernatants was measured in a plate reader. Higher ratio values (A570/OD580) were obtained at glucose concentrations of 0 and 0.1% than at 0.5 and 1% for both strains after 72 h of incubation. All ratio values A570/OD580 diminished at 7 days, meaning growth of planktonic cells increases with time. E strains showed morphological changes from bacillar to coccoid forms in biofilm without glucose at 7 days. *C. perfringens* increased its capacity to form biofilm without or with low glucose while E strains expressed resistance forms.

46. PREPARATION OF TRYPANOSOMA CRUZI BROMODOMAIN PROTEINS FOR PRELIMINARY STRUCTURAL STUDIES

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Chagas' disease, caused by the parasite *Trypanosoma cruzi*, is a serious disease affecting several million people in South and Central America. The available treatments, to date, have serious drawbacks. *Trypanosoma cruzi* bromodomain proteins are potential protein targets for drug design because they have particular characteristics in terms of their location and function. The bromodomain proteins have a conserved structural domain of about 110 residues. The bromodomains are generally involved in protein-protein interactions and they bind specifically to an acetylated lysine usually found in histone N-terminal tails and acetylated non-histone proteins. In this work we have carried out the over-expression, solubilization, purification and preliminary structural studies of parasite bromodomain proteins TcBDF1 and TcBDF3. They have been over-expressed in *E. coli* as an N-terminal fusion His-tag, solubilized and purified by Ni-Sepharose affinity chromatography. The TcBDF1 has been solubilized with SDS 0.5% and purification was performed. To assess structural features of the TcBDF3 we have used limited proteolysis with trypsin and Urea-PAGE.

47. PHYLOGENETIC AND BIOCHEMICAL STUDY OF RIBOSOME INACTIVATING PROTEINS

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Ribosome-inactivating proteins (RIPs) inhibit eukaryotic protein synthesis by depurinating a conserved adenine on the sarcin-ricin loop (SRL). RIPs are classified as type 1 and 2, according to the presence or the absence, respectively, of a lectin chain which mediates toxin cell entry. Despite its well-conserved mechanism of action RIPs have variable activity on non-mammalian ribosomes, which should be related to differential interaction with ribosomal proteins. In this work we perform a phylogenetic analysis of RIP genes and correlate this evolutionary information with the biochemical and structural features of RIPs. We show that RIPs inactive against prokaryotic ribosomes are grouped in a separate cluster. This analysis predicted that *Mirabilis expansa* RIP should be active against *E. coli* particles (in contrast with previous reports) and therefore experimentally confirmed this prediction. *In silico* searches led us to identify atypical, catalytically inactive, type 2 RIPs in monocot species distantly related to previously described monocot type 2 RIPs and phylogenetically closer to ricin. The A-chain of one of these RIPs was cloned, expressed in *E. coli* and characterized. Finally, we correlated the phylogeny of different RIPs with their ability to interact with the ribosomal stalk. In light of these results, we propose that several RIPs during evolution acquired independently the ability to interact with the stalk components, being a case of convergent evolution. Our phylogenetic analysis also allowed us to infer the fusion and deletion events of lectin domain during RIPs evolution.

48. EFFECT OF CADMIUM ON STRESS OXIDATIVE PARAMETERS IN SMALL INTESTINE

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Cadmium (Cd) induces oxidative damage in cells. Previous results obtained in our laboratory showed a decrease in the expression of catalase (CAT) in small intestine (SI) of rats treated with Cd via oral. The objective of this work was to determine if Cd modifies the stress oxidative parameters and affects the antioxidant capacity in SI. Wistar male rats (180g) were treated with Cd (15 ppm) in tap water during 2 months. Cd content was measured for ICP-AES. The oxidation degree was determined as thiobarbituric acid reactive species (TBAR's) (Buege and Aust, 1978) and protein carbonyl contents (Levine, 1990). CAT, (Aebi, 1984), Glutathione peroxidase (GPx) (Flohé and Günzler, 1984) and Glutathione Reductase (GR) (Schäedle and Bassham, 1977) activities and metallothionein (MT) (Scheumhammer and Cherian, 1991) content were analysed as a measure of the antioxidant capacity. Cd, TBAR's and MT showed an increase, whereas GR showed a decrease in SI respect to the control ($p < 0.05$). CAT and GPx activities and protein carbonyl content did not change. These results indicate that Cd produces lipoperoxidation, but not protein oxidation, in SI. The antioxidant parameters respond in different manner to the Cd exposition.

49.

EVALUATION OF FUNGICIDES TO CONTROL SOYBEAN END CYCLE DISEASE (ECD) IN VILLA MERCEDES, SAN LUIS. I-SEVERITY AND YIELD

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The end cycle diseases (ECD) produce a significant loss in soybean. In order to evaluate the effect of mixtures of commercial fungicides, a trial was conducted in a CRD with four treatments: 1 – Pyraclostrobin + Epoxyconazole (Opera), 2 – Pycoxistrobin + Ciproconazole (Stinger), 3 – Axosystrobin + Ciproxonazole (Amistar Xtra) and 4 – Witness and four replications, applied at R3 in Villa Mercedes, San Luis. Performance was measured as yield and disease severity, ten and twenty days after application. The epidemics were compared by the final intensity parameter, being in the treatments 2 and 3 higher yields and lower severity of the disease. The application of mixture at R3 of Pycoxistrobin + Ciproconazole (Stinger) and Axosystrobin + Ciproxonazole (Amistar Xtra) reduced significantly the severity of the ECD and obtain significantly higher yields.

50.

INVESTIGATION OF *SALMONELLA* SPP FROM MEAT PRODUCTS IN SAN LUIS, ARGENTINA

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Gastroenteritis caused by *Salmonella* is related to the consumption of raw foods, foods not cooked thoroughly, or cross-contaminated foods. The prevalence of *Salmonella* spp in pork meat and chicken giblets commercialized in San Luis city, was investigated. A total of 74 samples were collected from supermarkets, poultry farm and wild animals, and analyzed for *Salmonella* species using standard bacteriological procedures. The samples were homogenized in buffered peptone water and lactose broth and incubated at 35°C during 24 h for *Salmonella* enrichment. Subcultures were done in Tetrathionate and Rappaport-Vassiliadis broths at 35° y 42°C for 24 h, and subsequently isolated on Salmonella Shigella agar (SS) at 35°C for 24 - 48 h. Twelve *Salmonellas* spp strains were isolated. These strains were characterized by conventional biochemical tests and serological assays using polyvalent OS-A and OS-B antisera, and submitted to National Institute of Infectious Diseases "Dr Carlos G. Malbrán", Buenos Aires, for definitive serotyping. Our findings reinforce the importance of thorough cooking of foods and good hygienic practices during food manipulations. They are recommended as preventive rules to avoid infections by this microorganism.

51.

CLINIC CASE PRESENTATION: NORWEGIAN SCABIES

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Norwegian scabies, also named crusted scabies, it was first described from norwegian patients having Hansen illness. It is characterized by appearance of white or grey, often fissured crusted plaques that causes itching of variable intensity. The plaques may have a diffuse distribution or affect certain areas of the skin integument. It occurs mainly in immunosuppressed patients, patients with HIV, transplanted patients, and patients with mental disease. While common scabies and norwegian scabies are caused by the same mite, *Sarcoptes scabiei*, the difference is that norwegian scabies lesions have a large numbers of mites and is highly contagious. The purpose of this work is to document the detection of a norwegian scabies case in a HIV patient. He is a 31 years old male, admitted in the Medical Clinic of San Luis Hospital in a very bad clinical condition. Clinical examination revealed a weight loss of 20 kg and generalized skin itching lesions. We made a scraping of the crusted lesions. The samples were clear with potassium hydroxide 20% and then observed under microscope, in order to visualize the presence of mites. The patient's treatment was performed with oral Ivermectin. It is important to reach the clinical diagnosis from the observation of lesions in the patient, because many times the disease courses without itching. Confirmation of the diagnosis is made by observation of the mites in scraping of the lesions. The patient outcome was favorable to the treatment.

52.

AMARANTHUS HYPOCHONDRIACUS EFFECT ON GENE EXPRESSION IN THE METABOLISM OF TRIGLYCERIDES IN RATS INTOXICATED WITH ETHANOL

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Glycerol-3-phosphate-acyl transferase (GPAT) and diacylglycerol-acyl transferase (DGAT) are the main enzymes involved in the synthesis of triglycerides. The aim of this study was to evaluate the possible protective role of the seed of *Amaranthus hypochondriacus* (Ah) on gene expression of these enzymes in Wistar male rats treated with ethanol. The animals were divided into four groups of six subjects each. For 4 weeks were fed AIN-93M diets using different protein sources: CAH (Ah control) and CC (casein control) and to 20% ethanol in drinking water in three groups: EAH (ethanol Ah) and Ec (ethanol casein). GPAT and DGAT transcripts obtained from liver were estimated by RT-PCR, using specific primers. EAH group have lower expression of GPAT and DGAT genes than EC group (p <0.01). Furthermore each group compared to EC group there is a trend to decreased hepatic triglyceride content. The low expression of GPAT and DGAT mRNA suggest that ingestion of ethanol and Ah as protein source, would indicate a lower triglyceride synthesis in the liver parenchyma.

53. NITRATE AND MINERAL CONTENTS IN *AMARANTHUS HYPOCHONDRIACUS* VAR. *ANTORCHA* AND *AMARANTHUS CRUENTUS* VAR. *CANDIL*

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Amaranth is a good alternative of crop in the region due to its adaptation to climatic and edaphic conditions. It has been incorporated into the Argentine Food Code in 1990 due to its high nutritional value. The development of new varieties of amaranth led to the study of inorganic components with potential toxicological activity. The samples studied were: seed meal of *Amaranthus hypochondriacus* var. *antorcha* (Aha) and *Amaranthus cruentus* var. *candil* (Acc). Nitrate content was determined by colorimetric method of Cataldo DA *et al.* and toxic elements (As, Cd, Cr, Hg and Pb) were quantified using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP OES). The nitrate values expressed in mg/kg were 1006.68 ± 100.26 (Aha) and 1077.57 ± 80.21 (Acc). With respect to the concentrations of toxic elements, both Cd and Hg were not detected in any of the varieties studied, while the values of Pb and Cr were 6.20 and $1.82 \mu\text{g g}^{-1}$ (Acc); 5.56 and $1.52 \mu\text{g g}^{-1}$ (Aha), respectively. According to the results we can conclude that these varieties have high nitrate tenors considering that they exceed the acceptable daily intake ($0-3.7 \mu\text{g/kg}$ body weight), while concentrations of Pb and Cr are in an permitted range, according to WHO recommendations.

54. COMPARATIVE PHYSICO-CHEMICAL PARAMETERS OF INFUSIONS (“MATE”) OF TWO SPECIES OF *ILEX* (AQUIFOLIACEAE) IN THE ARGENTINEAN MARKET

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“Yerba mate” consists of dried (“sapecado”, “canchado”), crushed and stationed leaves and shoots of *Ilex paraguariensis* St.-Hil. Another lower xanthine content species, *Ilex dumosa* Reissek, “yerba señorita”, it has recently been incorporated into the market. It compares some physico-chemical parameters of both infusions (“mate”). Material was ground and sifted, simulating the traditional priming of mate (“cebadura”) using a separatory funnel with a filter paper and vacuum connection, with 50g of sample and 500mL of distilled water at 84°C in 10 treatments of 50mL each for 1 minute. Five replicates were made, quantifying in each priming the aqueous and dry extracts, caffeine and chlorogenic acids (by HPLC), ashes and Na, K, Ca, Mg, Fe, Mn, Cu and Zn (by ICP).

Species	Liquid extract	Dry extract	Caffeine	Chlorogenic acids					
<i>I. paraguariensis</i>	399	14,536	355.1	5,545					
<i>I. dumosa</i>	406	12,243	67.9	2,103					
Species	Ashes	Na	K	Ca	Mg	Fe	Mn	Cu	Zn
<i>I. paraguariensis</i>	1,631	2.9	760	7.5	131	1.1	13.9	0.26	1.5
<i>I. dumosa</i>	1,294	1.7	357	37.4	109	1.8	12.8	0.24	9.3

The extraction profiles were similar in both species, but *I. dumosa* contained 5 times less caffeine and significantly lower amounts of Na, K and Mg, although provides greater amounts of Ca and Zn.

55. EFFECT OF A FRACTION OBTAINED FROM *LARREA DIVARICATA* ON DECTIN-1 RECEPTOR IN *CANDIDA ALBICANS* INFECTION MODEL

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Larrea divaricata is a shrub with several applications in argentinean folk medicine. The aim of this work was to test the role of β -glucan receptor (dectin-1) on macrophage (M ϕ) of mice infected with *C. albicans* and treated with a fraction obtained from *L. divaricata* (F1). Healthy and infected mice were treated with: a) PBS; b) F1; c) antibody against dectin-1(15Y9); d) F1+15Y9. The 15Y9 was administered during 4 days before infection. Treatment with F1 was started 24 h after infection and extended during 3 days. M ϕ were harvested and, liver, spleen and kidney were removed and homogenated for CFU counts. Phagocytosis activity, superoxide production by NBT test, viability by MTT test and CR3 expression on M ϕ were performed. Results show that 15Y9 increases phagocytosis in all groups ($p < 0.05$). A slight decrease on phagocytosis and NBT test was observed compared to controls ($p < 0.05$) when M ϕ were treated with F1+15Y9. F1 increases viability ($p < 0.01$), but when dectin-1 is blocked, this viability decreases. M ϕ from mice treated with F1 increases the expression of CR3, but the highest expression was observed on infected mice treated with F1+15Y9. CFU count shows that mice treated with F1+15Y9 were able to resolve the infection. In conclusion, F1 could act mainly through dectin-1, and secondarily through other receptors such as CR3 to eliminate infection.

56. *LARREA DIVARICATA* CAV. ENHANCES THE INNATE IMMUNE RESPONSE DURING THE SYSTEMIC INFECTION BY *CANDIDA ALBICANS*

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Larrea divaricata is a plant with several applications in argentinean folk medicine. The aim of this work was to evaluate the response of murine macrophages (M ϕ) when were infected with *Candida albicans* and treated with a fraction obtained from *L. divaricata* (F1). Healthy and infected mice were used. Treatments during 3 days with PBS or F1 administered once a day. Treatments started 24h after infection. Fifteen days after infection, M ϕ were harvested and the following tests were performed: phagocytosis, superoxide production by NBT test, nitric oxide (NO) levels, cytosolic proteins, viability by MTT test and apoptosis by ladder assay. Results show a significant increase of the phagocytosis when F1 was used ($p < 0.01$). Treatment with F1 increases superoxide anion production both, with and without zimosan ($p < 0.05$). The cytosolic proteins also show an increase with F1. Cell viability shows a significant increase when infected mice were treated with F1 ($p < 0.05$). Apoptosis was observed in all the tested groups. No variations on NO level were observed. Based on these results we conclude that M ϕ still remain activated 15 days after infection by *C. albicans* and that F1 could be an excellent enhancing treatment of innate immune system in immunosuppressed patients.

57. EVALUATION OF ANTIBACTERIAL ACTIVITY OF *BERBERIS RUSCIFOLIA*

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The aim of this work was investigate the antibacterial activity of *Berberis ruscifolia* Lam. var. *ruscifolia* against methicillin resistant *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Listeria monocytogenes*, *Klebsiella* sp and *Bacillus cereus*.

B. ruscifolia "Quebrachillo" is used in Argentine in folk medicine as hepatic, anti-inflammatory and eueptic. A voucher specimen has been deposited in the Herbarium of the National University of San Luis. Four crude organic extracts (*n*-hexane, chloroform, acetone and methanol) and aromatic water of "Quebrachillo" were tested. Also an alkaloid extract was prepared. Preliminary phytochemical analysis was performed using TLC reagents. Flavonoids, terpenoids and alkaloids were visualized. The antibacterial activity was assayed by micro-well dilution method in broth supplemented with 0.01% (w/v) of tetrazolium red as visual indicator of bacterial growth. Organic extracts were dissolved in DMSO and tested in a concentration ranging from 2500 µg/mL to 156.25 µg/mL. After 24h incubation at 37°C the antibacterial activity was defined as absence of red colour. Against *S. aureus*, *n*-hexane, chloroform, acetone and alkaloids extracts showed significant activities at doses of 2.5 mg/mL while against *P. aeruginosa* only alkaloid extract resulted bioactive. On the other hand, methanolic extract and aromatic water exhibited the same antibacterial effect that the control.

58. ANTIDIARRHEAL ACTIVITY OF *MEDICAGO SATIVA* ETHANOL EXTRACT

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Medicago sativa (Alfalfa) has been used for thousands of years in many parts of the world, as a source of food for people and livestock and as a medicinal herb to treat digestive problems. The anti-diarrheal effect was investigated by studying its influence on castor oil-induced diarrhea and enteropooling, and on gastrointestinal transit (measured by a charcoal marker). In control animals, 20 min after its intragastric administration, the charcoal meal traversed 52.46±2.82% of the total length of the small intestine. Oral administration of the extract (resulting of 1 and 2 g of aerial parts) reduced small intestinal transit in mice: 31.5±0.8%, 35.25±3.24%, respectively ($p<0.001$). Yohimbine (1 mg/kg) and verapamil (5 mg/kg) antagonized significantly ($p<0.01$, $p<0.001$; respectively) the effect of extract. During the 2 h after castor oil administration, mice produced copious diarrhea, the maximum score achieved being 24. The extract also significantly reduced the diarrhea score to 6 and 5 respectively ($p<0.01$). Intraluminal fluid accumulation was determined by enteropooling in Wistar rats. The pretreatment with the extract produced a significant inhibition ($p<0.05$, vs. control). The present results demonstrate the good anti-diarrheal effect of *Medicago sativa*; this effect may be due, partially at least, to a reduction in both intestinal transit and fluid accumulation, and might be attributed to its flavonoids content. These findings suggest a potential beneficial use of *Medicago sativa* in the treatment of diarrhea diseases.

59. PLANT COMMUNITIES OF A SALINE MARSHY WETLAND (SAN LUIS, ARGENTINA)

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The objective of this work was to know and to explain the distribution of the plant communities in the different physiognomic types of vegetation of the sector that it is located between the 33° 36' of south latitude and 65° 26' of longitude west. The physiographic analysis with the determination of the different vegetable covering by lineal transect technique were analyzed. The depth was measured to the phreatic mantle of each physiognomy type of vegetation opposing. The area embraces two landscapes: mantle sandy plane and the saline lagoon. Physiognomically it would correspond to the mount halophyte, in the first landscape, and the halophyte bushes, prairie and saline beach in the second. Dominant species in the communities are "caldén" (*Prosopis caldenia*), "zampa" (*Atriplex undulata*) and "jume" (*Sarcocornia perennis*), "pasto salado" (*Distichlis spicata*), respectively. Correspondence analysis showed that "pasto salado" is at the end of the edaphic gradient, while the other end appears "zampa" being related with other less tolerant species to the salinity. In this area the zonation of the vegetation in monoespecific communities is not so evident. We conclude that the methodology is efficient for delimitation of the physiognomy type of the wetland and the distribution reflective zonation of communities of species.

60. BEHAVIOURAL AND MOLECULAR RHYTHMIC PARAMETERS ARE MODIFIED IN VITAMIN A-DEFICIENT RATS

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SCN synchronizes peripheral clocks primarily through temporal feeding patterns that are imposed through behavioral rest-activity cycles. However, diffusible signals involved in this temporal synchronization are not completely revealed. Some evidence points out retinoids as regulators of clock genes activity through their retinoid nuclear receptors, RARs and RXRs. Our objective was to investigate the effect of a vitamin A-deficient diet on the rest-activity cycles of Holtzman rats as well as on the daily expression of RARa, RXRb and clock genes in the rat hippocampus. RNA was extracted from hippocampus using the Trizol reagent. Transcript levels of RARa, RXRb, Bmal1, Per1 and Cry 1 were determined by RT-PCR. RARa, RXRb, BMAL1, and PER1 protein levels were determined by Western blot. We observed a rhythmic variation in the RARa, RXRb, BMAL1, PER1 protein levels during a 24-h period, consistent with their daily mRNA expression. Vitamin A deficiency modified the daily pattern of retinoid nuclear receptors and clock genes expression as well as locomotor activity in rat.

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61. PHYSIOGNOMY OF THE CENTRAL SECTOR OF THE "BAJO LA SALADA" SAN LUIS, ARGENTINA

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The objective of this work was to know and to explain the distribution of the physiognomic types of vegetation of the sector that is located between the 33° 37' of south latitude and 65° 25' of longitude west. The physiographic classification was used in combination with the determination of coverings of the different vegetable species through transect. Additionally, it was determined the topographical height and depth to the phreatic mantle of each physiognomy type of vegetation opposing. The sector involves two landscapes: mantle sandy plane and the depression "Bajo la salada". Physiognomically, it would correspond to the halophyte mount in the first landscape, the high and low halophyte bushes, prairie and saline beach in the second. The dominant species are "chañar" (*Geoffroea decorticans*), "zampa" (*Atriplex undulata*) and "jume" (*Sarcocornia perennis*), "pasto salado" (*Distichlis spicata*), respectively. Correspondence analysis showed that "zampa" is at the end of the edaphic gradient, being related with other less tolerant species to the salinity, toward the other end the halophyte prairie dominated by "pasto salado" with variable covering of *Cressa truxillensis*. On the other hand, the "jume" is developed in intermediate sectors among them. We conclude that the used methodology is efficient for delimitation of the physiognomic types of the wetlands and distribution of reflective zonation of species.

62. COMPARATIVE STUDY OF CONSUMPTION OF MONO-DRUGS IN THE CARDIOVASCULAR SYSTEM IN THREE HEALTH AREAS OF MENDOZA

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The Health Ministry Mendoza has 18 departmental Health Areas. Our objective was to study comparatively the consumption of mono-drugs (MD) of the cardiovascular system (C) in Health Areas of Godoy Cruz (GC), Guaymallén (G) and Luján de Cuyo (L) during the period 2006/2009. DDD/1000inhabitants/day (DID) were compared. MD were classified according to ATC (Anatomical Therapeutic Chemical Classification). The population of each department, the total number of MD of the vademecum for each area and the number of MD of C that are common in the Ministry and Remediar Program (amiodarone, atenolol, digoxin, enalapril, furosemide and hydrochlorothiazide), consumed units (u) acquired with funding from the Area and sent by the Remediar Program, the number of total prescriptions and consultations and the indicator prescriptions/100 consultations (R/C) were considered. Consumption (2006/2009 in the three areas): the C represents an average of the 4 years: GC 31, G 29 and L 24% of all consumed drugs. Average DID of C: GC 19.1, G 12.5, L 9.9. Enalapril was the most consumed, with an average of DID: GC 14.2, G 9.8, L 7.21. The average total of consumed of C sent by Remediar represents: GC 39.8, G 54, L 71.5%. Average R-C: GC 92.1, G 74.3, LC 29.2%. Consumption in the areas studied has a different behavior in all studied parameters, except that the enalapril was the most consumed. Further studies are needed to find the reasons for the differences found.

63. NITRIC OXIDE PRODUCTION BY TNFRP55^{-/-} MACROPHAGES AFTER YERSINIA OUTER MEMBRANE OR RECOMBINANT OMPC PORIN STIMULATION

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Nitric oxide (NO) is associated with chronic inflammation. We previously demonstrated that *TNFRp55^{-/-}* mice develop *Yersinia enterocolitica*-induced arthritis, and outer membrane (OM) is the relevant fraction triggering this arthritis. Porins are the major OM proteins. The objectives were to obtain a recombinant *Yersinia* porin, OmpC, and to compare NO production by *TNFRp55^{-/-}* and wild-type macrophages after OM or OmpC stimulation. OmpC was obtained by transforming *Escherichia coli* BL21 (DE3)pLysS cells with a recombinant plasmid containing *ompC* gene. Hexa-histidine tagged recombinant OmpC was expressed and purified by affinity chromatography. Peritoneal macrophages from wild-type and *TNFRp55^{-/-}* C57BL/6 mice were stimulated with OM (1 µg/ml) or OmpC (2 or 4 µg/ml). Supernatant NO was measured by Griess reaction. Recombinant OmpC was characterized as a protein of 38 kDa. OM induced significant higher levels of NO in *TNFRp55^{-/-}* compared with wild-type macrophages ($p < 0.05$). In contrast, OmpC induced decreased NO levels in *TNFRp55^{-/-}* macrophages ($p < 0.05$). We concluded that TNFRp55 signaling influences NO production induced by *Yersinia* OM components.

64. ORAL ACUTE TOXICITY AND REPEATED DOSES STUDY OF ARISTOLOCHIA ARGENTINA IN RATS

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Aristolochia argentina (*Aa*) (family Aristolochiaceae), popularly known as "charrúa", is used in folk medicine as: antidiarrheic, astringent and antihemorrhoidal. The aim of this study was to assess the toxic effects of *Aa* in rats. Infusion (10%) of the roots was prepared according to Argentina Pharmacopeia VI Ed. Wistar male and female rats were used. Acute toxicity: *Aa* was administered, *p.o.* (5, 50, 300 and 2000 mg/kg). The animals were observed two weeks to record toxic manifestations, and also to measure body mass. Repeated doses (14 days) study: *Aa* was administered, *p.o.*, at low, middle and high doses. Routine clinical observations, body weight and food consumption were measured. Peripheral blood was collected, hematology (RBC, WBC and leukocyte differential counts) and clinical chemical (ALT, AST, glucose, total protein, albumin) values were evaluated. The organs of each rat were observed grossly and weighed. No abnormal symptoms and clinical signs or deaths had been found in rats in each group during the test. No significant difference had been found in body weight and food consumption of rats in each test group ($p > 0.05$). In addition, no significant differences were found in each hematology value, clinical chemistry value and organ/body weight ratio, either ($p > 0.05$). The highest dose did not induce noticeable signs of toxicity. In conclusion, the present results indicate that *Aa* causes no adverse effects on any parameter examined.

65. NEPHROTIC SYNDROME: RESPONSE TO PREDNISONE AND CICLOFOSFAMIDE TREATMENT IN PEDIATRIC PATIENTS

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Nephrotic syndrome (NS) is a clinical entity characterized by proteinuria, hypoalbuminemia, hyperlipidemia and edema. Histological study shows mild changes of the glomerulus. In children, the NS most often is idiopathic. It appears between 2-8 years old and has an incidence of 2 to 7/10⁶ in the general population. In this study we analyse the response to prednisone (2 mg/Kg/día) and cyclophosphamide (2 mg/Kg/day, three months) treatment for nephrotic syndrome in children (1-9 years of age, average 3.7 years old) that received medical attention in the Nephrology Service of San Luis Hospital (Argentina), between 2007-2010. The gender distribution was: 8 (53%) men and 7 (47%) women. All patients showed a preserved renal function (creatinine clearance >68 ml/min per 1.73 m²), edema and proteinuria (mean values of 3.5 g/24 h) and only 4 of them had data of complement levels, which were normal. In all patients the levels of cholesterol increased (average 424 mg/dl) and albumin decreased (average 1.77 g/dl) in serum. After 19 days of prednisone treatment 71% of the patients had a negative protein results, which is coincident with the reestablishment of podocyte normal appearance. The remainder 29% were steroid-resistance, but they have a favourable response to the following cyclophosphamide treatment for 3 months.

66. GASTRIC ANTI-ULCEROUS ACTIVITY OF METHANOLIC EXTRACT OF *LARREA DIVARICATA* LEAVES, IN RAT. EFFECT OF BLOCKING, ENDOGENOUS PROSTAGLANDIN

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Larrea divaricata (Zygophyllaceae) is used in traditional medicine as anti-inflammatory. Previously we reported gastric anti-ulcerous, antiinflammatory and antioxidant activity of *L. divaricata* leaves methanolic extracts (EMehLd). The aim was to study the effect of blocking endogenous prostaglandin with indometacin (Ind.) on the anti-ulcerous activity of EMehLd. The gastric anti-ulcerous activity was evaluated (Robert *et al.*, 1979). Wistar rats, both sexes, 200-280g deprived of food for 24h and water *ad libitum* were used. Saline solution (normal and ulcer control groups); Ind. + EMehLd group: 10 mg/kg, i.p. and after 30 min, 300 mg/kg, EMehLd 1ml, v.o. and EMehLd group: 300 mg/kg, EMehLd 1ml, v.o. were administered. After one hour, absolute ethanol were administered, v.o., to all groups (except normal group). The ulcer grade in each group was evaluated 60 min later, according to Marazzi, Uberti and Turba scale and was expressed in terms of an ulcer index (UI) from 0 to 5 (maximal damage) Statistical analysis was performed according to ANOVA with subsequent comparison by Tukey Kramer. Control group: UI=4.80±0.20; Ind + EMehLd group: UI = 0 (p<0.001) EMehLd: UI=0 (p<0.001); Ind + EMehLd vs EMehLd, p>0.05. The endogenous prostaglandin would not be involved in the anti-ulcerous action of methanolic extract of *Larrea divaricata* leaves.

67. EFFECTS OF CASTRATION AND TESTOSTERONE REPLACEMENT ON THE MAJOR ANTIOXIDANT TRANSCRIPTION FACTOR IN LUNG

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Oxidative stress plays a key role of in several lung diseases and Nrf2, a major antioxidant transcription factor could play a protective role in pulmonary disease. The presence of androgen receptors in the lung implies that sex hormones play a physiological role in pulmonary function.

The present study was designed to determine whether oxidative stress after castration and androgen replacement was modified by Nrf2 pathway. Wistar male rats (200 ± 20 g) were separated in three groups: controls (Co, n:6), castrated (Ca, n:6), and castrated replaced with testosterone (Ca+T, n:6) 60 days after castrations. RNA was extracted by the method of TRIzol. The level of RNAm was quantified using RT-PCR and oxidative stress biomarkers were measured. ANOVA was used for statistical analysis. The results indicate that castration significantly affected the antioxidant status, it is evidenced by a significant increase of TBAR'S (mM/mg protein) (p<0.01) and SOD2 and CAT (p<0,01). Moreover, an increase in lipid peroxidation and antioxidant enzymes were modified significantly and not modified the level of Nrf2. We conclude that Nrf2 could not involve the mechanism of protection in lung injury produced after to castration.

68. CADMIUM EXPOSITION ON ANTIOXIDANT ENZYME ACTIVITIES IN AORTA. EFFECT OF SOY BEAN AS PROTEIN SOURCE IN THE DIET

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Cadmium (Cd) is an environmental pollutants that causes lesions in different organs, depending of exposure dose, time and administration route. We have showed that Cd modifies the aorta lipid contents. Now, we investigated the effect of administration in the drinking water of 15 and 100 ppm of Cd, as CdCl₂ for 2 months, on lipoperoxidation and antioxidant enzyme activities in aorta of adult male Wistar rats. Animals were maintained on isocaloric diets containing casein (Ca) or soy bean (So), as protein source. Rats without Cd treatment were used as controls (Ca and So groups). Spectrophotometric assays were used to measure TBARs levels (as MDA), and superoxide dismutase (SOD), glutathione peroxidase (GPX) and catalase (CAT) activities, in aorta. Also, TBARs levels and paraoxonase (PON-1) aryl-sulphatase activity were determined in serum. On Ca diet: Cd 100 ppm, but not Cd 15 ppm, increased SOD and CAT activities in aorta, and TBARs levels (p<0.05) and PON-1 activity in serum, compared with Ca group. On So diet: Cd 15 ppm, increased GPx activity and TBARs in aorta, and Cd 15 and 100 ppm decreased PON-1 activity in serum (p<0.0001), compared with So group. All the So groups showed higher TBARs content in aorta than their respective Ca groups. Soy bean in the diet was not able to protect the aorta against redox changes induced by Cd.

69. RELEVANCE OF IR SPECTROSCOPY IN THE DIFFERENTIATION OF MEDICINAL HERBS

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IR spectroscopy can be a powerful, simple and inexpensive method to perform the quality control of pharmacologically active drugs from plants. To determine the usefulness of this method were analyzed various samples of *Melissa officinalis* L. and *Nepeta cataria* L. (Lamiaceae), obtained both from methanol extracts as freeze-dried extracts. Voucher specimens are preserved at Herbarium UNSL.

It was used a Nicolet FTIR Protégé 460, equipped with a CsI beamsplitter. The spectra were measured with a resolution of 4 cm⁻¹, between 4,000 and 460 cm⁻¹. For the measurement of the samples was used the mounting in tablets technique with KBr as a support in a concentration of 3% by weight.

The spectra obtained in all cases show quantitative differences among themselves, despite being multimolecular complex systems. In the spectra were observed at high frequency bands in the area of OH and NH vibrational modes that differ by 25 cm⁻¹. At lower frequencies, in the region of CO stretching the largest differences are observed. The areas under the curves of the CH and CO stretching modes can be used to characterize the interspecific differences, demonstrating the usefulness of this method to find additional characters to those obtained by official pharmacognositic methods.

70. EFFECT OF SOY (GLYCINE MAX) ON THE EXPRESSION OF APO B, TRIGLYCERIDES REGULATOR, IN MALE WISTAR RATS FED HIGH-CALORIE DIETS

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Apo B is the major apolipoprotein of VLDL, which are synthesized in the liver and have 50% of endogenous triglycerides. The aim of this study was to evaluate the Apo B gene expression in rats fed high-calorie diets made with different protein sources (soybean / casein). The animals were divided in two groups of eight subjects each: a control AIN-93M diet and another problem with high-calorie diet AIN-93M (34.15% sucrose, 42% of calories from fat) fed for 9 weeks. After this period each group was divided in two, in one them casein was replaced by soybean, being: CC (casein control), SC (soybean control), CH (casein high-calorie) and SH (soybean high-calorie). After 45 days, were sacrificed. The transcript level of Apo B was estimated in liver by RT-PCR. *Glycine max*, in both high-calorie diets as in normal diets, significantly increases the gene expression of Apo B compared to casein: SH vs CH (p < 0.001) and SC vs CC (p < 0.01). On the other hand, the SH group compared to CH group showed a decrease in hepatic triglyceride content (p < 0.01) and a trend of increase in serum triglycerides (12%). The bioactive components present in *Glycine max* would favor the transport of triglycerides from the liver into the plasma with a consequent decrease in deposits of triglycerides in the liver parenchyma, previously confirmed by histopathological study.

71. INSECT GROWTH REGULATORY EFFECTS OF NATURAL LABDANES FROM GRINDELIA PULCHELLA DUNAL VAR. PULCHELLA

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Growth Regulators (IGRs) can be powerful new tools of pest management. In previous studies we have reported the growth inhibitory bioactivity of grindelic acid isolated from plants. Taking into account the results of this compound as possible IGRs we evaluated the activity of labdanes against *Tenebrio molitor* L. (Coleoptera: Tenebrionidae) larvae as model insect. The objective of the present study was to test the activity of two compounds (grindelic acid and 1-hydroxy-grindelic acid) both isolated from *G. pulchella*. Aerial parts of the plant (3 kg.) collected in Dique Cruz de Piedra were extracted with ethanol and the extract obtained partitioned with a Si-Gel 60G column, using as eluent solutions of n-hexane and ethyl acetate in increasing polarities. 9.426 g of grindelic acid y 0.725 g of 1-hydroxy-grindelic acid were recovered. Labdanes isolated were assayed by topication on the fifth instar larvae (2µ/larvae dose and 10 µg/µl concentration). These compounds produced several deficiencies in development and mortality. The results suggest that these compounds could be considered as a potential alternative to control of stored product insects and they could be used in agricultural applications together with other approaches (Pest Management Integrated).

72. EXOGENOUS MELATONIN-INDUCED CHANGES IN LAGOSTOMUS MAXIMUS MAXIMUS ADRENAL MEDULLA

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In several rodent species, melatonin has been implicated in the splanchnic nerve activation and epinephrine (E) release from adrenal medulla. Nitric oxide (NO) modulates secretion of this hormone. The aim of our study was to evaluate the effects of melatonin treatment on nitrite (stable product of NO) and epinephrine contents in *Lagostomus* adrenal medulla. Adult male viscachas (n=8) were captured in february and maintained in long days. A group (n=4) received two daily melatonin injections (100 µg/kg) for 9 weeks. Controls (n=4) received the oil vehicle alone. Melatonin-treated group: chromaffin cell nuclear diameter (11.94 ± 0.15 µm**), nitrite (33.10 ± 1.09 µmol/g*), tissue epinephrine (313.37 ± 53.18 ng/g*). Control group: 13.17 ± 0.17 µm**, 28.31 ± 0.98 µmol/g*, 563.20 ± 35.72 ng/g*, respectively (ANOVA, *p < 0.01, **p < 0.001). Melatonin-treated viscachas showed an increase in nitrite content and a decrease in tissue E. The reduction in nuclear diameter of medullary cells might indicate metabolic exhaustion by an excessive secretory process. Melatonin could stimulate the sympathetic efferents to the *Lagostomus* adrenal medulla, inducing E secretion from chromaffin cells and NO production in vascular endothelium. NO might help the E to reach the blood stream due to its vasodilator action on adrenal vascular bed.

73.

DIAGNOSTIC OF *HELICOBACTER PYLORI* IN PEDIATRIC PATIENTS WITH CELIAC DISEASE: PRELIMINARY STUDY

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Celiac disease (CD) is an immune-mediated disorder, the only one with a well-established origin, resulting from a permanent gluten intolerance, which primarily involves the gastrointestinal tract. It may start at any age, both during childhood and adolescence. It is characterized by the presence of chronic inflammation of the small intestine's mucosa and submucosa and is frequently associated with chronic gastritis. *Helicobacter pylori* is the main etiologic agent of chronic gastritis. The aim was to determine the prevalence of *H. pylori* in pediatric patients with untreated CD. Upper gastrointestinal tract endoscopy was done at six children attending the Gastroenterology Service the "Ramos Mejía" Clinic in San Luis. Histological studies, culture and urease test were carried out with the biopsy samples. Blood sample was taken for analysis of antibodies for CD including: antigliadin antibody (AGA), antitransglutaminase antibody (ATA). The CD was confirmed by positive antibodies and histological studies in all children. The *H. pylori* infection was detected by positive culture and urease test in 3 out of 6 (50%) children with CD. Although the number of samples is low, this preliminary study shows a significant association between *H. pylori* infection and CD. The inflammatory and structural changes to the mucosal architecture that are associated with CD might eclipse some of the signs of lymphocytosis induced by *H. pylori* gastric infection. In this sense, the elimination of *H. pylori* could decrease lymphocytosis and improve treatment and evolution of the CD.

74.

DETECTING OF *HELICOBACTER PYLORI* BY POLIMERASE CHAIN REACTION (PCR) IN WATER ARTIFICIALLY CONTAMINATED

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Helicobacter pylori is a gram-negative microaerophilic bacterium that infect human gastric epithelial cell surfaces and the overlying gastric mucin, which is a highly specialized niche. It is the major cause of peptic ulcers and a contributor to other illnesses, such as gastric cancer. Also is known to be an agent causing susceptibility to other food and waterborne pathogens. The mode of transmission of *H. pylori* is still unresolved; some epidemiological data suggest water as a possible transmission route. The aim of the study was to validate the sensitive of PCR for rapid detection of *H. pylori* from environmental samples. The reference strain of *H. pylori* (NCTC 11638) was used in this study. Samples of 100 ml of sterile river water were artificially contaminated with a suspension of *H. pylori* (1.5×10^8 ufc/ml) and the sensitivity of PCR was assayed with serial dilution. DNA extraction was performed with three different methods to test the most effective. Three set of primer that codified by ureA, flaA and 16SRNA was assayed. The result obtained showed that the PCR method allowed detecting *H. pylori* up to 10^{-4} dilution and all primer allowed the detection. The water has a key role in the transmission of *H. pylori* infection and his presence should be controlled in the aquatic environments to prevent the spread of the infection.

75.

CORRELATION BETWEEN CLINICAL PARAMETERS AND OXIDATIVE STRESS IN A POPULATION OF OBESE CHILDREN OF SAN LUIS CITY

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The increased oxidative stress (OS) may be involved in the pathogenesis of cardiovascular disease (CHD). In obese children an increase of reactive oxygen species (ROS) causes a decrease in the antioxidant enzyme activities (AE). The purpose of this study was to investigate the association among body mass index (BMI), expression of mRNA Nrf-2, activity of AE, OS and clinical parameters in obese children. Blood was obtained from 27 non-obese (control), and 31 obese children. In plasma, the concentration of glucose (FG), total cholesterol (TC), HDLc, LDLc, triglycerides (TG) and thyobarbituric acid reactive species (TBARS), and the activity of paraoxonase (PON 1) were determined. The HOMA value was calculated. Diastolic (DBP) and systolic pressure (SBP) were measured. Also the activity of glutathione peroxidase (GPx) and catalase (CAT), and the mRNA Nrf-2 expression levels were quantified by RT-PCR. Pearson's correlation revealed a positive association between BMI and TC, TG, HDL-C, TBARS, HOMA and systolic pressure, and a negative correlation between BMI and HDL, AE activity and expression of Nrf-2. Alteration of the oxidative stress balance can contribute to an increased risk of CHD in obese children.

76.

NEUTRALIZATION OF ENZYMATIC ACTIVITY FROM *PSEUDOMONAS AERUGINOSA*'S EXOPRODUCTS BY ANTIBODIES GENERATED AGAINST *LARREA DIVARICATA*

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Larrea divaricata Cav. (jarilla) is widely used in Argentina in folk therapy to treat of a number of conditions, but little is known about its immunological properties. *Pseudomonas aeruginosa* is a Gram negative bacilli considered a nosocomial pathogen. The aim of this study was to evaluate the cross reaction between proteins from crude extract of jarilla (JPCE) and extracellular bacterial proteins (EP), which exhibit enzymatic and cytotoxic activity. JPCE was obtained from leaves in PBS pH 7.4 for 24 h at 4°C and concentrated by ultrafiltration. The strain ATCC 27853 of *P. aeruginosa* was used. The EP were obtained from the supernatant, dialyzed, and lyophilized. Assays of hemolytic and proteolytic activity were carried out. The effects of EP on macrophage viability, apoptosis and phagocytosis were tested. The anti-hemolytic and anti-proteolytic activities of an anti-JPCE serum were assayed by incubation for 1h at 37°C. Both, hemolytic and proteolytic activities were inhibited (55-95%) by anti-JPCE serum. Cell viability and phagocytosis were increased after incubation of EP with anti-JPCE serum. The results obtained showed that proteins from *L. divaricata* Cav. are able to generate antibodies that cross-react with EP from *P. aeruginosa*. These results could be relevant in the development of alternative therapies (i.e. vaccines) against infections produced by *P. aeruginosa*.

77.
ANTIBACTERIAL ACTIVITY OF EXTRACTS OBTAINED FROM ZINNIA PERUVIANA

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Zinnia peruviana (L.) L (Astraceae) is a native plant known by the vernacular names “Chinita del Campo”. This specie is widely used in folk medicine as against malaria. Different extracts were prepared using mixtures of ethyl acetate and *n*-hexane on flash chromatography. The aim of this study was to evaluate the antibacterial activity of *Z. peruviana* against methicillin resistant *Staphylococcus aureus* ATCC 43300, *Pseudomonas aeruginosa* ATCC 27853, *Listeria monocytogenes* ATCC 74902, *Klebsiella pneumoniae* and *Bacillus cereus*. The antibacterial activity was assayed *in vitro* using microwell dilution assay method. Suspensions of 10⁷UFC/ml strains were used. Organic extracts were dissolved in DMSO and tested in a concentration ranging from 8 to 1 mg/mL. TTC was used as visual indicator of bacterial growth. After 24-hour incubation at 37°C, the antibacterial activity of the extracts was defined as absence of red in the wells. Extract *Z. peruviana* 100% ethyl acetate, showed significant activities against all tested strains at doses of 4 mg/mL, 10% (ethyl acetate/*n*-hexane) and *n*-hexane extracts showed significant activities against *S. aureus* at doses of 4 mg/mL. Moreover, *n*-hexane extract showed a significant activity against *L. monocytogenes* at doses of 8 mg/mL. These studies contribute to the knowledge of the antibacterial properties of different plant extracts and lead to the search for potential natural antibiotic molecules.

78.
ANTIMICROBIAL ACTIVITY OF LACTOCOCCUS LACTIS SSP LACTIS 2 AGAINST ENTEROCOCCUS FAECALIS IN PARTIALLY PURIFIED BACTERIOCINS

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The shelf-life of food can be increased by adding live microorganisms producing bacteriocins or their crude extracts as concentrates or partial purified peptides. The *Lactococcus lactis ssp lactis 2* strain, has antimicrobial activity against pathogens such as *Enterococcus faecalis*. Previously it was reported that the crude extracts presented an inhibition zone of 6-8 mm The aim of this study was to obtain concentrates of culture supernatants of *L. lactis* and make a partial purification to determine later the fraction that produced the greatest inhibition of growth of *E. faecalis*. Three subcultures of the *L. lactis* strain were performed in MRS medium, the cell free supernatant was concentrated at level of 95%. The ammonium sulphate precipitation was carried out at 40%, 50% and 75% saturation. The dialysis was through 1000 Da membranes. Later the antimicrobial activity of concentrates and dialyzed fractions was determined. Molecular size of the antimicrobial substance was determined using SDS-PAGE. The results showed a higher inhibition by concentrated extracts (12 mm), the dialyzed showed 8-11mm, the highest effect was observed in the 40% fraction. The SDS-PAGE showed a band of approximately 60 kDa in the 40% fraction. This study reveals the possibility of using *L. lactis ssp lactis 2* strains as probiotic in the food preservation.

79.
KINETIC CHARACTERISTICS AND INHIBITION OF PPO FROM PRUNUS PERSICA (L.) VAR. NECTARINE

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Plant Polyphenoloxidases (PPO) catalyse the oxidation of phenolic compounds to quinones. These further polymerize to brown pigments called melanins. PPO is widely distributed in fruits and vegetables, and its activity is needs to be characterized in order to facilitate its control during processing. Experiments were performed to evaluate kinetics characteristics of PPO extracted from peach (var. nectarina) and different forms of inhibition. PPO activity was determined spectrophotometrically using catechol, 4-methylcatechol and pyrogallol as substrates. At the optimum pH (5.5 in buffer acetate) and temperature (26°C), the K_M and V_{Max} values of peach PPO towards catechol, 4-methyl catechol and pyrogallol were determined by Lineweaver–Burk method. The values V_{Max}/K_M showed that PPO has the greatest reactivity towards pyrogallol among the substrates used. Thermal stability of pear PPO extract was investigated at pH optimum, at 6 constant temperatures from 20 to 60°C using various incubation times (2.5-20 min). At 20 and 26°C, the enzyme activity is not affected, whereas that at 30°C, 1.5% of PPO activity was lost after 5 min, and at 40, 50 and 60°C, 18, 26 and 63% respectively of the PPO activity was lost after 5 min, and at 60°C was 90% inactivated after 20 min of heating. It was analyzed the effect of different ions on the PPO activity: Co²⁺, Cu²⁺ and Ca²⁺ increase PPO activity, while Na⁺ decreases it. Zn²⁺ did not change the activity of the enzyme.

80.
VALUATION OF ASCORBIC ACID CONTENT IN FIVE NATIVE MEDICINAL PLANTS

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Vegetative and reproductive organs of diverse plants (stem, leaves, flowers) are used in Argentinean folk medicine against cold, flu and scurvy. Some of them are frequently consumed both fresh (in salads) and in infusion, alone or in herb mixtures. Antiscorbutic property is attributed to the ascorbic acid content (vitamin C), which is essential to prevent the mentioned conditions. Though our ethnopharmacological studies developed in central-western Argentinean region, it have verified that plants as *Capsella bursa-pastoris*, *Coronopus didymus*, *Rorippa nasturtium-aquaticum*, *Lepidium bonariense* and *Tropaeolum majus* are the main species reputed as antiscorbutics. In the present study was valued the Vitamin C content in fresh juice of these plants by mean of a colorimetric method using 2,6 dichlorophenol indofenol. The results are expressed in mg% of ascorbic acid in the fresh plant juice.

Scientific and common names	Plant family	mg%
<i>Capsella bursa-pastoris</i> Medik., “bolsa del pastor”	Brassicaceae	38.08
<i>Coronopus didymus</i> (L.) Smith, “mastuerzo”, “quimpe”		53.76
<i>Rorippa nasturtium-aquaticum</i> (L.) Hayek, “berro”		57.14
<i>Lepidium bonariense</i> L., “mastuerzo”		53.78
<i>Tropaeolum majus</i> L., “taco de reina”, “capuchina”	Tropaeolaceae	57.12

81. ANTIDIARRHEAL ACTIVITY OF *JODINA RHOMBIFOLIA*

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Several authors cite the leaves and bark of *Jodina rhombifolia* (Hook & Arn.) Reissek (Santalaceae) for the treatment of diarrhea. We tested the effect of the infusion of the leaves to 10% and the decoction of the bark to 10% for antidiarrheal activity. The plant material was collected in the town of Fraga, San Luis Province. Decoctions and infusions were prepared according FNA VI Ed. For the development of intestinal transit was used the technique proposed by Di Carlo *et al.* with Rockland mice (20-30 g). The infusion of 10% leaves administered orally, significantly reduced the intestinal transit: 45,17 \pm 5,89 ($p < 0.001$, vs. control: 66,86 \pm 6,61). The frequency of defecation and severity of diarrhea induced by castor oil (Izzo *et al.*) in Rockland mice was significantly reduced ($p < 0.01$) by prior administration of tea leaf. The method of intestinal fluid accumulation is based on that of Robert *et al.* and was performed in Wistar rats (150-180 g). The pretreatment with the infusion of leaves decreased the weights of the intestinal contents induced by castor oil compared with control ($p < 0.01$). In contrast, the oral administration of bark extract produced no significant results in the methods used to evaluate the antidiarrheal activity. The data indicate that the infusion of the leaves of *Jodina rhombifolia* possesses significant antidiarrheal activity due to its inhibitory effect both on gastrointestinal propulsion and fluid secretion. The results obtained validate the popular use of plant leaves as antidiarrheal drug, while invalidate the use of bark for this purpose.

82. ESTRADIOL PROMOTES LUTEAL REGRESSION IN LATE PREGNANT RATS

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Estradiol (E_2) added to the ganglionic compartment of the *ex vivo* celiac ganglion-superior ovarian nerve-ovary (CG-SON-O) system of 21-day pregnant rats caused a decline in ovarian release of progesterone (P). The objective was to investigate whether E_2 via the SON modifies the luteal mRNA expression of 3β -hydroxysteroid dehydrogenase (3β -HSD), 20α -HSD (synthesis and degradation of P enzymes, respectively), bcl-2 and bax (apoptosis regulators) and to analyse whether E_2 has the same effect when it is added directly in ovary. E_2 10^{-6} M, 10^{-8} and 10^{-9} M were added to ganglion compartment of the CG-SON-O and to medium of ovarian incubation of 21-day pregnant rats. Controls were not stimulated. Release of ovarian P was measured by RIA, luteal mRNA expression of 3β -HSD, 20α -HSD, bcl-2 and bax were assessed by RT-PCR. ANOVA 1 followed by Tuckey test with a statistical significance of $p < 0.05$ was used. When E_2 was added in the ganglionic compartment, the expression of 3β -HSD showed a tendency to decrease, while that the expression of 20α -HSD was not affected, even though P diminished. Besides, the regulators of apoptosis were not affected. The addition of E_2 in ovarian compartment decreased the release of ovarian P, decreased significantly the expression of 3β -HSD and reduced the ratio bcl-2 to bax. The anti-steroidogenic effect is more evident when E_2 is directly impacting the ovary rather than the CG.

83. CHARACTERIZATION OF IRS-4 TYR-PHOSPHORYLATION IN INSULIN PATHWAYS IN HEPG2 CELL LINE

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Insulin receptor substrate-4 (IRS-4) has a limited tissue expression and its modulation by tyr-phosphorylation is still controversial. We evaluated the participation of IRS-4 in the Insulin (Ins) pathway in HepG2 cells. Ins (10^{-7} M) induced tyr-phosphorylation of IRS-4 (maximal at 5 min), an specific effect blocked by tyrphostin AG1024. Besides, Ins triggered serine/threonine phosphorylation of downstream effectors like p42/44 MAPKs, with maximal effect after 15 min of stimulation. Surprisingly, this effect was enhanced by the specific MAPK's inhibitor AG126 (10^{-4} M) alone or combined with Jak2's inhibitor, AG490 (10^{-4} M). Proliferation assays demonstrated an induction by Ins stimulation (10^{-7} M) that was reverted by pre-treatment with AG126. Pre-incubation with AG126 alone or combined with AG490, induced tyr-dephosphorylation of IRS-4 and promoted an hyper-phosphorylated state of ERK1/2 in a dose-dependent manner. The later effect could be explained by disruption of a short feedback control mechanism mediated by MKP-1. These results are in agreement with the inhibition of cell proliferation as a consequence of pre-incubation with AG126 alone or combined with AG490. The present data suggest a possible participation of IRS-4 in Ins-induced cell proliferation.

84. CONCENTRATION OF FATTY ACIDS ALTERATIONS IN MAMMARY GLAND OF VITAMIN A DEFICIENT RATS

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Our objective was determined if the vitamin A deficiency alters the quality and concentration of fatty acid in mammary gland. Wistar female virgin rats were separated at weaning into 3 groups: 1) fed with vitamin A sufficient diet (+A, control) for 90 days, 2) vitamin A deficient diet (-A) for 90 days, and 3) vitamin A deficient diet for 75 days follows by realimentation with vitamin A sufficient for 15 days (Ar). In other experimental model the 3 groups were: 1) +A diet for 180 days, control, 2) -A diet for 180 days and 3) -A for 175 days and realimentation with +A for 15 days. The lipids were extracted by Folch method. After dried under nitrogen the extracts were saponified and processed to prepare the fatty-acyl methyl esters (FAMES) using a capillary column. Before injection into the c-GLC system, the FAMES were purified by HPTLC chromatography. The patterns of the FAMES were identified by comparison of their relative retention times with authentic standards running in parallel. Relative mass distribution of each analysis was calculated electronically by quantification of the peak areas. In both experimental models the vitamin A deficiency caused a decrease of 18:0, 18:2n-6, 20:5n-3 and 22:5n-3, and an increase of 18:1n-9, 22:4n-6, 22:5n-6 fatty acid concentrations. The realimentation with vitamin A reverted those values to +A control values. The data confirm that the fatty acid alterations were produced by the vitamin A deficiency.

85. POLLEN, SPORES AND HAY FEVER OF AUGUST 2010 IN SAN LUIS CITY

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This report describes qualitatively and quantitatively the content of pollen and spores in the atmosphere of San Luis city, during August 2010. The samples were recorded by an aerobiological pollen trap Lanzoni. The production of aerobiological particles in this month showed fluctuations depending on the flowering seasons of the taxa and on the meteorological parameters. The minimum concentrations were related with snow and the peak of maximum concentration was related with the mean daily temperature. However, the maximum would be related to northerly winds. During the month of research more than 9 different types of pollen grains and 11 types of spores were recorded and identified. Cupressaceae/Taxaceae, *Ulmus* and *Morus* were responsible for the greatest amounts of pollen, and *Alternaria* and *Cladosporium* were the more important in the spore content. The increased aerobiological in August, were associated with the onset of symptoms of hay fever consultations. This data are the first collected by an aerobiological trap in San Luis province.

86. ANXIETY AND DEPRESSION IN HYPERTENSION

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Hypertension is often a risk factor for other chronic conditions. It has been observed an association and comorbidity between hypertension and a mental health disorder. The aim of this study was to characterize the prevalence and treatment of anxiety (A) and depression (D) in adult hypertensive patients. Retrospective study of 665 hypertensive individuals (> 20 yr) from middle class of San Luis city (64.4% women) was performed. Age, weight, blood pressure (>140/90, JNC-7), antihypertensive and psychopharmacological (P) treatment were recorded. The results were analyzed by SPSS (version 12.0). Mean age: 55.4±13.0 yr, mean weight: 85.9±17.4 kg. High percentage suffered mental disorders (67.3%), most anxiety (62.4%) and depression (9.5%). Commonly used drugs: angiotensin converting enzyme (ACE) inhibitors 59.8% + 24.8% P (21.6% A; 3.2% D); beta blockers 42.7% + 19.2% P (17.1% A; 2.1% D); calcium antagonists 21.4% + 11.4% P (9.9% A; 1.5% D); AT1 antagonists 18.1% + 7.4 P (5.9% A; 1.5% D); diuretics 12.6% + 5.7 P (4.8% A; 0.9% D); antihypertensive combination 6.1% + 3.3% P (3.0% A; 0.3% D). Mostly ACE inhibitors and alprazolam as first-line therapy. Anxiety and depression are frequent in patients with HTA and increase as the severity of disease progresses. It remains unclear how the association between hypertension and symptoms of anxiety and depression can be explained. But given the high prevalence of both conditions, the relationship between these negative emotions and hypertension is of considerable public health importance.

87. PHYTOCHEMICAL SCREENING OF PFAFFIA GNAPHALIOIDES (AMARANTHACEAE)

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Pfaffia gnaphalioides (L. f.) Martius, "peludilla", is a perennial herb with thickened, reserving root, and grayish-tomentose leaves. It is native to temperate South America (Uruguay, Brazil and Argentina) and both aerial (leaves and stem) and underground (roots) parts are used in folk medicine, especially in substitution of *P. glomerata* (Spreng.) Pedersen, a species with extensive use as a tonic and aphrodisiac.

There being no phytochemical information on this species, it has been conducted this study on their fixed components.

Samples were obtained from natural populations in the Central Sierras of San Luis, and their corresponding vouchers are preserved in the Herbarium of the Universidad Nacional de San Luis (acronym: UNSL). Materials were air-dried up to hygroscopic moisture. Aqueous extracts as well as ethanol and chloroform extracts were obtained from aerial plant parts and roots. For flavonoids and sapogenins were applied thin layer chromatography, identifying the genuine products against standards.

The flavonoids quercetin and rutin were isolated. The main metabolites founded were steroidal sapogenins, present in all plant parts, whose structure is being elucidated by spectroscopic methods.

88. CLONING AND EXPRESIÓN OF RECOMBINANT L19 RIBOSOMAL PROTEIN FROM TRYPANOSOMA CRUZI

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Trypanosomatids are a monophyletic group of protozoa that diverged very early during evolution, comparing to model eukaryotic organisms such as plants, yeast and mammals. *Trypanosoma cruzi* acquires particular importance in Latin America as the etiologic agent of Chagas disease. The identification of new targets for chemotherapy is a major challenge for the control of this disease. There are important evidences suggesting that the translational system in trypanosomatids shows important differences respect other eukaryotes, in particular mammals. Previously, using data mining and mass spectrometry, we have shown that *T. cruzi* ribosomal protein L19 (TcL19) has a C-terminal extension of 168 amino acids, with no similarity to any known domain, and absent from organisms other than trypanosomatids. Here, we report the cloning and expression of recombinant TcL19 in *E. coli*, in two different versions; full-length and without the *T. cruzi*-specific C-terminal domain. Both proteins were cloned and expressed correctly. Interestingly, the full-length, but not the truncated version, was toxic for *E. coli* cells. Currently, we are setting the purification protocol for the truncated protein, in order to obtain specific anti-sera for detecting native TcL19 in *T. cruzi* epimastigotes by *Western Blot* and indirect immunofluorescence (IFI). This will allow to know whether TcL19 is processed before the ribosome assembly or the C-terminal domain is present in mature ribosomes.

89.

INTESTINAL ACTIVITY OF *PLANTAGO MAJOR* IN MICE

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Plantago major is popularly known as “llantén”. Previously we demonstrated that *P. major* protects rat gastric mucosa against lesions induced by several necrotizing agents. This work aimed at evaluating the intestinal activity of *P. major*. Determination of small intestinal transit in mice: The effect of methanolic extract of *P. major* (125 and 250 mg/kg) on small intestinal transit was tested using Ueda *et al.* method. The length traversed by the charcoal marker was calculated as a percentage of intestinal length. Antidiarrhoeal activity: It was assessed with the method of Izzo *et al.* (1992). Methanolic extract of *P. major* or loperamide (2 mg/kg, 0.3 ml) were administered to groups of 7 mice 30 min before the administration of cathartic agent (castor oil, 0.2 ml). The severity of diarrhoea was assessed hourly for 3 h. The total faeces and diarrhoeic faeces were scored and compared with the control group. The difference between means was assessed by Student’s *t*-test or chi-square test for diarrhoea scores. *P. major* extract decreased small intestinal transit in mice at 250 mg/kg (25.47±1.53%, *p*<0.01 *vs.* control, 38.29±2.16%). There was no effect at 125 mg/kg (32.84±4.20%, NS). *P. major* extract given before castor oil reduced its cathartic effect (125 and 250 mg/kg, *p*<0.05 *vs.* control). Additionally, in separate experiments the 5% infusion of the plant reduced spontaneous contractions in the rabbit duodenum. *Plantago major* prolongs intestinal transit time and prevents diarrhoea induced by castor oil in mice. These data support the use of *P. major* in traditional medicine to treat digestive disorders.

90.

BIODIVERSITY AND CONSERVATION OF SAN JUAN HERPETOFAUNA PROJECT

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Biodiversity conservation is a challenge and firstly requires obtained data as important information that will permit update faunal categorization and species monitoring to elaborate guidelines management and conservation as the future goal. The objective of this work was to obtain preliminary basic information about biodiversity and biology of herpetofauna from San Juan Province (Argentina) inside of the integral Grant Project (JCA-CICITCA-UNSJ-E831), important aspects to make comparative studies, conservation guidelines and sustainable management. Basic data regard to biology, taxonomy and biogeography were obtained for species that could to present problematic situations from the point view of conservation. In order to describe new species, evaluate the species composition assemblages, patterns of distribution, biological parameters; different environments were surveyed (Monte, Chaco, Altoandina and Puna). The results contribute for biodiversity conservation of these organisms groups that are normally undervalued and ignored. Through surveys of specific richness, management of biogeographic information associated with scientific collections could unify criteria for the investigation and management of diversity in regional scale, always with finality to contribute to the policy and program for conservation of the natural resources in Argentina.

91.

ARGENTINEAN PROPOLIS ASSOCIATED TO *LARREA NITIDA* CAVEXUDATE

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We report the *in vitro* antifungal activity of propolis extracts from the province of San Juan (Argentina) as well as the identification of their main antifungal compounds and botanical origin. The antifungal activity was determined by the microdilution technique, using reference microorganisms and clinical isolates. All dermatophytes and yeasts tested were strongly inhibited by different propolis extracts and *Larrea nitida* exudate (MICs between 31.25 and 125µg/mL). The most susceptible yeast was *Cryptococcus neoformans* (31.25µg/mL). The main antifungal compounds were methyl-nordihydroguaiaretic acid (MNDGA) 1, nordihydroguaiaretic acid (NDGA) 2 and the MNDGA derivative 3. Both ligands 1, 2 displayed strong activity against clinical isolates of *Candida* spp, *Cryptococcus* spp, *Trichophyton rubrum* and *T. mentagrophytes* (MICs and MFCs between 31.25 and 62.25 µg/mL). Additionally, two epoxylicanins were isolated from propolis samples and *Larrea nitida* exudates, showing moderate antifungal activity. This is the first report matching the chemical profile of *L. nitida* exudates with their corresponding propolis by HPLCMS, giving strong evidences on the botanical origin of studied propolis from Argentina.

We are grateful to UNSJ, ANPCYT-PICT2008-0554, CONICET. (MBA, BL, SL, GEF DAW).

92.

ESSENTIAL OIL FROM *BACCHARIS SPARTIOIDES* (PICHANA) AS ATTRACTANT OF FEMALES OF *CERATITIS CAPITATA* WEIDEMANN

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The aromatic species in the surrounding areas to crops may be important sites of refuge and other behaviours of the fruit flies. The importance of volatile oils from these species as infochemicals signals remains unknown. The aim was to determine the chemical composition of essential oil (EO) from *B. spartioides* and evaluated their effect as attractants of females of *C. capitata*. Plants were collected in Angaco, San Juan, Argentina. EO were obtained by hydrodistillation and the chemical composition was determined by GC-MS. Bioassays were carried out in a Y-tube olfactometer. The essential oil of *B. spartioides* showed *gamma*-terpinene, sabinene and *beta*-pinene as the main compounds accounting for 81.13% of the oil. Significantly more females visited the arm with the essential oil compared to the control arm. The results stress the importance of continuing studies on volatile and EO components as infochemical agents of the fruit flies.

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93. TRANS FATS: RECOMMENDED DAILY INTAKE AND INJURIOUS EFFECTS FOR THE HEALTH

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Trans fatty acids (TFA), have been defined by FAO/OMS Commission of Alimentarius Codex like unsaturated fatty acids with isolated double bonds in trans configuration. TFA are mainly formed in the partial hydrogenation of the vegetal oils. TFA increases cholesterol, contributing to the risk of cardiovascular diseases, diabetes and some cancers. In 2004, OPS/OMS opened the program "Free Americas of Trans" and harmonized analytical tests of TFA, in order to restore policies in Latin American. In California it was prohibited the use of oils with TFA in restaurants. The objective of this work was to analyze total fat, saturated and trans fatty acids of breads, cheeses, vermicelli, canning foods and cakes in relation to Argentinean Alimentarius Codex (AAC), and both the recommended daily intake (IDR) and the possible adverse effects of those nutrients. Total fat was analyzed by Soxhlet Method. Saturated and TFA were analyzed by Gas Chromatography. Each analyzed food did not surpass the limits allowed by AAC. Recommended daily intake of each one did not surpass the upper level fixed by different world organisms. Although a unique criterion to allowed maximum values of TFA is lacking, some authors postulated that value would be 10 g / day. Food and Drug Administration (FDA, USA) and European Community Commission established a maximum value of 1% of total daily intake in calories (around 4 g per capita per day).

94. PRODUCTION OF CITRIC ACID BY ASPERGILLUS NIGER

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Although the citric acid fermentation by *Aspergillus niger* is one of the most important industrial microbial processes and various aspects of fermentation appear in a very large number of publications since the 1950s is a very attractive area to go on investigating. The aim of the present work was to analyze the effect of the culture medium and the fungal morphology in the production of citric acid. Erlenmeyer flasks containing 1000 ml of culture medium were inoculated with spore suspension which concentration ranged from 10^5 to 10^9 . Cultures were incubated for 10 days at 30°C on a magnetic stirrer to oxygenate the medium. Once filtered the cultures, it was determined the concentration of citric acid by an enzymatic method. The mycelium was washed and stored for reuse. Sugar concentration of 15 to 20 percent was necessary for high yields of citric acid, although the sugar was not completely used. A 5 percent concentration of sugar gave small yields of citric acid as this acid was used as an energy source by the organism. The presence of zinc especially favoured the production of acid which was accompanied by the absence of dark spores and the increased development of mycelia growth. By using sucrose rotation angle obtained with a polarimeter was negative indicating the presence of fructose and the organism's ability to perform the hydrolysis of sucrose. This result and the fact that glucose is the best culture medium for these organisms make us think about: for life, the light rotates to the right?

95. LIPASE PRODUCTION BY CANDIDA RUGOSA

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The use and preparation of the main chiral drugs as single enantiomers is one of the most important achievements in pharmaceutical science. For chiral drugs, opposite enantiomers act with different biological properties and the distomer could give undesirable effects. Ibuprofen is one of the most important drugs of the classes of drugs non-steroidal anti-inflammatory, used as a racemate in pharmaceutical formulations, but have their pharmacological activity mainly in the form enantiomeric S (+). The aim of this work is to produce lipase from *Candida rugosa* yeast strains for later use in the resolution of ibuprofen. Cultures were performed in 500 ml Erlenmeyer flasks with 120 ml of culture medium were inoculated with 1 ml of spore suspension and incubated for 72 h at 35°C on a rotary shaker. After this period, the cultures were filtered and treated with ammonium sulfate (80% saturation). The precipitates were dialyzed for 24 h against sodium phosphate buffer, pH 7.0 and lyophilized for later use as a powder lipase. The hydrolytic activity of the biocatalysts was determined by measuring the free acid of a sample of olive oil in the presence and absence of lipases. Therefore, a sample of olive oil was dissolved in a mixture of alcohol and ether and titrated with Na(OH) 0.1 N using phenolphthalein as indicator. The free acid obtained was 6 times higher than the acidity of the sample without lipase. The protein concentration was found to be 2 mg / ml using the Biuret method.

96. ANGIOTENSINII AND THE HYPERTENSIVE PREGNANCY

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Hypertension during pregnancy and placental vascular insufficiency are common conditions that affect the development of the fetus. The offspring of spontaneously hypertensive (SHR) rats during uterine life suffer vascular aberrations that increase their mortality rate and delay the maturation of the nervous system. The members of the renin-angiotensin system (RAS) are present in the brain, cerebellum and placenta of pregnant females and angiotensin II and its cell membrane receptors AT_1 and AT_2 are known to play a role in the vascular events that occur during the adaptive response to high blood pressure. In addition we propose their participation in the remarkable spontaneous recovery of neurological and behavioral defects that show the surviving pups. We demonstrated significant differences between WKY and SHR during development: Body weight: (***) $p < 0.001$; Righting reflex (**) $p < 0.05$; Hand grasp (***) $p < 0.001$ and Gait (*) $p < 0.01$. Besides in the present work we show anatomical and histological differences among these two groups of animals that will allow us in the future to evaluate pharmacological interventions on the RAS system.

97. ANNUAL VARIATION IN GONADAL CYCLES AND FAT BODIES IN THE LIZARD *CNEMIDOPHORUS LONGICAUDA*

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In this study we compared for two consecutive years gonadal and fat bodies cycles in a population of the lizard *Cnemidophorus longicauda* from the Monte desert of San Juan. We described the following reproductive events: ovulation, oviposition, births, fat bodies and testicular cycles. Also we identified life history parameters such as size, minimum reproductive age, clutch size and clutch frequency. Individuals were measured and sexed, yolke follicles or eggs in oviduct and testicles were removed and measured to estimate their volume. Fat bodies were weighed. Reproductive cycle in this species began in early spring (southern hemisphere) for both years and finished in April during the 1st year and in March in the 2nd year. Ovulation started earliest in October, as is characteristic in most teiids. Oviposition began in December, showing a single event that varied between one and two eggs per season. Reproductive activity decreased gradually resulting in gonadal regression by January, which coincided with births in both periods. Female's reproductive effort varied significantly between months. Males and female cycles were synchronous and showed an inverse pattern with respect to abdominal fat body cycles. Therefore, in both sexes, gonadal activity developed rapidly with strong evidence of a phylogenetic component with more weight in determining the cycle that variation in environmental conditions.

98. ANNUAL VARIATION IN THE REPRODUCTION OF THE LIZARD *LIOLAEMUS DARWINII* (LIOLAEMIDAE), FROM SAN JUAN, ARGENTINA

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The aim of this study was to compare during two consecutive years the gonadal and bodies fat cycles in a population of the lizard *Liolaemus darwini* from the desert Monte of San Juan. Individuals were measured and sexed; yolke follicles or eggs in oviduct and testicles were removed and measured to estimate their volume. The fat bodies were weighed. *L. darwini* reproductive activity began early, before the spring (southern hemisphere). In the 1st year body size was correlated with litter size, whereas in the 2nd year there was no linear relationship between litter size and snout vent long (SVL). Litter size ranged between 2 and 8 and between 1 and 6 eggs during the 1st and the 2nd year, respectively. The minimum size of breeding females was 44 mm SVL in the 1st year and 43 mm SVL in the 2nd. The mode of the egg laying was 4 eggs in both years. Follicular activity of females was extended because of their dual posture in both cases. Egg laying started in October (1st year) or in November (2nd year), extending until February in both years. The birth period was from December to March during the 1st year and from November to February in the 2nd year. Testicular cycles varied significantly between months and were synchronous with females in both periods.

99. SAUROPHAGY AND CANNIBALISM IN TWO SPECIES OF LIZARDS IN SAN JUAN, ARGENTINA

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Saurophagy and cannibalism have been reported in lizards, either by chance discoveries or through behavioral studies. Although cannibalism has been studied extensively in vertebrates, it is unclear to what extent it would be beneficial in reptiles. However, there are studies that consider cannibalism one of the main causes of hatchling mortality. *Cnemidophorus longicauda* and *Homonota underwoodi* inhabit the Monte desert (San Juan). During a diet study of both species (samples collected by pitfall traps), two cases of intraspecific predation were recorded in *C. longicauda*: adult males, snout vent long (SVL): (58 and 62mm) registered juvenile prey (SVL: 17-18mm). On the other hand, a female (SVL: 48mm) and two adult males (SVL: 47.5 and 47mm) *H. underwoodi* presented in their diet *Liolaemus darwini* juvenile individuals. This latter finding is the first record of interspecific predation among geckonid lizards in Argentina. Reports of cannibalism in teiids from South America are rare, and limited to intraspecific predation cases registered in *Callopistes palluma* from Chile. We consider cannibalism as an atypical activity, possibly caused by overcrowding stress, or simply by accidental or opportunistic feeding.

100. BIENNIAL REPRODUCTIVE ANALYSIS OF THE LIZARD *HOMONOTA UNDERWOODI* (IGUANIA: PHYLLODACTYLIDAE) FROM SAN JUAN, ARGENTINA

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In this study we compared during two consecutive years gonadal and fat body cycles in a population of *Homonota underwoodi* from the Monte desert of San Juan. We described the following reproductive events: ovulation, oviposition, births, fat bodies and testicular cycles. Also, we identified life history parameters such as size minimum reproductive age, clutch size and clutch frequency. Individuals were measured and sexed; yolke follicles or eggs in oviduct and testicles were removed and measured to estimate their volume. Fat bodies were weighed. The reproductive activity of *H. underwoodi* began in September (southern hemisphere) and in general was similar for both years: ovulation occurred in September, fertilization concluded in January and female reproductive effort was concentrated between September and January. Testicular development was synchronous with seasonality. Testicular volume was related to snout vent long (SVL) in both periods. Male reproductive cycles were synchronous with females with minimal fat body reserve for both sexes during oviposition period.

101. VALUATION OF TWO METHODS OF PURIFICATION OF BOTULINUM NEUROTOXIN TYPE A: ACID AND SALINE PRECIPITATION

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Botulinum neurotoxin (NTBo) is synthesized as molecules of 150 kDa associated with not toxic components forming complexes of 300 kDa, 600 kDa and 900 kDa. Our aim is consider optimizing the purification of the different complexes, for two precipitation methods: saline and acid. The strain selected, *Clostridium botulinum* A-Hall, was cultivated in 250 ml of medium for toxin production and incubated 96 h, to 37°C. Then, the culture was centrifuged to 10.000 rpm, 20 min to 4°C, the supernatant was divided in two aliquots and precipitated with: a) (NH₄)₂SO₄ 60% of saturation, 24 h a 4°C; or, b) H₂SO₄ 3N, pH 3.5, 24 h a 4°C. They were centrifuged to 10,000 rpm, 20 min to 4°C. The sediments were dissolved in buffer phosphate 0.03 M. There determined the protein concentration (Lowry) and they were analyzed by native electroforesis (acrilamida 6%). With the method with saline precipitation there achieved a major purity and recovery of the monomeric form of ≈600 kDa, which will allow a better characterization of his physical and biological properties.

102. MICROPROPAGACIÓN DE *HELIANTHUS TUBEROSUS*

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H. tuberosus L. is a perennial plant known for its rich inulin concentration and invaluable source of fructose. Its propagation is vegetative, *via* tubers and seeds, has low viability. Therefore it is a species with low genetic variability. Tissue culture and induction of calli can produce genetic variability, induced by the action of 2,4-dichlorophenoxyacetic acid (2,4-D) growth factor. This response is determined by the type of explant, culture conditions and genotypes used. For this reason our aim was to determine the proper hormonal balance to optimize the production of callus and regeneration of shoots from leaf explants and nodal segments. Different treatments were performed on Murashige & Skoog media (MS) equipped with 2,4-D (0.1 and 2 mg/l) under conditions of light and darkness. The highest rate of callus formation was observed in treatment with 2,4-D (2 mg/l) at 24/- 2°C and 3,000 lux. The regeneration of shoots was achieved on MS media without growth regulators. The production of undifferentiated tissue can regenerate and produce somaclonal variants of cell lines with high production of secondary metabolites.

103. EFFECT OF OVARIECTOMY ON PRL AND HYPOTHALAMIC EXPRESSION OF TYROSINE HYDROXYLASE, RECEPTORS AND PRL SIGNALING MOLECULES ON LACTATING RATS

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Ovariectomy (OVX) does not impair suckling induced PRL release although ovarian steroids are key players in the hypothalamic regulation of PRL secretion by TIDA neurons. To investigate the effect of OVX on days 2 (L2) or 10 (L10) of lactation on ovarian hormone receptors and PRL signaling mechanisms we determined by real time PCR, the hypothalamic expression of tyrosine hydroxylase (TH), E₂ (ER), PRL (PRLR) and P₄ (PR) receptors, STAT5b (PRL signaling mediator), SOCS3 and CIS (PRL signaling suppressors) on 12-day lactating rats. OVX on L2 or L10 had similar effects, lowering the expression of PRLR (Control 235±29 p<0.05 vs. OVXL2 126±15 and OVXL10 108±6), SOCS3 (Control 5.2±1.4 p<0.05 vs. OVXL2 1.9±0.3 and OVXL10 1.4±0.1), STAT5b (Control 62±6 p<0.05 vs. OVXL2 45±5 and OVXL10 39±3), and PRB isoform (Control 1.52±0.26 p<0.05 vs. OVXL2 1.00±0.11 and OVXL10 0.79±0.04), without affecting TH, ER, CIS and total PR (A+B isoforms). These results suggest that ovarian steroid deprivation by OVX, specially of E₂, represses PRLR, PRB, STAT5b and SOCS3 expression and that the decreased SOCS3 and PRB expression compensates for the fall in PRLR, maintaining constant TH expression and TIDA neurons activity (regulated by short-loop PRL negative feedback mechanism) and thereby suckling induced PRL secretion. This new equilibrium is established rapidly, since OVX performed on L2 or L10 had similar effects.

104. LOSARTAN EFFECT ON ATHEROMA DEVELOPMENT IN APO E-DEFICIENT MICE FED WITH FRUCTOSE

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Angiotensin II (AII) stimulates generation of reactive oxygen species (ROS) through the activation of the NADPH oxidase system. The use of renin-angiotensin system inhibitors may be useful to study how oxidative stress participates in atherogenic process development. We studied the effect of losartan, an AT1 receptor antagonist, in an experimental model of atherosclerosis: fructose-fed ApoE^{-/-} mice. Losartan (10 mg/kg/day) was administered during 4 weeks. Atherosclerotic plaque was quantified in the aortic arch and carotid arteries by Oil Red O staining. NADPH oxidase activity was determined by chemiluminescence with lucigenin. Data (mean±SEM) were analyzed with ANOVA and Bonferroni's post test. Fructose-induced atherosclerotic plaque formation in aorta and carotid arteries was inhibited by losartan. Fructose increased NADPH oxidase activity in carotid arteries. This effect was significantly attenuated by losartan (1.00±0.05 vs. 0.44±0.39; P < 0.001). The present results show that losartan inhibits development of atherosclerosis in this model. This effect of losartan might be due, at least in part, to the inhibition of ROS generation.

105.

CHLAMYDIA TRACHOMATIS EXPLOITS RAB14-MEDIATED HOST CELL TRAFFICKING TO ENSURE ITS DEVELOPMENT

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Chlamydia trachomatis is an obligate intracellular Gram-negative bacterium, which multiplies in a single vacuole called inclusion. For its development, this bacterium requires lipids from the Golgi apparatus, multivesicular bodies and lipid droplets. Rab14 is a host protein that regulates transport between the Golgi complex and endosomes. The aim of this study was to investigate the manipulation of host cell vesicular trafficking exerted by *Chlamydia* for its own nutrition and benefit. Cells overexpressing Rab14wt and its negative mutants: Rab14S25N (a GDP-bound inactive form) and Rab14ΔGCGC (a cytosolic inactive form) were analyzed by confocal and electron microscopy after bacterial infection. Our results showed that Rab14 is recruited to the chlamydial membrane inclusion in a bacterial synthesis-dependent manner and independently of the integrity of microtubules and the Golgi complex. Furthermore, our results demonstrated that Rab14-labelled vesicles transport sphingolipids from the Golgi complex to the chlamydial inclusion. Overexpression of the cytosolic inactive mutant of Rab14 generated smaller inclusions with aberrant bacteria and ghosts bodies inside. Congruently, progeny from Rab14ΔGCGC-overexpressing cells was significantly less infectious compared with control or Rab14wt cells. These results suggest that Rab14 is necessary for the development of bacterial inclusions and for the replication of *C. trachomatis*.

106.

HUMAN DIPHYLLOBOTHRIOSIS: CASE REPORT IN A NON-ENDEMIC AREA OF ARGENTINA

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Diphyllobothriosis is an ictic zoonosis caused by consumption of raw or undercooked fish, infected with plerocercoids larvae of *Diphyllobothrium* species. Only three *Diphyllobothrium* species have been found in South America: *D. latum*, *D. pacificum* y *D. dendriticum*. From the latter, the *D. latum* is considered the only etiological agent causing diphyllobothriosis in Argentina and the disease is restricted to the Andean Patagonia. A 21 year old male patient was assisted at a hospital with abdominal discomfort, skin rash on the neck, and elimination of tapeworm segments in the feces. Diphyllobothriosis was confirmed by examination of morphologic characteristics of the eggs in the patient's feces. *D. latum* eggs are 50 to 75 μm long and 40 to 50 μm wide, they have a thick external membrane, they are yellowish brown, of an oval shape, with an operculum on one extreme and a small knob at the opposite one. He was treated with a single dose of praziquantel. The present brief shows the need of a continuous training for the improvement of the health staff as regards diagnosis and treatment of both endemic (in our work area) as well as non-endemic parasitosis. According to the records of parasite infections documented up to the moment at the sanitary system in our province, this is the first case of diphyllobothriosis reported to the date in Mendoza province.

107.

INFLUENZA A VIRUS NUCLEOPROTEIN PRODUCTION IN ESCHERICHIA COLI

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Actual influenza vaccines are made by a production process that uses fertilized chicken eggs. Although the egg method may yet prove useful for production of a pandemic vaccine, we need new, more flexible manufacturing approaches. Vaccine based on highly conserved antigens can provide protection against different influenza A strains and subtypes. The use of influenza A virus recombinant nucleoprotein (rNP) as a vaccine antigen, stems from the fact that NP show less antigenic variation than the influenza virus surface glycoproteins. The object of this work is to describe the production of rNP in a prokaryotic system. Plasmid pET30a-NP was constructed by cloning the PCR products of the gene from A/PR/8/34 (H1N1) influenza virus strain into the plasmid expression vector pET30a. The plasmid was then used to transform *E. coli*/BL21 (DE3) for expression. Bacteria were grown to log phase, and protein expression was induced by adding IPTG to a final concentration of 0,1 mM. After 12 hs of incubation at 37°C, the cells were pelleted and resuspended in lysis buffer and sonicated. Lysates were clarified by centrifugation and the soluble rNP was purified with a nickel-charged sepharose affinity column with purity greater than 95%. By this system we produce the rNP as an antigen candidate for an influenza vaccine, in a faster and cheaper way than the technology that uses chicken eggs.

108.

ENVIRONMENT CHARACTERIZATION AND SUSTAINABLE MANAGEMENT OF THE SANDY AREA WITH GRASSES AND CHAÑAR (GEOFFROEA DECORTICANS) ISLETS

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In order to characterize the sandy area with grasses and chañar islets, it is convenient to conduct an integrated study of the soil, water and vegetation resources and of the livestock management. The resources evaluation allow us to detect their problems and limitations, in order to develop a better management and use of those. From an integrated vision, this system sustainability, which is characterized by its fragility and restricted productivity, could be assured. The correct management of the rodeo guarantee reaching one calf a year in breeding systems. The objectives of this extension project are to show to the community the knowledge acquired through investigation, to improve the information available in soil, water and vegetation, to present convenient management for the rodeos and grasslands, to be aware of the fragility of the semiarid environment in San Luis, and to encourage the sustainable use of these ecosystems. In order to reach those objectives, the most representative fields of the area were visited, soil and vegetation were studied, and livestock was observed. The addressees are: institutions, social movements, groups or families with common characteristics. Until now there have been made studies, an actualisation journey, an extension video and promotion spots.

109. NEUROMODULATORY EFFECTS OF PROGESTERONE ON PREMOTOR SIGNS OF A 6-OHDA MODEL OF PARKINSON'S DISEASE IN MALE RATS

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Parkinson's disease (PD) is the second most common neurodegenerative disorder in humans. Today it is commonly agreed that premotor symptoms precede the motor phase by several years. Our objectives were to study progesterone (P) effects: 1) regarding cognitive areas in an appetitive model of memory; and 2) putative affective disorders in a forced swimming test. The neurotoxin, 6-hydroxydopamine (6-OHDA) was infused in the left striatum to induce degeneration of the dopamine pathway. Animals were tested at week 4 post-lesion. Experimental groups were: 1) sham; 2) lesion; 3) lesion + sc progesterone (P, 4 mg/kg 7 days post-lesion). A decrease of exploration of the novel object -i.e. a memory deficit- was found in injured animals without P treatment. This group also showed a clear depressive-like mood compared to sham and P treated groups. Thus, P prevented both the change in mood and the apparent memory deficit. If treated with the tricyclic antidepressant imipramine for 24 h, group (2) did not differ from the other groups. In summary: a) we detected an apparent memory deficit; and b) this memory deficit seems due to the depression-like behavior rather than to an intrinsic memory defect.

110. MODULATION OF BETA ACTIN FILAMENT NETWORK ASSOCIATED TO SERTOLI ECTOPLASMIC SPECIALIZATIONS ALONG THE RAT SEMINIFEROUS CYCLE

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The term blood-testis barrier (BTB) originated by early physiological studies on the mammalian testis that demonstrated a differential transport of ions and metabolites between the basal areas of the seminiferous tubules (basal compartment), and the apical sectors (adluminal one). Its morphological correlate was found to be located in specialized junctional devices found between the adjacent Sertoli (sustentacular) cells, integrated by occluding or tight junctions which seal each inter-Sertoli space and by adherens junctions made up by a highly organized circumferential belt of β actin filaments close to Sertoli cell membranes. Another junctional device, the tubular bulbar complexes (TB) completes this arrangement. These structures were termed ectoplasmic specializations by L. Russell. The aim of this study was to evaluate the distribution and arrangement of β actin and the Sertoli membranes using confocal or electron microscopy, colocalization of beta actin with prosaposin (mainly stains Sertoli cell cytoplasm) or glutaredoxine (mainly found in the cytoplasm of elongated spermatids) and freeze fracture (to observe Sertoli cell membranes and TB complexes). A clear, differential spatial organization of β actin filaments together with the arrangement of TB during the spermatogenic cycle was observed. In conclusion, significant interrelations between the actin network, the junctional complexes of BTB and TB complexes were detected at different stages of the seminiferous cycle.

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111. DISTRIBUTION AND ENVIRONMENTAL PARAMETERS RELATED TO THE PRESENCE OF THE CLAM *PISIDIUM CHIQUITANUM* ITUARTE, 2001 (BIVALVIA, SPHAERIIDAE) IN MENDOZA PROVINCE, ARGENTINA

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Nineteen species of the genus *Pisidium* have been described in southern South America. None was recorded in Cuyo region until 2008, when *P. chiquitanum* was found on a site from northern Mendoza Province (MP), which greatly enlarged the southern range of the species distribution (central Bolivia to NW Argentina) and was the first record of the genus in central-west Argentina. In prospecting, water bodies from north to south of MP, the species was detected at several new sites. The goal is to provide unedited data on distribution of this clam in MP and the first records of environmental variables associated with the species. We explored presence-absence of the clam in 73 benthos samples from lentic and lotic sites between 402 and 4000 m a.s.l. (meters above sea level) from all MP basins, and recorded conductivity (C), water temperature (WT), pH, depth (D), and sediment organic content (%; OC) and grain size for each locality. The species was found at 8 sites (965-2386 m a.s.l.) from Mendoza, Tunuyán, Atuel and Llanquarón basins (32°22' to 35°39' S), mostly streams and brooklets. Ranges of C, WT, pH, D, OC and very fine sand % where the clam occurred were 0.18-1.21 mS.cm⁻¹, 6.2-25.1°C, 6.84-9.40, 5-50cm, 1.7-11.7% and 9.4-63.4%, respectively. Our data enhance *P. chiquitanum*'s southern distribution and suggest that it mostly inhabits shallow, slightly running waters and that it has a relatively broad range of tolerance to environmental conditions.

112. EFFECTS OF TRIBUTYL TIN (TBT) ON FERTILITY OF THE INVASIVE APPLE-SNAIL *POMACEA CANALICULATA*

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In previous experiments designed for another purpose we observed that TBT may affect spawning in this species, so we wanted to confirm and to further explore this effect. A group of 6 adult male/female couples was exposed to 60 ng TBT/L during 30 days, while a similar, non exposed group was used as control. Both body mass changes and the frequency of copulations and spawning (episodes/month; e/m) were recorded. At the end of the experiment the gonad (in both sexes) and the seminal receptacle (in females) were prepared for routine histology. As expected, TBT caused a significant increase in VDSI (a common index of 'imposex'; Kruskal-Wallis test, P<0.05) and no deleterious effects of TBT on body mass were observed. A significant decrease in the frequency of both copulation (controls 7.2 ± 1.2 e/m vs. TBT 2.8 ± 1.0 e/m; Student's t test, P<0.05) and spawning (controls 5.2 ± 0.4 vs. TBT 2.7 ± 0.6 e/m vs. 3.7 e/m; Student's t test, P<0.05) was observed. No differences in either the spawn mass or the percent of fertile eggs were observed at first spawning (which occurred within 7 days of treatment) but both parameters were drastically reduced in subsequent spawns. No apparent histological changes were observed in TBT-treated gonads, but sperm stored in the seminal receptacle appeared drastically decreased in 4 out of 6 TBT-treated females. It is tentatively concluded that TBT may affect fertilization by affecting the stored sperm in female *P. canaliculata*.

113.

DIPHENYLAMINE, TUNGSTATE AND NITROGEN MODIFIED ABA PRODUCTION BY *PSEUDOMONAS FLUORESCENS* ISOLATED FROM ROOTS OF *VITIS VINIFERA**Cohen AC, Bottini R, Piccoli PN.**IBAM-CONICET/FCA-UNCuyo, M5528AHB Chacras de Coria, Mendoza. E-mail: acohen@fca.uncu.edu.ar*

Plant growth-promoting rhizobacteria (PGPR) colonize the root system, and have been studied as plant growth promoters for increasing agricultural production and as biocontrol agents against plant diseases. *Pseudomonas fluorescens* has received particular attention throughout the global science because of their catabolic versatility, excellent root colonizing ability and their capacity to produce a wide range of enzymes and metabolites that favour the plant withstand under varied biotic and abiotic stress conditions. *P. fluorescens* was isolated from roots of *Vitis vinifera* (cv. malbec L.) and produce the plant hormone abscisic acid (ABA) in chemical-defined media. Tungstate (W) affects the formation of ABA from ABAaldehyde by impairing ABA-aldehyde oxidase. Diphenylamine (DPA) is an inhibitor of lycopene β -cyclase. This work studies the effect the W, DPA and Nitrogen (N) in the culture media and ABA production. The addition of 10 mM W, 10 mM DPA and 135 mM NH_4Cl modified bacterial growth assessed as CFU ml^{-1} and ABA production.

114.

MORPHOLOGY OF LIMB TUBERCLES OF *RHINELLA ARENARUM* (ANURA: BUFONIDAE)*Cortez R, Marinero V, Vidal M, Quiroga L, Moreno D, Cataldo A, Sanabria E.**Fac Cs Es Fs y Ns, UNSJ. 5400 San Juan.**E-mail: cortezricard@gmail.com*

Limb tubercles in anurans are generally used to build the caves and avoid extreme conditions of the environment. The aim of this study was to identify the variation in shape and size of metacarpal and metatarsal tubercles in three populations from San Juan Province. We analyzed the variation in size with traditional morphometrics, and recorded maximum length of tubers and body length for each individual. In addition, photographs were taken of the tubercles to analyze the change in shape by geometric morphometric outline. The inner metatarsal tubercle size varies between two populations (ANOVA: $p = 0.0001$; $p = 0.0001$; $p = 0.1$), while shape does not vary between the three populations (MANOVA: Wilks lambda = 0.372; $P = 0.48$). Size and shape of the external metacarpal tubercle differ among the three populations (ANOVA: $p = 0.0001$; $p = 0.0001$; $p = 0.001$, MANOVA: Wilks lambda = 0.256; $P = 0.03$). The differential structure of the soil at the three localities could explain this pattern of morphological variation.

115.

DEHYDROLEUCODINE INHIBITS THE PROLIFERATION OF MELANOMA B16 F0-F10 CELLS*Costantino V¹, Amaya C¹, Bertoldi V¹, Losinno A¹, Quest A², López LA¹.**¹IHEM-CONICET. FCM. U.N.Cuyo. Mendoza. ²Lab de Com Cel. U. de Chile. Chile. E-mail: vcostantino@fcm.uncu.edu.ar*

Dehydroleucodine (DhL) is a sesquiterpene lactone extracted from the medicinal plant *Artemisia douglasiana*. Results of our laboratory showed that DhL delays the proliferation of HeLa cells, arresting them in the G2 phase of the cell cycle. In this work we proposed to analyze whether DhL inhibits the proliferation of B16-F0 and B16-F10 cells and alters cell cycle proteins. B16 F0 y B16 F10 cells were obtained from a spontaneous mouse C57BL/6 melanoma. Quiescent cells (10^4) were stimulated with 10% of fetal bovine serum (SFB) in the presence of 0 to 6 μM DhL by 72 h. The growth index was determined ($\text{IC} \pm \text{SEM}$) every 24 h and results were analyzed by ANOVA. Proteins of the cell cycle were analyzed by Western blot. Results: After 72 h of culture control B16 F0 and B 16 F10 cells showed an IC of 9.7 ± 0.3 and 10.5 ± 1.1 respectively, with 2 μM DhL 5.7 ± 0.5 and 6.4 ± 0.7 respectively, with 4 μM 1.7 ± 0.3 and 1.9 ± 0.1 respectively, with 6 μM 1.0 ± 0.1 and 1.4 ± 0.3 respectively. Statistical analysis showed significant differences with 0, 2, 4 and 6 μM DhL. Also, incubation with 4 and 6 μM DhL reduced the concentration of cyclin B1 and survivin. DhL inhibits the proliferation of B16 F0 and B16 F10 cells in a concentration-dependent way, decreasing the expression of cyclin B1 and survivin.

116.

TRYPANOCIDAL ACTION OF NATURAL COMPOUNDS AND CRUDE EXTRACTS OBTAINED FROM PLANTS OF CUYO*Cozzari J, Feresin G*, Tapia A*, Sosa MA, Barrera P.**IHEM-CONICET Mendoza, *Instituto de Biotecnología-UNSJ.**E-mail: jennifercozzari@hotmail.com*

Trypanosoma cruzi is the etiologic agent of Chagas disease, which affects millions of people in Latin America. For decades, the search for new drugs to cure this disease has been intense. Recently, compounds obtained from plants of the Andes have shown important biological activities. Embelina is an alkyl phenol obtained from *Oxalis erythrorhiza* with potent antimicrobial activity. This study aimed to evaluate the trypanocidal action of this compound and its derivatives, and expand the search to new extracts from other plants in the area. *T. cruzi* epimastigotes (strain Tulahuen) were cultured in liquid medium of Diamond, in the presence or absence of embelina or different plant extracts. Aliquots of the cultures were collected every 24 h, fixed with PAF and counted in a Neubauer hemocytometer. The viability of parasites was evaluated by dye exclusion. Extracts from; *Chuquiraga erinacea*, *Chuquiraga ruscifolia*, *Chuquiraga ehegaragii*, *Junellia hystrix*, had no trypanocidal activity, while hexanoic fractions from *Azorella* showed intense trypanocidal activity from concentrations of 15 $\mu\text{g}/\text{ml}$, in an irreversible and dose-dependent way. In turn, subfractions from the fraction 4 of *Azorella* strongly inhibited the growth of parasites. Embelina (15-50 $\mu\text{g}/\text{ml}$) and a mono-methoxylated derivative inhibited the growth of parasites. We conclude that some native plants from Cuyo may contain significant amounts of compounds with trypanocidal activity and could be considered for future therapeutic uses.

117. DIFFERENT REACTIONS TO FOREIGN PARTICLES IN THE APPLE-SNAIL *POMACEA CANALICULATA*

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We studied the changes in circulating hemocyte concentration (CHC) after injection of heat-inactivated bacteria (*Escherichia coli*) or after insertion of a polystyrene bead in the foot. Both sham-injection and sham-insertion (controls) provoked a 2-3 fold increase in CHC, which was sustained for several days. Bacterial injection, however, provoked within 2 h a decrease to less than one third of the initial CHC and these values were slowly recovered in subsequent days. Since India ink injection results in the retention of carbon particles in renal hemocyte islets, it is thought that the decreased CHC observed after bacterial injection is due to hemocyte migration to the islets. Conversely, the insertion of a polystyrene bead did not modify CHC (as compared to sham-inserted controls) but induced a massive hemocyte accumulation around the inserted bead. PCNA ('proliferative cell nuclear antigen') was histochemically detected in renal islet hemocytes after bacterial injection and in those of the developing capsule around the bead. It is tentatively concluded that: (1) the injuries of sham-operations induce a lasting increase in CHC through an unknown mechanism; (2) hemocyte proliferation is enhanced both in the developing capsule around the bead and within renal islets after bacterial injection; (3) hemocyte proliferation in these islets may account for the slow recovery of CHC after bacterial injection; and (4) hemocyte proliferation in the developing capsules does not affect CHC.

118. INFANT BOTULISM: ENVIRONMENTAL FACTORS ASSOCIATED TO HIGH PREVALENCE IN TUPUNGATO, MENDOZA (ARGENTINA)

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Infant botulism (IB) is a severe toxiiinfection caused by ingestion of botulinum neurotoxin producing clostridia (BNPC) spores, which colonize, and produce toxin in the large intestine of infants less than one year of age. Between 1982 and 2008, the highest prevalence of IB in Mendoza was in Tupungato (24/134=18%). Soil is the most important source of BNPC spores. In order to assess the risk factors of exposure, 73 soil samples (31 belonging to districts with cases, and 42 belonging to districts without cases), were cultured in chopped meat medium and the toxins were typing by mouse bioassay. Results: 46/73 (63%) samples were positive, 38 (83%) of them were serotype A, 2% (1/46) were serotype B; and 15% (7/46) are in process of identification. Positive samples by districts were: 18/31 (58%) taken in districts with cases, and 28/42 (67%) in the districts without cases. There are not significant association ($p=0.05$) between the presence of BNPC spores in soil and the prevalence of IB in the area. These results suggest that, Tupungato would have multiple factors associated, such as agricultural activity, topography, and climatic conditions that contribute to the dispersal of spores. Environmental conditions would be relevant risk factors for the high prevalence of IB in Tupungato.

119. DESCRIPTION OF RELEASE CALL OF *RHINELLA ARENARUM* (ANURA: BUFONIDAE)

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Communication is part of the social behavior of toads and other animals. Even though the release call is a specific variable of the toads, it is scarcely known. In February 2006, we recorded the release call of *R. arenarum* with a digital recorder Olympus, VN 2000. Release calls were processed with Syrix bioacoustic software. We recorded 36 calls. The variables measured for the description were dominant frequency, total length of "pulse trains" and "inter-pulse trains", number and length of pulses, and the mode of the release call. The mean lengths of pulse trains and inter-pulse trains were 44.91 ± 1.56 milliseconds and 117.13 ± 13.22 milliseconds, respectively. The number of pulses had a mean of 5.83 ± 0.23 and the mean length was 7.03 ± 0.41 milliseconds. The dominant frequency was 912.89 ± 19.36 Hz. The release call of *R. arenarum* shows a characteristic mode, composed of a last steady pulse. The previous pulses are higher than this characteristic last pulse. The release call is an agonistic signal emitted by male toads when amplexed with other toads of the same sex. The release call provides information that allows us to separate phylogenetically related species.

120. POST-HARVEST UVC IRRADIATION EFFECT ON ANTHOCYANIN PROFILE OF GRAPE BERRIES

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Anthocyanins are a class of phenolic compounds that contribute to the color of red grapes and have shown nutraceutical properties for human health. UVC light irradiation has been proved to increase phenolic compounds such as stilbenes, but its effect on anthocyanins has not been reported. The aim of this work was to identify the best treatment conditions of UVC light irradiation on post-harvest berries of Malbec (M), Cabernet Sauvignon (CS) and Tempranillo (T) for anthocyanin increments. Grape berries were irradiated with 240 W at 20 and 40 cm from the light source, for 30, 60 and 120 seconds. Both, irradiated and control grapes were stored on darkness at 20 °C until anthocyanin extraction with methanol/CIH. HPLC analysis were performed and nine anthocyanins were quantified. UVC light irradiation modified the anthocyanin profile of the three cultivars. All the glucoside anthocyanins derivates and peonidin-acetyl-glucoside, as well as total anthocyanins were increased when CS berries were exposed to UVC for 120 s at 40 cm. This suggests that UVC stimulated the entire biosynthetic pathway. The anthocyanin content of the control berries was always higher than the treatments with UVC on M and T, making necessary to evaluate less rigorous conditions for these varieties.

121.

EFFECT OF HAIL MESH (GREMBIULE SYSTEMS) ON VIGOROUS MALBEC PLANTS YIELD*Deis L*, Cavagnaro B, Quiroga M, Cirrincione M, Venier M, DiMuccio N.**FCA-UNCU-CONICET. *E-mail: ldeis@fca.uncu.edu.ar*

The phenolic compound synthesis is affected by endogenous and climatic factors. Defoliation affects the luminance intensity and temperature of the flowers or clusters. Vineyards with very dense foliage, with low percentage of illuminated yolks good, can affect their differentiation and the future yields. The test was realized in Malbec, vigorous plants with hail mesh (system grenbiule MG). The treatments were: control (t); with MG; Raised (l): he hail mesh raised. This of the vineyard; Risen twice (LB): it hail mesh raised in both face of the vineyard; United (U): you hail mesh were united. During the first year of the test the fertility of the basal yolks could not be evaluated, detected in the beginning of the test an increase in the weight of the clusters of the season. N° clusters/shoot did not present significant differences, but was an increase of the weight of the harvest of the plants of the treatment U, followed by LB, soon L and the smaller weight obtained to T. We demonstrated, that vigorous cultures of Malbec with MG can affect total the photosynthetic capacity with minor weight of berry. The excessive shade can explain the diminution of n° clusters/bud that has experimented the culture from the positioning of hail mesh.

122.

POSTCONDITIONING PROTECTION AGAINST VENTRICULAR ARRHYTHMIAS. ROLE OF ADENOSINE*Diez ER, Saldeña NLR, Carrion AM, Ponce Zumino AZ.**Fac Cs Med, Univ Nac Cuyo, IMBECU-CONICET. Mendoza.**E-mail: diez.emiliano@fcm.uncu.edu.ar*

We investigated factors that may reduce reperfusion arrhythmias (RA) in isolated rat hearts. We studied the effect of intermittent ischemia at the onset of reperfusion (ischemic postconditioning, IPC) and found that this maneuver reduced sustained ventricular tachycardia and/or fibrillation from 80% in the control to 30% ($P < 0.05$ by χ^2). In order to elucidate the mechanisms implicated, we evaluated adenosine, a factor released during ischemia, as the main mediator of IPC protection. Adenosine A1 receptor blockade by 8-cyclopentyl theophylline 10 μ M (CPT) prevents IPC protective effect (CTP 100% vs CPT+IPC 70% RA, ns). The intermittent administration of different doses of adenosine (10 μ M and 100 μ M) did not fully reach the protection obtained with IPC alone (60% and 50% respectively, both ns vs control), but continuous administration of the higher dose succeeds (10 μ M 50% ns, and 100 μ M 20%, $P < 0.05$). We conclude that adenosine is a necessary mediator of postconditioning, without being enough to reach IPC protection by itself, unless high doses were administered, indicating that other factors should be involved.

123.

NUTRIENT CONTENT OF NATIVE FORAGE SPECIES AND GOAT PREFERENCE ON RANGELANDS IN NORTH-EASTERN MENDOZA, ARGENTINA*Egea V^{1,3}, Fucili M¹, Paez S^{1,3}, Grilli D^{2,3}, Allegretti L^{2,3}**¹IADIZA-CCT Mendoza. ²U.N. Cuyo. ³U.J.A.M.*

Forage species in northeastern Mendoza differ in their nutrient content. Grazing goats could select diets with high nutritional quality to meet their nutritional requirements. The objective of this work was to determine the relationships between forage nutrient content and goat preference. In July, botanical composition of diet was estimated on 12 free-ranging Creole goats by microhistological analysis of faeces. A bulk sample per goat was prepared from five fecal samples collected daily from each animal during 5 consecutive days. Forage species availability was determined using the Point Quadrat Method and the Ivlev's index was used to evaluate goat preference. The content of crude protein (CP), neutral detergent fiber (NDF), acid detergent fiber (ADF), lignin, cellulose, metabolizable energy (ME) and dry matter of *Prosopis sp.*, *Geoffroea sp.*, *Tricomaria sp.*, *Mimosa sp.*, *Capparis sp.*, *Atriplex sp.* and *Panicum sp.* were determined. Spearman correlation test was used to evaluate the relationship among nutrient content of forage species and preference index. The preference index showed a positive correlation with CP ($r = 0.65$, $p < 0.001$) and a weak negative correlation with ADF ($r = -0.23$, $p < 0.05$). These results indicate that nutritional composition of forage species is one factor affecting diet selection of goats. Although, the effect of other animal and plant factors on diet selection of Creole goats should be studied.

124.

THE BLACKHEAD SOMALI KAROTYPE – A NEW CONTRIBUTION TO ELUCIDATING THE TAXONOMY OF THE GENUS OVIS*Ferré D, Cuervo P, Quero M, LLaver L, Yanzon E, Hynes V, Pedrosa A, Albarracín L, Gorla N¹.**Fac Cs Veterinarias y Amb, Universidad J A Maza, Mendoza.**¹CONICET.*

Among food-producing animals, the genus *Ovis* is particularly complex with regard to its evolution and systematics, due to morphological and geographic parameters. Blackhead Somali is characterized by its white torso and extremities, as well as the black pigmentation of its head and neck. No reports concerning its karyotype are available in the international bibliography. Usually, Blackhead Somali is classified as the species *Ovis aries steatopigas*. Recently, however, categorizing Blackhead Somali as *Ovis orientalis aries* has been suggested. The objective of the present study was to determine the G-band karyotype of the Blackhead Somali, and compare it to the karyotype of the domestic sheep (ISCNDA 1990), thus contributing to elucidating the taxonomy of the genus *Ovis*, based on cytogenetics. Lymphocyte cultures from a male and a female animal were processed by means of traditional cytogenetic methods in order to obtain metaphases (Buckton and Evans 1973 mod.), and differential G-band stains were obtained (Seabright, 1971). The animals studied showed $2n = 54$ with three large metacentric-submetacentric and 24 telocentric chromosomes, including sexual chromosomes. However, distinguishing between chromosomes 4 and 6 proved difficult. Based on the high similarity between the karyotypes of both, the present study supports the categorization of the Blackhead Somali as a breed of the domestic sheep.

125. STUDIES ON ROOT-KNOT NEMATODES AND RESISTANCE IN WILD POTATOES

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Root-knot nematodes, from the genus *Meloidogyne*, represent the most important soil pathogen for potato cultivars in Mendoza (Argentina). The cultivated potato (*Solanum tuberosum* ssp. *tuberosum*) is highly susceptible to the root-knot nematode *M. incognita*. This nematode causes great yield losses and a substantial reduction in tuber quality. No resistant potato cultivar is known, although tolerance or resistance to infection by *M. incognita* has been reported for some wild potato species. However, the identity of the resistant genotypes of wild potatoes and race of the nematodes tested are unknown. This work focuses on the identification of root-knot nematodes that infect potato cultivars in Mendoza and on the evaluation of resistance in diverse wild potatoes. The identification of nematodes was performed through observation of the pattern of the perineal region of females and the differential host test. A nematode identified as *M. incognita* race 2 was isolated from an egg mass that was multiplied in susceptible tomatoes. Varieties of wild potatoes grow in the region of Cuyo (Mendoza) and were tested for their resistance to *M. incognita* raza 2. The response to nematode infection was diverse, including at least one tolerant genotype of a wild potato.

126. HOMEOSTATIC RESPONSES TO MERCURY AND CADMIUM IN ALFALFA

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Exposure of plants to mercury (Hg) and cadmium (Cd) may result in the alteration of many components and cellular processes that lead to weaknesses in the basic functions of plants. The aim of this study was to evaluate the alteration of physiological responses including changes in the activity of antioxidant enzymes, identification of heat shock proteins and the expression of genes coding for these proteins. 48 h-old alfalfa (*M. sativa*) seedlings were treated with Cd or Hg (0, 3, 10 and 30 μ M) for 3, 6 and 24 h in a hydroponic microscale system. Growth inhibition increased with metal doses and exposure time, being plants more sensitive to Hg (40%) than to Cd (15%). Ascorbate peroxidase, peroxidases, glutathione reductase and NADPH-oxidase activities were measured *in gel*. In general, following the pattern of higher Hg toxicity, activity augmented in the lower doses, but was inhibited at the highest concentrations, particularly in roots. However, Cd responses were milder, and generally augmented in a dose manner. Western-blotting with specific antibodies revealed that most enzymatic activities changes occurred without protein alterations, but for the highest dose of Hg in roots, were protein integrity was compromised. Different classes of HSPs followed a similar pattern of accumulation under Cd and Hg-stress. Preliminary results with the Hg show a broad induction of genes related to the ascorbate-GSH cycle until 6 h of treatment, declined after 24 h exposure. In summary, it is feasible that over a certain threshold, disrupted metabolism was unable to adjust to stress. In addition, some specific responses were found, and potentially could serve as metal-specific bioindicators.

127. HISTOLOGICAL AND MOLECULAR STUDY DURING OBSTRUCTIVE NEUROPATHY: PARICALCITOL EFFECTS AT MITOCHONDRIAL LEVEL

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New evidence suggests that the activators of Vitamin D receptors have a suppressant effect on oxidative stress. This study investigates, in an obstructive nephropathy (ON) animal model, the structural and functional changes in the kidney and the paricalcitol (Pari) effects. Methods: Ten adult female Wistar rats were obstructed surgically at the urethero-pelvic level. They were divided into two groups, Control and Treated. The treatment was done for a 15-day (30 ng/Kg/day). We evaluated blood pressure, PTH, as well as calcium and phosphorous levels. The kidney was also evaluated histologically for fibrosis with Masson trichomic staining, for apoptosis with TUNEL technique, and electronic microscopy (EM) for mitochondrial evaluation. Results: Histological changes in the kidney showed that the ON induced interstitial fibrosis with increase in apoptosis. Both results decreased with Pari. EM revealed, in obstructed non-treated animals, electronically luminous nuclear material in the nucleus. We also noted that the mitochondria were increased in size with dilated crests and spaces in their interior. These mitochondrial changes were not present in the paricalcitol-treated animals. Conclusions: These results, in an obstructed nephropathy model, show a cyto-protected effect of the activator of Vitamin D receptors, paricalcitol, revealing for the first time a possible protective effect at the mitochondrial level.

128. CROSSTALK BETWEEN MAV AND MEP PATHWAYS IN *IN VITRO* GRAPE PLANTS EXPOSED TO UV-B RADIATION

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The synthesis of terpenoids from IPP (isopentenyl diphosphate) proceeds in plants throughout two pathways, the MVA (mevalonic acid) in cytosol and the MEP (2-C-methyl-D-erythritol 4-phosphate) in plastids. Ultraviolet-B (UV-B) radiation induced the synthesis of terpenes in *in vitro* grape plants according to the fluence rate. Low intensity UV-B promoted the MVA pathway while high intensity UV-B stimulated the MEP pathway. Mevastatin is known to inhibit the enzyme HMG-CoA reductase blocking terpene synthesis in cytosol. *In vitro* plants growing 45 days under 16 h-photoperiod (100 μ mol m⁻² s⁻¹) were fed at the apex with mevastatin and then exposed to an UV-B dose administrated at two intensities: low UV-B (8.25 μ W cm⁻², 16 h) or high UV-B (33 μ W cm⁻², 4 h). Methanol: chloroform extracts were analyzed by GC-EIMS and compared with controls without mevastatin. Levels of γ -Sitosterol and Stigmasterol were significantly increased under low intensity UV-B in the controls. The plants treated with the inhibitor showed a significant decrease of both sterols and a decrease in the plastidial terpenes but sterols were higher under UV-B. These results suggest an IPP crosstalk between the MAV and MEP pathways under restrictive conditions.

129.
EFFECTIVITY AGAINST TRIATOMA INFESTANS 3RD
STAGE NYMPHS OF POUR ON 5% CIPERMETHRIN VER-
SUS POUR ON 1% FLUMETHRIN IN DOGS

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Since current control strategies of domestic populations of *T. infestans* with pyrethroid spraying fail to prevent reinfestation of the household ecotopes, we evaluated methods that increase the efficiency of pyrethroids. The strategy used in this study is xenointoxication. We exposed third stage nymphs of *T. infestans* to dogs treated with different dosages of pour on 1% flumethrin and pour on 5% cipermethrin. In group 1 (dogs treated with 5% cipermethrin in doses according to body weight), 48 h post impregnation 5 nymphs had died (33.3%) 4 (26.6%) had been turned around and 6 (40%) were not affected. At 10 days, 9 died (60%), 2 turned around (13.3%) and 4 (26.6%) not affected. At 20 days, 12 (80%) were dead and 3 (20%) not affected. At 30 days 13 (86.6%) died, 2 (13.3%) turned around. In group 2, dogs treated with 1% flumethrin, and group 3 (control), nymphs were no affected. We found a significantly higher mortality (70%) with the dose of 1.5 ml/10 kg cipermethrin considering all groups. Our results are in line with those reported by other authors in chicken. 5 % Cipermethrin was effective against *T. infestans* third stage nymphs achieving 65% mortality, 13% of turning around, while no effect was found in 22%. Flumethrin at 1% was not effective.

130.
EXTENT OF CELLULOSE DIGESTION IN NATIVE FOR-
AGES BY FIBROBACTER SUCCINOGENES, ISOLATED
FROM THE RUMEN OF GOATS BIOTYPE CRIOLLO

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Fibrobacter succinogenes is a major cellulolytic bacterium in the rumen of cattle and sheep. The assignation of the role of the bacterial strain in its natural environment depends on the substrate that it can digest. The aim of this study was to determine *in vitro* digestibility of the cellulose in the alfalfa and six native forage for one strain of *F. succinogenes*. The same was isolated from goats biotype Criollo grazing native pasture in the northeast of the province of Mendoza and was identified by PCR. The substrates evaluated were *Medicago sativa*, *Prosopis flexuosa* *Capparis atamisquea*, *Geoffroea decorticans*, *Mimosa ephedroides*, *Tricomaria usillo* and *Atriplex lampa*. The percentages of *in vitro* digestibility of the cellulose in these forages were 19.10 ± 4.72, 19.48 ± 1.71, 36.76 ± 7.28, 31.22 ± 4.22, 29.49 ± 9.26, 38.23 ± 0.65 y 50.36 ± 4.49%, respectively. The correlation coefficient (R= 0.79, p < 0.05) between the lignin content of forages evaluated and the percentage digestibility of the cellulose in these forages suggests that no lignified tissues are much more degraded than lignified tissues of forages evaluated. Knowledge of *in vitro* digestibility of rumen bacteria is essential for developing strategies to manipulate the rumen fermentation, aimed at improving efficiency in the production of goats in arid systems.

131.
USE OF PSYCHOTROPICS IN MENDOZA

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This project involves the study of drug utilization in private pharmacies of Mendoza, through a retrospective analysis performed in different branches of "Del Centro" Pharmacy chain. Students regularly visited the branches. Data from each branch were transcribed to a form. Importantly, 15 554 prescriptions were processed manually. In all branches, irrespective of geographical area, there is an alprazolam consumption that exceeds the reference dose. The collected data allowed us to see that women have the highest prevalence of use of psychotropic drugs. The age range in which they consume more psychotropic drugs is from 40 to 70 years. Most recipes containing psychotropic drugs are prescribed by doctors who are not psychiatrists or neurologists, and in many cases, they are not even clinicians. The collected data have identified different types of inconsistencies suggestive of drug abuse. We have identified patients in which purchases of certain psychotropic drugs exceed normal doses because in the same month they have several prescriptions with the same drugs signed by the same medical doctor. Certain prescriptions of psychotropic drugs do not match the diagnosis. There are patients who presumably abuse certain drugs, since we found recipes with the same active ingredients prescribed by different medical professionals, thus suggesting an consumption twice to three times higher than the doses recommended according to the condition treated.

132.
URIC ACID DEGRADATION BY GUT BACTERIA IN THE
APPLE-SNAIL POMACEA CANALICULATA

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In previous publications we studied uric acid deposits in specialized tissues from *Pomacea canaliculata*, which may play an important role in their nitrogen metabolism. The re-utilization of combined nitrogen for the synthesis of amino acids and the nitrogen base moieties of nucleic acids requires the previous degradation of uric acid to ammonia. The first step of this pathway is the oxidation of uric acid to allantoin by uricase (=urate oxidase, EC 1.7.3.3). We found that this animal bears intestinal bacteria with the capacity of growing in a selective medium that contains uric acid as the only carbon and nitrogen source, so that they should be able to degrade this purine. A total of 8 bacterial strains able to grow in the selective medium were first distinguished on the basis of colony type and Gram staining: 7 Gram⁽⁺⁾ bacilli and 1 Gram⁽⁺⁾ coccus. DNA extracts from the Gram⁽⁺⁾ strains were used as templates for the PCR amplification of the ribosomal RNA 16S gene. The amplified products were sequenced and compared with GenBank data, indicating the occurrence of *Enterobacter*, *Pseudomonas* and *Citrobacter* as uric acid degrading bacteria. Provisionally, the uric acid degrading Gram⁽⁺⁾ coccus was biochemically identified as *Enterococcus faecium*. Results indicate that several gut bacteria may participate in uric acid recycling in this snail.

133.
ANTIPHOSPHOLIPID SYNDROME (APS) IN LAB ANIMALS

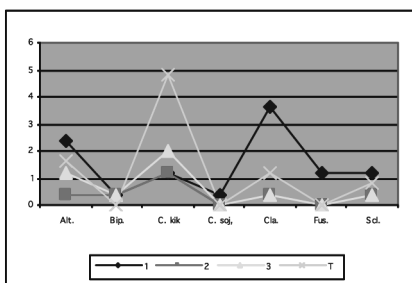
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Antiphospholipid antibodies (aFL) are associated with deep vein thrombosis (DVT), hemolytic anemia (HA) and thrombocytopenia (PD). This work aimed at describing the relationship between observed manifestations in patients with thromboembolic disease by injecting anticardiolipins (aCL) from patients to laboratory animals. Blood samples from patients with HA, patients with DVT and PD, and from patients without those conditions were obtained. Samples were purified through chromatography. Samples were injected in 24 Balb/c rats: 8 with aCL positive serum from patients with DVT and PD, 8 with aCL positive serum from patients with HA (problem groups A and B respectively), and 8 with aCL negative serum (control group). For comparison, blood was drawn 24, 48 and 72 h before injection. In group A, a significant drop ($p=0.019$) in platelet count (thousand per mm^3) was observed between values before injection (395 ± 31) and 48 h after it (207 ± 20). In the control group no significant difference ($p=0.399$) in platelet count was found before (395 ± 32) and after injection (364 ± 25). Swelling and necrosis were observed in limbs of rats injected with aCL-positive serum. Significant differences were observed in the hematocrit in relation to time values ($p<0.0003$) and the control group and group B samples ($p<0.000007$). The observed PD shows that antiphospholipid syndrome may be reproduced in rats and allows us to correlate it with the appearance of thrombotic events.

134.
EVALUATION OF FUNGICIDES TO CONTROL SOYBEAN ECD IN VILLA MERCEDES (SL). II – QUALITY SEEDS

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Fungi can cause losses in seed yield and / or decrease its quality. The effects of three fungicides applied were studied using 400 seeds from each treatment and the same number of a witness. The identification of fungi structures was performed using APG normalized method and optical microscope. Incidence was determined as the number of seed bearing fungus colonies. The results are shown in the chart below:



Treatment 1 and T showed significant differences in pathogens incidence and the treatment 2 and 3 the lowest in pathogens incidence. *Cladosporium* sp and *Cercospora kikuchii* showed the highest percentages.

135.
EVALUATION OF FUNGICIDES TO CONTROL SOYBEAN END CYCLE DISEASE (ECD) IN VILLA MERCEDES, SAN LUIS. I-SEVERITY AND YIELD

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The end cycle diseases (ECD) produces a significant losses in soybean. In order to evaluate the effect of mixtures of commercial fungicides, a trial was conducted in a CRD with four treatments: 1 – Pyraclostrobin + Epoxyconazole (Opera), 2 – Pycoxistrobin + Ciproconazole (Stinger), 3 – Axosystrobin + Ciproxonazole (Amistar Xtra) and 4 – Witness and four replications, applied at R3 in Villa Mercedes, San Luis. Performance was measured as yield and disease severity, ten and twenty days after application. The epidemics were compared by the final intensity parameter, being in the treatments 2 and 3 higher yields and lowers severity of the disease. The application of mixture at R3 of Pycoxistrobin + Ciproconazole (Stinger) and Axosystrobin + Ciproxonazole (Amistar Xtra) reduced significantly the severity of the ECD and obtain significantly higher yields.

136.
STRUCTURAL PARAMETERS AS TOOLS FOR MONITORING POPULATIONS: STUDY CASE OF A HERPETOLOGICAL ASSEMBLAGE IN CENTRAL ANDES OF ARGENTINA

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Population dynamics is the study of how and why populations change over time in response to both natural environmental changes as to anthropogenic alterations. The aim of this work was to propose basic parameters, taking into account biological aspects in a herpetological assemblage in Central Andes, and discuss their applicability for management and conservation decisions. The study was performed in Quebrada Vallecito, Calingasta (San Juan) during fall seasons of 2008 to 2010. The monitoring parameters were selected by following criteria: detect changes capacity, represent the system with measurable basis, temporal replication and provide criteria to decision making about conservation. The application of methods to quantify the population structure, both intra and interspecific relationships as with physical environment, allowed us detect intrinsic variations in natural dynamics. When monitoring assemblages are carried out only through frequency and relative abundance data did not show the properties here described. In those cases, dynamic changes in relationship to what population's elements are affected and how the resources vary, are not explain. For these reasons, when this kind of parameters are used is possible predict individual or broad population behavior, important information to anticipate future trends and guide the generation of corrective policies in terms of conservation.

137.

RAB11-FIP2 IS INVOLVED ON CHLAMYDIAL INCLUSION BIOGENESIS

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Many intracellular pathogens such as *Chlamydia trachomatis*, replicate inside host cells in special compartments delimited by membranes and take advantage of host vesicular trafficking pathways for its development. Rab GTPases are key regulatory proteins of membrane traffic. Rab11 is recruited to the chlamydial inclusion and regulates its biogenesis and development. It has recently described a Family of Rab11-Interacting Proteins known as FIPS. FIP2 has at the C-terminus a Rab11-binding domain called RBD and at the N-terminus a C2 domain that binds phospholipids. By confocal microscopy, we observed the recruitment of FIP2 to the chlamydial inclusion. Furthermore, FIP2 Δ C2, the mutant lacking the C2 domain, is also recruited to the inclusion membrane through its binding with Rab11. In agreement, the mutant that lacks the Rab11-binding domain RBD (FIP2 Δ C2 Δ RBD) is not associated to the membrane of the chlamydial inclusion. FIP2 recruitment depends on bacterial protein synthesis and is independent of Golgi apparatus integrity. These data suggest that *Chlamydia trachomatis* interacts with critical components of host intracellular trafficking in order to create a niche favorable for its survival and development.

138.

CART PEPTIDES AND FREE OXYGEN RADICALS IN ALCOHOL ADDICTION

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The relationship between aggressive behavior and alcoholic addiction is well known. The relationship between neuroendocrinological factors and alcoholic addiction has also been studied. The aim of the present work was to investigate the probable relationship between aggression, addiction and neuroendocrinological factors. We included the molecular aspect in relation to CART (Cocaine – Amphetamine - Regulated Transcript) peptides, which play an important role in the action of psychostimulants, feeding, body weight and stress and glucocorticoids, with generation of free oxygen radicals quantified through malonyldialdehyde (MDA). In twelve addicted patients and ten controls we quantified prolactin, cortisol and ACTH by RIA, MDA by Biox N° 21012 kit and serum CART peptides by EIA according to Portsmann methods. Preliminary results show higher MDA values in patients (1.65 \pm 0.18 micromol/l) vs controls (0.68 \pm 0.12 umol/l). No significant differences were observed in prolactin, cortisol or ACTH. CART peptides were significantly lower in addicted patients (0.26 \pm 0.05 vs 2.40 \pm 0.60 ng/ml). Results suggest a role of CART and reactive oxygen species in alcoholic addiction genesis in humans.

139.

ANTIFUNGAL AND ANTIOXIDANT ACTIVITIES OF EXTRACTS AND COMPOUNDS FROM GENTIANELLA MULTICAULIS COLLECTED IN SAN JUAN, ARGENTINA

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The infusion of the aerial parts of *G. multicaulis* (*Gentianaceae*), locally known as 'nencia' is used in San Juan province (Argentina), as stomachic and as a bitter tonic for digestive and liver illnesses. The antimicrobial and free radical scavenger activities *G. multicaulis* extracts are reported. The dermatophytes *Microsporum gypseum*, *Trichophyton mentagrophytes* and *T. rubrum* were moderated inhibited by different extracts (MICs 125 to 250 μ g/mL). The extracts displayed strong free radical scavenging effect in the DPPH assay (45-93%, at 10 μ g/mL) and FRAP assay at 200 μ g/mL. Significant positive correlations were found between total flavonoids, total phenolic compounds and DPPH assay (Pearson coefficient R= 0.984 and 0.831, respectively; p < 0.01). The antifungal compounds were three xanthenes: desmethylbellidifolin, bellidifolin, 1,3,8-trihydroxy-5-methoxy-9-xanthone with equal MICs= 50 μ g/mL. Desmethylbellidifolin presented highest antioxidant activity in the DPPH and FRAP assays. In addition oleanolic acid, ursolic acid and swerchirin, were isolated. The results indicate that *G. multicaulis* is a source of antifungal and antioxidant compounds.

Acknowledgements: CICITCA-UNSJ, UNR, PICT-2008-0554, CONICET (BL, LL, MBA, PJA, and GEF.)

140.

HEPATOZOON CANIS: FIRST REPORT FOR THE PROVINCE OF MENDOZA, ARGENTINA

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Hepatozoonosis is a parasitic disease of dogs caused by the *Hepatozoon canis*, (Apicomplexa: Adeleorina: Hepatozoidae) and transmitted by the ingestion of parasitized ticks (*Rhipicephalus sanguineus*). This disease is expanding in many parts of the world and no previous reports were found for the province of Mendoza. The patient, a mongrel female dog of approximately 3 months of age, was found accidentally in the piedmont near the city of Mendoza. Upon clinical examination it presented depression, anorexia, paraparesis, myalgia, lumbalgia and fever of 39,4°C, and had a great quantity of ticks. Upon performing the hemogram, a Giemsa stained film was examined microscopically at 1000x under oil immersion to perform the relative count of leucocytes. In the neutrophils, gamonts of *Hepatozoon canis* were observed. Due to the great amount of parasites observed, the proportion was quantified and 80% of the neutrophils had gamonts. The laboratory findings were severe anemia (hematocrit of 15%), thrombocytopenia (24.000), hypoalbuminemia (1.78 gm / dl) and increased creatine phosphokinase (96.3 μ l). The recent finding of *H. canis* in Mendoza alerts of the expansion of *canis*, as is happening with other parasitic diseases transmitted by vectors.

141. LATENCY AND PROGRESSION OF MAMMARY TUMORS IN HYPO AND HYPERTHYROID RATS

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To determine whether mild hypo- and hyperthyroidism affect the incidence and progression of breast cancer (CaM), and in particular, apoptosis of tumor cells we design the present study. Female Sprague-Dawley rats were treated *per os* with a single dose of DMBA (15mg/rat) at 55 days of age and divided into three groups: euthyroid (EUT, n=10) with mild hyperthyroidism (HIPER, 0.25mg/kg/day, T4 sc, n=12) and mild hypothyroidism (HYPO, 0.01% PTU in drinking water, n=9). The latency, incidence and progression of tumors were determined in the three groups. When the tumors reached a volume >1000 mm³, the animals were decapitated and the tumors were removed and aliquotted for histopathological analysis and molecular studies. The apoptotic index was calculated by counting the apoptotic bodies in histological sections stained with hematoxylin and eosin with 60X objective. Statistical analysis was performed by ANOVA I and Bonferroni test or Kruskal-Wallis and Dunn, according to the normality of the variable. The incidence rates were analyzed by Chi square. The latency of onset of tumors was lower in HYPER (87.5±5.3 days) than HIPO (97.7±7.5 days) and EUT (91.1±4.8 days). The incidence tended to be higher in HYPER (75%) than in EUT (70%) and HIPO (33.3%). The tumor growth rate was higher in tumors HIPER and EUT than in HIPO (p < 0.05). The histopathology was similar in the three groups, but the apoptotic index was significantly lower in HYPER compared to the other two groups (p = 0.02). Conclusions: The results so far suggest that apoptosis of breast tumors is diminished by hyperthyroidism, which could account for the trend in the latency, incidence and growth rate of the same. Molecular studies of apoptosis, currently underway, may confirm this relationship.

142. OBESITY AND ADIPOKINES WITH PROSTATE CANCER: PREVALENCE AND AGGRESSIVENESS

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Recent studies indicate that adipose tissue and adipokines (Leptin and adiponectin) might promote or prevent the development of prostate cancer (PCa). The aim of this study was to identify and correlate body composition (BMI), leptin and adiponectin levels with the prevalence and aggressiveness of PCa, in Mendoza, Argentina. A sample of 50 volunteers between 50 and 80 years (25 healthy men as control group and 25 with PCa) was selected for the study. Also, the CaP group was subclassified according to the Gleason score. Rectal examination, USTR and prostatic biopsy were performed; blood sample was obtained to determine PSA, leptin and adiponectin; and a nutritional interview including anthropometric measurements was carried out. Statistical analysis was performed by Student test, ANOVA and Bonferroni (p < 0.05).

The mean age of the volunteers was 62.71 ± 0.97 years old. BMI and percentage of body fat mass were not statistically different between the cancer and control groups. However, both antropometric variables were higher in subjects with more aggressive tumors (p < 0.05). Leptin levels increased with the Gleason Score (2.96 ± 0.76 ng/ml; 4.57 ± 1 ng/ml and 12.09 ± 3 ng/ml, p < 0.001). Adiponectin levels showed no statistical differences regarding the presence or aggressiveness of the tumor. Body composition is related with the aggressiveness of CaP. Leptin may influence the progression, invasion and metastasis of prostate tumors, whereas adiponectin may not affect the carcinogenesis.

143. CHEMICAL COMPOSITION, REPELLENCE AND TOXICITY PROPERTIES OF ZUCCAGNIA PUNCTATA ESSENTIAL OIL

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The aerial parts of *Zuccagnia punctata* Cav. (Fabaceae, Caesalpinoideae) are currently used in traditional medicine of San Juan province (Argentina) for its antiseptic and anti-inflammatory properties. *Z. punctata* essential oil from aerial parts was examined by GC and GC-MS and evaluated for its repellence and toxicity properties against *Triatoma infestans* and *Ceratitidis capitata*. Fresh aerial parts collected in San Juan Province were submitted to hydro distillation for 2 h in a modified Clevenger apparatus. The oil yield was 0.25%. Twenty five constituents were identified representing 99.5%. 6-camphenone (62.4%), alpha pinene (9.1%), thuja-2,4(10)-diene (4.6%) and eugenol (dihydro) (4.5%) were found to be the major components. The lethal dose (LD₅₀) was determined using Probit analysis based on mortality data at 72 h assessments, determined by topical application against female (LD₅₀ 56.990 µg/ml) and male (LD₅₀ 27.181 µg/ml) *C. capitata*. On the other hand, *Z. punctata* essential oil showed a repellent activity against *T. Infestans* of 86.7 %, equivalent to V class. This is the first report on chemical analysis and biological activity of the essential oil from *Z punctata* collected in San Juan province.

Acknowledgements: To ProCEM-San Juan and Serv. Nac. Chagas, Cba. CICITCA UNSJ (1905), ANPCyT (PICT '07- 01468) and CONICET (PIP '08 0407).

144. REPELLENT ACTIVITY OF ESSENTIAL OILS FROM SPECIES OF SAN JUAN, ARGENTINA AGAINST NYMPHS OF TRIATOMA INFESTANS

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Chagas disease is a major public health concern in Argentina, with estimates close to three millions infected people. Essential oils (EO) from *Acantholippia seriphoides*, *Artemisia mendozana*, *Baccharis grisebachii*, *Lippia integrifolia*, *Satureja parvifolia* and *Tagetes mendocina* were assayed *in vitro* for their repellent activity against five instar nymphs of *T. infestans*, Chagas disease vector. Fresh aerial parts were hydrodistilled to obtain the EO in a Clevenger type apparatus. EO effects were evaluated at 1, 24 and 72 h of treatment. Chemical composition was elucidated by GC-MS. Percent Repellency (PR) was determined according to a standard method. Two of seven EO were found to be class V and three were Class IV. On the basis of the percentage of repellency throughout the 72 h of treatment, the most repellent were *B. grisebachii* (92% PR), and *L. integrifolia* (86% PR) EO. The good repellent activity of *B. grisebachii*, *L. integrifolia* and *G. polychepahlum* EO, provide evidence that these Andean species could be new potential sources in the fight against Chagas's disease.

Acknowledgements: To Serv. Nac. Chagas, Cba., for providing T. infestans nymphs and CICITCA-UNSJ (1905), ANPCyT (PICT '07-01468) and CONICET (PIP '08 0407).

145.

PHYTOCHEMICAL STUDY, ANTIOXIDANT ACTIVITY AND FATTY ACID COMPOSITION OF *ZUCCAGNIA PUNCTATA* FRUITS

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Currently, there is an increasing demand for new non-toxic sources of antioxidants derived from natural products with possible applications as substitutes for synthetic preservatives in foods, cosmetics or pharmaceuticals. The antioxidant capacity of petroleum ether (PE), dichloromethane (DCM) and acid methanol (MeOH-H⁺) extracts of *Z. punctata* fruits was assessed by DPPH and FRAP assays. DCM extracts showed the highest percentages of total phenolics (>25% GAE/100g extract), flavonoids (>11% QE/100g extract), DPPH (>75 % at 1 µg/ml) and absorbance in FRAP assay (>0.3 at 100 µg/ml). The main compounds identified by HPLC-ESI-MS/MS were 2',4'-dihydroxy-3'-methoxychalcone, 2',4'-dihydroxychalcone, and galangin. Total anthocyanins in the extracts MeOH-H⁺, resulting from 0.02 to 0.73 % g cyn-3-glu/100g extract. Fatty acid (FA) composition was analysed by GC. Oleic (27.6%), palmitic (26.6 %) and linoleic (13%) acids were the main FA. Positive correlations (r = 0.7, p<0.01, Pearson coefficient) between DPPH, FRAP and total phenolics content were observed. *Zuccagnia punctata* fruits are a new source of antioxidant compounds and beneficial fatty acids.

We are grateful to UNSJ, ANPCYT-PICT2008-0554 and CONICET (L L, GEF and DAW).

146.

ANTIOXIDANT ACTIVITY AND FATTY ACIDS COMPOSITION OF *RAMORINOA GIROLAE* SPEG. FRUITS

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Ramorinoa girolae is an endemic species of the north-western region of Argentina. Their fruits are roasted and consumed like peanuts or used as a coffee substitute. There are no reports in the literature on the content of total phenolics, flavonoids, antioxidant properties as well as the fatty acids composition of *R. girolae* fruits. The antioxidant capacity of petroleum ether (PE), dichloromethane (DCM) and methanol (MeOH) extracts was assessed through the scavenging effects on radical DPPH, FRAP (ferric reducing-antioxidant power) and Lipoperoxidation in erythrocytes. The fatty acid composition was analysed by GC. Seven fatty acids were identified. The oil was found to be highly unsaturated, exceptionally rich in oleic acid and linoleic acid. The MeOH extracts showed the highest percentages of phenolics (>11% GAE/100g extract), DPPH activity (>90% at 50 µg/ml) and lipoperoxidation in erythrocytes (>85% at 500 µg/ml). A significant positive correlation between DPPH and total phenol content was observed (0.890, P<0.01). *Ramorinoa girolae* fruits are an excellent source of antioxidant compound and long chain polyunsaturated fatty acids (PUFAs) (C18–C22), which are apparently widely accepted as a part of modern nutrition because of their beneficial effects on metabolism. Acknowledgements: CICITCA-UNSJ, ANPCYT-PICT 2008-0554 and CONICET (LL., GEF and DAW).

147.

TETRAPLOIDIZATION OF A DIPLOID POTATO HYBRID RESISTENT TO INFECTION BY *MELOIDOGYNE INCOGNITA*

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The root knot nematode is a soil pest that infects and damages potato farming. Specifically, *Meloidogyne incognita* is the more important specie in temperate/ hot zones. In a previous project (SECYT 2002/2004); working with plants in pots and in greenhouse conditions, we characterized accessions of a wild diploid potato *Solanum kurtzianum* with tolerance to the infection. The accession K8 showed the highest tolerance to the infection by the nematode and was used as progenitor in sexual crosses with a haploid of *S. tuberosum* with the goal of introduce this resistance in the cultivated potato. From this crosses diploids hybrids which displayed tolerance were obtained. In particular, the hybrid H3 was selected because presents the highest level of resistance to the infection and in addition the biggest tubers. The specific objectives of this project are to establish *in vitro* and duplicate, using Colchicine, the chromosome number of this diploid hybrid to reach the ploidy level of the cultivated specie. The original plant material was introduced *in vitro* from uninodal segments and thermotherapy was used for the elimination of Potato Virus Y. We compared the effect of Colchicine on the uninodal segments using three concentrations and three applications. Currently, the ploidy levels of the acclimatized plants are being evaluated.

148.

MORPHOLOGY OF TADPOLES OF *RHINELLA ARENARUM* (ANURA: BUFONIDAE): RESPONSE TO PREDATION?

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When the structure of individuals is complex the application of traditional morphometry methods can lead to loss of important information. The geometric methods provide accurate information on the measures of complex shape structures. We analyze the shape of the tail fin, tail muscle and body of tadpoles of *R. arenarum* in presence of *Astianax fasciatus* as predator. An experiment was conducted where 50 tadpoles remained under pressure of predation and 50 tadpoles without predator. The tadpoles were bred until stage 38–40 of Gosner. We took 40 photographs for each treatment and analyzed the differences in the shape of the structures by geometric morphometric outline. We used the free morphometric software Morphueus. Differences in shape were illustrated with principal components analyses (PCA) and MANOVA. PCA assessed on standardized amplitudes showed no groupings. Moreover, the shape did not differ significantly in the presence of predators. Although tadpoles of anuran could change various features because of predators, *R. arenarum* expresses no apparent morphological plasticity in shape.

149. POSITIVE KIT BOVINE CELLS IN MUSCULAR TUNIC OF THE ABOMASUM AT THREE DIFFERENT AGES

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Interstitial cells of Cajal (ICCs) are widely studied, but there is a scarce amount of information about these cells at different ages. In the present study, morphometric parameters of ICCs on the pyloric region of abomasum has been established and compared at three stages of organ development: fetus (20±2 weeks), one week calf and adult bovine. Anti c-Kit immunochemical technique was realized to identify ICC specifically. Analysis of Variance (ANOVA) and Tukey's test were applied to determine signification ($P < 0,05$). Positive c-Kit cell bodies measure $49,31 \pm 11,48 \mu\text{m}^2$, major axis $14,54 \pm 2,21 \mu\text{m}$, minor axis $4,37 \pm 0,64 \mu\text{m}$, perimeter $33,69 \pm 4,66 \mu\text{m}$ in fetus; area $61,61 \pm 10,12 \mu\text{m}^2$, major axis $14,92 \pm 1,77 \mu\text{m}$, minor axis $5,37 \pm 0,29 \mu\text{m}$, perimeter $35,53 \pm 3,90 \mu\text{m}$ for calf and area $30,95 \pm 4,55 \mu\text{m}^2$, major axis $10,55 \pm 1,17 \mu\text{m}$, minor axis $3,87 \pm 0,34 \mu\text{m}$, perimeter $24,76 \pm 2,25 \mu\text{m}$ in adult animal. The statistical comparison shows all the parameters get smaller from calf to adult. On the other hand, area and minor axis get bigger from fetus to calf, whereas their major axis and perimeters are similar. These differences could be related to the differential growing of abomasums during suckling stage, whereas smaller dimensions of the adult could be connected with a different relation between cell body and its prolongations.

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150. DESCRIPTION OF THE WETLANDS IN PARQUE ACONCAGUA, MENDOZA PROVINCE

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High wetlands represent a precious habitat for different species, simply as a shelter or for their feeding. The Parque Provincial Aconcagua is one of the protected areas more visited in the province. The aim of this work is to describe the high wetlands of Parque Provincial Aconcagua. The study was carried out in 15 high wetlands during the summer of 2009. Vegas were selected between 2400-3500 m.a.s.l.; the samples were collected with a hand strainer during 45 minutes and preserved in 96% alcohol.

Molluscs and macroinvertebrates associated with the wetlands margins were sampled. Physical and chemical parameters of water were recorded and the environment was characterized. PH values ranged between 6.77 and 8.29; conductivity oscillated between 231 and 1664 uS/cm. Vegetation was dominated by *Bromus setifolius*, *Oxychloe andina*, *Acaena magellanica*, *Mimulus depressus* and *Schoenoplectus pungens*, among others. Macrophytes as *Potamogeton sp.* and *Chara sp.* were also recorded. Among the macroinvertebrates founded a high dominance of *Hyalella sp.* was observed, followed by *Diptera larvae* (Chironominae, Podonominae) and, in some places, a major abundance of *Ephemeras*, *Trichoptera*, *Acaris* and *Choleptera larvae*. The only mollusc recorded was *Lymnea viator* localized between 2536 and 2954 m.a.s.l., a species of sanitary interest.

151. STUDY OF MOLECULAR MECHANISMS RESPONSIBLE FOR RENAL INJURY IN NEONATAL OBSTRUCTIVE NEPHROPHATY

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Congenital obstructive nephropathy is characterised by tubular cell apoptosis and tubulointerstitial fibrosis and is a major cause of renal failure in the neonate. In the neonatal rat, only 10% of the nephrogenic programme is complete and hence the rat offers a model in which to test the efficacy of novel therapies for this pathology. Statins such as rosuvastatin (Ros), inhibit the rate-limiting step of the cholesterol biosynthetic pathway. Statins prevent the activation of apoptotic and fibrotic processes in renal cells *in vitro* and renal fibrosis *in vivo*. The present study examined whether Ros could protect against neonatal obstructive nephropathy in the rat associated to preservation of the nephrogenesis key modulators expression. Two-day old rats underwent unilateral ureteral obstruction (UUO) or sham surgery (Control), were randomised to receive oral Ros (10mg/kg/day) or vehicle for 14 days. On day 14, renal cortex was processed for determination of tubular dilatation, apoptosis, tubulointerstitial fibrosis and the mRNA expression of TNF- α , TGF- β 1, WT1, Snail, BMP-7 and E-cadherin. UUO significantly increased tubular apoptosis, tubular dilatation and tubulointerstitial fibrosis, coupled to increases in the expression of TNF- α and TGF- β 1 mRNA. Ros treatment during UUO markedly protected against these changes. Ros treatment was associated with the preservation of renal expression of WT1, Snail, BMP-7 and E-cadherin. Conclusion: Ros protects against the generation of obstructive nephropathy in the neonatal rat. The protective effects of Ros were sufficient to preserve a normal profile of expression for a number of markers of nephrogenesis.

152. SEED GERMINATION OF TRICHOCEREUS CANDICANS AND T. STRIGOSUS. LIGHT AND TEMPERATURE EFFECTS

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Trichocereus candicans and *T. strigosus* are endemic species of widespread distribution in Argentina. Their populations in the central western of Mendoza are being increasingly affected by urbanization and cultivation which jeopardize their survival. The objectives of the present study were to determine, by seed germination assays, the combined effect of temperature treatments at 20°C and 30°C under white light, red light and in darkness. Results obtained point out that the highest germination percentages (94.8%) were achieved by *T. candicans* at temperatures of 30°C and under white light. Germination under red light reached 91.6%, and 38% in the dark. *Trichocereus candicans* seeds germinated faster and attained, over similar times, higher germination percentages than seeds of *Trichocereus strigosus* at either 20°C or 30°C. This would be related to the smaller size of the seeds of *T. candicans*. Seeds of both cacti are megathermal and positive photoblastic.

153.

A VARIANT IN SCAVENGER RECEPTOR CLASS B TYPE I GENE IS ASSOCIATED WITH HDL-C LEVELS IN SUBJECTS WITH TYPE 2 DIABETES MELLITUS

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Human scavenger receptor class B type 1 (SR-BI) is the principal receptor of HDL-c, because it mediates the selective uptake of cholesterol esters from HDL-c particles into hepatic cells. This receptor is also involved in reverse cholesterol transport. Exist evidences that diabetes status may modify the SR-B1 linkage with HDL-c. Our objective was to determine the genotypic frequency of SRBI gene polymorphism (IVS 11- rs838896) and their association with HDL-c levels in type 2 diabetic patients. A total of 51 subjects (Control and Diabetics) were studied. Genomic DNA was isolated using conventional protocol of QIAmp DNA Blood Mini kit. The rs838896 (G?C) polymorphism were determined using tetra-primer ARMS-PCR method that allows the identification of genotypes G/G, C/G and C/C. The frequency of genotypes was 42.1%, 42.1% and 15.8 % respectively in control subjects and 21.8%, 50.0% and 28.1% in diabetic patients ($p < 0.004$). Serum levels of HDL-c in diabetic carriers C/C genotype were significantly lower compared with individuals of the same genotype in the control group : 29 ± 7.4 vs 40.1 ± 1.1 ($p < 0.001$). The C/C frequency of the SR-BI gene polymorphism was significantly higher in diabetic patients than in control, which could be associated with lower serum levels of HDL-c.

154.

IDENTIFICATION OF THE POACEAE GENERA OF SAN LUIS (ARGENTINA) BASED ON VEGETATIVE CHARACTERS

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The *Poaceae* family is the third in genera number after the *Asteraceae* and the *Orchidaceae*, and is the fifth in species number (*Asteraceae*, *Orchidaceae*, *Leguminosae*, *Rubiaceae* and *Poaceae*). Considering the economic and ecologic importance of the *Poaceae* in San Luis, where is well represented in grasslands and forests. The aim of this work was to provide to the identification of the native and exotic *Poaceae* genera present in the San Luis province. On the basis of the conducted field studies, and bibliography as well as herbaria consultations, a key was built to allow students and professionals to identify almost 78 genera of nearly 278 native and exotic grass species present in San Luis. It is based on the following diagnostic characters: the ligules are present or absent, the ligules are membranous or not, auricles are present or not, as well as the presence or not of oral hairs. The morphology of leaf blade and leaf sheath, culms, as well as the longevity and habit of plants it was also took in account. Several schematic drawings clarify the terms used. This key provides a laboratory and field tool for the early identification of the diversity of *Poaceae* genera of San Luis (Argentina).

155.

CARBON ALLOCATION PROMOTED BY GIBBERELLINS AND ABA IN ROOTS AND BERRIES OF GRAPEVINE

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Carbon allocation within grapevines may affect berries growth and development, where wine's quality is directly related to sugar content in berries. Gibberellins (GAs) and abscisic acid (ABA) control various processes across the plant life and both have been involved in assimilate production and transport in different species. Hence, this work studied the distribution of sucrose, fructose, glucose and starch in grapevine at the phenological stage of *veraison* after foliar application of GA₃, ABA and paclobutrazol, an inhibitor of GAs biosynthesis. The results demonstrated that GA₃ increased total grapevine mass, and carbon allocation was driven towards the whole grapevine as structural and soluble carbohydrates, enhancing the aerial part to root ratio. PBZ augmented grapevine's mass, diminished aerial part to root ratio, and allocated more carbohydrates in roots (sucrose and starch). Both GA₃ and ABA increased glucose and fructose in berries (up to 10-fold) and roots (up to three-fold). However GA₃ increased the overall carbon fixation while ABA did not. Such results indicate that GAs are involved in stimulation of carbon fixation and transport while ABA as stress signal only enhances sugar transport; notwithstanding the two hormones promoted carbon allocation towards organs involved in plant's survival, roots and berries.

156.

VARIATION IN ERYTHROCYTE SIZE BETWEEN JUVENILES AND ADULTS OF RHINNELLA ARENARUM

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Most hematological studies of anurans have been concerned with blood cell counts. Erythrometry is a technique used to distinguish related species with different ploidy levels. Morphological differences between larval and adult red blood cells have been noted in numerous species of anurans. The present work evaluates differences in the size of the red blood cells and their nuclei between juvenile and adult individuals of *Rhinella arenarum*. We took photos of blood smears using a microscope (10 X) and measured length (L) and width (W) of 20 erythrocytes for each individual using Image J software. Erythrocyte and nuclei areas were calculated assuming an ellipsoid shape ($L \times W \times \pi/4$). The mean of erythrocyte size was $226.7 \pm 1.7 \mu\text{m}^2$ and average nuclei size was $26.6 \pm 0.26 \mu\text{m}^2$. Erythrocyte size in juvenile and adult individuals showed proportional patterns with SVL (snout vent length) (Spearman rank: $R=0.48$; $p < 0.00001$); a similar result was found for nuclei size (Spearman Rank: $R=0.14$; $p < 0.002$). Ontogenetic variation in the size of red blood cells observed in our study may be related to the change in metabolic rate of juveniles and adults.

157. POLYMERASE CHAIN REACTION AS A TOOL IN THE CHARACTERIZATION, AND EPIDEMIOLOGIC STUDY OF ENTEROHAEMORRAGIC *ESCHERICHIA COLI*

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As a result of changes in the life style and eating habits, diseases caused by consumption of contaminated food have become a major morbimortality cause around the world

Among the emerging pathogens in the last 20 years, Shiga toxin-producing *Escherichia coli*, found in Argentina an ecosystem particularly suitable to express its virulence. Considered a food-borne pathogen in industrialized nations, paradoxically, is the main cause of high incidence of hemolytic uremic syndrome (HUS) occurring in our country in children under 5 years. Serotype O157: H7 is associated with more serious cases. The objectives of this project are: To develop Immunocapture techniques for *E. coli* O157: H7, which allows adjusting the detection sensitivity to international standards, To Apply this technique to ground beef samples for the detection of *E. coli* O157: H7, and to confirm the serotype by PCR.

So far, 43 of a total of 73 positive strains by immunocapture were confirmed by PCR and by plate agglutination with specific antisera. These are the first findings of *E. coli* O157 in samples of ground beef destined for human consumption in the province.

158. EFFECT OF HYPERTHYROIDISM (HT) ON LUTEAL EXPRESSION OF PRL SIGNALING MOLECULES ON LATE PREGNANT RATS

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Thyroid disorders cause pregnancy disorders and lactation failure. In pregnant rats HT advances luteolysis, which causes premature delivery and increases serum PRL. The advanced luteolysis is caused by increased luteal and serum prostaglandin F₂, a luteolytic factor, but intraluteal mechanisms, such as alterations in PRL (a luteotrophic factor) signaling may be involved. We explored, by real time PCR, luteal mRNA expression of PRL receptor (PRLR), STAT5b (mediator of PRL signaling), SOCS-1, SOCS-3 and CIS (suppressors of PRL signaling induced by PRL) on rats on days 19 (G19), 20 (G20) and 21 (G21) of pregnancy treated with vehicle (Co) or T₄ (HT, 250 µg/kg/day). In Co rats expression of PRLR, STAT5b, SOCS1 and CIS fell significantly on G21 compared with G19, while in HT rats there was a significant increase in their expression in G21 compared with Co rats, except SOCS3, that did not change, and PRLR that fell in both groups on G20 and G21. These results suggest that HT tends to maintain elevated expression of suppressors of PRL signaling on G20 and G21, facilitating luteolysis. On the other hand, the increased circulating PRL of HT rats on G21 may be the cause of the increased expression of STAT5b on G21 that in turn may contribute to maintain high SOCS and CIS expression in the presence of very low PRLR expression.

159. RELATIONSHIP BETWEEN BACTERIAL CONCENTRATION, RUMEN CONTENT AND TOTAL RUMEN BACTERIA IN CREOLE KID GOATS

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In adult ruminants, most studies use rumen bacteria concentration to assess rumen microbiology. The total number of bacteria into the rumen is more related to bacterial concentration (bacteria per gram) than rumen content (gram) because the rumen size is little variable. This could be different in kid goats because the rumen size varies according to rumen development. This study was aimed to determine which factor, rumen content (RC) or bacterial concentration (BC) has the best correlation with total bacteria (bacterial concentration multiplied by rumen content) (TB). Eighteen kid goats were fed *ad libitum* with goat milk and starter ration from birth to slaughter. Kids were slaughtered between 3 to 6 weeks of age, and rumen content were weighed and sampled for bacterial enumeration. Aerobic and anaerobic bacteria concentrations were quantified by most probable number method. Pearson's correlation coefficients between BC, RC and TB were calculated. The correlation between the RC and TB was $r=0.89$ ($p<0.001$) for aerobic bacteria, and $r=0.86$ ($p<0.001$) for anaerobic bacteria. Whereas, correlation between BC and TB was $r=0.53$ ($p<0.05$) and $r=0.81$ ($p<0.001$) for aerobic and anaerobic bacteria, respectively. These results indicate that total bacteria are more related to RC than BC. Therefore, in kid goats with developing rumen, bacterial concentration and rumen content should be determined for a better study of rumen microbial development.

160. PRELIMINARY PHYTOCHEMICAL STUDY LEAVES OF *JODINA RHOMBIFOLIA* (HOOK ET ARN.) REISSEK - FAMILIA: CERVANTESIACEAE

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Jodina rhombifolia (Hook et Arn.) Reissek - Family: Cervantesiaceae, commonly known as a shadow of bull and in the central region as "Peje". Tree usually low, 2-5 m high and persistent foliage, brown bark. Simple diamond-shaped leaves, dark green, alternate, short petioles, coriaceous, glabrous, with a sharp spine at the apex and a prominent midrib. Infusion of the leaves is used in indigestion; therefore we investigate the presence of different metabolites that may be responsible for this action. The leaves were collected in the Belgrano department, San Luis province, with the conditioning material, began making direct withdrawals such as infusion, decoction according FNA (VI Ed) and extraction with solvents of increasing polarity. Then, we applied a technique of isolation of saponins. We revealed the presence of carbohydrates, flavonoids, tannins, alkaloids and saponins (oleanolic acid) with their respective sugars: glucose and rhamnose. Conclusions: From this preliminary study will continue to research to justify the popular use of this plant.

**161.
EXPRESSION OF MEMBERS OF THE PROLACTIN
SIGNALING PATHWAY IN RAT HYPOTHALAMUS AND
REGULATION BY THYROID HORMONES ON LATE
PREGNANCY**

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Thyroid disorders compromise fertility in women in reproductive age and cause pregnancy disorders and lactation failure. Hyperthyroidism alters prolactin (PRL) secretion at the end of pregnancy, advances delivery and impairs lactation in rats. Using real time quantitative reverse transcriptase-polymerase chain reaction (RT-PCR) we explored the changes in mRNA expression of long PRL receptor (PRLR), STAT5b (required for the negative-feedback action of PRL on hypothalamic dopaminergic neurons), SOCS-1, SOCS-3, CIS (proteins that disrupt downstream STAT translocation to the nucleus to suppress prolactin signaling) in medial basal hypothalamus (MBH) during late pregnancy in hyperthyroid and normal rats. Thyroxine-treated (HT, 250 µg/kg/day) or vehicle-treated (Co) rats were mated 8 days after the start of treatment and killed at days 20 (G20) and 21 (G21) of pregnancy. Serum concentrations of thyroid hormones increased in HT rats. HT increased MBH PRLR on G21 (1.01±0.12 vs Co 0.62±0.12, p<0.05). STAT5b mRNA increased in HT rats on G20 and G21 (G20 Co: 1.00±0.15, HT: 2.2±0.17; G21 Co: 0.6±0.19, HT: 1.6±0.27, p<0.05). CIS and SOCS-1 expression did not change but SOCS-3 mRNA increased in HT at G20 (G20 HT 2.75±0.20 vs G20 Co 0.92±0.19, p<0.05) and fell on G21 to values similar to Co rats (G21 Co 0.45±0.09 vs G21 HT 0.59±0.09 ns). These results indicate that PRL-R, STAT5b and SOCS-3 expression are differentially regulated in HMB by thyroid hormones.

**162.
MICROPROPAGATION OF *SINNINGIA SPECIOSA* IN
TEMPORARY IMMERSION SYSTEMS**

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Currently many researchers are making great efforts to improve the techniques of *in vitro* propagation of species of economic interest. Thus, temporary immersion systems have revolutionized the traditional methods of micropropagation. These systems have achieved a higher rate of multiplication, rooting and acclimatization. In order to propagate seedlings of *S. speciosa* it was designed a temporary immersion device, and it was tested using two different protocols, in a Murashige-Skoog (MS) complete growth media, in presence of 0.5 mg/l of growth regulator naphthaleneacetic acid (NAA). The immersion time was one minute, once a day, or one minute weekly. In both protocols were evaluated the levels of regenerated shootlets and rooting. The daily treatment for a week produced vitrification of the plant that was due to overhydration. The treatment of one-minute of immersion weekly resulted in a moderate growth with slight overhydration of the plant, showing also the formation of roots after 5 weeks. The design of this temporary immersion system is suitable for cultivation of *S. speciosa*. However, the adjustment of the immersion conditions would be contribute to achieve higher performance.

**163.
PREVENTION OF HEMOLYTIC UREMIC SYNDROME:
TRACING OF CONTAMINATION BY STEC (SHIGA TOXIN
ESCHERICHIA COLI) IN A SLAUGHTERHOUSE. ANA-
LYTICAL OBSERVATIONAL STUDY**

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Shiga toxin producing *Escherichia coli* (STEC) constitutes an important cause of diarrhea of infectious origin and diarrhea associated with hemolytic uremic syndrome. Cattle are considered the main reservoir and origin of STEC infection to humans. It has been assumed that *E. coli* in the feces of cattle are spread to meat during slaughter and processing. This study was designed to trace STEC contamination in an abattoir. The objectives were to calculate the prevalence of STEC in bovine animals, to detect STEC and generic *E. coli* in intestinal content of bovine animals, carcasses and minced meat samples related temporarily and to identify and trace identical or related strains through the production. A PCR screening to detect the virulence genes *stx1* and *stx2* was conducted. 140 samples, obtained from intestine, carcasses and ground beef of 24 animals were analyzed. STEC was detected in 10% of samples. The RAPD (Random Amplified Polymorphic DNA) technique was used for subtyping. Genetic relationship was found between some strains, suggesting the probability of spreading of bacteria from the intestine to the meat.

**164.
ROLE OF ESCRT COMPLEXES IN THE ACROSOMAL
EXOCYTOSIS IN HUMAN SPERM**

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During acrosomal exocytosis in human sperm, cup-shaped invaginations are formed in the outer acrosomal membrane leading to the formation of intraacrosomal vesicles. These vesicles have a topology equivalent to the internal vesicles of multivesicular bodies. The ESCRT (endosomal sorting complex required for transport) pathway is required for terminal membrane fission events in several important biological processes, including multivesicular body biogenesis, HIV budding and cytokinesis. VPS4 is an ATPase of the AAA family with a key function in this pathway. Our aim was to evaluate the role of VPS4 proteins in acrosomal exocytosis. For this purpose, dominant negative mutants of VPS4 A and B, and the wild type proteins with His6 tags were produced in *E. coli*. Permeabilized human sperm were incubated with 100-300 nM of each purified protein and then the acrosome reaction was triggered with Ca²⁺. Exocytosis was assessed by FITC-*Pisum sativum* lectin binding. The results indicate that the VPS4 negative mutants significantly inhibit the acrosomal exocytosis (ED50 in the 100 nM range) whereas the wild type proteins did not affect exocytosis. These preliminary results suggest that acrosomal exocytosis requires the ESCRT-mediated deformation of the outer acrosomal membrane.

165.

INDUCTION OF TERPENOID BIOSYNTHESIS IN *IN VITRO* GARLIC PLANTS BY *SCLEROTIUM CEPIVORUM*

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Sclerotium cepivorum Berk, the causal agent of white rot, cause severe damages and significant losses in garlic production. One of the plant responses to fungal attack is the production of terpenic phytoalexins throughout two pathways, the MVA (mevalonic acid) in cytoplasm, and the MEP (2-C-methyl-D-erythritol 4-phosphate) in plastids. Five discs (0.5 cm) of *S. cepivorum* (SC23) from 3 days old PDA plate were added into 40 days *in vitro* garlic plants cv. Sureño INTA. After 6 days, root, bulb, and leaf tissue were extracted in methanol:chloroform and analyzed by capillary gas chromatography coupled with mass spectrometry (GC-MS). *S. cepivorum* was able to elicitate the production of the monoterpenes α -Pinene, Carene, and Terpinolene (derived from the plastid MEP pathway), as well as the sesquiterpene *cis/trans*-Nerolidol (MAV pathway) in all tissues analyzed. Meanwhile none of these terpenoids was found in both fungus and non-inoculated garlic plants (control). Also, in our study we found out the antifungal activity of *cis*-Nerolidol and terpinolene by testing on MEA plate their ability to inhibit the growth of *S. cepivorum* in 86 and 95 % respectively.

166.

FLOWERING PATTERN IN SNAP BEAN CULTIVARS IN MENDOZA

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Snap bean production is an important horticultural resource for Mendoza but shows abscission problems in set stage resulting in a minor percentage of differentiated flowers that transform in productive pots. This is a limit in all bean species and is important to perform a technical tool in order to mitigate this difficulty. The objective of the present work is to study the flowering pattern in determinate and indeterminate cultivars in snap bean. This study was carried out at the experimental field of the Horticultural Institute of Facultad de Ciencias Agrarias. The experimental design was performed in blocks completely randomized, carried out with no soil water restriction, and covered by a plastic net in order to avoid hailing damage. Four cultivars were evaluated: 2 (two) with a determinate grown pattern (Negro enano and Victoria) and 2 (two) with an indeterminate grown pattern (Mendoza and Tupungato). During flowering stage the activities were the identification of flower and the observation of set; later the study of development and growth of pots. When pots were ready it performs sequential and its weekly harvest to evaluate production in each cultivar. The results indicate that there are a differential number of flowers associated to the date of flowering. Mendoza and Victoria cultivars are those with less number of flowers per plant.

167.

MICROHABITAT USE OF *ODONTOPHYRUS OCCIDENTALIS* IN THE MONTE DESERT

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Microhabitat selection plays a major role in the ecology populations and that it is important for the survival and population dynamics. The aim of this work is to describe the use of micro-habitat for *O. occidentalis*. We recorded the location of individuals for random walks and measure the following variables: type of substrate (water, soil or vegetation). Distance to nearest vegetation (10-49cm, 50-99cm, 100-200cm, > 200 cm); height of the nearest vegetation (<10cm, 10-59cm, 60-149cm, > 150); distance to water (in the water, 100cm, 101-200cm, > 200 cm). We analyzed data from 127 individuals. The 71.6% used the substrate water during all study period ($\chi^2 = 49.4$ df = 2 p < 0.0000001). We found the toads most often at 10 cm of water resources ($\chi^2 = 176.3$ df = 3 p < 0.0000001), and the vegetation more used was minor to 10 cm of height ($\chi^2 = 47.6$ df = 3 p < 0.0000001). Finally, 77.5% were found at distances of 10-49 cm of vegetation ($\chi^2 = 202.5$ df = 4 p < 0.0000001). San Juan and in particular the Quebrada de Las Flores is a desert environment where water deficit is a constant. The microhabitat use would be determined by water deficit in the study area, restricting the toads to near water body. The use of low vegetation would favor the stability of the boundary layer and reduced the less water through the skin (evapotranspiration).

168.

INVESTIGATION OF *ESCHERICHIA COLI* O157:H7 Y NON *E. COLI* O157 PRODUCERS OF STEC IN IRRIGATION WATER

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The line of research of this project is related to the prevention of foodborne diseases and in this particular case the investigation of toxin-producing enterohemorrhagic *E. coli* Shiga, causative agent of Hemolytic Uremic Syndrome. This syndrome is linked with meat and with recreational and irrigation water. The infection for *E. coli* O157:H7, where the vehicle of transmission has been the water, has increased substantially in recent years and cases of great severity have been reported.

For the investigation of *E. coli* O157:H7, sterile swabs were placed in streams for 3 to 5 days, then were removed and incubated with broth for 24 hours, followed by immuno-magnetic separation and subsequent culture in appropriate medium. For the count of total and fecal coliforms, the method of half chromogen and fluorescence production was used.

Results: So far we have studied 20 samples and *E. coli* count does not exceed the limit value of 10³ MPN/ml and total coliform count does not exceed the value of 10⁴ NMP/ml, still within the normal limits.

169.

CHANGES IN SOCIAL AND DEFENSIVE BEHAVIOR BY CHRONIC ADMINISTRATION OF NON-TOXIC CONCENTRATIONS OF TRACE ELEMENTS IN RATS*Ratti SG^{1,2}, Alvarez EO^{1,2}.**¹Lab Neuropsicofarm Exptl, Área de Farm, Fac de Cs Méd e IMBECU-CONICET. ²ICA, Univ Nac de Cuyo, Mza. E-mail: silratti@yahoo.com.ar*

Evidence suggests that trace elements regulate several brain functions. Previously, we have shown that prepubertal rats exposed to chronic administration of non-toxic concentrations of trace elements modify some parameters of spontaneous lateralized exploration. The objective of the present work was to extend these studies and to evaluate if social and defense behaviors are also affected by trace elements exposition. Pups from parents exposed to ZnTe (0.3µg/L) were used. Two groups were formed: (1) Control rats (n=21), and (2) ZnTe-treated rats (n=12). Animals were exposed continuously from birth up to 30 days of age to tap-water (control) or ZnTe (0.3µg/L). At 30 days, animals were exposed to a 5-min social relations test (intruder-host interactions) and 24 h later to a 3-min forced swimming test. In the social relations test, treatment with ZnTe significantly increased the latency to interaction (ZnTe 42.5±26 Counts/3 min vs control 13±2.1 Counts/3 min; $p<0.01$), and decreased dominance behavior (ZnTe 36.6±8.4% vs control 76.4±3.3%; $p<0.01$). In the forced swimming test, in treated animals swimming activity was lower (ZnTe 188±12.6 Counts/3 min vs control 261±11.9 Counts/3 min; $p<0.01$), and immobilization time was longer compared to controls (ZnTe 172±12.5 Counts/3 min vs control 72±12.9 Counts/3 min; $p<0.01$). In conclusion, results support the idea that trace elements are able to modulate specific behaviors.

170.

RED WINE POLYPHENOLS SYNERGISTICALLY INHIBIT ANGIOTENSIN II-INDUCED OXIDATIVE STRESS IN MESENTERIC MUSCLE CELLS*Redondo A, Castro CM, Estrella N, García M, Cruzado MC.**SeCTyP (06/PJ 01); FCM, UNCuyo; Laboratorio de Biología Vascular: IMBECU, CONICET. Mendoza. E-mail: mcruzado@fcm.uncu.edu.ar*

Dietary polyphenols are associated with the prevention of hypertension. Angiotensin II (AII) is an important humoral factor associated with this disease. Reactive oxygen species (ROS) are involved in AII-induced vascular action. NADPH oxidase is the major source of vascular ROS. We studied the effect of antioxidants present in red wine, quercetin (Q) and catechin (C), on AII-induced ROS generation in vascular smooth muscle cells obtained from mesenteric arteries of spontaneously hypertensive rats (SHR). ROS production was evaluated by incubation with a fluorescent probe (H2DCF-DA) and NADPH oxidase activity by chemiluminescence with lucigenin. Data (mean±SEM) were analyzed by ANOVA and Bonferroni's post test. AII (10^{-7} M) increased NADPH oxidase activity (174±20% vs. 100±10%). Q (5µg/mL) inhibited the AII effect, while C (6µg/mL) did not. Similarly AII-induced ROS production was inhibited by Q but not by C. However, coincubation with Q plus C significantly inhibited AII-induced ROS generation (2.43±0.33 URF vs. 0.60±0.30 URF; $p<0.001$), suggesting a cooperative effect of these polyphenols. We conclude that polyphenols present in red wine may reduce in a synergistic manner AII-induced oxidative stress, preventing vascular damage in hypertension.

171.

EVOLUTION OF ANTIBIOTIC RESISTANCE IN ENTEROBACTERIACEAE ISOLATED FROM URINE CULTURE IN SAN LUIS COMMUNITY*Rigo H, Giordano M, Leon D, Correa S, Lopresti R, Hasuoka R, Torres J.**Hospital Regional San Luis. E-mail: martagiord@gmail.com*

Urinary tract infection (UTI) is one of the most common bacterial infections in children and adults. Patients with symptomatic UTIs should be given antibiotics without delay. The drug is chosen on the basis of the resistance pattern of urinary pathogens in our area. The aim is to know the prevalence of the etiology of urinary pathogens in our area and the evolution of resistance to antimicrobials used in empirical treatment. We conducted a retrospective descriptive study. We analyzed 2750 urine cultures positive of adult and pediatric patients in the period 2006-2009. The most frequently bacteria isolated was *Escherichia coli*: 2512 (91%). The period under review allowed determination an increased resistance to Trimethoprim-sulfonamide, cephalothin, and ampicillin for adult and pediatric populations. The value of resistance to gentamicin and nitrofurantoin remained stable for the analyzed period. Ciprofloxacin exhibited a stable performance. The resistance to cephalothin in the last two periods was more than 40%. In this study we observed an increase resistance to antibiotics commonly used in the empirical treatment of urinary tract infections. The dissemination of this information should be used to reevaluate the initial empirical therapy and modify the existing rules.

172.

ROLE OF NRF2 IN PROTECTION AGAINST OXIDATIVE STRESS DURING OBSTRUCTIVE NEPHROPATHY*Rinaldi Tosi ME, Bocanegra V, Cacciamani V, Benardon ME, Gil Lorenzo A, Manucha W, Vallés P.**Fac Cs Médicas, UNCuyo, IMBECU-CONICET, 5500 Mendoza.*

Perturbation of renal tubular antioxidants and overproduction of ROS may amplify the proinflammatory state of renal obstruction, culminating in tubular loss. We analyzed the signal transduction of Nrf2 transcription factor on oxidative stress modulation in UUU. Rats were subjected to UUU or sham operation and kidneys harvested at 5, 7, 10 and 14 days after obstruction. Nrf2 activity and its downstream target gene products were assessed. After 10 and 14 days of obstruction, enhanced lipid peroxidation through higher TBARS levels and increased oxidative stress, resulted in reduced total antioxidant activity and enhanced NADPH oxidase activity were demonstrated. This was accompanied by progressive reduction of nuclear Nrf2 and its target gene products GSTA2 and NQO1, whereas the Nrf2 repressor Keap1 was upregulated. By contrast, on early obstruction for 7 days; lack of increased oxidative markers associated with a rapid nuclear accumulation of Nrf2, Keap1 downregulation and mRNA induction of the identified Nrf2-dependent genes, NQO1 and GSTA2, were shown. We suggest that the cytoprotection in early obstruction depends of induced activation of Nrf2 upregulating its downstream gene products response. Impaired ability to mount the biological response to the prevailing oxidative stress leading to renal injury was shown in prolonged obstruction.

173.

COPROLOGICAL SURVEY OF INTESTINAL HELMINTHES OF DOMESTIC CATS FROM THE CITY OF MENDOZA, ARGENTINA

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Due to the lack of information referring the prevalence of helminthes in cats with veterinary and public health importance, a survey was made in the city of Mendoza. Feces of 64 domestic cats were collected from June 2009 to January 2010. Three samples were collected on alternate days for each animal and the techniques used were: flotation with saturated solution of sucrose, formalin-ether sedimentation and rapid sedimentation. Also were evaluated: hunting and roaming behavior and site of defecation. Two (3.12%) cats were positive to *Toxocara cati*, the animals were under one year of age. With respect to their behaviors: 45% of the animals had outside roaming habits and 55% indoor habits, 37,5% of the animals evidenced hunting behavior (67% hunted birds, 46% cockroaches, 21% rodents, 8% snails and 8% worms). Mendoza has extreme high and low temperatures and a rainfall deficit. This climate reduces the possibility of direct transmission of helminths. Compared to other published studies, in general, much higher prevalences are found, yet, the city of Mendoza has similar values of *Toxocara cati* to those found in Dubai, These low prevalences could be accounted for by the adverse climatic conditions.

174.

FREQUENCY OF -493 G/T POLYMORPHISM OF THE MTP GENE IN SUBJECTS WITH TYPE 2 DIABETES MELLITUS

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Non-alcoholic steatohepatitis (NASH) is frequent in type 2 diabetes mellitus (T2DM) and can lead to fibrosis and cirrhosis. The interindividual variability in the occurrence of this pathology, suggest, a genetic modulation.

Microsomal Triglyceride Transfer Protein (MTP) is necessary for the ensemble and secretion of VLDL, when the protein is not functional, a NASH occurs.

The aim of this study was to determine the frequency of the MTP gene polymorphism -493 G/T in diabetic patients.

DNA from 40 subjects (Co and Diab) was isolated by QIAmp DNA blood mini kit (Qiagen). The polymorphism was detected by PCR-RFLP using a two step nested PCR. The first step of PCR amplified 838 bp fragment and the second a 109 bp fragment. The PCR product was incubated with the restriction enzyme HphI and then was analyzed by electrophoresis. The T allele give the 109bp fragment, the G allele two fragments of 89 and 20 bp and three fragments for GT heterozygotes. The frequency of genotypes was 80% G/G, 20% G/T and 0% T/T in control subjects and 60% G/G, 25% G/T and 15% T/T in diabetic patients. T/T genotype showed a significant difference ($p < 0.0003$, χ^2 : 12,9) in diabetic compared with control. We conclude that TT genotype of the polymorphism -493 G/T MTP gene might be considered a strong risk factor for the development of NASH in diabetic patients.

175.

COMPARISON BETWEEN PATIENTS WITH MODERATE ASTHMA MANAGED WITH TWO DIFFERENT TREATMENTS

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Patients with moderate asthma (n = 28) were treated with long-acting beta agonists and fluticasone (group I; n = 13) or ciclesonide and salbutamol as needed (group II; n = 15). Ventilatory function was assessed by forced spirometry and impulse oscillometry. Bacterial colonization was evaluated in hypertonic saline-induced sputum. Fungal colonization of the oropharynx, relationship between bacterial infection and number of exacerbations, and quality of life (through ACCT inquiry) were also studied. The respiratory parameters by spirometry (FEV₁ and FVC) and impulse oscillometry were within the expected values for these patients in both groups. All of them had bronchial reversibility >12% and >200ml after 400 µg of inhaled salbutamol. *B.catarrhalis*, *S.pneumoniae* and *H.influenzae* were isolated in both groups but were not associated to clinical asthma exacerbation. Mycotic colonization ranged between 30% and 40%. It was due to *Candida albicans* in all cases. ACCT showed that, in spite of the isolation of pathogen opportunist bacteria in the sputum. There were no cases of asthma exacerbation in any group of patients.

176.

THE ROLE OF A1 AND A3 ADENOSINE RECEPTORS AGONIST ADMINISTERED AT REPERFUSION

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Adenosine is one of the main factors released during myocardial ischemia and has been implicated as a cardioprotective agent against ischemia/reperfusion injury, particularly as antiarrhythmic. Four adenosine receptors are expressed in the myocardium: A1, A2A, A2B y A3 and some of them has demonstrated that can reduce myocardial infarct size. Our objective was to determine if adenosine A1 or A3 receptors activation could protect against reperfusion ventricular arrhythmias. Spontaneously beating isolated rat hearts were perfused according to the Langendorff technique and electrocardiogram was recorded. After ten minutes of regional ischemia, the hearts were divided in three groups: control reperfusion (n=10), GR 79236 1 µM (n=9) as an A1 agonist and IM-BECA 10 µM (n=9) as A3 agonist. Both drugs were administered during the first three minutes of reperfusion. We found that none of the treatments protect against sustain ventricular tachycardia and/or fibrillation (control 90% vs A1 67% and A3 88%, both ns by χ^2). We conclude that the individual activation of these receptors is not enough to reproduce the antiarrhythmic effects of adenosine.

177.

PHYTOHORMONES PRODUCTION BY INDIGENOUS BACTERIA ISOLATED FROM ROOTS OF *VITIS VINIFERA*. CV. MALBEC*Salomon M, Bottini R, Piccoli PN.**IBAM-CONICET / FCA-UNCuyo, Alte. Brown 500, M5528AHB Chacras de Coria, Mendoza. E-mail: msalomon@fca.uncu.edu.ar*

Although grape is the fruit of major economic importance of the world, few microbiological studies of soil and roots have been reported for the specie. One of the mechanisms by which bacteria can promote growth is by the production of phytohormones such as GAs, ABA, IAA and AJ. However, there are few studies about the use of bacteria to promote the grape wine growth. Previously, we isolated and characterized by 16S rRNA gene sequencing analysis several bacteria from adjacent soil and vine roots of *Vitis vinifera*. cv. Malbec, among them, *Pseudomonas fluorescens*, *Kokuria erytromyxa* and *Microbacterium imperiale*. The aim of this study was to evaluate the ability of these bacteria to produce plant hormones in chemically defined medium, controlling DO₅₃₀ (total biomass) and UFC.mL⁻¹ (cell alive). At this time, by GC-EIMS analysis ABA and IAA characterization have not been yet reported. By using isotopically-labeled ABA and AIA the amounts produced by *P. fluorescens*, *M. imperiale*, *K. erytromyxa* were 7.1, 5.28 and 9.95 ng.mL⁻¹ ABA, while the amounts of IAA were 28.5, 38.5 and 50.5 ng.mL⁻¹, respectively. This is the first report of ABA and IAA production by indigenous bacteria isolated from grapevine roots, suggesting one mechanism by the bacteria for promote and benefit plant growth.

178.

SEASONAL VARIATION OF THERMAL SAFETY MARGIN IN *RHINELLA ARENARUM* (ANURA: BUFONIDAE)*Sanabria E, Quiroga L, Cortez R, Marinero V, Moreno D, Cataldo A. Fac Cs Es Fs y Ns, UNSJ, 5400 San Juan.**E-mail: sanabria.eduardoa@gmail.com*

Body temperature in amphibians regulates a wide range of physiological processes. We studied the variation in thermal safety margins of *R. arenarum* between dry and wet seasons in the Monte desert from San Juan Province. We recorded the critical thermal maximum (CTMax) in the laboratory, and operating temperatures (To), body temperatures (Tc), maximum ambient (Ta-max), and minimum ambient temperature (Ta-min) in the dry (DS) and wet (WS) season in the field. We collected by hand 35 individuals (18 in WS and 17 in DS). The CTMax was obtained by exposing individuals to a heat source, with a rate of temperature increase of 1°C per minute. We found that this parameter varies significantly between seasons ($U = 31$, $p < 0.00007$). In WS (37.8°C) the CTMax is higher than in DS (35°C) this parameter was positively and significantly correlated with To (Spearman, $R = 0.74$, $p < 0.000002$, $n = 31$) and Ta-max (Spearman, $R = 0.78$, $p < 0.000001$, $n = 35$) and Tc (Spearman, $R = 0.64$, $p < 0.00003$, $n = 35$). No relationship was found between CTMax and Ta-min ($p > 0.05$). This species shows seasonal acclimatization; changes in thermal safety margins are a physiological strategy to tolerate thermal environment variations.

179.

ALPHA-GALACTOSYLCERAMID IS A STRONG ADJUVANT FOR A GENETIC INFLUENZA VACCINE*Sanchez MV, Cargnelutti D, Scodeller E.**IMBECU-CCT-Mendoza.**E-mail: vsanchez@mendoza-conicet.gov.ar*

Genetic immunization with naked DNA of genes encoding specific antigens has been used for approximately 20 years now. However, high-titer humoral immune responses are rarely seen using this strategy. For this approach to be successful, the development of new adjuvants are urgently needed. It has been recently demonstrated that alpha-Galactosylceramide (α -GC) can act as a powerful vaccine adjuvant, inducing protective immune responses against viral infections and tumors. The aim of this work was to evaluate the adjuvant effect of α -GC on a genetic vaccine using DNA of the influenza nucleoprotein gene as the immunogen. Groups of 5 Balb/c mice were intramuscularly injected with 50 μ g of plasmid encoding the influenza nucleoprotein under the CMV promoter formulated with 2 μ g of α -GC (experimental group) or without α -GC (control group). On day 14 all mice received a boost with the same amount of DNA without α -GC. On day 35, serum samples were collected to evaluate the specific titer of total IgG and isotypes IgG1 and IgG2a. The titer of total anti-NP IgG was increased 10-fold in the α -GC-treated group compared to the control group. The predominant isotype in these sera was IgG2a. This study clearly demonstrates that α -GC is a strong adjuvant for genetic immunization, inducing much higher antibody titers than those obtained with adjuvant-free DNA.

180.

ELECTROGENIC EPITHELIAL TRANSPORT IN HUMAN COLON BIOPSIES: EFFECT OF DITHIOTHREITOL*Saraví FD, Carra GE, Ibáñez JE, Ituarte L, Saldeña TA, Viera TB. Área Fís Biol, Fac Cs Méd, UNCuyo, 5500 Mendoza. E-mail: fsaravi@fcm.uncu.edu.ar**E-mail: fsaravi@fcm.uncu.edu.ar*

The use of biopsies of human colon for *in vitro* experiments allows physiological study of mucosa of patients free of conditions requiring surgical treatment. However, the sample size (2 mm²) demands adapting conventional methods which employ larger samples. We constructed an Ussing chamber for small samples (microchamber) and tested it with biopsies of human sigmoid colon, following standard bioethical guidelines. Biopsies (80 % of mucosa with intact crypts) were mounted in the microchamber for measurement of short-circuit current (Isc) and transepithelial potential difference (Vt). Transepithelial resistivity (Rt) was calculated. Measurements (mean \pm SEM, $n = 6$) were performed under basal conditions and after the addition of the reducing agent dithiothreitol, commonly used as a mucolytic in studies of intestinal and airway mucosae. Baseline values: Isc = 44.9 \pm 6.3 microA.cm⁻²; Vt = 1.14 \pm 0.19 mV and Rt = 25.5 \pm 3.6 ohm.cm². Dithiothreitol, applied at the apical side (1 mM) caused a decrease in Isc and Vt but increased Rt: Isc = 25.7 \pm 3.6 microA.cm⁻² ($p = 0.0004$ vs basal); Vt = 0.72 \pm 0.15 mV ($p = 0.0002$) and Rt = 28.1 \pm 3.7 ohm.cm² ($p = 0.0213$). Baseline values agree with those measured by other authors, thus validating the experimental set up. The effect of dithiothreitol has not been previously reported for human colon, and discourages the use of this agent in experiments studying electrogenic ion transport.

181. DISTRIBUTION OF THE VERBENACEAE FAMILY SPECIES IN THE PROVINCE OF SAN LUIS (ARGENTINA)

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The *Verbenaceae* family comprises 26 genera and 191 species which are spread in 23 provinces in Argentina, from those species 54 are endemic. In the San Luis province, 23 species are grouped into 10 genera (Zuloaga, 1999). The aim of the present study was to show the distribution of the *Verbenaceae* family in the province of San Luis. The studied material was obtained by field collection and revision of the INTA (VMSL) and the Facultad de Ingeniería y Ciencias Económico Sociales (VMA) Herbaria. The specimens were determined and pictured. Besides, maps of distribution were made. To date, 11 genera from the *Verbenaceae* family for the San Luis province were found (the number of species into each genera are indicated into brackets): *Acantholippia* (1), *Aloysia* (3), *Clerodendrum* (1), *Glandularia* (9), *Lantana* (4), *Lippia* (4), *Pitiraea* (1), *Phyla* (1), *Verbena* (5), *Xeroaloyisia* (1), and *Junelia* (2). The species represented in San Luis are: 22 native species, 9 endemic species and 1 exotic species, 17 of them have not been yet cited for San Luis province until 1999.

182. ROLE OF TRANSCRIPTION FACTOR NRF2 IN THE INDUCTION OF ANTIOXIDANT ENZYMES IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Patients with type 2 diabetes mellitus (T2DM) are subject to chronic oxidative stress. Reactive oxygen species (ROS) play a key role in regulating the cellular redox status, and an overproduction of ROS may in part underlie the pathogenesis of diabetes. The transcription factor Nrf2 regulates the expression of antioxidant enzymes. Induction of these genes is an adaptive defense to counteract oxidative stress. Hemeoxygenase-1 (HO-1) and Catalase are stress-related Nrf2 target genes. Our objective focuses on the role that Nrf2 linked gene expression plays in regulating redox homeostasis. A total of 30 patients with T2DM and 30 controls were studied. Fasting blood samples were obtained and the fasting plasma glucose, lipid profiles, HbA1c, TBARS and catalase levels were measured. Analyses of mRNA levels of HO-1 and Nrf2 were performed using reverse transcriptase reaction. The glucose, CT, LDL-c, HbA1c and TBARS were significantly higher in T2DM than in controls ($p < 0.001$), whereas catalase and Nrf2 levels were significantly higher in controls than in T2DM ($p < 0.001$). The levels of HO-1 were lightly major in T2DM with regard to controls ($p < 0.06$). The results of this study suggest that the patterns of response vary among different antioxidant enzymes. Longitudinal studies are required to confirm these results.

183. HISTAMINERGIC NEURONS OF THE NUCLEUS ACCUMBENS: ROLE ON LATERALIZED EXPLORATORY BEHAVIOR IN RATS

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Evidence from our laboratory has previously shown that the nucleus accumbens (ACC) participates in modulating the behavioral expression of lateralized responses in adult rats. The present work studied whether histaminergic input to the ACC might be involved in these mechanisms. Adult male rats (90 day-old) were implanted bilaterally with guide cannulae into the ACC for *in situ* microinjection. 48 h later, animals were injected with saline (Control, n=14); histamine (HA, 9 nmol/μl) into the right (n=7) or left (n=9) ACC. After 5 min all groups of animals were tested in the Double Lateral Holeboard (DLHB) during 5 min as previously described. Results show that histamine injection into the left ACC decreased significantly the behavioral activity displayed by animals at the initial compartment of the DLHB (HA 241±38.3 Counts/5 min vs Control 423.5±27.3 Counts/5 min; $p < 0.01$), and increased significantly the behavioral activity of the corridor compared to control (HA 359±38.3 Counts/5 min vs Control 179.5±27 Counts/5 min; $p < 0.01$). In addition, HA treatment in both ACC blocked the spontaneous tendency of animals to explore more the left side than the right side of the DLHB. In conclusion, results support the hypothesis that HA might be involved in the ACC lateralized behavioral expression in rats.

184. MICROBIOLOGICAL QUALITY OF LAVALLE (MENDOZA) WATER RESOURCES AND IMMUNOSUPPRESSION MARKERS OF AUTOCTONOUS POPULATIONS

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Lavalle stallholders have no tap water supply. They obtain water from cans of potable water brought from other places, and from wells, ponds, rain, streams and mills. We aimed at determining the microbiological quality of their water supply and its impact on dwellers' health will be assessed using the count of *Candida* (opportunistic fungus, associated to immunosuppression) in oral cavity. Water samples (n = 46) were collected in Laguna del Rosario, San Miguel and Asunción. Of them, 31 samples were of water intended for human consumption and 15 for other uses (animals and irrigation). Microbiological parameters were determined with the technique of filtration by membrane. The results were: Total count above 500 cfu/ml in 46 samples (100%). Presence of *Escherichia coli* in 24 (52%), 13 of them in water for human consumption. Other Enterobacteriaceae (*Klebsiella*, *Enterobacter*, *Citrobacter*, *Proteus*) were found in 21 samples (46%), 9 of them in water for human consumption. Presence of *Pseudomonas aeruginosa* in 16 samples (35%), 8 of them in water for human consumption. Presence of *Pseudomonas* spp: 46 (100%). All samples also contained fungi, in variable degree. Results show a poor microbiological quality of drinking water, which is a health hazard. The next step will be an assessment of the count of *Candida* in the oral cavity of this population.

185.
EFFECT OF DRUGS THAT MODULATE AUTOPHAGY ON
TRYPANOSOMA CRUZI DIFFERENTIATION

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Trypanosoma cruzi, the etiologic agent of Chagas disease, adopts different forms during its biologic cycle. In the gut of the vector, *Triatoma infestans*, the replicative epimastigote form (E) differentiates to infective metacyclic trypomastigotes (MT). Trypomastigotes can invade a wide range of nucleated cells, changing to the amastigote form (A) in the cytosol of host cells. Amastigotes are the intracellular replicative forms indispensable to continue the cycle. Although the mechanisms that govern these changes are poorly understood, it is accepted that starvation is a key stimulus for the E to MT differentiation. Autophagy is an intracellular process mainly activated during nutrient deprivation. We have studied the effect of drugs or conditions that regulate autophagy during E to MT (or T to A) *T. cruzi* differentiation. Using E from the GFP-Y strain, we have observed that treatment with the autophagy inhibitor Wortmannin (200 nM) reduces the percentage of MT recovered during *in vitro* differentiation, as indicated by a reduction in the percentage of infected cells and number of parasites/cell. Conversely, the differentiation from T to A was significantly increased when the parasites were submitted to starvation or to the autophagy inductor Rapamycin (50 ng/ml). These results indicate that autophagy is a pathway that actively participates during the *T. cruzi* differentiation process.

186.
HERBICIDE EFFECTS ON THE ARCHITECTURE AND
ANATOMY OF EUPHORBIA DENTATA “TOOTHED
SPURGE” (EUPHORBIACEAE)

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Euphorbia dentata is considered a weed species that is highly competitive and hard to eradicate, mainly due to the low efficiency demonstrated by most chemical treatments and the dependence on the phenological stage at the moment of control. The objective of this study is to evaluate the effects of two mixtures of post-emergent herbicides on the architecture and anatomy of *Euphorbia dentata*. The experiment was carried out in the greenhouse of National University of Río Cuarto. Two treatments were applied: 0,15 l ha⁻¹ 2,4 DB + 50 g ha⁻¹ Imazapic + 0,2 l ha⁻¹ Lactofen and 0,15 l ha⁻¹ 2,4 DB + 0,5 l ha⁻¹ Imazethapyr + 0,2 l ha⁻¹ Lactofen. Three phenological stages were analyzed: plants without branches, plants with branches, and plants in reproductive stage. Five individuals of each category were observed to determine their architecture and processed to obtain histological slides. Plants without branches die after three weeks and plants with branches do it after four weeks, whereas plants in reproductive stage survive because of cotyledonary and prophyllary bud development. Anatomically, less chloroplasts, plasmolysed cells and necrosed tissues are observed in comparison to control plants. In conclusion, plant age might be critical, but cotyledonary and prophyllary bud behaviour might be determinant of the plant strategy to escape from herbicide action.

187.
MICRONUCLEUS ASSAY TO ESTIMATE GENOTOXICITY
IN SWINE DUE TO THE INGESTION OF AFLATOXIN B1

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In pig production micotoxicosis is one of the most frequent problems of environmental contamination. Aflatoxin B1 (AFB1) is produced by *Aspergillus flavus* and *Aspergillus parasiticus* strains. In previous studies it was assessed that AFB1 may induce chromosome aberrations *in vivo*, in prepubertal gilts. In this study the *in vivo* genotoxic potential of AFB1 is evaluated by the micronucleus assay in cytokinesis-blocked cells by the addition of a microfilament assembly inhibitor (Cytochalasin-B). Two groups of pigs after weaning were evaluated, one control and another fed *ad libitum* with contaminated provisions containing 48 ppb of AFB1. Blood samples were taken at 13, 28, 42, and 63 days. At 44 h of culture cytochalasin B was added (6 µg/ml). At this time 500 cells per pig were analyzed (2 control and 4 treated) of the first date. The frequency of micronucleus (Mn) in binucleated cells (BN) and the frequency of BN with Mn were recorded. Differences among control and treated pigs were found in the frequency of Mn in BN cells (p<0.05), being smaller the difference in the frequency of BN cells with Mn. The cytokinesis-block micronucleus assay allowed to detect the genotoxic effect of AFB1, by the analysis of a greater cell number in less time that by counting chromosome aberrations.

188.
MAST CELL DIFFERENTIATION IN THE TONGUE OF
PRENATAL AND NEWBORN RATS

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Mast cells (MC) are one of the antigen-presenting cells responsible for initiating an immune response. They are predominantly localized at the interface between host and environment such as skin and mucosal surfaces. They are able to perceive a variety of allergens and invading pathogens. In oral tissues, degranulation of mast cells has been a consistent feature of inflammatory lesion like liquen planus, gingivitis, periapical process and tumoral responsive.

The aim of the present study is to describe the morphology and evaluate changes in tongue after their first appearance.

Fragments of tongue tissue at different ages were processed with routine techniques in electron microscopy, and for immunohistochemistry using monoclonal antibody against MC granules.

We observed qualitative and quantitative changes in MC at their different localizations and their granules during prenatal and newborn differentiation.

These data suggest a quick MT adaptation and strategic location that allow react against different oral antigens. More studies are necessary to elucidate this phenomenon.

189.**REAL TIME OBSERVATION OF ACROSOMAL REACTION IN HUMAN SPERM***Zoppino FCM, Halón ND, Mayorga LS.**IHEM-CONICET. Facultad de Ciencias Médicas, Universidad Nacional de Cuyo. E-mail: mzoppino@fcm.uncu.edu.ar*

Acrosomal reaction is a unique event in the sperm life. It consists in the exocytosis of the acrosomal content. This exocytic process is absolutely necessary for egg fertilization. Several methods had been developed to determine the acrosomal reaction but there are only a few real time reports of this process. Here we have used two fluorescent markers to detect acrosomal reaction in real time by confocal microscopy. Human sperm cells were capacitated during 3 hours. Fluorescein isothiocyanate (FITC) labeled Soybean Trypsin Inhibitor (SBTI-FITC) with affinity for the acrosomal hydrolase acrosin or *Pisum sativum* Agglutinin (PSA-FITC) with preference for glycoconjugates of acrosomal matrix were added to the medium. The acrosomal reaction was induced with 0,010 mM of calcium ionophore A23187. The opening of fusion pores was detected as an increased of fluorescence in the acrosomal region. Both markers were useful to observe AR in real time. They labeled the cells as soon as the AR started but they showed different kinetic properties. SBTI-FITC filled the acrosome in 1,5 minutes and then the marker was released. On the contrary PSA-FITC was not liberated from the sperm. Our results indicate that acrosomal exocytosis can be monitored with high temporal and spatial resolution by confocal microscopy.

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