

TUCUMAN BIOLOGY SOCIETY

(Asociación de Biología de Tucumán)

Abstracts from the

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MIGUEL LILLO LECTURE 2006

L.1.

MOLECULAR AND CELLULAR BASES FOR THE CONTROL OF TUMOR-ASSOCIATED ANGIOGENESIS

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Blood vessels are originated by two mechanisms named vasculogenesis and angiogenesis. The first is initiated during embryogenesis involving progenitor cells, while angiogenesis takes place from pre-existing vessels.

The establishment and remodeling of the blood vessels are controlled by signals from neighboring cells such as growth promoting factors on endothelial cells. Such processes are modulated in physiological and pathological conditions by a balance between pro- and anti-angiogenic stimulus. In adults, angiogenesis is a rare event except during wound healing or in processes involving the menstrual cycle. However, some pathological disorders are angiogenic-dependent, such as tumor development, diabetic retinopathy, rheumatoid arthritis etc., which are associated with a significant increment in neovascularization.

The vascular endothelial growth factor (VEGF) is the most relevant factor in the promotion of endothelial cells, binds to VEGFR1, R2 receptors and to Neuropilin-1, all localized at the level of the endothelial cell membrane. Other molecules are also pro-angiogenic such as Fibroblast Growth Factor, angiostatins, integrins, metalloproteinases, etc. In addition, Hypoxia mediate cell proliferation and tumor angiogenesis. In contrast, endogenous factors like angiopoietin, angiostatin, endostatin, thrombospondin, interferons, metalloproteinases inhibitors, are efficient for the control of angiogenesis and tumor growth.

A number of procedures have been developed to control the angiogenesis-associated to several pathologies such as monoclonal antibodies (McA), in this sense we have developed a number of effective McA against VEGF, bFGF and KDR. Other methodologies including antisense oligonucleotides, interference RNA, gene therapy and small inhibitory molecules mainly directed against the cascade of intracellular signals, belong to a new platform for the control of human pathologies associated with the increment of blood supply.

OPENING LECTURE

L.2.

BASIC MECHANISMS OF ION CHANNEL FUNCTION

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The lipid bilayer of membranes is impermeable to ions and polar molecules. Permeability is conferred by two classes of allosteric proteins, active pumps and ion channels. Pumps use a source of free energy such as ATP to drive the uphill transport of ions. Ion channels are proteins that span the lipid bilayer of the membranes in animal, plants and bacterial cells. They transport ions from one side of the membrane to the other with rates up to 10^7 ions/s in a thermodynamically downhill direction, allowing rapid changes in the membrane potential.

Functions of channels range from signal transduction, propagated signals to ionic homeostasis, volume regulation, cell differentiation and proliferation and apoptosis among others. Each cell has different types of channels and their density ranged from thousands nicotinic Ach receptors/ μm^2 to a few K^+ channels per μm^2 .

The cardinal properties of ion channels are ion selectivity and gating. Channels select on the basis of size, charge and energy of hydration of the ion and usually classified according to the type of ion allowed to pass. Channels are gated, this is they open or close in response to various stimuli: intra and extracellular ligands, changes in membrane potential and temperature or mechanical deformation which produce large-scale movements of the protein backbone. In the electrical recordings, the channel fluctuates between open (conducting) and closed (non-conducting) states. In addition there is a refractory third state, a process termed inactivation which closes the channels for less than 1 ms to minutes or even longer.

Using methods of molecular biology and electrophysiology, it has been possible to clone, to express and to characterize the genes encoding many of the channel proteins. High resolution structure determination of the protein shed new light on the energetics of ion selectivity and permeation through these channels. Ion channels are composed of one or more pore-forming subunits, often in association with accessory subunits. Most of them conform to a common structure in which the central pore for the ion passage is formed by four or five transmembrane α helices. In many channels the pore-forming helices are contributed by separate subunits, thus the channel is tetrameric or pentameric. Other channels are dimers or composed of a single subunit. In addition to this, the diversity in single channel properties can be due to different combinations of subunit components, dissimilar isoforms, post-translational modifications or single nucleotide polymorphisms.

A growing number of heritable diseases, some dominant and others recessive, are known to be caused by ion-channel mutations or from defective regulation by mutations in the genes encoding regulatory molecules, either by down regulating or by enhancing channel function. Autoantibodies to channel proteins may also produce disease. Thus, ion channels proteins are under intensive study in an effort to determine their roles in pathophysiology and as targets for drugs and toxins.

1. SERUM COMPLEMENT ACTIVITY IN *TESTUDO CHILENSIS* (CHELONIA)

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Complement system is one of most important among unspecific defense mechanisms of vertebrates. However, there is very few information about its presence in reptiles. This system has three forms of activation: classical, alternative and lectin pathways. The aim of present work was to study complement activity in terrestrial turtle *Testudo chilensis*, looking for hemolytic action on mammalian erythrocytes. It was tested the hypothesis that innate mechanisms would recognize these blood cells using the alternative pathway, taking into account similar activity known is present in toads and fishes. Results showed that: 1) turtle serum has hemolytic activity against rat erythrocytes which is inhibited by zymosan and by calcium chelants agents; 2) these activity was destroyed by treatment at 60°C during 20 min; 3) inhibition of classical pathway doesn't affect hemolytic activity. From these results and bibliographic information about similar activity detected in anuran and fishes, it is rational to assess that found effects correspond to lytic complement activity belonging to alternate – or lectin- pathway. It is necessary to mention that reptilian serum complement activity is represented by few observations from ophidian. We think that found activity corresponds to innate antibacterial one put in evidence by the fact of some similarity existing between bacterial and mammalian red blood cell carbohydrate moiety of cells membrane. It is probable that alternative/lectin pathways are innate defense mechanisms in reptiles.

2. VARIATION OF SESQUITERPENE LACTONES FROM *SMALLANTHUS SONCHIFOLIUS* (YACÓN) DURING THE ANNUAL GROWTH CYCLE

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Smallanthus sonchifolius (Asteraceae, Heliantheae) is an Andean crop commonly known as yacón. It has been shown that infusions of yacón leaf produce a remarkable hypoglycemic effect on normal and diabetic rats. The anti-diabetic effect has been attributed to the sesquiterpene lactone (SL) enhydrin. This work was aimed to identify the SL of yacón and determine their variation through the annual cycle. Leaves of *S. sonchifolius* clon LIEY 97-1 were collected monthly since January to June 2006. Lactones were extracted by soaking entire leaves in chloroform during 20 seconds; after solvent evaporation and de-waxing, the extracts were analyzed by GC/MS. Seven SL were identified in the extracts, all of them previously reported in yacón.

Enhydrin, the major SL of yacón, reaches its maximum just before flowering while the content of uvedalin and polymatin B decreases sensibly as the plant grows. The content of fluctuanin and sonchifolin remains essentially constant. This is a fast, sensitive and reliable procedure to analyze the SL in yacón leaves. A single leaf is enough to perform the analysis.

3. CONTRIBUTION TO THE STUDY OF *HYPOXYLON* AND *ANNULOHYPOXYLON* GENERA IN ARGENTINA

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Introduction: *Hypoxylon* Bull. is composed by species from pathogens very harmful to endophytes. *Annulohypoxylon* Y.M. Ju *et al.* was recently proposed, based on the results from molecular studies. For our country, Spegazzini's papers are the only information (1880/87, 1899, 1908/09, 1919). He proposed 15 species and 1 variety. Among them only *H. bovei* and *H. megalosporum* are now accepted.

Objectives: To contribute to the knowledge of the *Hypoxylon* and *Annulohypoxylon* species biodiversity in Argentina.

Materials and methods: the specimens were collected in Buenos Aires, Entre Ríos, Misiones, Salta and Tucumán provinces. Material from FH, IMI, S and WSP herbaria was also studied.

Results: Two new varieties: *A. moriforme* (Henn.) Y.M. Ju *et al.* var. *macrosporum* and *H. investiens* (Schwein.) Curtis var. *magnisporum*; are proposed and the following taxa: *A. nitens* (Ces.) Y.M. Ju *et al.*, *A. stygium* (Lév.) Y.M. Ju *et al.*, *H. anthochroum* Berk & Broomey, *H. crocopleum* Berk. & Curtis, *H. erythrostroma* Moll., *H. rubiginosum* (Pers.: Fr.) Fr. var. *microsporum* Whalley, *H. subrutulum* Starb. are first recorded for Argentina.

4. DECREASE OF THE PERCENTAGE OF STUDENTS THAT REGULARIZE BIOLOGY: PROBABLE CAUSES

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Students of Biochemistry, Pharmacy, Chemistry Licentiate and Biotechnology Licentiate of the UNT study Biology in their second year. A decrease of the number of students that they regularized the matter in the last four years is observed. In 2005-2006 students had to pass a leveling and adjustment course. The objective to analyze some factors that influenced in the decrease of the percentage of the students that regularized Biology in 2003-2006. The methodology includes surveys to the students and the analysis of the inscription schedules and regularization. Results show that since 2003 there has been an increase in the students' registration, as well as an increase of students who stay longer in their courses of study: 17% in 2003, 23.3% in 2004, 29.3% in 2005 and 33% in 2006. In 2006, 67% of the students had a compulsory exam. Of all the period analyzed, 50% of the students who took longer to finish their courses of study fulfilled the requirements. The relationship between the number of teachers and students (T/S) is 1/23, 1/26, 1/30 and 1/33 from 2003 to 2006, respectively. Thus, the obligation to pass the admission exam does not modify the percentage of students that fulfilled the requirements established since the lowest performance is observed in 2006. In this respect, the outstanding decrease could be associated with the unfavorable T/S and to the increment in the number of students of remain longer in the university.

5. META-EVALUATION IN BIOLOGICAL SCIENCES: A RETROSPECTIVE SIGHT

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The aim of this work is to investigate on the evaluation processes that make teachers of Biology for the Polimodal educational level. 37 professors, participants of the articulation workshop were inquired in order to evaluate their practice of evaluation of the students' knowledge. Semistructured surveys and interviews were made.

30% apply written questionnaires; 30% use oral interrogations and a 40% use the tests of multiple choice. They justify their reasons in that: "the written interrogation allows to appreciate the expression and reasoning capacity, the acquisition of a technical vocabulary and the watchword understanding"; the oral interrogations "favor the development of the oral expression, allowing the opportune correction of concepts and or missed terms". The tests of multiple choice allow to value "the understanding, deduction, relation and interpretation as well as the capacity to discern".

The workshop allowed the professors to analyze their evaluative practices critically, to find a scope to express its restlessness and to discover the conceptions that sublie respect to the evaluation of the students' knowledge.

We propose metaevaluation as an useful tool feedback and to discover the strengths and weaknesses of the educational tasks.

6. A COMPARATIVE STUDY OF ANTIOXIDANT ACTIVITY OF ESSENTIAL OILS FROM FOUR SPECIES OF TAGETES

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The aim of this work was to determine the antioxidant activity (AA) as well as the chemical composition of the essential oil (EO) from four *Tagetes* species growing in Tucumán, i.e. *T. minuta* L. (TM), *T. terniflora* Kunth (TT), *T. campanulata* Griseb. (TC) and *T. filifolia* Lag. (TF) The EO were obtained by hydrodistillation of aerial parts and analyzed by GC-MS. The main constituents were for TM: *cis*-tagetone, *cis*- β -ocimene, dihydrotagetone and *trans*-tagetone; for TT: *trans*-ocimenone, *cis*-tagetone, *cis*- β -ocimene, *cis*-ocimenone and *trans*-tagetone; for TC: *trans*-ocimenone, *cis*-ocimenone and *cis*- β -ocimene; for TF: *trans*-anethole and methylchavicol. The AA was determined using two model systems: a) the 1,1-diphenyl-2-picrylhydrazyl radical scavenging method and b) the β -carotene bleaching test. Butylated hydroxytoluene (BHT) was used as reference. Using system a) the EO of TT and TC showed scavenging activity lower than BHT (IC₅₀ = 820 for TT; 540 for TC and 430 μ g/mL for BHT) while the EO of TM and TF were inactive. In turn, using system b) the relative AA (BHT as reference) was: TC 44.8%; TF 36.4%; TT 32.6% and TM 32.3%.

7. EFFECT OF PH, TEMPERATURE AND AGITATION ON THE GROWTH AND XYLITOL PRODUCTION BY CANDIDA guilliermondii

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The microorganisms offer the possibility to substitute the processes of chemical catalysis for microbiological processes. Can be increased the productivity modifying the cultural conditions or the selected strain, in that processes. The objective of this work is to study the effect of the pH, temperature and agitation on the growth and the xylitol production by *Cándida guilliermondii*.

Materials: The maize marlo hydrolysate medium was used with, 33 g/l xylose, added 3 g/l (NH₄)₂SO₄. Was studied the effect of pH: 3; 4; 5; 5,5 and 6; temperature: 20; 25; 30; 40 and 45°C and agitation: 100; 200; 250 and 300 rpm. The xylitol was determined by HPLC.

Results: The maximum xylitol production was obtained to pH 5, at pH smaller than 4 and higher than 6 the xylitol concentration diminished to 3.0 and 1.1 g/l, respectively. The best temperature of production was at 30°C, and at 20, 40 and 45°C xylitol didn't take place. At a agitation rate of 250 rpm a greater growth of the yeast (11g/l) and the xylitol production was achieved. In conclusion, the maximum value of xylitol production was 16.3 g/l by *C. guilliermondii* at 72 h of incubation, pH 5, temperature 30°C and to 250 rpm, with a conversion from xylose to xylitol of 49% of the theoretical maximum.

8. CARDIOVASCULAR REACTIVITY TO TWO PRESSURE LAB TESTS IN UNIVERSITY STUDENTS

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Stress is considered to be one of the major environmental factors related to high blood pressure pathogeny. The study of stress is carried out using lab pressure test for the identification of individuals in risk of high blood pressure. The object of the present work was to evaluate cardiovascular answers to two psychological pressure lab tests: oral arithmetic test and sound test in 40 dentistry student, 12 male and 28 female, average age 22 \pm 2. Measurements were carried out using a Dynamap XL Monitor, 9300 model, for non invasive determinations. Significant differences in Systolic Blood Pressure (SBP), Average Blood Pressure (ABP) and Heart Rate (HR) where noticed in arithmetic oral test in respect to sound test. The SBP increase was 14.28 \pm 12.79 to 9.5 \pm 10.4, the difference was highly significant (p<0,01). DBP varied 8.97 \pm 7.55 to non significant 8.7 \pm 8.27 (n/s). ABP 11.1 \pm 9.5 to 9.77 \pm 9.28, significant difference (p<0,05). The heart rate varied 12.1 \pm 9.2 to 7.55 \pm 9.2, the difference was highly significant (p<0,01). When increases in blood pressure and HR where compared in both pressure tests and genetic high pressure family history, no significant statistic differences were found.

9. CYCLOOXYGENASE PARTICIPATION ON AMPHIBIAN OOCYTE MATURATION

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The rol of arachidonic acid (AA) cascade during oocyte maturation and ovulation is not fully understood in amphibian. This work studies the role of COX through the use of its inhibitors, the non-steroidal anti-inflammatory (NSAI) drugs, in the maturation in *Bufo arenarum* follicles, trated with frog pituitary homogenates, hCG and PGE₁.

Two types of NSAI drugs, indomethacin and rofecoxib, were used in *Bufo arenarum* follicles. Germinal vesicle breackdown (GVBD) were induced by frog pituitary homogenates, hCG and PGE₁.

The results obtained indicate that: 1- Frog pituitary homogenates (2,5-20 µl/ml) and hCG (3-48 UI/ml) induce maturation in a dose dependent manner in the follicles treated. However, PGE₁ was unable to induce meiotic resumption.

2- Indometacin (0-100 µM) a non selective of COX, inhibited frog pituitary and hCG induce maturation. Rofecoxib only inhibited frog pituitary meiosis resumption.

In conclusion these results suggest that AA cascade would be involved in follicular progesterone production and in progesterone induces maturation in *Bufo arenarum* oocytes.

10. SESQUITERPENE LACTONES AND OTHER CONSTITUENTS OF *SMALLANTHUS CONNATUS*

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Smallanthus connatus (Asteraceae), a member of the yacon (*S. sonchifolius*) group, is an herb that grows in NE Argentina, SE Brazil, Paraguay and Uruguay. Some North American authors consider *S. connatus* as a synonym of *S. macroscyphus* while South American taxonomists state that they are different species. In the present work we have studied the chemistry of *S. connatus* owing to its potential relevance as a close relative to a crop. From *S. connatus* we have isolated two melampolide-type sesquiterpene lactones diacylated at C8 and C9. The major lactone (ca. 65%) was identified as fluctuanin and the minor one (ca. 35%) showed to be the 2-methyl butanoyl analogue of fluctuanin, a new natural product. Other components identified in the aerial parts were *ent*-kaur-16-en-19-oic acid, β-caryophyllene, spathulenol, palmitic acid, eicosanol, α-amyrin, sitosterol and stigmasterol. *S. connatus* fits into the chemical profile of the genus which typically produces melampolides and kaurenic acid derivatives. The sesquiterpene lactone chemistry supports the view of South American taxonomists who consider that *S. connatus* and *S. macroscyphus* are different taxa.

11. BIOSAFETY EVALUATION OF GENETICALLY MODIFIED LACTIC ACID BACTERIA

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Although no known risks on human health have been reported, genetically modified (GM) micro-organisms should be evaluated from a biosafety point of view before considering their insertion in the human food chain.

The object of this work was to evaluate the biosafety of GM lactic acid bacteria (GM-LAB) using an animal model.

Mice received a high concentration of GM-LAB or a native strain during 30 days and different health parameters were evaluated.

The GM-LAB did not produce adverse effects on health of recipient animals as shown by normal growth, haematological values and other physiological parameters evaluated in this study.

From these results, we can suppose that the GM-LAB used in this study are just as safe for consumers as the native strains from which they were derived.

12. ENDOCRINE REGULATION OF *BUFO ARENARUM* OVIDUCT

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The aim of this work was to correlate the sex steroids profile with the changes ultrastructural of the *Bufo arenarum* pars convoluta (PC). Lots of females ovariectomized in the preovulatory period were maintained for 25 days before treatment with estradiol-17β (E₂), progesterone (P) o E₂ + P estrogen (E₂) or 5α-dihydrotestosterone (DHT) and then analyzed using electron microscopy routine techniques. Concentrations of these hormones were determined by RIA. The ovariectomized female shows a reduction of the epithelial and glandular layers of the PC compared to control animal (non castrated) by a diminution in the number of secretory cells (SC), and a decrease in ovarian steroids circulating levels. The highest serum levels of P and DHT detected during the preovulatory period were correlated with the maximum morphological and functional development of the PC. The experiments with ovariectomized animal with hormonal treatment, demonstrate that DHT induces an increase in the development of the epithelial and glandular SC that reach the characteristic of the preovulatory period. In the CC induced a ciliogenesis. P and DHT act as secretagogues. The highest E₂ levels detected in the early postovulatory period were associated with scarce activity of the PC. The ovariectomy studies and administration of E₂ put in evidence that this steroid induced the development of the organoids involved in the proteins biosynthesis.

13. PHYSIOLOGICAL RESPONSES INDUCED IN ANNUAL WEEDS BY SUGARCANE STRAW

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Postharvest sugarcane residues suppress growth of annual weeds. Current evidence suggests that organic molecules from sugarcane straw leachates are involved. The aim of this work was to elucidate how straw leachates inhibit weed growth. Straw leachates were incorporated in pots to soil and soil mixed with activated charcoal. Seeds of *Bidens subalternans* and *Brassica campestris* were placed in each pot. Leachates of straw ashes were also assayed. Phenolic compounds and proline content were determined. Straw leachates inhibited radicle growth of both weed species. In soil with activated charcoal, weed inhibition was less marked. Leachates of straw ashes were not inhibitory. Straw leachates increased levels of soil phenolic compounds. This increase was related with higher levels of foliar proline contents and a decline in radicle elongation. Our results suggest that organic molecules directly inhibited radicle length of the assayed weeds. A water imbalance would induce proline accumulation in receptor plants. Although phenolic compounds could induce this response, organic molecules with other chemical natures could not be excluded.

14. EFFECTIVE INDICATORS AND ACTIVITIES FOR THE DAILY EDUCATIONAL PRACTICE OF THE POLIMODAL LEVEL

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A survey with opened and closed questions was applied to 37 teachers of Biology of the Polimodal level in order to establish and to analyse the indicators and the activities that sublie in their daily educational practice. Data were analysed with statistical package SPSS version 10.0.

Significant indicators were: "the communicative strategies" (80%); "the motivation" and "the participative model of education" (73%); the actions of "reinforcement" (20%) and "the expositive class" (13%).

As preferred activities appeared: "the practical works" (47%); "the investigation" (33%) and "the exposition of the classes and tasks considering the previous ideas of the students" (20%). They justify these activities indicating that: "the students participate and ask ..."; "when treating real problems in the laboratory, they found the applicability of the knowledge"; "we had apathetic students, with the new form of work these have been reduced ...; "the methodology of work maintains them alert and end up implying themselves..." etc.

The interaction between the educational methods and practices is evident, the school and the context strongly condition the didactic functions.

15. VOLATILE CONSTITUENTS AND ANTIOXIDANT ACTIVITY OF TWO SPECIES OF *SENECIO*

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Senecio L. is the largest genus in the tribe Senecioneae (Asteraceae). This genus is rich in pyrrolizidine alkaloids and eremophilane-type sesquiterpenes. We report here the antioxidant activity (AA) of the essential oil (EO) and methanol extract (ME) of two *Senecio* species growing in NW Argentina: *S. puchii* Phil. (**SP**) and *S. argophylloides* Griseb. (**SA**). The EO were obtained by hydrodistillation and analyzed by GC-MS. The main constituents were for **SP**: sabinene, α -terpinene, γ -terpinene, *p*-cymene, terpinen-4-ol and β -pinene; for **SA**: sabinene, 3-carene, α -pinene, β -pinene, furanoeremophil-9-ene and furanoeremophilan-1-one along with minor amounts of 1 α ,10-epoxyfuraneremophilane and furanoeremofilan-9-one. The AA of the EO and ME were studied using two model systems: a) the 1,1-diphenyl-2-picrylhydrazyl radical scavenging method and b) the β -carotene bleaching test. Butylated hydroxytoluene (BHT) was used as reference. Using system a) the ME of both plants showed higher scavenging activity than BHT (IC₅₀ = 200 for **SP**; 315 for **SA** and 450 μ g/mL for BHT) while the EO were inactive. Using system b) the relative AA of the ME was 56.5% for **SP** and 33.0% **SA** while both EO showed low antioxidant effect (19%).

16. CHEMICAL CONSTITUENTS AND ANTIOXIDANT ACTIVITY OF THREE *GOCHNATIA* SPECIES

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Gochnatia is the largest genus in the tribe Mutisieae (Asteraceae). This genus is rich in coumarins, flavonoids, sesqui- di- and triterpenes. We report here the antioxidant activity (AA) of the essential oil (EO) and butanol extract (BE) of *G. glutinosa* (Gg); methanol extract (ME) of *G. haumaniana* (Gh) and butanol extract of *G. polymorpha* (Gp). The EO was obtained by hydrodistillation and analyzed by GC-MS. The main constituents of the oil were diterpenes: epymanoyl oxide, kaur-16-ene, 8,13-epoxi-15,16 dinorlabdane and 3- α -hidroxi- manool. The AA was studied using two model systems: a) the 1,1-diphenyl-2-picrylhydrazyl radical scavenging method and b) the β -carotene bleaching test. Butylated hydroxytoluene (BHT) was used as reference. Using system a) the BE from Gg and Gp which contained significant amounts of flavonoids showed good scavenging activity while the ME from Gh was less active (IC₅₀ = 2, 16, 66 and 2 μ g/mL for Gp, Gg, Gh and BHT respectively). Using system b) the relative AA (BHT as reference) was 49% for **Gh**; 29% for **Gg** and 30% for **Gp**. The EO of **Gg** was essentially inactive.

17. SOY NUTRITION DURING LIFE SPAM: EFFECTS ON NERVOUS SYSTEM. AN EXPLORATORY STUDY

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Aim: To explore the effect of the soybean milk, as complement of the diet on the loss of neurons in the central nervous system and over spacial memory.

Material and methods: From the weaning and to the 15 months of age male Wistar rat were assigned to two diets: A) balanced food and water (control); B) balanced food and soybean milk. For the histological studies, every three months, the animals were sacrificed their brains extracted, fixed and paraffin included. Sections of 10µm were dyed with Blue of Toluidina. The neurons of the hippocampus were counted under optical microscope. For spacial memory a water maze was used.

Results: The animals, whose diet was complemented with soybean milk, lost less neuron than the controls in layers CA2 and CA3. However, there were not significant differences in the retention of the maze between the studied groups.

Conclusions The antioxidant capacity of the soybean could explain, the results presented here.

18. PERENNIAL WEEDS WITH "MULCHING" TOLERANCE IN SUGAR CANE

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The retention of the harvest's residues over the crop's area makes up a stubble's mantle ("mulching") that allows to have a conservationist yield system with benefits to the farmer and the environment. With this system, is achieved a good control over certain weeds, especially the annuals. The perennials, in contrast, can thrive under those conditions.

The objective was to identify the perennial weeds wich had tolerated diferents grades of vegetal covering (10 t ha⁻¹; 20 t ha⁻¹ y 30 t ha⁻¹). The weeds found were classified as Tolerance (1); Tolerance (2); and Tolerance (3) according to the treatment.

Those with Tolerance (1) were: *Paspalum urvillei*, *Talinum paniculatum*, *Taraxacum officinale*, *Eleusine indica* y *Setaria parviflora* var. *parviflora*. With Tolerance (2) and (3): *Cynodon dactylon*, *Cyperus rotundus*, *Sorghum halepense*, *Cucurbitella asperata*, *Mikania micrantha*, *Modiolastrum malvifolium*, *Oxalis debilis* var *corymbosa* y *Solanum chacoense* subsp. *chacoense*.

The using of conservationist systems, in response to a growing demand of clean yields, leads to make new studies about the variations on weeds populations to achieve an efficient control over them.

19. NATURAL ANTIOXIDANTS ISOLATED FROM *TRIPODANTHUS ACUTIFOLIUS* (RUIZ & PAVÓN) VAN TIEGHEM

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Free radicals are implicated in several health diseases, such as Parkinson's disease, Alzheimer disease, diabetes, cancer, etc. Our previous reports showed that the infusion prepared from *T. acutifolius* leaves has free radical scavenging activity. The aim of this study was to perform a biodirected isolation and identification of the antioxidant substances from *T. acutifolius* infusion. Lyophilized Infusion was extracted with solvents of increasing polarity. Methanolic fraction was separated by Silica Gel column chromatography and Sephadex LH20. Final purification was achieved by preparative TLC developed with ethyl acetate/methanol/water (100:13.5:10 v/v) as mobile phase. During development of the purification method all steps were monitored by qualitative TLC, and different staining procedures (Vainillin/H₂SO₄, NP/PEG, and DPPH for antioxidant activity). Rutin, Iso-queritrin and Hyperoside were isolated and identified by comparison of their UV spectra and chromatographic profiles with those from pure standards. These Glycoflavonoids are responsables of *T. acutifolius* infusion antioxidant activity.

20. DETERMINATION OF SESQUITERPENE LACTONES IN GLANDULAR TRICHOMES AND FOLIAR WASHING OF *SMALLANTHUS SONCHIFOLIUS* (YACON) BY GC- MS

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Infusions from yacon leaves are used for treatment of diabetes. The hypoglycemic activity has been attributed to the sesquiterpene lactone (SL) enhydrin though we have not found any report with experimental evidence supporting that enhydrin is the active principle. It is well known that lactones are secreted on the leaf surface by glandular trichomes. We have developed a fast and accurate procedure to simultaneously determine all SL, including enhydrin, present in trichomes as well as in leaves of yacon.

Leaves from clones LIEY 97-1 and LIEY 97-2 were selected. Trichomes were obtained by scraping the leaf surface and extracted with chloroform. To obtain the foliar washing, a leaf was sunk in chloroform during 20 seconds. After solvent evaporation, the extracts were analyzed by GC/MS. The ratio among the 7 SL detected resulted to be essentially identical in both trichomes and foliar washing. Because of its simplicity and that a single leaf is necessary to perform the analyses, the foliar washing is recommended to determine SL content in different cultivars and bags of yacon tea sold commercially.

21. SESQUITERPENE LACTONES FROM FOUR SMALLANTHUS (ASTERACEAE) SPECIES

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The genus *Smallanthus* (Asteraceae, Heliantheae) is characterized by the presence of melampolide type sesquiterpene lactones (SL). Lactones are biologically active agents that can be useful in chemotaxonomy. The aim of this work was to determine the SL produced by the glandular trichomes from four *Smallanthus* species: *S. sonchifolius* clones LIEY 97-1 and LIEY 97-2, *S. macroscyphus*, *S. siegesbeckius* and *S. connatus*. The content of the major SL identified in each species is shown below.

Compound	<i>S. sonchifolius</i>		<i>S. sieges.</i>	<i>S. macro.</i>	<i>S. conn.</i>
	97-1	97-2			
Enhydrin	25,5%	29,5%	-	-	-
Fluctuanin	8,5%	1,3%	-	-	55,2%
Uvedalin	15,7%	28,2%	51,0%	-	-
Polymatin A	-	-	3,7%	75,6%	-
Polymatin B	9,0%	3,7%	24,3%	-	-
Sonchifolin	2,6%	4,3%	0,6%	3,7%	-

The qualitative SL profile showed to be characteristic of each species and can be used to establish chemotaxonomic relationships.

22. THE PLANTS IN THE OLD TESTAMENT

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The object of this work is to investigate inside the versicles of the Bible, about the plants that are mentioned, to locate them taxonomically and to discover the reasons for which they are included in the sacred texts. It has been a search through 31,209 versicles of the 47 books that constitute the O.T. 805 mentions of plants were detected, 616 correspond to 69 species that are located in 38 botanical families. The 189 remaining mentions correspond to expressions as thorns, trees, grass, which does not allow to locate them systematically. The five more mentioned plants correspond to the following families: Vitaceas: grapevine vinifera *Vitis* L. (105 times); Poaceas: wheat *Triticum aestivum* L. (61); Burseraceas: incense *Boswellia carterii* Birdw (54); Linaceas: linen *Linum usitatissimum* L. (53); Oleaceas: olive tree *Adminisera extreme unctio* to European L. (36). This investigation has allowed to know the plants and their relation with men through a religious book. This contribution to the botanical studies is framed in a space and specific time: the Palestine and Egypt in the period that goes from about 1600 a. C. until the beginning of the Christian era.

23. *Cissampelos pareira* L. (Menispermaceae) A TOXIC SPECIES FOR LIVESTOCK IN THE PROVINCE OF TUCUMAN

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In the crops of Northwestern Argentina (sugar cane, soy, wheat) it is usual to find the weed *Cissampelos pareira* L., “a thousand men” or “charrúa”. In Tucumán, severe cases of livestock intoxication due to weed intake have been registered. The Department of Special Botany has received samples of weed suspected to cause animal deaths from producers.

This work’s objectives are to identify this weed, yield information that allows its recognition and inform about its chemical components.

Cissampelos pareira L. was determined as the responsible for the deaths of cows and sheep in the livestock area of Tucumán. In order to allow producers to perform a quick and safe recognition, the outstanding morphological characters are yielded in this work. Chemical components are: Cissampareína, Curina forma (-), beta-Ciclamina, Daijison, Dehidrodicentrina, Hayatidina, Hayatimina, Hayatina, Insularina, Isochondodendrina, 12- O- Metilcurine. Recognising the species is necessary in order to take preventive measures to reduce direct economic losses produced by the deaths of livestock, which consume it.

Besides, studies about the chemical components responsible for its high toxicity are required.

24. GRADING OF ABNORMALITIES AND EVALUATION OF SEEDLING GROWTH OF BEAN (*Phaseolus vulgaris* L.) OBTAINED FROM SEEDS WITH MECHANICAL HARM

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This research was aimed at grading different abnormalities observed in seedling, and evaluating the growth of white bean Paloma INTA and black bean Camilo INTA. For this purpose, parts of each cultivar have been damaged by leaving them fall down 0,2 and 4 times on a metallic dish from 2 meters above. Later on, percentages of electrical conductivity and of germination were evaluated. Whilst for evaluating growth, lengths and dry weights of aerial portions and roots were determined. Results of electrical conductivity for both bean cultivars have shown greater damages in seeds with two and four falls as compared to controls. Notwithstanding, germination of black bean demonstrated decreases – although not significant- in the percentage of normal seedling, with increasing deterioration. Lengths and dry weights of aerial portions and roots of abnormal seedling of white bean, have shown – non significant- decreases as compared to normal ones. Besides, the following categories of abnormalities have been identified: 1) short or absent hypocotyle; 2) short or absent epicotyle, and 3) absent primary leaves. It is concluded that mechanical harm of white and black bean seeds affects germination and growth this seedling. Also both cultivars showed similarities in categories of observed types of abnormalities.

25. DEVELOPMENT OF READING AND WRITING PRACTICE OF ACADEMIC TEXTS AT THE FACULTY OF DENTISTRY OF THE UNT

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By reading and writing it is expected that university students will be able to analyze, understand and evaluate information. Development of these practices will be useful for them in different communicative situations in the future. In this sense, these skills require training, since they are not spontaneous. The present study aims at investigating about reading and writing practice development performed by first and fifth year professors at the Dentistry Faculty of the UNT. Reading of academic texts is always performed by 39% of first (1Y) and 27% of fifth (5Y) professors. Written exercises are sometimes requested by 50% of 1Y and 55% of 5Y teachers. All professors in both groups emphasize the most important concepts. 67% of 1Y and 86% of 5Y agreed to participate in a reading and written academic texts course to improve their teaching skills. We can conclude that although a high number of professors applies reading and writing techniques in their classes, increasing these techniques will lead to a better teaching learning process.

26. QUALITY CONTROL OF YACÓN TEA, *Smallanthus sonchifolius* (ASTERACEAE)

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Smallanthus sonchifolius (Poepp. & Endl.) H. Robinson (Asteraceae, Heliantheae), known as yacón, is a herbaceous, perennial plant, cultivated in the Andes from Colombia to the North West of Argentina. In the last 20 years it has been extended the use of infusions from yacón leaves to treat diabetes type II. It has been shown that the watery extract of yacón leaves, produce a hypoglucemic effect on normal and diabetic rats. The objective of the present work is to study anatomical characters with diagnosis value in quality control of yacón tea samples.

Samples of tea from Capao Bonito (San Pablo, Brazil) were analyzed by conventional histologic techniques and compared with fresh leaves of *S. sonchifolius* clon LIEY 97-1 cultivated in Tucumán - Argentina.

The characters with diagnosis value between the fresh leaves of yacón correctly identified and the tea sample are: overelevated anomocytic stomata, epidermic cell with sinuous (adaxial) to very sinuous (abaxial) anticlinal walls, palisade H-shaped cells, glandular and eglandular flexuous and rigid trichomes, and presence of schizogenous secretory cavities and lipidic contents in parenchyma.

27. INCREASED VASCULAR REACTIVITY TO ANGIOTENSIN II INDUCED BY HIGH CHOLESTEROL DIET: ROLE OF OMEGA HYDROXYLASE METABOLITES

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The aim of this work was to study the role of the omega hydroxylase metabolites on the vascular reactivity to angiotensin II (Ang II) in hypercholesterolemic rabbits. Rabbits were fed with either normal rabbit chow (CD) or a diet containing 1% cholesterol for 6 weeks (HD). PAM, CT, LDL, HDL and TG were measured. Thoracic aorta was excised. Rings were cut and mounted in an organ bath to register isometric contractions in arteries with (E+) or without (E-) endothelium. One cumulative dose response curve (CDRC) to Ang II was performed. 17-ODYA 10^{-6} M (omega hydroxylase inhibitor) and/or indomethacin 10^{-5} M (cyclooxygenase inhibitor) was added 30 min. before the CDRC to Ang II. Results: CT and LDL were higher in HD. HD improves Ang II-response in E+ and there were differences between E+ and E-. This effect was blocked by 17-ODYA and indomethacin. However, in CD, 17-ODYA increased Ang II-response both in E+ and E-. Indomethacin was able to inhibit this phenomenon. Conclusions: hypercholesterolemia would increase 20-HETE production. This omega hydroxylase metabolite would be metabolized by cyclooxygenase to vasoconstrictor endoperoxides that improve Ang II-contractile response. In physiological state, such metabolites would inhibit cyclooxygenase to maintain vascular homeostasis.

28. REPORT ABOUT *Lycianthes asarifolia* (Kunth et Bouché) Bitter (*Solanaceae*): WEED FROM PARKS AND GARDENS IN TUCUMÁN

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Lycianthes asarifolia (Kunth et Bouché) Bitter is a native species from the *Solanaceae* Family; is a green house, gardens and parks, weed which has not been previously reported for the Tucumán province. The objective of this work was to make a botanical description and characterization in order to contribute to its identification. Squares, parks and gardens in San Miguel de Tucumán city were examined to verify its presence. Its description was made with characters of easy interpretation. A classification was made considering the percentage of gardens in which are found (Class I: 1-20%; Class II: 20-40%; Class III: 40-60%; Class IV: 60-80% and Class V: 80-100%). It also was determined the covering grade (1: less than 5%; 2: 5-25%; 3: 25-50%; 4: 50-70% y 5: 70-100%).

It was determined that *L. asarifolia* belongs to the Class I (rare, 1-20% of the gardens) with a covering grade 1 (less than 5%) and 2 (5-25%).

Although being a sparsely spread species, is considered important to report its presence due to the conservation, defence and recovering of the public open spaces, are necessary for the population.

29.

BIOMARKERS OF INFLAMMATION AND ENDOTHELIAL DYSFUNCTION IN TYPE 1 DIABETES PATIENTS*Prado MM, Carrizo TR, Velarde MS, Fonio MC, Díaz EI, Pérez Aguilar RC, Bazán MC, Abregú AV.**Cátedra Práctica Hospitalaria, Fac. Bioquímica, Química y Farmacia (UNT). Servicio de Endocrinología Hospital de Niños Jesús. E-mail: vabregu@arnet.com.ar*

It is known that exist a nexus between inflammation, arteriosclerosis and cardiovascular disease (CVD), but the involved mechanisms are not completely elucidated. Endothelial dysfunction, the first step of arteriosclerosis, simultaneously with an inflammatory response contribute to a increased cardiovascular risk of diabetic patients. The objective of this work was determinate biochemical markers of inflammation and endothelial dysfunction in type 1 diabetes patients. Thirty-seven patients with DT1 (17m/20 f), age 11.6 ± 2.4 yr and 3.7 ± 3.1 yr of diabetes evolution, without clinic evidence of vascular disease were studied and they were compared with a control group. All the patients were submitted to a complete clinic evaluation including: osseous age, diabetes duration, BMI, growing velocity, Tanner state, blood pressure, familiar history of diabetes an CVD. Laboratory determinations were: Fasting blood glucose (FBG), HA1c, high sensibility Reactive C Protein (hs-PCR), Fibrinogen (Fb) and sE-Selectin (sE-S). The results obtained in diabetics and control subject were: hs-PCR (0.7 ± 0.6 vs 0.3 ± 0.2 mg/l, $p=0.03$); Fb (261 ± 66 vs. 245 ± 16 mg/dl, $p=0.26$); sE-S (107.6 ± 41.9 vs 68.9 ± 22.1 ng/ml, $p<0.0001$). hs-PCR values were higher in: I) diabetic girls than boys (0.8 ± 0.7 vs. 0.5 ± 0.3 mg/l, $p=0.17$), II) diabetics with poor glycemic control ($HA1c \geq 8\%$) (0.7 ± 0.6 vs 0.5 ± 0.1 mg/l, $p=0.28$), III) patients with more than a year of beginning of diabetes (0.7 ± 0.7 vs. 0.4 ± 0.2 mg/l, $p=0.13$), but these results were not statistically significant. When inflammation markers of diabetics were related with sE-S, only we found a good correlation with hs-PCR ($r=0.53$, $p<0.04$).

These results suggest that children with DT1, although those with short disease evolution, present an inflammatory state associated to endothelial dysfunction, that would demonstrate the higher CVD risk in these patients.

30.

IMPACT ON THE ACADEMIC YIELD OF AGRICULTURAL ZOOLOGY STUDENTS, FAZ – UNT, WITH THE INCORPORATION OF PROMOTION SYSTEM WITHOUT FINAL EXAM*Ghiggia LI, Jaime AP.**FAZ- UNT Avda Roca 1900. E-mail: adrijaime@hotmail.com*

In the Agronomical Engineer carrier, FAZ-UNT, now coexists two Study Plans, of 1978 and 2003, the new. The old one suffers several modifications like a minor total time charge and the generally low final marks obtained by students were taking into account. Each Cathedra modified its educative system, in Agricultural Zoology were realized the content selection, the reduction f time charge by student and it was incorporated a promotion system without final exam during 1999. The student promotes the subject with approving the partial exams with a mark superior of seven and with an inferior mark reaches the regularity. The objective of this work was to study the impact of the promotion without final exam system on the student yield in relation with the final mark and the evolution of the average mark of the past 12 years. Two stages were considered, from 1993 to 1998, the first and from 1999 to 2004, the second. The cases were 746 in total, being 344 for the first and 402 for the second. The average of marks

The variance and standard deviation and the evolution of average marks were determined. Kruskall Wallis test was made. It was obtained highly significant differences between both stages. The results indicate an average mark of 6.23 for first and 7.14 for second. The most frequent mark was 6 and 8, respectively with an evolution close to 1 point. The promotion system without final exam results better in mark yield and in time.

31.

INTERRELATIONSHIP BETWEEN READING COMPREHENSION IN ENGLISH AND ZOOLOGY WITHIN THE VETERINARY MEDICINE CURRICULUM. FAV. UNRC*Tissera J, McCormack A, de la Cruz J.**Universidad Nacional de Río Cuarto, Ruta Nac. 8. Km 602, 5800 Río Cuarto. E-mail: jtissera@ayv.unrc.edu.ar*

Veterinary Medicine students of the school of FAV, UNRC, need increase motivation by activating background knowledge of the content of basic subjects in their course of studies. The objective of this paper is to develop an interrelationship between the field of Zoology and Reading Comprehension in English that would bring about motivation in the students, thus contributing to enhance their performance in the referred areas. Our work starts from three main premises: motivation, interrelationship and application method. The methodology used to carry out an interaction among basic subjects consists of the application of reading comprehension strategies in English as a foreign language by using interactive texts. We propose a quantitative study of the data hoping to yield results that may allow us to demonstrate the impact of interdisciplinary work in the learning process.

32.

EFFECT OF THE SOYMILK ON THE LIPIDS OXIDATIVE STRESS DURING THE AGING*Fontenla M, Cena AM, Cocimano C, Gómez J, Alonso J, Abdala M, Remis J, Hurtado M, Andrés J, Medina A, Prchal A, Petrino S. Cát. Biología y Neurociencia, Fac de Med. UNT.*

During the development and aging we studied the effect of soymilk, as complement of the standard feeding, on the low density lipoproteins peroxidation, due to cerebral oxidative stress; the relation with the plasmatic lipid profile like indicative of vascular and coronary integrity, and the life span of experimental animals. Male Wistar rats were used (12 w) ($n = 80$). They were assigned to two diets during 15 m: A) balanced food and water (control); B) balanced food and soymilk. The assays were made every 3 m. The life span was checked. The malonildialdehyde levels (MDA) in brain homogenates, showed a significant reduction of the lipids peroxidation, in the animals assigned to soymilk. These data were correlated with those obtained in the plasmatic lipid profile. We registered a greater number of survivors in the animals assigned to the same diet. This would suggest that the feeding with soy foods as complement the standard diet could have a preventive effect of chronic diseases during the aging improving the quality of life.

33. EFFECT OF DEHYDROLEUCODINE (DhL) ON G2-M TRANSITION IN *Bufo arenarum* OOCYTE

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The G2-M transition in amphibian oocytes meiosis is regulated by the activation of a cytoplasmic maturation promoting factor (MPF). In immature oocytes of *Bufo arenarum* there is an inactive complex (pre-MPF), where cdc2 is phosphorylated on both Thr-161 and Thr-14/Tyr-15 residues. The pre-MPF is activated by the action of a cdc25 phosphatase. The microinjection of cytoplasm containing active MPF induces an amplification loop of MPF in the oocytes receptor. Dehydroleucodine (DhL) is a sesquiterpene lactone that inhibits mammalian cell proliferation in G2.

The present work evaluate the effect of DhL on the resumption of meiosis of *Bufo arenarum* oocytes induced *in vitro* by a) removing follicle cells, b) progesterone treatment, c) VG-content injection and d) mature cytoplasm injection. The results show that DhL induces GVBD inhibition, in a dose-dependent manner, in spontaneous and progesterone-induced oocyte maturation. Nevertheless, DhL at the assayed doses had no effect on GVBD induced by mature cytoplasm injection, but it exerts an inhibitory effect on GV-content-induced GVBD. We interpret that DhL does not inhibit MPF amplification and that the target of DhL is some event in the early stages of the cdc 25 activation cascade.

34. *Encarsia inaron* (WALKER) (HYMENOPTERA-APHELINIDAE) PARASITOID OF *Trialeurodes vaporariorum* WETW. (HEMIPTERA-ALEYRODIDAE) IN THE HORTICULTURAL AGRO-ECOSYSTEM OF TUCUMÁN

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Whitefly greenhouse (*Trialeurodes vaporariorum* Westw) is an important pest in the horticultural agroecosystem of Tucumán because of the direct and indirect damage that it causes. It's very frequent the existence of aromatic or medicinal plants near cultures, that are not sprayed with chemical and are guests of this pest. One them is the "ruda" (*Ruta chalepensis* L.) where we can observe pupae of *T. vaporariorum* with parasitoidism symptoms. The aim of this work was to determine the microhimenopterae parasitoids of *T. vaporariorum* in "ruda" inside on horticulture agroecosystem of Tucumán. We took several damaged plants, collecting samples of whitefly whit parasitoidism symptoms which were conditioned properly in individual way form to obtain the adult parasitoids. In order to identify we carried out characterizations and microscopics slides, using taxonomic keys. We identify the *Encarsia inaron* (Walker) (Hymenoptera- Aphelinidae) on *T. vaporariorum* Westw placed on *Ruta chalepensis* L. This is the first record for Argentina on *T. vaporariorum*.

This work was financed by CIUNT.

35. BIOMARKERS DETERMINATION FOR PROSTATIC'S PATOLOGIES

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The aim of this work was to analyze the results of the PSAs dosage, Alkaline Phosphatase (AP) and Prostátic Acid Phosphatase (PAP) in asintomáticos men relating them with the diagnosed pathologies. The studied group understood 213 men asintomáticos. According to the levels of PSAs it was divided the men in three groups: Group A (n=200), Grupo B (n=11) and Grupo C (n=2) with levels of PSAs < 4 ng/ml, understood among 4,1 - 10 ng/ml and bigger to 10 ng/ml, there being diagnosed Bening Prostatic Hiperplasia (BPH) in 2, 7, and 1 patient in each one of the groups studied respectively. In 1 patient of the group C Prostatic Cancer (PC) was diagnosed. The values averages of PSAs, were 1,1+0,8, 1,8+1,1; of AP 150,9+66,2, 103,2+16,8 and of PAP 1,7+0,5, 1,4+0 for the men without prostatic pathologies (WPP) and with BPH of the group A respectively. The values averages of PSAs, were 5,8+1,4, 6,6+2,0; of AP 138,7+78,1, 102,3+33,1 and of PAP 1,2+0,9 1,8+0,3 for the men WPP and with BPH of the group B respectively. Although the levels of PSAs in the patients with BPH are superior that the patient WPP in the group A and B the differences were not significant. There was not significant association among the levels of the studied enzymes and the pathology diagnosed in each group. The obtained results suggest that the determinations of AP and PAP don't contribute to differentiate men WPP and with BPH in the studied groups.

36. PURSUIT OF FRUCTIFICATION OF ECTOMICORRICIC FUNGI IN *Eucaliptus grandis* HILL EX MAIDEN PLANTATIONS IN PROVINCE OF TUCUMÁN, ARGENTINA

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It was made a research of basidiocarps presence of ectomicorricic fungi in *Eucaliptus grandis* Hill ex Maiden plantations between November 2005 and April 2006. The objective was to know climatic variables that favor appearance of ectomicorricic basidiocarps fungi growing in natural form in exotic plantations of *Eucaliptus grandis* Hill ex Maiden. Research selected sites correspond to two plantation located in Tucumán - Bosque Chaqueño fitogeografic province-. Collected basidiocarps belong only to *Scleroderma* Pers. (Gasteromyecetes-Basidiomycota) and coincident they were collected systematically from their first appearances when diurnal temperatures increase and summer precipitation beginning. This fungus forms mycorrhiza with *Eucalyptus* and other arboreal species in general (oaks, pines). The results show that high maximum and minimum temperatures combination and abundant precipitations constitute favorable conditions for basidiocarps formation. It is known that in differentiation process they take part environmental triggering; despite this process it is regulated by expression of genes.

37.

EVALUATION OF THE SURFACE PROPERTIES OF *Lactobacillus* ISOLATED FROM BULLFROG HATCHERIES*Pasteris SE¹, Vera Pingitore E¹, Roig Babot G¹, Bühler MI¹, Nader-Macias ME².**¹INSIBIO-CONICET - Facultad de Bioquímica, Química y Farmacia-UNT; ²CERELA-CONICET. Chacabuco 461. C.P.4000. Tucumán. E-mail: pasteris@fbqf.unt.edu.ar*

The bullfrog-hatcheries have been a growing activity all around the world during the last decade. However, some diseases such as red-leg syndrome have a negative effect on the production expenses. Our studies are focused to the use of probiotics to prevent bacterial diseases in hatcheries. Thus, the inhibitory activity of indigenous lactic acid bacteria from different areas of a hatchery was evaluated. In this work, we analysed the surface properties of lactobacilli as a predictive measure of its adhesion to epithelial cells by studying both, hydrophobicity and haemagglutination degrees. Hydrophobicity was determined by the hexadecane partition method while haemagglutination ability was tested by using human red cells. The hydrophobicity assays showed that the strains had a moderate to low degree according with the hydrophilic nature of the mucus skin. Only seven strains were able to haemagglutinate. The highest values were shown by *Lactobacillus* GST27, FZ6' and AM11 isolated from the skin of healthy animals, EP35A from freshwater of healthy animals and 9T from balanced feed. The relationship between surface properties and inhibitory activity allowed us to select *Lactobacillus* AM11, FZ6', FZ17 and 9T as potential microorganisms to be used as probiotics for *R. catesbeiana* hatcheries.

38.

Encarsia protransvena* VIGGIANI (HYMENOPTERA-APHELINIDAE) PARASITOID OF *Dialeurodes citrifolii* (MORGAN) (HEMIPTERA-ALEYRODIDAE) IN THE CITRIC AGROECOSYSTEM OF TUCUMÁNGhiggia LI, Paz MR, Fernández RV.**Cát. de Zoología Agrícola. FAZ-UNT Av. Roca 1900. (4000) Tucumán Argentina. E-mail: lighi@faz.unt.edu.ar*

Cloudy wings whitefly *Dialeurodes citrifolii* (Morgan) is the most frequent and important aleyrodidae pest in the citric agroecosystem of Tucumán. Their populations are generally regulated by spraying chemical in order to control other pests as citrus leafminer and red scale. There are no records about the native biological controllers, as parasitoids wasps, what hinders in certain measure, the elaboration of compatible management strategies with the agroecosystem sustentability. The aim of this work was to determine the species parasitoids of *D. citrifolii* (Morgan) in the citric agroecosystem of Tucumán. Periodical samplings were made in citric plantations at different agroecological regions in the province, collecting pupae of whiteflies with parasitoidism symptoms, were conditioned conveniently in individual forms to obtain adult parasitoids. To identify them we carried out characterizations, microscopic slides and descriptions and taxonomic keys. It was identifies *Encarsia protransvena* Viggiani (Hymenoptera-Aphelinidae) as parasitoid of *D. citrifolii* in the citric agroecosystem of Tucumán. This is the first record on *D. citrifolii* for Argentina.
This work was financed by CIUNT.

39.

ECTOMYCORRHIZAL CHARACTERIZATION ON WALNUT'S (*Juglans regia* L.) VARIETIES OF TWO REGIONS IN CATAMARCA, ARGENTINA*Agüero AN¹, Brandán de Weht CP².**¹Cát. Lab. de Div. Veg. FCEyN, UNCa. ²Directora de Proyecto CIUNT A 301, FAZ, UNT. E-mail: anaguero@yahoo.com*

Along 2000-2002 period, some inspection was made for the location, description and registration of the presence-incidence of ectomycorrhizal associations (ECM) in rhizospheric ground, and bound up with roots of walnut's (*Juglans regia* L.) varieties: Sorrento, Franquette, Turk y Eureka, implanted on two Catamarca's properties, at the villages of El Rodeo and La Puerta. Preliminary studies made on walnut, always in Catamarca, have been showed the root colonization of this specie with endomycorrhizae as well with ectomycorrhizas. This work's objectives are characterize and describe the modified lateral root branching pattern-or patterns- (MLRBP) of the colonized roots, related to a present ECM-like mycorrhizal association. Roots' samples were taken, cleaned with fresh water, and cut off them in segments. They were conserved along 48hs, and their tips were examined in water under dissecting microscope, and characterized by the morphology of ectomycorrhizal system (Goodman *et al.*, 1996). The more frequent MLRBPs were those with irregular branching, bent tip shape, grainy texture, matte lustre, and hyphae of the mycelial strands restricted to a point. For a more accurate description, certain variations at the treatments used here are necessary to establish the MLRBPs recorded. The MLRBPs are characterized and described, and the colonization of walnut's (*Juglans regia* L.) varieties Sorrento, Franquette, Turk and Eureka is established.

This work was financed by CIUNT A301.

40.

STUDENTS FACING BIOLOGY FINAL EXAMINATION*Sánchez Toranzo G, Medina MF, Qterino J, Bühler MI.**Instituto de Biología. UNT- INSIBIO. Chacabuco 461. 4000 Tucumán. E-mail: mbuhler@fbqf.unt.edu.ar*

Evaluation shows the result of students' learning, and includes a set of side effects. An optional workshop is offered by the Biology Department to those students who have problems in passing their final examination.

The aim of this work is to analyse desertion causes and students' failure in their final examination.

The following data were analysed: 1) In students who do not show up in the final examination: university identification number; number of times they register for the examination; attendance to the workshop; 2) In students who fail the final examination: the topics that present more difficulties.

The results show that: 1) 73% of the students who took the class in previous years registered repeatedly and did not sit for the examination. Of the students that registered more than twice to sit for the final examination only 12% attended the workshop. 98% of the students that attended the workshop passed the final examination. 2) The students failed at "Evolution and Population" (topics that are not taught in class) and "Intracellular membranes and DNA" (taught in class). We can infer that desertion in final examinations is due to flaws in the methodology of study and to fear of facing an oral final examination for the first time. This problem is overcome to some extent when students attend the workshop.

41. RISK FACTORS AND SERUM LEVELS OF THE PROSTATIC SPECIFIC ANTIGEN (PSAs) IN ASINTOMATICS MEN

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The determination of the PSAs is a method used for the diagnosis of Prostate Cancer (PC). However its utility is controverted because of it is necessary to integrate other risk factors associated with this pathology. The aim of this work was to determine the influence of risk factors (RF) for PC on the levels of PSAs in asintomatics men. We studied 213 voluntaries men which were interviewed in order to knowing their RF. The following variables were included: age, family history of PC, previous prostate disease (PPD), fat, alcohol and tobacco consumption, urinary symptoms (US). We made the quantitative determination of PSAs on the IMX Analyzer (Abbot) using the technology of microparticle enzyme immunoassay (MEIA). According to the levels of PSAs we separated the patients in three groups: Group A (n=200), Group B (n=11) and Group C (n=2) with levels of PSAs < 4 ng/ml, between 4,1 - 10 ng/ml and > 10 ng/ml respectively. Of all the analyzed RF the PPD and US were different in the studied groups. The PPD was present in 10,3%, 27,3%, 100% and US in 27,1%, 48,5% and 100% in the groups A, B and C respectively. However, when analyzing each group these RF are not related with the diagnosis of the prostate pathology. This study suggests that the RF would not contribute to the diagnosis of these patients.

42. HEMATOLOGICAL AND SERUM PROFILES OF *Tapirus terrestris*

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The aim of this work was to determine hematological levels and lipidic metabolism indicators in *Tapirus terrestris*. The investigation was to realize in 3 tapirs: adult female (7 years), subadult male (2 years) and female infant (9 months), into semicaptivity maintaining. This animals were anesthetized with butorfanol + xilazina intramuscular. Blood samples were obtained from the femoral vein. EDTA alicuot was used for a routine hematological analysis. From the other alicuot the serum was separated to determine triglicerides and cholesterol concentrations through colorimetric enzymatic methods. The founded media values were: hematocrito: 27%; hemoglobin: 8,7 g/dl; red blood cells: 2.950.000; white blood cells: 9.033, neutrophils: 14%; eosinophils: 11%, basophils: 0.33%, lymphocytes: 74%, monocytes: 0%; triglicerides: 0,122 g/L; cholesterol: 1,31 g/L. The seroproteins were separated by electrophoresis in SDS- polyacrylamide gel 14%. As result eleven bands were identified and quantified by mean of Quantiscan software. The hematological studies in animals in captivity are very important from the clinic point view and the conservation of vulnerable species. The obtained results were contribute to increase specific biologicals knowledge from the *Tapirus terrestris* which could be used as reference in future researches and nutritional evaluations in individuals in captivity.

43. COUPLING OOCYTE-FOLLICLE CELLS ON LH-INDUCED MATURATION IN *Bufo arenarum* OOCYTES

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In amphibians, meiosis is resumed by the action of gonadotrophins which act indirectly through the stimulation of the intrafollicular production of progesterone, that act directly on the oocytes surface and induces modifications in the activities of important enzymes. However, *Bufo arenarum* oocytes obtained during the reproductive period (spring-summer) resume meiosis with no need of an exogenous hormonal stimulus (competent oocytes) if deprived of their enveloping follicle cells, a phenomenon called spontaneous maturation. The aim of this work was: a) to study the effect of the uncoupling of gap junctions on LH-induced maturation in incompetent and competent *Bufo arenarum* oocytes. b) determine the participation of Ca⁺⁺ and phosphodiesterase (PDE) in LH-induced GVBD. Assayed was made *in vitro* with full-grown oocytes with follicle cells competent and incompetent to mature spontaneously. The results show that the uncoupling of the gap junctions with 1-octanol or halotane was sufficient to induce meiotic resumption in competent oocytes, but had no effect on incompetent oocytes. The treatment with LH is capable of inducing GVBD in both competent and incompetent oocytes as long as there are follicle cells present and the gap junction functioning; after the treatment with the uncoupling agents, the percentage of GVBD drops abruptly. Experiments with LH in the presence of heparin, BAPTA/AM and theophylline suggest that the hormone could induce GVBD by means of the passage of IP₃ or Ca⁺⁺ through the gap junctions, which would increase the Ca⁺⁺ level in the oocyte cytoplasm and activate PDE, decrease cAMP levels and allowing meiosis resumption.

44. POLLINATION IN THREE DIFERENT CRANBERRY VARIETIES

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Bees (*Apis mellifera* L.) were used as the pollination agent for the different cranberry varieties. The work took place in a field of 1.5 hectares planted with 3 cranberry varieties: Misti, Onil and Santa. Fe. The planting time was of 6 months to 1 year. Had 330 plants of the Santa Fé variety, 1.056 of Misti and 1.533 of Onil. The density is of 5 beehives per 1.5 hectares. The pollination beehives consisted on chambers with 5 brood frames (2 of open brood) and 7-8 frames covered with bees, 5 with food and a complete half rise. Fenological stages considered: beginning of flowering (less than 15% to 75%), height of flowering (75% to 90%) and end of flowering (90% to 95%). Was quantified, once a week, with a chronometer the number of marauding bees per minute. The average marauding percentages were of 5 bees per minute at the beginning of flowering, 20 bees per minute at the height of flowering and 3 bees per minute at the end of flowering. The Santa Fé variety registered higher marauding levels, 2% more than Misti and Onil for all the fenological stages tested: The presence of bees was influenced by the plants age, since in more developed plantations, bees worked perfectly on the different varieties. There is a preference towards the Santa Fé variety because of the shape of the corolla which allows a better bees access to the floral nectarous. There is a greater activity of the beginning of flowering in all of the cranberry varieties.

45.

CHEMICAL ACTION OF ENDODONTIC POST-MEDICATION CALCIUM HYDROXIDE PASTES*Pacios MG¹, de la Casa ML², Bulacio MA², López ME.**¹Cát. Quím. Biológica, ²Cát. Endod., Fac. Odontología, UNT. Av. B. Aráoz 800. 4000. Tucumán, Argentina.**E-mail: gabriela.pacios@odontologia.unt.edu.ar*

Ca(OH)₂ is very used in Endodontics as a topical medication during the treatment of teeth with necrosis. The aim of this work is to determine the composition of different Ca(OH)₂ pastes placed 15 d in the root canal *in vivo* and *ex vivo*. The used Ca(OH)₂ vehicles were: distilled water (DW), 2% chlorhexidine (CLX), anesthetic solution (AS), propylenglycol (PG), p-monochlorophenol (PMCF) and PMCF-PG. Pastes were kept in the root canal of 60 human anterior maxillary teeth of patients with necrosis with periapical lesion radiographically visible, and in 60 equal pieces recently extracted. The weight of each extracted paste was calculated and the concentration was adjusted to 0,1 M Ca(OH)₂. Results were statistically analyzed with ANOVA one way. Significant differences in pH were not observed among the *ex vivo* and *in vivo* pastes, neither among vehicles. Total proteins, hydroxipropine and phosphor showed no differences among pastes, but in *ex vivo* pastes chemical values were significantly lower in all cases. The different pastes of Ca(OH)₂ showed similar content *ex vivo* post-endodontic medication, however *in vivo* they would have certain chemical effect on the root dentin.

Work partially subsidized by CIUNT.

46.

SOCIAL, ATTITUDINAL AND VOCATIONAL ASPECTS IN STUDENTS OF THE FIRST YEAR OF THE FACULTY OF AGRONOMY AND ZOOTECHNICS – U.N.T.*Colombo M¹, Lucas J¹, Arce O².**¹Universidad Nacional de Tucumán.**E-mail: mcolombo@webmail.unt.edu.ar*

The objective is to characterize the students of the first year. Information was gathered by means of a poll applied to 391 students during the term 2004. Results showed that most of our students course Botany for the first time (78%). The secondary school studies were: Bachelor (43%), Commercial (25%) and Technical (11%). 39% come from S. M. de Tucumán, 41% from the rest of Tucumán Province and 20% from other provinces. 85% are supported by their parents, only 14 % have a job and 58% get up to 100 \$ monthly for their expenses. We emphasize the high percentage of students coming from the rest of Tucumán Province and the scarce financial resources they have to support themselves.

47.

GENOTOXIC ANALYSIS OF *Caesalpinia paraguariensis* (D. PARODI) BURKART EXTRACTS*Sgariglia MA, Soberón JR, Sampietro DA, Quiroga EN, Vattuone MA.**Instituto de Estudios Vegetales "Dr. A. R. Sampietro", Facultad de Bioquímica, Química y Farmacia, UNT. Ayacucho 471. (4000) S. M. de Tucumán, Argentina. E-mail: instveg@unt.edu.com*

The Argentinean folkloric medicine uses extracts from plants (infusions, decoctions and tinctures), that are constituted by compounds of different chemical nature and biological properties. Commonly, the use of these preparations in order to cure is not thought as bearer of some toxicity. We investigate the *C. paraguariensis* extracts, appreciated species for its vulnerary properties, as for its capacity to cause damage to DNA molecule, its genotoxicity. The employed method is known as "rec-assay", with isogenic *Bacillus subtilis* strains. This is based on the relative difference of survival of a DNA repair-recombination proficient strain (H17: rec+) and its deficient strain (M45: rec-). This is represented for two curves that enclose an area, calculated by Probit transformation (S-probit). Infusion and Decoction are not genotoxic (S-probit < 0.123), Tincture is strongly genotoxic (S-probit > 0.593). K₂Cr₂O₇, Kanamicine and DMSO were used as strong genotoxic, non genotoxic and reverse effect drugs, respectively. The tincture is not advisable as medicinal.

48.

ENROLMENT CHARACTERIZATION IN A NEW COURSE OF STUDY. THE CASE OF BIOMEDICAL ENGINEERING OF THE UNT*Ruiz E¹, Ruiz G¹, Mirkin S².**¹Dpto. de Bioingeniería, Fac. Cs. Ex. y Tec. (FACET); ²Fac. de Medicina (FM), UNT. E-mail: eruiz@herrera.unt.edu.ar*

In this work we intend to analyse the features of the entrants of Biomedical Engineering (BE) and the enrolment evolution since the start of the course of study until 2006. The population under study consisted of all the entrants of each cohort since 2002. Descriptive, retrospective and longitudinal studies were done. The numerical data of the Data Base of the FACET and the FM were used. The students were classified into 3 groups: 1) those who enrolled in BE as a single choice, 2) those coming from other courses of the FACET and 3) those who enrolled to take admission tests in Medicine and BE. From all the 2002 entrants, 45,3% were type (1) students, 26,6% of type (2) and 28,1% of group (3). Students of type (2) decreased to 10, 2% in 2006 and those of type (3) also decreased till 4,8% in 2006. The reasons to change courses of study or to enrol in two at the same time could be: a) scarce information about the new courses in the first years of implementation, b) BE is easily related to Medicine and their connections are not well known, c) the place of work is "attractive"; d) there was no admission test in 2002 and e) BE shares some subjects with other courses of the FACET so it is appealing to change studies or to take up simultaneous ones with the possibility of getting two degrees. These issues will be modified as the curriculum and the graduate profile are better known.

49. FIRST EXPERIENCE IN THE TRAINING OF STUDENTS PASANTES FOR THE PRECOCIOUS DETECTION OF PATHOLOGIES ASSOCIATED TO THE ENDEMIC REGIONAL CHRONIC HYDROARSENICISM (HACRE) IN TUCUMÁN PROVINCE

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The HACRE, illness taken place by ingestion of water with high arsenic content, involves in Tucumán more than 350.000 people. Dermatology services of Capital Hospitals diagnostics the most of them by spontaneous consultation. In this area headquarters of rural Internships work in first level of attention for students of the 7th year of the Medicine of Tucumán with educational instructor doctors of the System of Health. These students, were instruct in education to the community, reception of patient of risk and recognition of diverse lesions with opportune derivation, given stages the wicked potential of some of them. As field work the students carry out surveys structured residents that potentially are exposed to the risk. The results show 33,3% of the pasantes has carried out 10 or more surveys, 25% between 5-9 and 41,7% less than 5. Compatible dermal lesions were recognized with the chronic consumption of arsenic in 22,6% of the interviews in Burruyacú, 18,7% of Cruz Alta, 53,33% of Leales and 34% of Graneros. It is informing the exposed population to the risk and the students for the detection of lesions in early estadios, planning to extend this activity to doctors of System of Health of the area.

50. LEVELS OF ARSENIC IN THE DRINKING WATER AND THEIR RELATIONSHIP WITH CUTANEOUS LESIONS IN RESIDENTS OF THE TUCUMÁN PROVINCE

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The As is a metalloid that is in concentrations risen in the east of the county of Tucumán. The Endemic Regional Chronic hydroarsenicism is the pathology taken place by the ingesta of polluted water. The aim of this work was to determine the levels of As in samples of water taken in five departments of the east of Tucumán, and to compare the opposing levels with the cutaneous lesions observed in the participant population. The levels of As were analyzed in samples of water taken in Graneros (G) (n=12), Simoca (S) (n=9), Leales (L) (n=3), Cruz Alta (CA) (n=9), Burruyacú (B) (n=5) for the method of Dietilditiocarbamato of Silver. They were carried out surveys half structured to 149 residents in the departments of G (n=56), L (n=30) CA (n=32) and B (n=31). In G 16,7% and 41,7%; en CA 11,1% and 55,5% of the samples of water has levels markedly high of As >0,05mg/L and >0,01mg/L respectively while in S 55,5% , L 33,3% and in B 60% contains bigger levels that 0,01mg/L respectively. Cutaneous signs were found in 48 individuals, 12,8% presented hiperhidrosis, the 14,2% hiperqueratosis and the 4,7% leucomelanodermia. These preliminary data suggest that the contamination with As of the drink water in the studied towns could constitute a serious problem for the health of the residents.

51. RESPONSE TO SULPHUR AGGREGATE ON YIELD, OIL CONTAIN AND PROTEIN IN A CORN CROP IN BURRUYACU, TUCUMAN (R.A.)

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It was carried out a fertilization assay over a commercial hybrid corn crop with potassium sulfate (K_2SO_4), in order to evaluate the response over yield, oil and protein contains.

The dosage applied was 100 kg. ha⁻¹ in potassium sulfate at seedtime during two consecutive commercial grows. The plants were analysed to evaluate this practice. It was determined sulfate content in the basal internode and in the elongating internode. The determination on the basal internode was no significative, whereas in the internode in elongation the response was significant in comparison with the untreated control.

It was registered a statistical increase in the culture yield, as long as oil and protein contains had no variations respect to the control. However, the increase in the cultural yield determines a significative increase in the total quantities of oil and protein per hectare.

52. PARTICIPATION OF INOSITOL TRIPHOSPHATE AND RYANODINE RECEPTORS IN *Bufo arenarum* OOCYTE ACTIVATION

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Calcium release from intracellular stores at fertilization is relevant but the signalling mechanisms by which the sperm causes this release have not been elucidated yet. The most accepted theories involve two families of intracellular calcium channels: the universal inositol trisphosphate receptor (IP3R) and the species-specific ryanodine receptor (RyR). The way in which these two pathways interact in eggs expressing both receptors is unsolved. IP3Rs are present in all studied species. Functional RyRs appear to be present in the eggs of some species such as sea urchin, mice and humans, although their role in calcium signalling at fertilization is unclear. We investigated the existence of these dual receptors in matured *in vitro* oocytes of *Bufo arenarum* and their probable interdependence by evaluating the effects of agonists and antagonists. Thimerosal and caffeine treatments induced egg activation. Heparin strongly inhibited activation and ruthenium red partially blocked caffeine activation. The blockage of heparin changed completely with the addition of caffeine and thimerosal overcame the inhibitory effect of red ruthenium. Based on these results, we conclude that independent IP3Rs and RYRs coexist in matured *in vitro* *Bufo arenarum* oocytes.

53.

CONTRIBUTION TO THE STUDY OF ASCOMYCETES ON *Podocarpus parlatorei* PILG. IN TUCUMAN AND CATAMARCA PROVINCES (ARGENTINA)*Catania M del V¹, Romero AP.*¹Fund. M. Lillo, Botánica. M. Lillo 251, S.M. Tucumán (4000), Argentina. E-mail: mcatania@tucbbs.com.ar. ²CONICET.

This work is part of a major study on biodiversity of fungus growing on *Podocarpus parlatorei* Pilg. in Argentina. We started this contribution describing Ascomycetes species, either teleomorphic or anamorphic stage (Catania 2001a/04/05a; Catania & Romero, 2001b/05b). *P. parlatorei* Pilg., is a native conifer, forming forest in the mountainous forest in the Argentine NW, region named "Las Yungas". In this opportunity as complement of the previous work, the objective is to communicate additions to the inventory of species found on bark and/or wood. Seasonally samplings were done in the forest in Tucumán and Catamarca provinces. The material was dried and preserved in LIL herbarium. The resulting information was used to propose a possible new species of the genus *Anthostomella* (Xylariales) and other of the genus *Chaetosphaeria* (Sordariales). *Tengiomyces indicus*, *Trichosphaeria pilosa*, *Chaetosphaeria montana*, *Ch. innumera*, *Cercophora costaricensis*, *C. solaris*, *Rosellinia franciscaae* and *R. subiculata* are first recorded from Argentina and *Leptospora rubellus*, *Nectria pseudotrichia* and *Cosmospora vilior* are new for this area.

54.

IN VITRO DECOMPOSITION AND NITROGEN CONTENT IN *Nassella tenuis* BARK. AND *Stipa ichu* KUNTH. RESIDUES, INCUBATED WITH AND WITHOUT SOIL*Gil ME, Fernández OA.*

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The aim of this work was to evaluate the effect of inoculation with soil solution on the decomposition rate and nitrogen content of senescent roots and shoots of *Nassella tenuis* and *Stipa ichu*, two perennial Poaceae from Calden District, Argentina, incubated *in vitro* (25°C). CO₂ evolution was recorded daily, litter weight loss after 40 and 90 days incubation, and N content initially, and after both incubation times. Inoculated *N. tenuis* and *S. ichu* shoots, and *S. ichu* roots presented the greater rate of CO₂ release during the first 30 days incubation. At the end of the experiment, none of the treatments (combination of species - plant part, inoculated vs. non inoculated) lost more than 8% of their initial dry weight. Inoculation only resulted in a higher dry weight loss in *S. ichu* roots, and it didn't produce significant differences in N content between samples. However, all residues concentrated N after 40 and 90 days incubation, probably because of their elevated initial C:N rates.

55.

EXPLORATORY ANALYSIS OF THE SEABIRD COMMUNITIES CLUSTERING AT WEDDELL SEA, ANTARCTICA, PERIOD 1987-1996*Benítez S¹, Esper LB¹, Juárez G¹, Orgeira JL².*¹Cátedra de Matemática, FCN e I.M.L, UNT. ²Dpto. de Cs. Biológicas, Aves, Inst. Antártico Argentino.

The Weddell Sea, Antarctica, (latitudes 64°S to 78°S), is the only maritime region in this ecosystem that remains partial to totally icecovered throughout the year, even in summer. The seabird community that inhabit this ocean is constituted only by few species adapted to its rigorous climate and can feed in zones of ice. The phenomenon of El Niño, between 1989 and 1990, caused an ice absence because of unusual increases in the air temperature, modifying the community structure of birds. The objective of this work is to analyze the variations in the species' clustering of the Weddell Sea bird community. The database considered is part of birds censuses carried out onboard icebreaker Almirante Irizar in summers 1987-88, 1989-90, 1991-92, 1992-93, 1993-94, 1994-95 and 1995-96, using S.C.A.R. (1982) and Orgeira (2002) methodology. Species with abundances less to 8 individuals were excluded from the analysis. Associations between species were explored using cluster analysis (complete linkage and 1-r of Pearson). The results showed that in the years where air temperature was increased a) the richness (number of species) was higher; b) Weddell Sea was inhabited by a group of warmer, own originating water species of lower latitudes (South Shetland Islands and South Orkney Islands), confirming the sensitivity of the seabirds to regional environmental changes; c) the ice-dependent species interacted of different way in absence of marine ice.

56.

OSMOTIC ADJUSTMENT IN SEEDLINGS OF VINAL WATER- AND SALT- STRESSED WITH POLYETHYLENEGLYCOL 6000 AND Na₂SO₄*González D¹, Pece M¹, Ledesma R¹, Meloni DA¹.*¹Universidad Nacional de Santiago del Estero, Av. Belgrano (S) 1912, 4200 Santiago del Estero, Argentina, E-mail: dmeloni@unse.edu.ar

The Vinal (*Prosopis ruscifolia*) is a species tolerant to water- and salt-stresses due to mechanisms that still remain unknown. The objective of this paper was to study the contribution of proline and soluble sugars to the osmotic adjustment that seedlings of vinal carry out under water- and salt-stresses. The seedlings grew in iso-osmotic solutions of polyethyleneglycol (PEG) 6000 and Na₂SO₄ at 26°C. The design was fully randomized with 13 treatments and 4 replicates. The Duncan test was used to prove differences among means, while the Kruskal Wallis test was applied when the ANOVA assumptions were not met. The water stress induced accumulation of proline and soluble sugars from a $\Psi_H = -0.4$ MPa what made the water relative content (WRC) maintenance possible. The Na₂SO₄, in turn, caused the decrease in the WRC from this same value without affecting proline content but the sugars content in roots and leaves increased out of a $\Psi_H = -0.4$ MPa and -0.8 MPa respectively. It is concluded that the species develops an efficient osmotic adjustment under water stress conditions but does not in presence of Na₂SO₄.

57. STUDY OF THE COTTON LEAFWORM *Alabama argillacea* Hübner IN COTTON NARROW ROWS CROPS OF THE AREA OF IRRIGATION OF SANTIAGO DEL ESTERO

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The objective of this experience was to evaluate the incidence of the cotton leafworm in the yields of cotton narrow rows crops. The sowings took place between the 22/10 to the 22/11, with a spacing between the lines of the crop of 0.50 ms. The treatments were: T1 without control throughout the cycle of the crop; T2 control from emergency to first flower; T3 control from emergency to the end of effective blooming; T4 control of insects during all crop life. The samplings were made every seven days and the vertical cloth of 1 m of length was used. The incidence of the damage of this insect was evaluated through the cotton yield. In the three agricultural years the maximum densities were later at the beginning of the blooming. When the maximum densities appeared in the period between 1^o flower to end effective blooming caused significant reductions in the yields of the treatment "without control"; however when the same ones appeared after the conclusion of the effective blooming the diminutions were smaller. This would indicate that the critical period of the crop to this pest extends from first flower to the end effective blooming.

58. CYTOHISTOLOGIC CORRELATION FOR SQUAMOUS INTRAEPITHELIAL LESIONS OF CERVIX AS QUALITY CONTROL

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BACKGROUND: American College of Pathologist proposes to compare cytologic results with the histologic diagnosis to find out the cytohistologic correlation as determinant of the quality of cytologic diagnosis OBJECTIVE: To determine the ages of (incidencia) of low and high squamous intraepithelial lesion. To know the % of cytohistologic correlation as a method of quality control and diagnostic evaluation MATERIAL & METHODS: This study was descriptive, retrospective, (de corte transversal). The authors intervention was only observational. The study concerns 1622 satisfactory smears obtained between January, 1999 and December, 2005. Over this period, 315 women had cytologic abnormalities: 252 had LSIL and 63, HSIL. ASCUS Pap smears were excluded. Histological examination of the cervix was obtained in only 100 women. The lack of cytohistologic correlation was classified in mayor and minor disagreement. RESULTS The patients' average age was 40 years old; 37,5 for LSIL and 41 for HSIL. From 72 Pap smears report of LSIL, 28 (39%) had exact histologic diagnosis correspondence, 12 (17%) had mayor disagreement and 32 (44%) minor disagreement. On the other side, from 28 Pap smears report of HSIL, 13 (47%) had exact correspondence, 5 (18%) had mayor disagreement and 10 (35,5%) had minor disagreement The % of cytohistologic correlation was 47. CONCLUSION: We recommend the cytohistologic correlation as a method of internal quality control in Department of Pathology. The evaluation of the disagreement defines the final outcome and the quality of cytologic diagnosis.

59. EFFECT OF A HYPOPROTEIN DIET IN THE ENAMEL MATRIX OF THE INCISOR OF RATS

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The protein lacks in the nutrition constitute one of the most important causes of metabolic malfunctions and hormonal, with negative clear consequences in organs and tissues, between which the dental organ is not exempt. The target of this one presentation is to determine for histomorphometry the effect of a hypoprotein diet in the enamel matrix of the incisor of growth it continued of rats. Methodology: Lots of rats Wistar to the weaning (21 days) were submitted to two protocols of feeding for 25 days. a) balanced Food and it waters down (control) and b) hypoprotein diet cornflour and (experimental) water. At the age of 5 weeks, the animals were sacrificed, they extracted to themselves the jaws and they were separated in the halfway line. Every hemimaxilar was processed by means of histological skill of routine for MO decalcification previous in EDTA. The volumes of organic counterfoil of the enamel matrix were evaluated according to the beginning of the stereology. The obtained information was analyzed by the test of Student. In the animals fed on hypoprotein diet, the histology is very similar to the group control. The decrease is significant in the volume of the organic counterfoil of the pre enamel attributable to the proteins not contributed by the diet. The analysis histomorphometric reveals one $P < 0,05$. From the analysis of the results in this experimental model it arises: that the protein decrease fond of the volume of the organic counterfoil of the enamel in formation.

60. CONSTRUCTION OF KNOWLEDGE OF PHYSIOLOGY STUDENTS FROM THE FACULTY OF ODONTOLOGY OF THE U.N.T.

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One of the problems found in collage education is the knowledge acquisition. The objective of this work is to analyze factors that can influence the knowledge construction of the Physiology asigature.

An anonymous survey was carried out on a population composed by 173 students in the second year of Physiology Department of the FOUNT. The psico-social and curricular factors that we considered were: 76% women, between 18 and 36 years. Their parents education level: 72 % of the mothers and 51% of the fathers don't have an university title. About the students: 53% didn't degree fom biology bachelor, the 22% join the Odontology Faculty since 1989 to 2000 year. The Histology asigature is in the first year; the 17% of the students regularized it between the years 1991 to 2000, the 21% is cursing it, 52% didn't aprobed the final exam and the 86% desaprobated it sometime.

Conclusion: In the knowledge construction, the curricular organizacion is needed. We require Physiology asigature to be correlative to Histology.

61. LIMITED APPLIANCE OF SET-POINT CONCEPT IN MILK REGULATION

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Milk associated intensive and extensive variables, correspond to concentrations, activities, potentials, and volumes this secretion has. Regulation mechanisms theories sustain concept of *set-point* in the sense that it represents the value a variable must typically possess. If actual variable value moves away from set-point, it is returned through feed-back mechanisms (FBM). There are some works that hold up for a requirement of reproductive variables regulation. Milk compounds are regulated through open loop mechanisms, but doubt exists about volume and its caloric value daily production. The aim of present work was to assess the applicability of set-point concept to these variables. For doing that, one thousand and a half data belonging to sixteen species comprising four hundred samples were analyzed taking into account compounds concentration, volume and daily energetic value, new born gaining weight. Osmolality variable was used as control one. Results showed that: a) as was foreseen, major compounds behave as rheostatics open loop-regulated variables; b) new born gaining weight correlates feebly with milk daily caloric contents; c) interesting, milk caloric contents per volume and milk caloric daily contents showed a weak negative correlation. Found results don't support any closed loop homeostatic regulation of studied variables.

62. ORPINGTON HEN OVIDUCT: HISTOLOGICAL AND HISTOCHEMISTRY STUDIES OF THE FIRST SEGMENTS

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This paper aims to analyse the cytological and cytochemical characteristics of the infundibulum and the first segment of magnum oviduct in Orpington hen. Samples were processed and stained with routine methodology and techniques for carbohydrates. The mucous tunic of the ostium, characterized by short and irregular folds, shows a simple ciliated epithelium. This epithelium became pseudostratified in the last infundibular and proximal magnum zones with periodate-reactive, alcianophilic (pH 0.5) and metachromatic mucous cells. The folds of these zones are long and branched. Alcianophilic (pH 2.5) mucous cells in the proximal magnum were also observed. The lax connective chorion has an important vascularity and lymphatic nodules. A few simple tubular glands appeared in the distal infundibulum while the proximal magnum shows a well developed glandular stratum. In the analyzed segments, the submucous tunic presents a lax connective tissue with vascular packages. The smooth muscular tunic exhibits isolated fascicles disposed in different direction in the ostium while in the last infundibular zone and proximal magnum this tunic is organized in two layers. The glandular acinus show cells in different functional stages which contained neutral and sulphated glycoconjugatand at the infundubular level while the proximal magnum shows also carboxilated and phosphated contents.

63. NEW PROMOTION SYSTEM IN AGRICULTURAL MECHANIZATION SUBJECT- AGRONOMICAL ENGINEER CARRIER, AGRONOMY AND ZOOTECHNT FACULTY - UNT

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During 2006, Agricultural Mechanization subject was given for the first time in the Agronomical Engineer carrier (FAZ-UNT). The evaluation character approved by Consejo Facultad includes three partial exams and a final project with a tutor assigned to the student groups formed by three members. For acceding to the Promotion system the students have to reach a seven of average mark among the three partial and to approve the final work with 7 as minimum. If they do not realize these requisites they must regularized and render a final exam. They became free if the average is inferior to four. The objective of this work was to analyze the development and results of the Agricultural Mechanization subject under the new evaluation system with the possibility of promotion it. It was made a statistical analysis and interpretation of the cursed results with the registers of the presence, partial and final work evaluation. On a total of 30 students, 21 of them reached the promotion (70%), 6 regularized (20%) and 3 (10%) were Free. It was registered an average assistance to theoretical –practical classes superior of 70% (greater than anterior years). The new evaluation system with promotion was highly positive because of the high percentage of students. The final exam system results more light with this new promotion system.

64. ANALYSIS OF THE CONSEQUENCES OF APPLICATION OF THE NEW PROMOTION SYSTEM IN AGRICULTURAL MECHANIZATION SUBJECT-AGRONOMICAL ENGINEER CARRIER, AGRONOMY AND ZOOTECHNT FACULTY - UNT

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During 2006, Agricultural Mechanization subject was given for the first time in the Agronomical Engineer carrier, according the New Study Plan. The evaluation character approved by Consejo Facultad includes three partial exams and a final project with a tutor assigned to the student groups formed by three members. For acceding to the Promotion system the students have to reach a seven of average mark among the three partial and to approve the final work with 7 as minimum. If they do not realize these requisites they must regularized and render a final exam. They became free if the average is inferior to four. The objective of this work was to analyze if the given information was caught for the students during the course with the new evaluation system. It was made an integral questionnaire with 20 questions relating the total contents of the subject with multiple choice system to voluntary students. Then the interpretation and the statistical analysis of the results were made. Only 20% of the sample answered correctly to the 50% of the questions, it means the students don not have an integral vision of the subject contents.

65. VIABILITY OF NYMPHS OF *TAPAJOSA RUBROMARGINATA* (HEMIPTERA: CICADELLIDAE) MAINTAINED WITH DIFFERENT HOST PLANTS

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The tribe Proconiini (sharpshooters) is one of the largest groups of xylem-feeding insects and includes the majority of the known vectors of xylem-borne phytopathogenic organisms.

The aim of this contribution is to provide data on viability of nymphs of *T. rubromarginata* on different breeding systems as an attempt to determine a suitable substrate to rear this insect in laboratory.

Fifty replicates (two nymphs each) were conducted for six rearing system treatments: corn, Bermuda grass, rescuegrass, bur clover, cowpea, and a combination of mint + oat. Each replicate was daily checked to ensure the quality of the plants and to determine instars by counting exuviae and mortality.

Nymphs reached the adult stage successfully on two treatments, cowpea plants, and the combination of mint + oat. All the newly emerged nymphs maintained with rescuegrass succumbed before molt, and less than 10% of those breeding on corn, Bermuda grass or bur clover were able to pass to second instar. This study provides evidence that cowpea is an appropriate substrate to rear *T. rubromarginata* in laboratory.

66. GESTATIONAL CHRONIC STRESS ON DIFFERENT AREAS AND NUCLEI OF C.N.S. DURING FETAL DEVELOPMENT IN RATS

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The aim of this work was to determine chronic stress effect on NPY neurons during fetal development of fore, medial and posterior brain. Wistar rats under controlled lab conditions were used and sagittal histologic cuts of fetal heads of 15, 17 and 19 pregnancy days were obtained. Immune marks were performed for NPY neurons (rabbit anti-NPY antibody, Sigma, Co) which were quantified by image stereologic analysis. Data were analyzed with Kruskal-Wallis in inter and intra groups. **A.** Differences in the fore, medial and posterior brain were found in the three ages studied ($p < 0.01$) when the analysis intragroup of control fetuses (C.F.) and stressed fetuses (S.F.) **B.** When comparing C.F. vs. S.F. of 15 days of age differences were found for fore and medial brain ($p < 0.01$); on day 17th the differences were found in fore brain ($p < 0.01$), and on day 19th in fore brain ($p < 0.05$) and in medial and posterior brain ($p < 0.01$). **C.** *In C.N.S. grey nuclei* differences were detected in ARC, PH of 17 days and also in the DM and ARC of 19 days ($p < 0.01$) of the fore brain, DR on the 19th day of the medial brain, also in the PnO and in the RITg on the 17th day and in the Pyx, Rob and RPA of 19th days of the posterior brain. Differences ($p < 0.05$) were proved in the PN of medial brain of 19 days, in the DPGI of 17 days. They were also proved in the CGPn and in the PrH of the posterior brain of 19 days. Finally, differences were not provable in none of the following: AH, DM of 17 days, EM, VMH of the fore brain 19 days, CG, DR of the medial brain of 17 days, PnC, PrH, RMgG, IO of 17 days. It is concluded that gestational chronic stress produces an increase of positive NPY neurons that might be one of the alteration factors of postnatal emotionality (•) Abrev. in the PAKINOS, G. *et al.* Atlas of the developing rat nervous system. Academic Press. USA. 2nd Edition, 1994.

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67. DETERMINATION OF NITROTYROSINE IN STRESSED RATS PLACENTA

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Maternal stress produces a placental oxidative profile alteration. Peroxynitrites are generated when nitric oxide (NO) reacts with reactive oxygen species. Peroxynitrite can affect signal transduction by nitrating aromatic amino acids such as tyrosine of the cellular membrane proteins forming nitrotyrosine residues in the placental tissue. This would be a marker of the tissue damage by the action of the reactive oxygen species. Our aim was to determine the presence of nitrotyrosine in the placental tissue of stressed pregnant rats as an oxidative stress marker. Wistar rat placentas of 12 and 17 days of pregnancy were used as controls (C) and they were chronically stressed (E). Immunostaining of nitrotyrosine residues in placental tissue was done with rabbit anti-nitrotyrosine polyclonal antibody 1/500. The nitrotyrosine was evident in the endothelial blood vessels of the placental labyrinth at the 17th pregnancy day. No positive marks were observed at the 12th pregnancy day. This result is probably related to the little development of the placental labyrinth. Together with the development of the placental labyrinth zone angiogenesis and vasculogenesis process happen, which by ischemia-reperfusion produce an increase in the reactive oxygen species. The oxidative impact in the placental tissue is evidenced in the last days of gestation in chronically IMO stressed rats.

68. ALLELOPATHIC EFFECT OF 6-HYDROXYTREMETONE ON MONO AND DICOTYLEDONOUS

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The allelopathic effect of 6-hydroxytremetone, (6-HT) isolated of *Xenophillum poposum*, was studied on seeds of two monocotyledonous (wheat and onion) and two dicotyledonous (lettuce and tomato). Boxes of Petri were used for the test containing 20 seeds of each plant placed on sterilized agar. The control samples and solutions of 6-HT of 25, 50 and 100 mgL⁻¹ were placed at 25°C during 96 hours in a culture stove.

Results: Wheat: at 50 mgL⁻¹ a diminution in germination of 21.7% was observed with respect to the control. The ANOVA applied to the development of plants was $p < 0.001$. The test of Tukey for weight and the Dunnett for root and hypocotyl demonstrated significant differences between 50 and 100 mgL⁻¹ ($p < 0.001$). **Onion:** the diminution in germination was 90, 75, 58.4% at 25, 50, 100 mgL⁻¹ with respect to the control. The rates of relative variation (RRV) were: -83.33%; -58.33% and -44.23% respectively.

Lettuce: the diminution in germination was 43.4, 55 and 50% at 25, 50, 100 mgL⁻¹ with respect to the control. The RRV were: -40.42%; -52.63% and -52.63% respectively.

Tomato: the diminution in germination was 91.7, 86.7 and 95% at 25, 50, 100 mgL⁻¹ with respect to the control. The RRV were: -90.94%; -77.83% and -94.54%.

69. SUCCESSFUL WEEDS IN SOYBEAN CROPS AT TUCUMÁN (ARGENTINA)

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If one weed completes its life cycle at the same time with the soybean, after the weeds control was made at field, we call it a successful weed. Roncaglia *et al.* (2005) registry surviving weeds during 2004-2005 at soybean crops In Tucumán in order to look for the seeds characteristics which allow the survival to adjust the control strategies. The aim of this paper is to determine, the correlation between morphologic vegetative and reproductive characters, their field distribution, with survival abilities. There were selected 10 weeds. Using parameters like: habit, leaves shape, leaves disposition, life cycle field distribution, stem firmness, propagation and dispersion, we made a matrix. We used the smoothing simple coefficient to multistage quality variable, the Ward method and the R statistic packet. There were two groups. The first group has: *Amaranthus quitensis*, *Solanum lorentzii*, *Manettia cordifolia*, *Trianthema portulacastrum*. The other group has: *Chloris dandyana* var. *breviaristata*, *Pappophorum pappiferum*, *Bromus catharticus*, *Cyclanthera hystrix*. *Commelina erecta* y *Euphorbia prostrata* have no correlation between neither the groups or between each other. These results will allow us to separate weeds groups with strategies in common to have success in the soybean crop. So the weeds could be control with solid biological bases with bigger control possibilities and with less impact to the agroecosystem.

70. DECLINE AND EXTINCTION OF FROGS OF TELMATOBIUS (ANURA, LEPTODACTYLIDAE) FROM TAFÍ DEL VALLE, TUCUMÁN, ARGENTINA

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Historically three species of *Telmatobius* (*T. ceiorum*, *T. laticeps* and *T. pisanoi*) were present in the mountain ranges of western Tucumán, Argentina, but in a series of occasional surveys done from 2001 to 2004 no individuals (no adults, nor tadpoles) were recorded in these areas. The last records of these species date from the beginning of the decade of 1990. This situation lead us to carry extensive surveys from July 2004 to July 2005 in two main types of environments, (1) streams in Mountain forest (Yungas) from 1300 to 1900 m, and (2) streams in Montane grasslands and Prepuna from 2000 to more than 4000 m. Only *T. pisanoi* was found in small numbers at the edge of its original distribution area, while the other two species are presumably extinct. Several factors were detected as possible causes of this declination, including (a) an unusual dry and warm period preceded *T. laticeps* and *T. pisanoi* last records, (b) the presence of exotic salmonids, (c) habitat alterations, increasing erosive processes, and (d) the presence of chytrid fungus recently discovered.

71. EVALUATION OF THE APPLICATION OF THE INDUSTRIAL CROP SUBJECT PROMOTION SYSTEM (FAZ-UNT)

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From the UNT Institutional Auto-evaluation Program (1998), the FAZ identifies as weakness an atomized curriculum, contents superposition and an inadequate evaluation system. Because of that, the student delayed about 10 years in graduating with low general averages. In Industrial Crop Cathedra, a fifth year subject (Agronomical Engineer Carrier) the student situation cursing the subject was analyzed. This Cathedra proposed a promotion system from 2002 which was approved by Consejo Directivo of FAZ. The objective of this work was to demonstrate the promotion system advantages compared with that of final exam that normally occurs a long time after for obtaining the final approval. It was worked with the marks obtained by students as final exam of the subject from 2002 to 2006 and the length of the period passed between regularization and final approval. The results showed that at least pass a two years period until the student gets the final exam instance and the difference of qualifications is more than 1.5 points in the scale from 0 to 10. The final conclusion is that the students who reach the promotion system option finish as a consequence of intensive learning to compliment in three months the requisites of the Cathedra and with acquired knowledge that deserve a better qualification.

72. SURVEY ON TOBACCO CONSUMPTION RELATED TO STUDENTS OF THE FACULTY OF ODONTOLOGY. NATIONAL UNIVERSITY OF TUCUMAN

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The objective is to study the attitudes of tobacco consumption which prevail in students of the first and last year of the Facultad de Odontología de la Universidad Nacional de Tucumán (FOUNT). The group included 261 students, 204 in the first year, 57 in the last year. 30% are smokers and 70% are non smokers in the first year, 6% are ex smokers. 46% are smokers and 54 are non smokers in the last year, 9% are ex smokers. These percentages are significantly different (exact Fisher Test, $p=0.039$). Both groups consider smoking habit an addiction, 87% and 95%. 92% and 98% are aware that tobacco is a lifetime health risk as well as 68% and 100% are aware that tobacco can damage their dental health. 82% and 88% smoke in the Faculty and 75% and 77% report that some teachers smoke in front of the students. 35% and 81% consider that their studies have influenced on their attitude respect to tobacco. These groups are becoming concerned about health and we may influence on their education if we study them properly.

73.
BIRD HABITAT USE IN LA ANGOSTURA RESERVOIR, TAFI DEL VALLE, TUCUMAN

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La Angostura Reservoir works as a permanent wetland with a diversity of habitats for the birds. In 2004 and 2005 we studied the use of different habitat stripes (10 types, defined regarding their depth and presence of vegetation), for the birds. We used transect method along the reservoir perimeter and recorded: species, number of individuals, habitat stripe used and bird activity, in each season. We recorded 58 species distributed according their foraging behavior in the different habitat stripes. We calculated relative abundance to estimate the significance of these species in each habitat. The results show there is an important association species-habitat used for foraging and nesting. This allows us to detect those habitat stripes that are significant for the conservation of birds and that represent an important educational and ecoturistic resource for that region.

74.
AQUATIC BIRD COMMUNITY OF EL TUNAL RESERVOIR: SIGNIFICANCE AS A PLACE FOR RESIDENT AND MIGRATORY SPECIES

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We studied the aquatic bird community of El Tunal Reservoir (3,474 ha, 5-m annual fluctuation) in Salta, Argentina, in 2005 and 2006, analyzing species composition, structure and seasonal variation, in order to detect: resident, nesting and migratory species. We used transect method along the reservoir perimeter and recorded: species, number of individuals, habitat used and bird activity, in each season. We recorded 48 aquatic species. The best represented families were Anatidae (9) and Ardeidae (7). 16 species were migrants (7 Neotropical-Nearctic -NN-, 9 Regional). The diversity values were duplicated in the spring-summer season, coinciding with the lowest hydrological level that allows the exposure of wide muddy beaches, stimulating numerous shore species (NN) to be there. The variation in composition of the community would be mostly produced by migrants from the northern hemisphere that would be coming back there.

75.
PIG FODA ANALYSIS IN TUCUMÁN

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FODA: is an acronym conformed by the first letters of the of the words "Strengths, Opportunities, Weaknesses and Threats". The conclusions of the workshop carry out by the Faculty of Agronomy in order to discuss and make up the regional FODA parameters were: **Production Group: Strengths:** a) Food resources availability b) National genetics resources availability c) Availability of input for installations d) Availability of technologies and technicians e) Good agro ecological conditions f) Suitable sanitary conditions **Weaknesses:** a) Lack of: 1 farmers organization 2. stockman training 3. pig breeder tradition 4 reference prices b) Breeding-places not registered in SENASA c) Lack of pork promotion c) Lack of credits banks with low rates. **Opportunities:** a) Official support for the organization of the producers b) Scarce local production c) Good prizes of food principally maize d) The outbreak of the Brazilian foot and mouth disease e) The support of 7147 provincial law f) The availability of sugar cane and milling industry g) Suitable production as a diversification. **Threats:** a) Imprecise selling price b) Pigs introduction of other provinces without tax and sanitary control c) Rustle e) Breed pigs without technical and sanitary normative **Marketing Group: Strengths:** a) The nutrients values of pork meat b) High yield of the beast c) Strategic location in the NOA d) Unsatisfied demand by the local production. **Weaknesses:** a) Scarce abattoirs with qualified staff b) Lack of integration between the production and marketing sectors d) Negative image of the pork meat f) Scarce variety of cut in Boucher's and supermarkets h) Clandestine slaughter. **Opportunities:** a) Market unsatisfied b) Brazilian market close by foot and mouth disease c) Potential demand increase d) Suitable profitability e) Exit of the convertibility f) Pig moment. **Threats:** a) Black Market b) Low sanitary control c) Scarce help of credits for the refrigerating plants.

76.
SEROPREVALENCE AND ASSOCIATED FACTORS OF RISK TO CHAGAS' DISEASE IN DOGS

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Chagas' disease is one of the main causes of myocarditis as much in humans as in dogs and it is accompanied by a variety of alterations cardiac. Dogs are considered like main reservoirs of infection. The objectives of this study were to detect presence of antibodies T. cruzi from serum of domiciled dogs, seroprevalence of chagasic infection and the association with environmental factors. Indirect Hemaglutinación (HAI) and Indirect Inmunofluorescence (IFI) were used. There were analyzed 157 sera, 17 were positives to the 2 techniques used and 3 only to HAI. Prevalence was of P=10,8%, 11.8% of the positives were females and 88.2% males (p=0.0016), 47% were greater of 5 years. Of the positives animals 76.4% were mascots and 23.3% of guard, not being animals of work nor of sport (p=0.0251). As far as the race the predominance of crossing of race was evident but 11.7% were distributed in greyhounds, sheep raiser and Fox Terrier. As far as the place where the dogs sleep, was significant, (p=0.0251). Results similar to the found ones, were communicated by investigators in Puebla (Mexico) with 10% of reactive serums against T. cruzi and 6.2% in Costa Rica and 12.2% in Panama. These indices demonstrate that the Latin American reality is similar in dogs domestic, of undetermined race and apparently healthy.

77.

AFLATOXIGENICITY OF *ASPERGILLUS* ISOLATED FROM BALANCED FOOD*Quiroga EN, Soberón JR, Sgariglia MA, Sampietro DA, Vattuone MA.**Cátedra de Fitoquímica, Instituto de Estudios Vegetales "Dr. Antonio R. Sampietro", Facultad de Bioquímica, Química y Farmacia, UNT, Ayacucho 471, (4000) San Miguel de Tucumán, Argentina. E-mail: emquiroga@fbqf.unt.edu.ar*

Aflatoxins were the first mycotoxins discovered, and the most commonly found form, aflatoxin B₁, is the most potent natural mutagen and carcinogen known. Aflatoxins are economically important contaminants of agricultural products including corn (maize, *Zea mays* L.), peanuts (ground nuts, *Arachis hypogaea* L.), cottonseed (*Gossypium hirsutum* L.), copra (*Cocos nucifera* L.) and various other tree nuts. Inadequate techniques of recollection and storage of food can lead to fungi development producing mycotoxins. These substances cause loss of the nutrition value and produces harmful effects on human and animal health.

The aim of this study was to determine the ability to produce aflatoxins by four (4) *Aspergillus* strains isolated from balanced food used for farm animals in our region. These strains are: *A. flavus*, *A. parasiticus*, *A. nomius* 13137 and *A. nomius* VSC23. Only two of them (*A. nomius* 13137 and *A. nomius* VSC23) showed to be aflatoxigenic strains. These fungi produced a compound isolated and identified as Aflatoxin B₁ by TLC and comparison with a mycotoxin standard (Aflatoxin B₁, Sigma). Besides from mycelium and culture medium we could isolate a yellow pigment that change its colour to purple when it was exposed to alkaline solutions. This colour is reverted by exposition to acid vapours.

Now we are treating to identify and dose this mycotoxin by HPLC.

78.

ASSOCIATION BETWEEN THE RESPONSE OF IgAS AND LB IN THE BRONCHIOLITIS PRODUCED BY SINCICIAL RESPIRATORY VIRUS (SRV) AND THE DEVELOPMENT OF ASTHMA*Witowski EM, Lucero AL, Rodríguez NA, Sabini LI, Maldonado AM.**Universidad Nacional de Río Cuarto. Ruta 36 km. 601, (5800) Río Cuarto. Córdoba, Argentina. E-mail: ewitowski@exa.unrc.edu.ar*

In this study were included allergic children with different clinical condition of asthma and/or bronchiolitis vs healthy childrens. Values of LB and influence of concentrations of IgAS in the early inception of asthma associated to RSV were determined. Twentyseven children of 5-48 months were studied, 11 of them had antecedents of bronchiolitis and asthma (B+A+), 8 had asthmatic crisis (B-A+) and 8 without antecedents of respiratory affections (B-A-). In salivary secretion IgAS was quantified by IDR and LB by IFD. In children with (B+A+) concentrations of IgAS were diminished in 36%, whereas for children (B-A+) this decrease was of 25% and 12.5% in the control group. There were statistically significant differences between (B+A+) and (B-A-) (p=0.02). The reduction of IgAS would determine the apparition of the clinical symptoms of (B+A+). Besides, could be demonstrate an increase in percentage values (38,86%) for LB, although without significant differences between 3 evaluated groups. In 9/11 children of (B+A+) LB levels were >20%. Data are consistent with condition atopy of patients and would determine the significant increase of IgE.

79.

CHAGAS' DISEASE SOCIAL AND BIOLOGICAL ASPECTS THAT CONDITION THE SEROPREVALENCE IN HUMANS*Chassagnade M, Witowski E, González J, Suárez A, Rodríguez N. Universidad Nacional de Río Cuarto. Ruta 36 km. 601, (5800) Río Cuarto. Córdoba, Argentina. E-mail: mchassagnade@ayv.unrc.edu.ar*

The objectives of the study were: determine Acs anti *T. cruzi* from serum of humans, seroprevalencia of infection and relate the frequency factors of risk in the department Second River, Cordoba, Argentina. HAI, ELISA and IFI were used. To calculate the agreement of techniques and the association with factors of risk Software Infostat V.1 was used. Of 257 serums, 20 were positive to 3 used techniques. Seroprevalence was P=7.7%. The agreement between HAI and IFI was $\kappa=0.83$, for HAI and ELISA, $\kappa=0.87$ and for ELISA and IFI, $\kappa=0.94$. Of 20 positives, 85% were infected without clinical manifestations, 15% were considered Cases of presenting compatible symptoms of disease. The 237 negatives were non Cases. The points next to positivity through multiple correspondences were age (p=0.0216) and rural work (p=0.0018). From 20 positive patients, 75% did not receive information about the disease 35% knew that the sintomatology was the cardiac one. In houses lack of hygiene was observed in 62.5% (p=0.0083) and the factor disorder in 85.7% (p=0.0036). This study shows the presence of this pathology in humans. The age and labor activity maintain conditions adapted for the persistence of the disease.

80.

ISOLATION AND STRUCTURAL ELUCIDATION OF SIDEROXYLIN FROM *MICONIA IONEURA* GRISEB. MELASTOMATACEAE*Tracanna M¹, Romano E², Raschi B³, Hernández Molina R³, Benavente A².**¹Cátedra de Farmacognosia. ²Cátedra de Química General. Facultad de Bioquímica, Química y Farmacia. Universidad Nacional de Tucumán. Tucumán, Argentina. ³Departamento de Química y Biología. Escuela de Ciencias. Universidad de las Américas. Puebla. México. E-mail: inetracanna@yahoo.com.ar*

In our efforts to discover bioactive constituents from Northwest argentinian flora, the aims of this work was to study a bioactive ethyl acetate extract of leaves from *Miconia ioneura*. EtOAc extract was partitioned between hexane and MeOH-H₂O (80:20). Aqueous layer was diluted with H₂O to MeOH-H₂O (60:40) and extracted with CHCl₃. Chloroform extract was evaporating at room temperature to afford yellow crystals. They were characterized by Spectroscopy: UV, ¹H and ¹³C RMN and confirmed by COSY, HETCOR and HMBC. This structure is 4', 5-dihydroxy-7-methoxy-6,8-dimethylflavone called sideroxylin. This compound was previously isolated from *Mirtaceae species*. To our knowledge is the first report of this flavone in species of *Melastomataceae* family.

81. INTEGRATING ANALYTICAL CHEMISTRY AND BIOLOGY BY MEANS OF SEMINAR'WORKS

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The problematic of the education in sciences is complex for those careers in which the scientific disciplines are only tools.

The student of Agronomy, which fundamental vocation is directed to the field experiences, normally is not motivated towards the study of the Chemistry. A way of optimizing the learning and of motivating the students is to raise activities that allow them to integrate topics of biology and sciences of the soil with the contents of Analytical Chemistry.

In the present work there is described an experience realized in a chair of Analytical Chemistry. In the same one interdisciplinary topic were assigned to small groups of pupils for his study. After compiling the corresponding information of different sources they should have written and expose a work of seminar. The results of this practice were encouraging.

The results of this practice were encouraging. 97% of the pupils affirmed that the topics were interesting, 89% that were applicable to his career, 94% demonstrated to have consulted specialists, and 78% that had improved his motivation and his conscience of the importance of the basic sciences

82. BIOTRANSFER AND BIOACCUMULATION OF ARSENIC IN VEGETABLES AND ANIMAL ORIGIN PRODUCTS IN THE TUCUMAN' EAST

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In the East of Tucumán's province (Argentina) the underground waters have high levels of arsenic. In the present work one tried to verify the biotransfer of arsenic towards the vegetables and products of animal origin of the zone, to quantify the bioaccumulation of the pollutant and to evaluate his biomagnification in the food chain.

To such an purpose there were obtained samples of water, milk of cow, eggs of hen and some vegetables in Saint Nicholas (Leales). The above mentioned samples were analyzed to determine the concentration of arsenic, using a semiquantitative technic and a spectrophotometric method. The vegetable studied species were *Punica granatum*, *Prunus persica*, *Anthemis nobili* *Citrus fortune*, *Citrus aurantium* and *Zea mays*.

It was detected biotransfer in *Punica granatum*, *Citrus fortune*, and bovine milk. With regard to the bioaccumulation and biomagnification of arsenic, one might affirm that it appears in these two last ones. In *Citrus fortune* was arsenic in flavedo, albedo, juice and leaves.

All the found values are inside the accepted ones for the Food Argentine Code. For *Citrus fortune* and bovine milk overcome the limits tolerated by WHO.

83. IN VITRO FUNGITOXIC ACTIVITY OF *Phoradendron liga* EXTRACTS ON FUSARIUM GENUS SPECIES

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The vegetal kingdom is rich in biocompounds that can be used as antifungal substances. *Phoradendron liga*, of the Viscaceae family, has demonstrated fungitoxic properties against some species of the *Fusarium* genus. In this paper, the activity of aqueous and ethanolic extracts of *Phoradendron liga* were studied on some species of the *Fusarium* genus. From dry leaves, aqueous extracts are performed: Infusion and decoction 10% (p/v) and tincture extract 10% (p/v) in ethanol. Phenolic compounds (PC) and flavonoids are dosed. Fungitoxic activity were quantified by the Radial Inhibition Method on Petri dishes with 0.05, 0.10 and 0.15 mg PC/mL of culture media (agar-malt and Czapek-malt). The selected species were: *Fusarium verticilloides*, *Fusarium graminearum*, *Fusarium proliferatum* and *Fusarium 20 soy* (isolated from soy root). Aqueous extracts showed inhibitions less than 10%. The ethanolic extract inhibited growing fungi between 20.2% and 88.1%. The antifungal activity of the ethanolic extract suggests that it could be used as a natural fungicide against some species of the *Fusarium* genus.

84. HISTOCHEMICAL STUDY OF THE STOMACH OF HORSE FOETUS

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The creole horse belonging to the species *Equus caballus* was adapted to atmospheres of big plains and suffering a great selective pressure that allowed him to develop resistance to illnesses. As productive unit, the horse, causes a great profitable impact in places dedicated to his exploitation; being the digestive system with their secretions one of the fundamental aspects for their yield. It is objective of this work to determine from the histochemical point of view, the glicoconjugates presence in stomach of horse foetus. Samples of the gastric region were obtained from horse foetus of the Frigorífico Rio Cuarto. The same ones were fixed in formol buffered to 10%, included in paraffin and processed with the histochemical technique (PAS/H and Alcian Blue pH 2,5 / neutral red). With PAS/H the epithelium superficial, cells of the crypts and some secretory cells of the lamina propia reacted intensely. With the Alcian Blue pH 2,5 contrasted with the red one neuter a weak reaction was observed in the border free of the gastric epithelium. Its conclude that the stomach of the horse foetus presents a superficial epithelium that express neutral glicoconjugates as likewise the cells of the crypts gastric and scarce secretory cells located in the lamina propia. As for the presence of acid glicoconjugates it is only observed in the epithelial border free.

85.

HISTOLOGIC STUDY AND IDENTIFICATION OF GLICOCONJUGATES IN THE STOMACH OF THE ATHERINE (*Odontesthes bonariensis*)

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The atherine it is a bony fish, South American of fresh water that has been introduced in several Argentine an counties and in countries like Chile, Italy and Japan with sport and nutritious ends due to the quality of their meat. It is objective of this work to determine the histologic structure and the presence of glicoconjugates types in the stomach. Mature individuals were gathered in lagoons of the Department of Rio Cuarto, to those that were extracted samples of the gastric region. The same ones were fixed in formol buffered to 10% and processed by the histological conventional technique and for that of histochemical (PAS/H and Alcian Blue pH 2,5). Histologically presents a mucous tunic that is projected toward the lumen of mucous cylindrical epithelium and a corion-submucose of connective tissue; a muscular tunic of skeletal muscle prepared in a circular one internal and longitudinal external and lastly a serous one of having connective tissue and mesothelium. With PAS/H scarce epithelial cells were observed positively while with A/B pH 2,5 numerous positive cells epithelial were visualized. Its conclude that the stomach, histologically, responds to the basic pattern of the alimentary canal and its epithelium presents abundant cells with acid glicoconjugates and scarce cells with neutral glicoconjugates.

86.

HISTOLOGICAL STRUCTURE AND HISTOCHEMICAL DETERMINATION OF GLICOCONJUGATES IN THE STOMACH OF THE SNAIL (*Helix aspersa*)

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The snail *Helix aspersa* is an earth mollusk of great economic importance for the wealth of its meat. The objective is to know the histological structure and to identify the glicoconjugates presence in the stomach. Mature individuals were gathered in hatcheries of the region of Rio Cuarto, those that were fixed in formol bufferado to 10%, included in paraffin and processed by the technique of PAS and Alcian Blue pH 2,5. With H/E, the stomach presents a mucous one with epithelium pseudostratified cylindrical, a lamina propia of connective tissue with secretory cells, basofilic, granulated and a condensation of connective with inserted smootht muscular cells. The submucose presents spherical cells with central nucleus and clear cytoplasm. With A/B pH 2,5 apical epithelium and secretory cells in lamina propia react positively, submucose some evidenced weak while other reaction negatively. With PAS/H the epithelium, secretory cells expressed positivity. Its concludes that the stomach presents a mucous one and submucose with secretory cells. The apical border of the epithelium and some secretory cells evidence the presence of acid glicoconjugates, the pseudostratified epithelium jointly with scarce cells of lamina propia evidenced neutral glicoconjugates.

87.

"IN VITRO" ACTIVITY OF VORICONAZOLE AGAINST A SPECIES OF THE CANDIDA GENUS IN IMMUNOCOMPROMISED PATIENTSRunco R^{1,2}, Nieva Moreno S², van Gelderen A¹.¹Cátedra Micología. Facultad Bioquímica, Qca. y Fcia. Universidad Nacional de Tucumán, Ayacucho 491, (4000) S. M. de Tucumán. Argentina. ²Lab. Micología, Hospital del Niño Jesús. Pasaje Hungría 750, (4000) S. M. de Tuc. Argentina. E-mail: rosarunco@hotmail.com

Candida albicans is the most frequently isolated species with high susceptibility to antimycotics. Isolation of non-*albicans* species with lower antifungal sensitivity and capability to develop resistance are increasing significantly. Voriconazole is a second-generation triazole derived from fluconazole, but with a superior power and activity spectrum. We studied 72 strains of *Candida* (*C. albicans*; *C. parapsilosis*; *C. tropicalis*; *C. krusei*; *C. glabrata* and *C. guilliermondii*) isolated from clinical samples. Voriconazole *in vitro* sensitivity was carried out using the agar diffusion technique for qualitative results and the ATB Fungus commercial method to calculate the MIC. The results were compared with that to fluconazole, ketoconazole and itraconazole. The 12 % of *C. albicans* was resistant to voriconazole (MIC > 4 µg/l), whereas 100% of *C. krusei* was sensitive to this fungicide (MIC < 0.12 µg/l). The remaining species were sensitive to voriconazole with variable sensitivity to the other fungicides assayed.

88.

JUICE QUALITY OF THE DALAN DAN CITRUS ON TWO ROOTSTOCKS IN BELLA VISTA, CORRIENTES

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The Dalan Dan citrus, similar to grapefruit, is planted in Misiones Province where good juice quality is obtained. A 60-trees grove was planted in Bella Vista, Corrientes, in 2003 with Dalan Dan nursery trees from INTA Montecarlo, grafted on two rootstocks, Carrizo Citrange and Troyer Citrange (*Citrus sinensis* (L.) Osb. x *Poncirus trifoliata* (L.) Ref.), two replicates per rootstock, with 15 trees. Ten fruits per plot were sampled twice, on June 12th and July 14th, 2006 and juice quality components were assessed. Total soluble solids (TSS), total acidity (TA), relative level of TSS (°Brix), ratio TSS:TA, and juice content in % were determined. The data obtained indicated good juice quality. On C. Carrizo the values on June 12th were: TA 1.41; °Brix 10.9; % juice 45.16 and ratio 7.73 and on July 14th 1.27; 11.4; 36.36; and 8.98, respectively. On C. Troyer the values were, on June: 1.31; 11.7; 40.45; 8.90 and on July: 1.1; 11.7; 41.03; and 10.64. The preliminary data indicate that the Dalan Dan fruits are acceptable for processing, marketable as fresh fruit and similar to values reached in Misiones.

89. THE GENUS STENOPOLA STÅL IN TUCUMÁN PROVINCE (ACRIDIDAE: LEPTYSMINAE). BIOECOLOGICAL ASPECTS

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Five species of *Stenopola* are mentioned for Argentina. *S. flava* and *S. puncticeps puncticeps* were found in Tucumán. This paper shows a larger distribution for the species and gives data on their bioecology. Field samples and laboratory rearings are still running on. Five species are present in the mentioned region; endophytic oviposition and presence of nymphs in the hot season are common characters to all of them.

Nevertheless *S. bohlsii*, *S. flava* and *S. p. puncticeps* are related to shrubby ground and *S. dorsalis* and *S. pallida* are related to marshy areas. The first three species use dycotiledonous plants for egg-laying and show egg diapause. Reproductive adults are found in summer and fall. The two last species use Alismataceae for feeding and oviposition. Diapause is not present in eggs, but in adults during winter.

The shrubby vegetation permit the eggs to survive, but in marshy areas the host plants dries up.

The described processes simplify the normal complex relationship: response – impact – environmental factors – organism – of the ecological niches.

90. STENOPOLA PALLIDA (Br.) (LEPTYSMINAE) FEEDING ON ECHINODORUS GRANDIFLORUS (CHAM. ET SCHLTDL.) MICH. (ALISMATACEAE). TUCUMÁN- ARGENTINA

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Echinodorus grandiflorus (Cham. et Schltdl.) Mich is distributed from Central America to Argentina. Because of its great biomass and large populations, it could become a weed. In Tucumán it is distributed in small patches, between the foothills and the eastern plain.

The species is found in not permanent swampy ground, a favorable place for *Stenopolla pallida* (Bruner) also.

Preliminary observations on plant – insect relationship during fall and winter seasons are here described.

In April and May, egg-pods nymphs, and adults, were collected in Leales (27° 09' S 65° 15' W) and Famailla (27° 03' S 65° 24' W). Insects were reared at room temperature and feed with *E. grandiflorus*. Endophytic egg-pods are found in the petioles and enclose up to 24 eggs. Eggs hatch from 3 to 36 days after collected. The three first stages last up to 22, 28 y 37 days respectively.

Gregarious nymphs are voracious and destroy the leaf, producing in some cases up to 100% loss of the leaf. Less damage has been registered for the two last stages and adults when they disperse. The adult shows a winter diapause. *E. grandiflorus* is a necessary natural resource for *S. pallida*. The damage produced by the species feeding and oviposition shows its importance. Quantification of interactions and seasonal relationship of plant and herbivorous insect will be necessary.

91. THE SALIVA AS A SOURCE OF ADN IN FORENSE IDENTIFICATION STUDIES

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Introduction: The ADN's ability of replication is a basic process for the transference of genetic information. This capacity is the basis in the forensic analysis. In many criminal facts, there are physiological fluids (saliva, blood, semen) used to identify the participants through the ADN studies; the detection times is critical since the degradation of the evidence may occur, losing forever the information.

Objetives: To obtain the ADN from different amount of total saliva samples.

Materials and Methods: Not stimulated saliva was absorbed and made the cell count in Neubauer's camera, four samples were studied. The sample with 2.100 cells for mm³ was analyzed. The sample was diluted in 0,1 XTE pH 8 buffer, then, 25 ul. And 75 ul. Of the sample were put in an Isocode cards. The primers used were Amel F and Amel R. The ADN suspension was obtained following the protocol. The samples were amplified with the PCR technique and the products were put in agarose gel 2%, to read the results.

Results: Detect the presence of ADN in two different quantities of the sample studies.

Conclusions: From the 25 y 75 ul. samples the ADN was obtained. The Amel gen could be amplified.

92. ANALYSIS OF THE CHANGES IN THE STRUCTURE OF THE ANTARCTIC AVIFAUNA

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Weddell Sea is an oceanic region located between the meridians 64° S to 78° S, east of Antarctic Peninsula. The characteristic of this ocean is its permanent ice cover. The ice cover plays an important role in the balance of global energy and the interactions ocean-atmosphere in the polar regions, with important consequences in the seabird distribution. The phenomenon of El Niño (beginnings of '90) caused the almost total absence of ice. The aim of this work is to analyze if the results obtained by Benítez *et al.* (2006), referred to the changes happened in the communities of birds through the years, they can be confirmed using a different statistical technique, the Principal Components Analysis (PCA). We worked with censuses of birds carried out onboard icebreaker "Almirante Irizar" during summers 1987 and 1996, using the proposed methodology by S.C.A.R. (1982) and Orgeira (2002). The main components constitute the axes of greater variation of the seabird species, which assume reveal the existence of environmental gradients. Although the percentage of variance absorbed by both first components was not the desirable one the species shown an association that corroborates the results obtained by Benítez *et al.* (2006): in the years where the air temperature has increased, the richness was greater, recording groups of warmer water species.

93.

OPTIMIZATION OF A NEW TECHNIQUE FOR THE *EX OVO* DEVELOPMENT OF CHICK EMBRYOS*Vargas G, Vera Mesones R, Gorustovich A.**Dep. of Developmental Biology, UNSa; Research Laboratory, CNEA. Av. Bolivia 4650, (A4408FVT) Salta.**E-mail: alegorustov@ciudad.com.ar*

The use of chick embryos for experimental embryology and pathology studies requires different procedures, in both *in ovo* and *ex ovo*. The aim of the present study was to optimize a new technique that allows the *ex ovo* development of chick embryos. Fertilized eggs (*Gallus sp* Negra INTA) were used. These were incubated at 37°C with 60% relative humidity for 72 hs. The embryo *ex ovo* development was carried out in a polystyrene container (1/8kg, Huhtamaki Argentina) placed inside another high density polyethylene container with screw top (model T 500 mL TE&T®) containing 50 mL of distilled water. All culture chambers were maintained at 37°C at saturation humidity in a standard laboratory incubator. Each experiment included 24 embryos and was repeated three times. Embryos were monitored every 48 hs and staged (HH, 1951). The embryonic survival was estimated at E5, E7, E10, E12 and E14. The embryos were killed at -20°C at E14 and were fixed in formalin. The embryo stage recorded at each time-points evaluated were consistent with an earlier study (HH, 1951). The embryonic survival was 82±12%, 60±10%, 43±4%, 39±4%, 23 ±12% at E5, E7, E10, E12 and E14 respectively. The described technique allows the *ex ovo* chick embryo and extra-embryonic membranes development.

94.

GYMNOTUS CARAPO: RECOGNITION OF DIFFERENTLY SHAPED OBJECTS USING ACTIVE ELECTROLOCATION*Rajmil J, Zarbá L, Black-Decima P.**Fac. Cs. Nat. e IML, UNT, M. Lillo 205, 4000 Tucumán. E-mail: julyr85@hotmail.com, bichozarbahotmail.com, pblack@csnat.unt.edu.ar*

Weakly electric fishes (Gymnotiformes, Mormyriiformes) generate electric fields with their electric organ, detect this field with their electroreceptors, and can use perturbations in the field to discriminate objects of different conductivities—active electrolocation. Earlier, a mormyriiform fish learned to discriminate differently shaped objects by active electrolocation, but this ability had not been previously demonstrated in gymnotiforms. The objective was to train a *Gymnotus carapo* to discriminate 3 dimensional objects by shape. The fish was operantly trained to discriminate between 2 objects, a metal cube (correct) and other objects (incorrect). Objects used were dielectric cylinder, pyramid, cone and sphere and metal cylinder and cone. The fish was trained to 70% criterion on metal cube vs. dielectric cylinder, and then trained with the other objects. The fish discriminated correctly with the following percentages: dielectric objects, cylinder 90%, pyramid 82%, pyramid 80%, cone 75%; metal objects, cylinder 70%, cone 58%. The gymnotiform fish thus has the ability to distinguish between 2 different 3 dimensional geometric shapes, although its performance was not as good as that reported for the mormyriiform fish. In conclusion, *Gymnotus carapo* can distinguish between differently shaped objects by active electrolocation, but the limits to its discrimination have not yet been determined.

95.

RECOGNITION OF *Solanum nigrum* L. (*Solanaceae*) A TOXIC SPECIES FOR THE LIVESTOCK*Mansilla de Andrada NJ, Díaz BEL.**Facultad de Agronomía y Zootecnia. Universidad Nacional de Tucumán. Avenida Roca 1900. 4000 Tucumán. Argentina. E-mail:**noramansillaandrada@arnet.com.ar*

Solanum nigrum L., (“yerba mora”, “black nightshade”) is considered as an important weed in many countries and in more than 30 crops. It has been introduced in Argentina where it is adapted. Currently, it is found in the crops of major importance of the agricultural area of Tucumán (sugar cane, citrus, soya and horticultural products).

This work’s objectives are to recognize this weed, to facilitate its recognition to agricultural producers, students and vets and its chemical composition.

In the description it was taken into account the characters of easy recognition considered because the surveys analysis determined that it is a not very well-known species or it is confused with others.

The main chemical components are solanina (glicoalkaloid), solanidina (steroid alkaloid), nitrates and nitrites.

Solanum nigrum cause drowsiness, diarrhea, intestinal disorders decrease in the production of milk, altering its taste and smell. These chemical components are responsible for the intoxication.

For this reason, these studies must be continued in order to specify their dangerousness, analyzing the frequent cases of intoxication.

96.

HIDROLOGIC PROTECTION INDEX IN SAN LORENZO RIVER BASIN, SALTA, ARGENTINA*Marmol La, Cardozo N, Marmol Lu.**Universidad Nacional de Salta. Av. Bolivia 5150, 4400 Salta. E-mail: ferretti@unsa.edu.ar*

The hydrographical basins of the Argentinian Northwest: Bermejo, Pilcomayo and Juramento are covered by forest and herbaceous vegetation. The rain is intercepted by the trees, when the vegetation coverage density is high, it contribute to the protection of the soils diminishing erosive action of the water, minimizing the solid charge inlet to the river channels and allowing aquifer recharge.

A Study has been done of the actual situation of the vegetation coverage belonging to San Lorenzo river basin at Salta province, Juramento system.

To determine Hydrologic Protection Index, taking into account different vegetal formations, three vegetation units have been defined, each unit were sampled in ten parcels distributed according the surface percentage that is occupied by each vegetation unit from the total surface of the study basin.

The actual Hydrological Protection Indexes which total value (0.858) has to be compared with maximum value of 1 correspondent to a native forest in good state of conservation. This result indicates that the Hydrological Protection Index (HPI) of the basin is “Good”. That is also an indication of the good condition of the vegetation coverage of the basin.

97. BIOLOGICAL CONTROL OF GREEN MOLD BY USING A STREPTOMYCES STRAIN AS AN ALTERNATIVE TO CHEMICAL FUNGICIDES IN A CITRUS PACKING

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Biological control is a very good alternative to chemical fungicides for agricultural practices because is not harmful for human beings and the environment. The purpose of this work was to evaluate the antagonism of a *Streptomyces* strain against *P.digitatum* which cause "green mold" in citrus. The strain called RO3 was activated in YMG culture medium and it was used to prepare a cell suspension (1.5×10^8 cel/mL). Five 250 ml flasks containing 40 ml of YMG broth were inoculated with the RO3 suspension and then incubated for 1, 2, 3, 4 and 5 days (30°C and 250 rpm). The produced metabolites were separated from the biomass by filtration. The antagonism assay against *P.digitatum* was performed using five 250 ml flasks containing 40 ml of Glucose Potato broth, each supplemented with 5 ml of metabolites of 1, 2, 3, 4 and 5 days and inoculated with a 5 ml spores suspension of *P.digitatum* ($DO_{560}=0.3$). It was incubated for 5 days (30°C and 250 rpm). The effect of the metabolites was evaluated using dry weight method and expressed as grow inhibition percent of *P.digitatum*. The 24 and 48 h metabolites showed stronger inhibitory effect (61.3 and 61.7%).

98. CLINICAL ALTERNATIVE TO RE-ESTABLISH THE BIOLOGICAL SPACE. RESULTS IN A YEAR

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The anatomy-biological conditions represent the key for the taking of clinical decisions on the periodontal treatment. Objectives: to offer information about a non-invasive alternative procedure that permits to re-establish the biological space in a new position. Materials and Methods: ten single permanent roots from patients attending Periodontics Chair. were selected for this treatment. in which forceps were used for the supragingivalluxation and removal. The new position of the root is obtained preserving a normal area which allows the reinsertion of Sharpey's fibres and the adhesion of the epithelium union. The roots were splinted in a semi-rigid way with fishing line and vitreous ionomer for two weeks. Results: The analysis of clinical data didn't show significant differences with Friedman test ($p>0.05$). Conclusions: **this procedure proves to be quick and practical. Besides, it can be performed by the general dentist.** *Subsidized by C.I.U.N.T. (Investigation Centre of the National University of Tucuman). Key words: Biological space. Luxation.*

99. RESPONSE OF CAPUCHIN MONKEYS, CEBUS APELLA, TO A PREDATOR STIMULUS, IN NATIONAL PARK IGUAZÚ, ARGENTINA

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Group living in primates and other gregarious species is thought to have evolved in order to reduce predation pressure. However, anti-predator behavior has not been well documented among neotropical primates. In this study, the anti-predator behavior of wild tufted capuchin monkeys, *Cebus apella*, was examined using models of a natural predator (an ocelot, *Felis pardalis*). We tested whether or not encounters with a predator affect within-group spacing as predicted by some hypotheses. Fieldwork was conducted from May to November, 2005, in Iguazú National Park, Argentina. Scan samples were obtained every 30 minutes to establish baseline measures and every 5 minutes when the predator model was present. Data were compared to test the hypothesis that encounters with predators lead to increased group cohesion. The results are discussed in the context of other studies of primates.

100. INFLUENCE OF CATIONS IN ZINC ADSORPTION IN SOILS

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In order to obtain results referring to the contribution of the clay fraction in soils, related to the control and availability of Zn, the monovalent and divalent ion influence in the zinc adsorption is analyzed, in soils with citrus activity of the province of Tucumán. The monovalent ion potassium (K^+) was chosen as it is the third added element as fertilizer of the soil, after nitrogen and phosphorus, and the divalent ion calcium (Ca^{2+}) for its abundance in the soil solution and its active participation in the interchange complex. Tests of adsorption on soils samples pertaining to the subhumid humid region (Dpto Burruyacu) were carried out. For reference, controlled tests of adsorption of Zn on bentonite were carried out. For all the samples, concentrations of K^+ and Ca^{2+} 10^{-1} , 10^{-2} and 10^{-3} M [KNO_3 and $Ca(NO_3)_2$] were used. These concentrations also allow to regulate the ionic force.

The tendency that is observed, particularly of the soil, is the preference for Zn in the presence of potassium, which becomes more significant as the ionic force increases. It is possible to observe that the presence of mono and divalent ions interferes with the zinc adsorption. This interference is more important in the case of the ion of greater valence.

101. SOIL BIORREMIEDIATION BY ACTINOMYCETES USING ZEA MAYS CULTURES AS BIOINDICATORS

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Copper pollution of freshwater, soils and sediments has been documented in Tucumán which calls to develop effective and low cost strategies of bioremediation to recover the productivity of these areas. *Amycolatopsis sp* AB0 was isolated from high copper polluted sediments and it displayed a great capacity to grow in copper amended soils. The objective of this work was to demonstrate the capacity of this strain to bioremediate copper polluted soil using cultures of *Zea mays* as bioindicators. Strain AB0 was incubated in soils (20% humidity) with and without copper (80 ppm) at 30°C during 4 weeks. Later, *Zea mays* seeds were inoculated in these soils *Amycolatopsis sp*. AB0 displayed a high capacity of colonization in copper polluted and non polluted soils. Bioavailable copper was 25% lower in the polluted soil incubated with AB0 strain measured by AAS. Moreover, copper accumulation in the *Zea mays* plants co-cultivated with strain AB0 in these soils was significantly lower: leaves and roots up took 44% and 20% less copper respectively, compared with the control soils with copper but without AB0 inoculation.

102. MORPHOLOGY OF PEPPER (*Capsicum annum* L.) RADICAL SYSTEM

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Morphology of pepper (*Capsicum annum* L.) radical system is characterized during the first forty five growth days. It consists of a principal shaft with lateral ramifications that form, at the beginning of their growth, a wide angle in relationship to the vertical and then take a vertical direction. Furthermore, they acquire similar dimensions to the principal root, forming a system with four or five shafts. The angle that forms lateral ramifications reduces with the depth: since 45° in the first 5 cm to 20° at 15 cm. The spatial configuration observed is associated with a great efficiency in the anchorage function. The great ramifications proliferation and its uniform distribution indicate an excellent utilization of the resources of the soil.

103. FARMACOTHERAPY FOR INFECTIONS IN CHILDREN DENTISTRY

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Infection process's in dental and peri-dental tissues in children not always are solved with antibiotics. For suitable antibiotic treatments we must determine its ethiology. Non discriminate use of antimicrobials has been questioned in children. **AIMS:** 1) Evaluate the antibiotic therapy implemented by teachers and students of the last year in Dentistry career. 2) Determine rationality and importance of the antimicrobial prescription. 3) Evaluate the suitable drug selection criteria, considering the most frequent microorganisms. **MATERIALS AND METHODS:** Structured clinical cards were used, in order to determine: a) Therapeutic attitude in face to infections, b) Antibiotics prescribed by specific selection criteria, c) Dosages and intervals, and d) Length of the treatment. **RESULTS:** Collected data demonstrate that the antibiotic of first election was the Amoxiciline, in association with beta lactamasas inhibitors. Second criterion was its innocuousness. In sensible children, the macrolides were chosen. In some cases, dosages and intervals were prescribed not correctly, and the treatment lengths were not optimal. **CONCLUSIONS:** Predominant treatment was Amoxicilina with clavulanic acid or sulbactam, followed by erithromycin and/or azithromycin. According to the WHO recommendations; a rational criterion, like infection stage, would avoid the non discriminate prescription of these medicines, appealing to operating maneuvers for the cure, avoiding to create bacterial resistance and unnecessary expenses.

104. RADICAL APEXES DISTRIBUTION IN TOMATO PLANTS CV. PLATENSE CULTIVATED IN HANDLES

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In this work it is analyze root apexes distribution of tomato (*Lycopersicon esculentum* L. cv. platense) in relationship to the main axes and to exploration depth of radical system. Tomato plants were cultivated in handles with a transparent flat face to trace day to day root growth. Depth levels were dialed the each 5 cm to determine apexes distribution in the soil profile. Traces were observed through a surface divide into 1 cm squares. 239 radical apexes present in 30% of the squares were recorded. A uniform distribution in the different depth levels was observed, also a symmetrical distribution with respect to the longitudinal shaft of the flat face. Principal root reached a depth of 35 cm. Results of this work would indicate an efficient utilization of the resources of the soil.

105. ROTAVIRUS AND NOROVIRUS DETECTION IN CHILDREN WITH GASTROENTERITIS. TUCUMÁN, ARGENTINA

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Rotavirus remains the leading cause of diarrhoeal disease overall, and causes 600.000 deaths per year. The burden of morbidity and mortality is most severe in children under 5. Norovirus are the most common cause of outbreaks of nonbacterial gastroenteritis. Surveillance of viral gastroenteritis began in Virology Laboratory, Tucumán University in 1985 through 1998. Since 1999 Sentinel Unit was placed in Children Hospital. Studies results during the past 20 years in Tucumán drew the rotavirus seasonal and endemic pattern, although they can cause outbreaks. During June 2006 a suspected outbreak began with diarrhea and vomiting as predominant symptom. From 56 stool samples, 34 were rotavirus positive by EIA. Twenty two were shipped to the National Reference Laboratory in Malbrán Institute for norovirus and astrovirus molecular diagnosis. The results were rotavirus 59%, norovirus 4.5%, mixed infections (rota and norovirus) occurred in 9% of samples analyzed by RT-PCR. Astrovirus was not detected. This is the first report of norovirus identification in Tucumán. The results indicated that continued surveillance over time will be mandatory and the importance of other pathogens associated with gastroenteritis continues to increase.

106. PATHOGENIC FUNGI OF SOYBEAN SEEDS IN TUCUMÁN. CYCLE 2004/2005

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The aim of this paper was to determine the pathogenic fungi incidence in soybean seeds of 10 cultivars (A 4910 RG, DM 50048 RR, María 55 RR, A 5409 RG, A 6401 RG, Andrea66, AW7110, A7636, A 8000 RG, Munasqa RR) during cycle 2004/2005, proceeding from EEAOC essay in La Cruz and G. Piedrabuena, Tucumán. 120 seeds were sowed by treatment (5 seeds/Petri's dish), using a totally randomized design with 24 replies. The identification and recount were realized at 7 days. The most frequent microorganisms, though with low incidence and in diminishing order were: *Phomopsis*, *Cercospora*, *Alternaria*, *Fusarium*, *Aspergillus* and *Penicillium*. A 8000 RG showed high levels of health in both localities, followed by Munasqa RR. A 5409 RG, A 4910 RG, A 7636 and María 55 showed a major relative fungi incidence though of scanty importance. Besides, in Piedrabuena the minor levels of incidence were registered in 6 of the 10 cultivars and the major germination percentages. A 8000 RG showed the highest percentages of germination (92%) in both localities. Results showed soybean seeds health of cultivars evaluated was high and in general, Piedrabuena proceeding ones presented major germination percentages and smaller fungi incidence.

107. EXPECTATIVE AND MOTIVATIONAL ATTRIBUTIONS IN STUDENTS OF AGRONOMICAL ENGINEER CARRIER

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It was applied an inquiry with open and closed questions to 120 students of the first year of Basic Cycle of Agronomy carrier of Tucumán University, for determining and analyzing the expectative and motivational attributions of the Agronomical Engineer carrier students before the academic learning tasks. The data were analyzed with statistical package SPSS version 10.0. The significant indicators were: the personal election of the university carrier (65%); the personal effort (54%); to attribute the success to random or to the facility of task (23%, it means to no controllable external factors); the failure to the difficulty of learning tasks (77%, to no controllable external factors); the failure to lack of study attitudes as well as (50% internal factors) or the lack of habit or techniques of study (external factors) in this case it would be about students with low self-esteem, with motivation little before the task of learning. It is evident the interaction between the expectative and motivational attributions of the students and the success or failure of learning and that strongly impose conditions their academic performance.

108. DIAGNOSIS OF HISTOLOGY TEACHING ACCORDING TO STUDENTS AND TEACHERS OF BIOCHEMISTRY (FACULTY OF BIOCHEMISTRY, CHEMISTRY AND PHARMACY – U.N.T.)

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Several documents reveal the problem of students' low academic performance in our university. The same problem was detected by teachers of our department as well as a great lack of interest and motivation. These data demand a change in teaching strategies to improve our students' academic performance. Aims of this work: to identify the main characteristics of teaching of this subject; to analyze and suggest possible mediation to improve the learning and teaching of this subject. Surveys and individual interviews were carried out among students and all the teachers of the department. Students admit they have difficulties in their methodology to study. They believe theoretical classes are the means to know "the didactic contract", though they do not attend classes due to tight schedule, economic problems and methodology flaws. Practice tests help in the understanding of topics, but they are not profitable enough owing to students' lack of previous knowledge and infrastructure deficiencies that prevent participation and interest. Students demand ways to approach knowledge in relation to their professional profile and teachers understand this is the means to get greater motivation and to achieve meaningful learning.

109. RESPIRATORY SINCIATIAL VIRUS SEASONALITY. TUCUMAN 1999-2006

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Among acute respiratory infections (ARIs), Respiratory Sincitial Virus (RSV) is an important pathogen, especially in infants. Since 1999, Virology Laboratory in Tucuman University is component of Sentinel Unity in the National Network of Influenza and Respiratory Virus Surveillance System. Consistent data about seasonality of infections caused by respiratory viruses in general and RSV in particular relates it with cold months and rainy season. Little is known in Argentina about the behavior of RSV, only few studies were published for central and south region. The purpose of this study was to determine the seasonal pattern of RSV infections in Tucuman during 1999–2006. A total of 3172 nasopharyngeal samples were taken from hospitalized and outpatient children's with ARIs. Samples were examined for RSV by immunofluorescence for antigen detection. Of these, 1000 (31,5%) were RSV-positive. In the period 1999–2004 the peak was in June July, the same in others region from Argentina. In 2005–2006 we observed different pattern: RSV appears in August with peaks trough November to February 2006, with similarities to tropical climate. Results suggest the need of permanent surveillance for the prevention of childhood infections.

110. OVO-LACTEO-VEGETARIANS AND NUTRITIONAL ANEMIA

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The Nutritional Anemias (NA) are due to the decreased intake of the hematopoiesis essentials constituents. Our aim was to evaluate the incidence of NA on the Ovolacteosvegetarians (OLV). In order to do that were studied thirty OLV and twelve omnivorous (OMN). The patients range 15 to 60 years old. It was measured: Hemoglobin (Hb), Red Blood Cell count (RBC), Iron (Fe), Total Iron Binding Capacity (TIBC) and seric Ferritin (Ft), Anthropometric measurements and Nutritional Anamnesis during three days. Results: 1) OLV: Hct=0.375±0.044l/l; Hb=12.66±1.66g/dl; RBC= 4.23±38 T/l; Fe= 92±40 ug/dl; TIBC= 310±50 ug/dl and Ft = 34.99±41.51ng/ml. 2) OMN: Hct= 0.395±0.028 l/l; Hb:13.89±1.05g/dl; RBC=4.34±0.37 T/l; Fe= 106±31 ug/dl; TIBC=368±56ug/dl; Ft = 87.08±63.69 ng/ml. In the OMN group, the anemia rate was zero, the Ft decreased in 33.3% (four fertile female) while in the OLV group 23% of the individuals presented anemia (7/7 females) and the Ft decreased in 53.3% (sixteen females, fifteen fertile and one postmenopausal). In the OLV group the bio-availability of Iron could be affected by a diet rich in Iron's chelating agents: fibers, tannin, phosphate; absence of facilitating agents and hormonal factors.

111. EFFECT OF ACHYROCLINE SATUREIODES ON LYMPHOCYTES OF ALLERGIC TO MILKY PROTEINS

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The allergic individuals present reduced levels of LTh1, IgA, elevated IgE, sCD23 and IL-4. Decoction of *Achyrocline satureioides* (A.s.) leaves showed an effect activator of lymphocytes *in vitro* and the infusion of flowers, has been used by its bronchodilators properties. The objectives of this study were to determine in cells of allergic patients to cow milk (CMA), mitogenic capacity of decoction of leaves (DH), flowers (DF) and to compare the lymphoproliferatives effects with PHA and milky proteins. Cells of 20 patients CMA and 10 controls were studied. Colorimetric method of MTT was made. PHA, milky proteins and different concentrations from DH/DF were assayed. Cells of allergic patients had lower index of expansion to PHA than controls. Proliferation index was within the normal in 13/20 ALV and 8/10 controls. Added DH or DF of A.s. to the cultures of originating cells of ALV produced index of expansion smaller than induced by PHA (p<0,05). Cultures stimulated with milky proteins or vegetal derivatives were higher than controls (p<0,05). Cellular expansion stimulated by vegetal derivatives, could be due to that the decoctions present mitogenic effects although weaker than PHA, to a passive sensitization or epitopes of antigenicity crossed non milk proteins.

112. ACID LACTIC BACTERIA'S EFFECT ON HEMOSTATIC ALTERATIONS IN AN EXPERIMENTAL MODEL OF LIVER ACUTE INJURY

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Hemostatic disorders are common in liver diseases because most of the coagulation factors are synthesized in this organ. The effects of *Lactobacillus casei* (Lc) and *Lactobacillus plantarum* (Lp) on hemostatic disorders that occur in liver acute injury (ALI) were studied. Adults BALB-c mice were fed Lc or Lp during 2 days and then injected with D-Galactosamine (DG) (Lc+DG, Lp+DG groups) or saline solution. Control mice (C) were not treated previously injections. At h 12 post-DG we determined: a) liver BT, b) serum GPT, c) Activated partial thromboplastin time (APTT), d) Prothrombin time (PT) and d) Fibrinogen (fg). **Results:** *Lactobacillus casei* and *Lactobacillus plantarum* administration prevents bacterial translocation (BT) from gut in a mouse model of ALI by DG and reduced GPT values. Prolonged APTT, altered PT values and lower levels of fg were observed in DG group. Lc+DG group showed altered APTT and PT values and normal levels of fg. All parameters studied were altered in Lp group. **Conclusion:** Hemostatic parameters evaluated were not corrected with Lc or Lp treatments, with the exception of Lc that normalized fg values. This data suggests that other doses of these bacteria have to be studied in order to avoid hemostatic alterations induced by ALI.

113. EVOLUTION OF THE CONTENT OF DRY MATTER CONTENT IN POSHARVEST OF SEED POTATO WITH DIFFERENT LEVELS OF FERTILIZATION WITH NPK IN TAFÍ DEL VALLE, TUCUMÁN, ARGENTINA

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The objective of the trial was to evaluate evolution of the dry matter content in posharvest of seed potato cv. Spunta, with different levels of fertilization with N-P-K in Tafí del Valle, Tucumán in 2005-06. Experimental design: Blocks at random with six treatments: 1. Control. 2, 100 Units of fertilization (UF) of N/ha. 3, 100 UFN+90 UFP/ha. 4, 100 UFN+150 UFK/ha. 5, 100 UFN+90 UFP/ha+150 UFK/ha. 6, 130 UFN+160 UFP/ha and 5 repetitions. Evaluated parameters: dry matter (%) in March, May, June of 2006. It was made ANVA, LSD and Test of Tukey and Correlation of Pearson. Differences between treatments settled down: 1. (18.830) in relation to 3. (17) and 6 (16.543) in first date; between 1 (19.780) with respect to 3 (17.395) and 5 (17.218) in second date; and significant differences between 2 (19.940) 5 (18.867) and 4 (18.578) with respect to 6 (15.543) in third date. Were significant differences in third date in 2; 3; 4 and 5. Positive correlation between third and first date was detected (0.6168). The fertilization balanced with nitrogen is determining of the time of conservation of seed potato in posharvest of the content of dry matter.

114. KNOWLEDGE ON TOXIC PLANTS IN RURAL COMMUNITIES OF THE DEPARTMENTO RÍO HONDO, SANTIAGO DEL ESTERO. R. ARGENTINA

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The objective of this work is to release vegetal species and to recover popular knowledge relative to names and toxic properties of vegetal species in rural communities of the Departamento Río Hondo. It was worked in different localities of Río Hondo, collecting material for its determination and being made semi-structured surveys to producers about the plants that harm their animals, the part that produce damages, the injuries that they cause, the animals that affect and the prevention that take.

The obtained results were corroborated with bibliography referred to the subject. They were the 20 species recognized by the settlers like detrimental or toxic, pertaining to 11 botanical families, those are listed with their scientific, vulgar name, family and damage that they cause. This work can attend the rural producers that suffer the losses of their animals by this cause and to the professionals or organisms related to the sector.

115. MEDICINAL PLANTS THAT ARE SOLD IN THE PUBLIC THOROUGHFARE IN LAS TERMAS DE RÍO HONDO, SANTIAGO DEL ESTERO - REP. ARGENTINA

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The objective of this work is to release the vegetal species with medicinal uses that are commercialized in the public thoroughfare of the city of Las Termas de Río Hondo. Surveys were made to salesmen located in the zone of the market and to those who offer their products in different points from the city, to investigate on the commercialized species, used parts and more frequent medicinal uses. In addition, it was consulted about the cultural guidelines to acquisition, the practices of harvesting and obtaining of vegetables and the forms of presentation. The species for sale were bought for their identification. 92 species were released. The problems of health more frequently dealt with plants are the digestive affections, cough, kidneys, liver, diabetes and asthma. The suggested way of preparation more is the infusion. The plants are collected of the mount or buy to local suppliers and of other points of the province and the country. The sale price is relatively uniform.

116. CHIMIOETHERAPICS EDUCATION USING KINEMATICAS IMAGES IN FOUNT

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The aim of this study was to analyze the yield of students with a new methodology of education at Pharmacology at Dentistry UNT. The selected subject was action mechanism of chimiotherapics. Students were divided into 3 groups. Group I(GI) received written material in the practical work(PW) that served as support to the kinematics images. Group II used the same written material as GI. Group III did the PW in the traditional way. All the groups received theoretical class, nonobligatory 15 days before the PW. To evaluate it was distributed to the totally of the students a group of questions of multiple selection before and after the PW. In the 3 groups there was an increase of the percentage of approval from the initial instance with the final one. Of the analysis of agreement for GI and GIII was a poor agreement between the results of the two instances ($K=0.353$; $p=0.015$) and ($K=0.265$; $p=0.004$) The results showed that the pedagogical interventions facilitated and motivated the learning of the students. Nevertheless evidence does not exist to assure that the proportion of approved is significantly different between the 3 groups in the final instance.

117.

IN VITRO HEARTS MYOGENIC CONTRACTION IN AMYNTHAS HAWAYANUS (OLIGOCHAETA, MEGASCOLECIDAE)*Alderete de Majo AM, Catalán M, Moreno D, Murillo Dasso S, Caro MS, Saad S.**Cátedra Invertebrados, Fac.Cs. Naturales e IML, UNT. E-mail: alderetedemajo@arnet.com.ar*

The objective of the present work was to determine hearts behaviour *in vitro* and vital conditions of *Amyntas hawayanus*. The 15 specimens employed were collected in Tucumán, Argentina. After identification and narcosis, seminal vesicles, dorsal, ventral and lateral vessels (hearts) and gut of X and XI somites, were dissected and immersed into buffer pH 7.4 for oligochaeta.

Results indicated that:

-Hearts contraction could be maintained *in vitro* for more than 160 minutes.

- Blood vessels section performed the lost of blood in dorsal vessel but not in hearts. This fact could be done by sphincters close formation.

- Hearts with dorsal or dorsal and ventral blood vessels connections, had peristaltic and antiperistaltic contractions alternately, controlled by myogenic mechanism.

Results achieved were related with the technique employed, buffer physicochemical qualities and they contributed to histophysiology knowledge of metamerism.

118.

APPLICATION OF THE INVENTORY OF CONCERNS FOR THE EXPLORATION OF THE NECESSITIES IN EDUCATIONAL OF 1° AND 2° YEAR OF THE FOUNT*Gakman C, Mitre P, D'Urso M, Steinberg C.**Education for tHealth. Pharmacology. Pedagogic cabinet. Faculty of Dentistry. Statistic. Faculty of Medicine. National University of Tucumán.*

Objective: To characterize the concerns of the educational ones through the analysis of their concerns in relation to the process teaching-learning.

Material and method: The design was analytic of traverse court. The data were gathered in the ability through an inventory of concerns with 42 items that include seven dimensions that it was responded by the educational ones. A descriptive analysis was carried out.

Results: The population was constituted by 24 educational of 1° and 2° year of the Faculty of Dentistry. The results showed that 67% of the interviewed have more than 15 years of antiquity in the teaching. Alone 4% have between 2 and 5 years. The 92% declare to be worried by the teaching. However 46% of them respond that there are things that care more than the teaching.

Conclusion: Most of the educational ones highlight three dimensions in the concerns: the search of information, the management and the students. The necessity is evidenced of requesting advice by the members of orientation teams, as well as on the part of professors with experience. They are characterized to want to maintain positive relationships with the students, and to face their educational task.

119.

THE MICROSTRUCTURE OF *Spodoptera eridania* EGGS (LEPIDOPTERA: NOCTUIDAE)*Valverde L.**Fundación Miguel Lillo. Instituto de Entomología. Miguel Lillo 251. (4000) San Miguel de Tucumán, Argentina. E-mail: lvalverde@hotmail.com.*

Spodoptera eridania (Cramer) (Lep. Noctuidae) is a polyphagous species. It's a pest that attacks different crops like soybean, corn, tobacco, citrus, etc. During last summer, numerous larvae of this species were found on soybean crops in Tucumán. In this species, the egg structure remains still unknown. The aim of this work is to describe the chorion microstructure for *S. eridania*. Eggs were obtained from a laboratory colony initiated with individuals collected in Leales (27° 09' S; 65° 15' W, Tucumán, Argentina). The eggs were clarified using lactophenol and mounted with Hoyer solution. They are light green colored, sphere-shaped, averaging a diameter of 0.43 mm (0.40-0.45), and a mean of 0.28 mm high (0.26-0.30). The chorion is very thin and the sculpture is softly noticeable. The primary cells are not fused, and aeropiles are presents, both distinctive characteristics for Noctuidae. The knowledge of chorion sculpture and structure are highly useful to clarify taxonomic and biological problems relating to this species.

120.

BEHAVIOR ASSESSMENT RELATED TO CARDIOVASCULAR RISKS IN SMOKERS*Martinez Riera N, Feldman G, Soria N, Palacios Grau R, Riera N. Dpto de Salud Pública. Orientación Toxicología. Av. Roca 1900. Tucumán. E-mail: norymar@arnet.com.ar CIUNT*

The early promotion and prevention of cardiovascular health is a tested and effective tool to fight and reduce the effects of this disease.

Objective: to assess the presence of cardiovascular risk factors in professors attending cardiovascular risk Seminars. To identify frequent risk factors and their connections.

180 professors were assessed through a self survey in order to register risk factors or/and cardiovascular diseases. A data base was carried out with a descriptive statistic study. 29.4% showed risk factors where smoking habits is the most frequent one (73.5%), followed by high blood pressure (22.6%). Only 5.6% showed a combination of these two factors. None of these polled subjects referred to any diseases. This group does not present a significant relevance of risk factors. Therefore, this is a noticeable fact since that these professors transfer knowledge to children and adolescents. Their role in the prevention of avoidable diseases should be strengthened.

121. MICRO ALBUMINURIA AND LEAD IN AN INFANT POPULATION

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Lead is a cardiovascular risk factor which is able to alter the biochemical and proatherosclerosis parameters as well as the endothelial cells. The early detection of this damage includes at present the determination of albuminuria.

Objective. To determine the presence of albuminuria in a group of children intoxicated with lead.

Transversal study which includes children between 3 and 10 years old exposed to the metal. Eritrocitary ALA-D determination (delta amino levulinic dehydratase acid), plumbemia and microalbuminuria. Results: Plumbemia: 37+/-5 ug/dl. The microalbuminuria determinations were totally positive (>20 mg/24 hs). Two children presented urine volumes compatible with oliganuria.

Conclusion: The presence of these proteins in urine of this population represents an evidence of glomerular and endothelial damage. It is not only an evidence of renal damage but also an evolution indicator of atherosclerosis endothelial damage. Thus, the hypothesis of a close relationship of albuminuria, endothelial damage and the role of lead in the generation of cardiovascular diseases is hereby enhanced.

122. CONSTRUCTION AND EMPLOYMENT OF A FIELD ROOT LABORATORY FOR THE STUDY OF SUGARCANE AND WEED ROOTS

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All methods used for root studies, temporary as well as permanent, have great failures mainly referred to root damage when plants are retired from their places. With the object of improving this, a prototype of field root laboratory for the final observation of root growth and measurements was made and tested without damaging to sugarcane root system. For this project, was built in El Manantial on March 1999 and was experimented its use for seven years. It was used for analyzing the root growth (biomass, volume, length, exploration and distribution) of several sugarcane cultivars (LCP 85-384; CP 65-357; RA 87-2 and RA 87-3) and of weeds (*Eryngium elegans*, *Eryngium ebracteatum*, *Sorghum halepense*, *Euphorbia heterophylla* y *Solanum nigrum*). The laboratory is a construction of bricks of about 1,00 x 2,40 x 1,00 with a metallic slide door for it can retire one of the lateral sides. It is filled with triple mix of ground and it is planted. At the observation moment, doors are retired and the vegetal material is subjected in the superior part with some support, roots are discovered washing them for sliding land with water for 6 hours without any damage. The constructive system can be improved but results are satisfactory and can use it for many growth studies including aerial part.

123. EFFECT OF THE MATO COMPETITION OF NATURAL WEED COMMUNITIES IN SUGARCANE Cv LCP 85-384

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The objective of this work was to determine losses for weeds in the cultivar LCP 85-384 by competitive effect and to establish the principal species of the study area. The experimental essay was made in Santa Bárbara (Tucumán) in 2004 on one year ratoon in 64 m² plots in randomized blocks with 6 treatments, 3 repetitions. Treatments were: competence at 4, 8, 12 and 16 weeks, permanent competence and without competence. Evaluations were made at harvest in August 2005. Statistical analysis and comparison with weeded and completely clean controls were made. Sugarcane losses in 4 competence weeks of 8,33% and in 16 weeks of 45,66% were found. Control left an average of sugarcane production of 97,6 tn/ha. Sugar losses in 4 weeks were 7,33% and in 12 28%. Mainly species of the natural community were: *Euphorbia heterophylla*, *Sorghum halepense*, *Solanum nigrum*, *Cyperus rotundus*, *Cynodon dactylon*, *Rotboellia exaltata*, *Chamaesyce hysopifolia*, *Ricinus communis*, *Amaranthus spinosus*, *Croton lobatus*, *Bidens pilosa*, *Eupatorium laevigatum*, *Ipomoea nil*, *Chamaesyce hirta*, *Canna indica*, *Digitaria sanguinalis*, *Echinochloa cruz-galli*, *Panicum maximum*, *Wedelia glauca*, *Sicyos polyacanthus*, y *Muehlenbeckia sagittifolia*. It is concluded that species from weed natural communities when competing with variety LCP 85-384 cause important losses in tn of sugarcane/ha, and kg of sugar/ha, diminution in height and diameter of stems.

124. CRITICAL PERIOD OF WEED COMPETENCE IN SUGARCANE Cv LCP 85-384

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Arévalo *et al.*, were the first in the country who investigated about critical period of competence in sugarcane between 1967-1977 years. The objective of this work was to determine the period called critical for the sugarcane crop in Cv LCP 85-384. This experimental essay was made in Santa Bárbara (Tucumán) on Cv LCP 85-384 on September 15 of 2004. Design was in randomized blocks with 6 treatments and 3r repetitions. Plots were of 64m². Competence was measured in treatments of: 28, 56, 84 and 112 days, also permanent competence. Treatments without competence were of 28, 56, 84 and 112 days and without permanent competence. Evaluations were made on two central furrows of plot at harvest moment and were of cultural yield, sugar yield, height and diameter of stems. Statistical analysis, ANOVA and Tukey tests, $\alpha=0,05$. It was found that competence is critical from the interval 28-84 days after plantation when the sugarcane losses values were from 10,76 to 39,04 tn/ha. Sugar losses at 28 competence days were of 1.421,10 kg of sugar/ha and losses in height of 37%. It is concluded that critical period for the sugarcane plant Cv CP85-384 is between 28 to 84 days since the plantation.

125.

DEMOGRAFIA DE *Rotboellia cochinchinensis* (Lour.) W.D. Clayton (*R. exaltata* L.f.) EN CAÑAVERALES DE RECIENTE INVASIÓN PARA TUCUMAN (ARGENTINA)Chaila S¹, Arévalo RA², Ramón NA¹, Villagrán FL¹, Galindo GS¹, García AM¹.¹Facultad de Agronomía y Zootecnia (UNT). E-mail: sach@faz.unt.edu.ar; ²APTA (Piracicaba - BR). E-mail: r_a_arevalo@yahoo.com.br

R. cochinchinensis is a very dangerous weed for the sugarcane crops of the region. The objective of this work was to use demographic parameters that define the incidence of this new species on sugarcane crop. The information was collected during 2004-2005 cycle in El Manantial. The experimental design was randomized blocks with 3 replications in 480 m² plots (15 furrows of 20 m long) determined in intermediate infestation areas of weed (7 to 15 pl/m²). The plots were disposed in a sugarcane crop sector of 5000 m². Total plants were counted on January 20 and March 20 to establish for difference alive and dead plants. The survivals were registered on April 20. The demographic parameters were: TBM (Mortality Brute Rate=dead plants by year), TBN (Natality Brute Rate=1000-TBM), Sv (Survivor=are the plants which survive in the year), PSv (Probable survival=individuals which will survive of each 1000). All are expressed in %. The results were: 247.314 total plants; 125.603 alive plants; 121.711 dead plants; 13.156,60 survivor plants; TBM=492,13%; TBN=507,87%; Sv=53,190%; PSv=0,0531%. It is concluded that this species has a constant equilibrium between births and deaths, typical of an invasion state and a very low survival that denotes its condition of struggle with the environmental and anthropic factors for establishing.

126.

DETERMINATION OF INFESTATION POTENTIAL OF *Rotboellia cochinchinensis* (Lour.) W.D. Clayton (*R. exaltata* L.f.) FOR THREE LOCALITIES OF TUCUMANChaila S¹, Arévalo RA², Villagrán FL¹, Ramón NA¹, Galindo GS¹, García AM¹.¹Facultad de Agronomía y Zootecnia (UNT). E-mail: sach@faz.unt.edu.ar; ²APTA (Piracicaba - BR). E-mail: r_a_arevalo@yahoo.com.br

R. cochinchinensis is a weed that recently began its infestation in Tucumán sugarcane crops. It is in invasion and establishment stage. The objective of this work was to calculate the weed infestation potential for determining the capacity of invading new areas. It was worked in 2005 in Manantial, Lules and Fronterita. Treatments in each locality were 3 and plots inside the sugarcane crop were 6 furrows wide and 20 mt long (192 m²) with 5 replications in each case. The parameters obtained were: number of seeds by plant, weed density, seed disappearance factor, viability, germinative power, enter to the bank seeds, potential calculus by means of a model. A variance analysis was made with potential data transformed to logarithm for mean difference and Tukey test for $\alpha=0,05$. For Manantial the probable initial reproductive capacity was 2320 plants/mother plant; real reproductive capacity was 1088 plants from mother plant, infestation potential was 725,33 m².pl⁻¹. Infestation characteristics of Lules are very similar to Manantial, they do not have significant differences. In Fronterita (significantly differs of Manantial) the initial reproductive capacity was 4032 plants/mother plant; the real 1733,76 plants from mother plant, infestation potential 346,75 m².pl⁻¹. Infestation probabilities of *Rotboellia* are greater in Manantial and Lules than in Fronterita. Potential value is inverse to infestation density. Sugarcane crops with equal management conditions have similar infestation potentials.

127.

EVALUATION OF *DORU LUTEIPES* (DERMAPTERA: FORFICULIDAE) AS A POTENTIAL BIOCONTROL AGENT OF *DIATRAEA SACCHARALIS* (LEP., PYRALIDAE)

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Doru luteipes (Scudder) is a generalist predator that inhabits sugarcane crops in Tucumán province. There was a lack of knowledge about its real contribution as predator of the main pest of the cultivation, the sugarcane borer, *Diatraea saccharalis* (Fabricius). So, the aim of this contribution is to determine the predaceous capability of this earwig against sugarcane borer eggs. Both dairy and cumulative consumption rate was established for the preimaginal stages. Data were obtained from cohorts that were checked daily since nymphs' emergence. Nymphal stage occurs in a mean of 40.6 days (NI: 7.3, NII: 9.4, NIII: 11.3, and NIV: 12.6 days respectively). Mean consumption during the whole nymphal stage reached 700.3 eggs (NI: 31.1±11.6; NII: 137.9±24.5, NIII: 196.8±34.7 and NIV: 334.6±70.3 eggs respectively). Daily consumption rate averaged 4.2±3.4, 12.73±8.5; 17.4±7.3 and 26.4±5.5 eggs for NI, NII, NIII and NIV respectively. Recorded results were no significantly different between nymphs that developed in both sexes (P>0.05, T. student).

Generalist natural enemies have an advantage that specialist natural enemies lack: generalist abundance can be sustained when there are no pests, by consumption of alternative prey. Hence, generalist can be present and predate on the pests also at low numbers of pests, thereby preventing the pest from establishing. The obtained results encourage us to evaluate the suppressive effect by *Doru luteipes* in the field.

128.

THE ADDITION *Lactobacillus casei* TO GOAT YOGUR IMPROVE ITS IMMUNOMODULATOR EFFECT

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The nutritional advantages contributed by the goat milk, united to the beneficial properties of the lactic acid bacteria would be an important resource in prevention and/or recovery of malnutrition. The aim of this work was to evaluate comparatively, the effect of administered *Lactobacillus casei* (Lc) (isolated from goat milk) in drink water or goat yogur (GY); and to establish effective dose and optimal time of administration for its immunomodulator effect. Swiss-alpine adult mice received Lc in doses 10⁷, 10⁸, o 10⁹ UFC/d/mouse during 2, 5 or 7 d consecutive in the drink water, or GY (GY+Lc). At the end of each treatment peritoneal macrophages activity and the resistance *Salmonella typhimurium* infection was evaluated. Administration of Lc in the dose 10⁸ significantly increased macrophages activation and improved protection against *Salmonella* infection. The treatment of 7d 10⁸ showed the higher levels of intestinal anti-salmonella IgA. Macrophages activation and the resistance against the infection were higher in GY+Lc than in GY group. *L. casei* is able to stimulate the adaptive and innate immune response with a dose dependent effect. Its probiotic property is harnessed when is administered it added goat yogurt. Therefore, *L. casei* would be an excellent associate for the development of goat with probiotic capacity.

129.

TOXICITY OF SYLVATICIN ISOLATED FROM *Rollinia occidentalis* (ANNONACEAE) ON *Spodoptera frugiperda*

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Rollinia occidentalis (Annonaceae), is a tree commonly found in the northwest of Argentina. Our investigation of a methanol extract from the seeds yielded a group of annonaceous acetogenins (Acg), three of which could be identified as sylvaticin, rolliniastatin-1 and motrilin by spectroscopic methods NMR and MS.

The Acg have been reported to possess insecticidal properties among other biological actions. We report herein on the toxic effects produced by sylvaticin on the polyphagous lepidopteran *Spodoptera frugiperda*. Our results indicated that at 50 and 100 µg/g of diet sylvaticin, produced significant larval and pupal mortality with malformations of larvae, pupa and adults. Early instar larvae were affected in their growth and displayed nutritional alterations quantified through Nutritional Indices.

Sylvaticin showed a tremendous potential for the development of a new natural product, could be employed as an effective, economical and environmentally friendly pesticide to control *S. frugiperda*.

130.

EVALUATION OF GENOTOXICITY OF ACETOGENINS ISOLATED FROM *Annona cherimolia* (ANNONACEAE)

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Annonaceae is a large family of higher plants comprising more than 2000 species. Economically, the family is appreciated as a source of the edible fruits "pawpaw", "chirimoya", "sweetsop", "soursop", and "custard apple" among others. *Annona cherimolia* Mill. (Annonaceae) has been commonly described in traditional medicine as remedies against head lice, and for their insecticidal properties. Previously we reported on the isolation of twelve acetogenins (Acg) from the seeds of this species. The Acg squamocin and itabin, have antimicrobial activity against human pathogenic Gram positive and Gram negative bacteria, antifeedant and citotoxic effect on the polyphagous lepidopteran *Spodoptera frugiperda*, however they were not mutagenic on *Salmonella typhimurium* TA 98 and TA 100. We report herein the results of the genotoxic effects produced on *Allium cepa* roots by the tested acetogenins. Squamocin produced dose-dependant chromosomal aberrations. At 2.5 µg/ml the effects were similar to those produced by MMS.

131.

ANTIFEEDANTS AND MOLLUSCICIDES FROM *ACANTHOSPERMUM HISPIDUM*

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A. hispidum DC is a native herbaceous plant widespread in the northwest of Argentina. The infusions of the aerial parts are employed in folk medicine against infections, as diuretic and abortive. The essential oil (EO) of the aerial parts was analyzed by GC-MS showing that the main constituent (35.2%) is β-caryophyllene a sesquiterpene with a whole array of bioactivities (insecticidal, antibacterial, antiparasitic, local anaesthetic and gastric cytoprotective properties). Because natural products with biological activity could be environmentally acceptable control agents, we conducted experiments to investigate the antifeedant effects of a chloroform extract (CE) and the EO of flowers and leaves of *A. hispidum* on larvae of the lepidopteran *Spodoptera frugiperda*, a serious corn pest in the north of Argentina. We observed an important antifeedant effect at a dose of 100 ppm of CE and EO/g of diet.

Plants molluscicides are valuable tools for the integrated control of schistosomiasis, a tropical disease transmitted by snails of the genus *Biomphalaria* that affects many people in Africa and South America. In our bioassay, 15 snails of *B. peregriana* were exposed to 100, 10 and 1 ppm of the EO. A strong activity was detected (LD₅₀ = 37 ppm), therefore *A. hispidum* is an excellent candidate for further investigations.

132.

EVALUATION OF THE PROTECTION RANGE OF A DEFENSE ELICITOR OBTAINED FROM AN AVIRULENT STRAIN OF *COLLETOTRICHUM*

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The anthracnose caused by fungi of the genera *Colletotrichum*, is the disease that impact more severely strawberry crop. In Tucumán the three pathogenic species involved were detected (*C. fragariae*, *C. gloeosporioides* and *C. acutatum*). Phytopathological experiments revealed that different strawberry cultivars responded differentially when challenged with a particular pathovar and also that different pathovars affected with different degree of severity a particular cultivar. We have reported earlier that plants treated with sterile supernatant of a liquid culture of an avirulent isolate of *C. fragariae* (M23) induced a defense response in the cv. Pájaro. We have investigated whether the eliciting activity corresponds to a specific ("race-specific") or general (non-race specific") elicitor. We have carried out protection experiments with different virulent local isolates of *C. acutatum* (e.g. M11, MP3 and LCF1-05) and different strawberry cultivars (e.g. cvs Pájaro, Camarosa, Milsei Tudla and Chandler) using the elicitor fraction coming from the isolate M23 of *C. fragariae*. Results show that after the treatment with the elicitor, plants of cvs. Pájaro and Camarosa did not present disease symptoms (DSR=1) 40 dpi, whereas those of cvs Milsei Tudla and Chandler got barely affected (DSR=2) 30 dpi. These outcomes let us conclude that the eliciting activity tested corresponds to a general (non-race specific") elicitor.

133.

INCIDENCE OF SECONDARY SCHOOL AVERAGE IN THE ADMISSION TO THE SCHOOL OF MEDICINE*Mirkin S, D'Urso M, Deza H, Fajre L.**Fac. Medicina. U.N.T. Tucumán. E-mail: smirkin@fm.unt.edu.ar*

The inclusion of secondary school average for university admission is controversial. The admittance process at the School of Medicine of the National University of Tucumán (U.N.T.) considers secondary school average (AS) plus the total score obtained in the Admission Test in 4 subjects: Biology, Reading Comprehension, Chemistry and Physics. Then, an order of merit is established and the first 240 students enter. The aim of this work is to analyze the incidence of the AS in the possibility of entering the School of Medicine. For this study the totality of applicants in the year 2005 (n=978) and 2006 (n=944) were considered. The data were analyzed with the t test, ANOVA and analysis of association (OR). AS average for both cohorts (t test, $p < 0.0001$) was 7.9 and there were significant differences between the applicants that enter (8.3) and those who do not (7.8). AS variable was categorized and we found that the possibility of entering is 2.5 (year 2005) and 2.4 (year 2006) times higher for the applicants whose AS is greater than or equal to 7.8 and 7.9 respectively, [OR=2.4; $IC_{95\%}=(1.9; 3.5)$ for the year 2005 and OR=2.5; $IC_{95\%}=(1.7; 3.3)$ for the year 2006]. It is concluded that AS has an impact on the admission process when it is equal to or greater than at least 7.8. We emphasize that this is determining for those that are last in the order of merits and those who do not enter but have the same score in the exams as the ones that enter.

134.

DIVERSITY OF BIRDS OF THE RESERVA EXPERIMENTAL HORCO MOLLE (TUCUMÁN, ARGENTINA)*Marano CF.**CONICET; Fundación Miguel Lillo, Miguel Lillo 251. (4000) Tucumán. E-mail: clau_marano@yahoo.com.ar*

The Reserva Experimental de Horco Molle is located at 26° 48' S, 65° 19' W, with a height that oscillates between the 540 and 650 msnm. It is characterized by it includes a variety of environments: secondary forests, shrubbery, grassland, housings and growing. The goal of this communication was to raise the birds of the area keeping in mind the impact of the modifications of the means to the human activity. Samples were conducted using the line transect method (of 800 m by 20 m). Registering: identity and abundance of each species observed, noting the activity and the kind of used habitat. For data analysis we calculated index Relative Importance Index (that identified as excellent species to *Turdus rufiventris*, *Zonotrichia capensis*, *Cyanocorax chrysops*), Abundance and the Shannon-Wiener Index (H'). Since 2000 until 2004, with 205 censuses and 111 species, belonging to 32 Families. The biggest diversity in the secondary forest could correspond to an increase in the complexity of the architecture of the vegetation and to the smallest disturbance human. The due replacements of birds to the seasonal displacements (migratory routes) associated to the heterogeneity of environment, would explain the important wealth of species that they suggest the results.

135.

APROSTOCETUS (OOTETRASTICHUS) INFULATUS (HYMENOPTERA: EULOPHIDAE), A NEW PARASITOID OF CORN DISEASE VECTORS IN NORTHWESTERN ARGENTINA*Luft Albarracín E, Triapitsyn S, Virla E.**PROIMI-Biotecnología, Div. Control Biológico, Av. Belgrano y Pje. Caseros (T4001 MVB), San Miguel de Tucumán, Tucumán, Argentina. E-mail: erluft@proimi.org.ar*

The eulophid *Aprostocetus (Ootetrastichus) infulatus* (De Santis) has been previously known only from a single female holotype from Buenos Aires Province in Argentina. We obtained a series of specimens of this species using sentinel eggs of various species of leafhoppers (Cicadellidae) and Planthopper (Delphacidae), exposed in cornfields near El Manantial and San Miguel de Tucumán, in Tucumán Province, Argentina. The previously unknown male of *A. (O.) infulatus* is described and illustrated. For the first time, information on the host associations of this species is provided while its known distribution range is expanded to northwestern Argentina. This eulophid is an economically significant species in Argentina, where its hosts include two well-known vectors of corn diseases, the leafhopper *Dalbulus maidis* (DeLong & Wolcott) and the planthopper *Peregrinus maidis* (Ashmead).

136.

ANTIBACTERIAL ACTIVITY OF β -CARYOPHYLLENE DERIVATIVES*Morales G^{1,2}, Rubio MC¹, Villecco MB².**¹Inst. de Biotecnología e ²Inst. de Química Orgánica, Fac. de Bioquímica Química y Farmacia, Universidad Nacional de Tucumán. E-mail: tuly@fbqf.edu.ar*

β -Caryophyllene (**1**) is a sesquiterpene widely distributed in essential oils possessing aphid repellent and antifeedant activity. Treatment of **1** with sulphuric acid in ether at 0°C produces a mixture containing at least 14 hydrocarbons and 4 alcohols, the main reaction product being caryolanol (**2**). After neutralization with sodium carbonate the reaction mixture was kept overnight in the refrigerator whereby two layers are formed. The aqueous lower layer subjected to steam water distillation yielded pure caryolanol (**2**) while the upper semisolid layer was extracted with hexane and ethyl acetate to give, after solvent evaporation, the corresponding hexane (HE) and ethyl acetate (EE) extracts. We report here the antibacterial activity of the products obtained by acid treatment of **1**. Caryolanol (**2**) strongly inhibited the growth of *Staphylococcus aureus* and *Shigella* sp. (95% and 90% respectively) and showed little effect against *Escherichia coli* 0175 whilst caryophyllene (**1**) exhibited low activity against all the three bacteria assayed (17%, 18% and 31% respectively). Both HE and EE displayed marked inhibition on the growth of the three microorganisms.

137.

OPTIMIZATION OF A METHOD FOR LEMON PLANT (*Citrus limon*) IN VITRO RECOVERY

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Citrus transformation efficiency is low and some species and/or varieties remain recalcitrant due to the lack of an optimized regeneration protocol. That is the case of Eureka, one of the most important lemon cultivars in Tucumán. The aim of this work was to optimize a method for reflowering germplasm regeneration so as to transgenically evaluate genes of agronomic interest later on. Seedlings obtained from *in vitro* germinated Eureka lemon seeds were used. Two coculture media were assessed: A) MS salts, White vitamins, 3% sucrose, 2mg/l AIA, 2mg/l 2,4-D, 1 mg/l 2iP, 8 g/l agar, pH 5.7 and B) half of hormone concentrations in A. Epycotil segments were placed in coculture media for 72 hs, under dim light. They were transferred to two regeneration media: 1) MS salts, White vitamins, 3% sucrose, 1 mg/l BAP, 10 g/l agar, pH 5.7 and 2) 2 mg/l BAP. After being kept in the dark at 26°C until the callus was formed, they went through a 16-hour-photoperiod. Coculture A and regeneration medium 1 produced the best result, with 34,33 % regenerated explants. These results may lead the way in the optimization of a method for reflowering lemon cultivar transformation.

138.

MOLECULAR IDENTIFICATION OF ADVANCED LINES AND GENETIC DIVERSITY IN EEAOC SOYBEAN GENETIC IMPROVEMENT PROGRAM

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Conventional soybean genetic improvement consists of crossings and selection to obtain cultivars with relevant features. These varieties can be characterized through genotypic characters. For the present study Simple Sequence Repeats (SSR) markers were used in order to: 1) Distinguish three advanced soybean lines from their parents; 2) Estimate the genetic diversity of parents most frequently used in crossings for EEAOC Soybean Genetic Improvement Program. Twenty-four parents and advanced lines were studied and 14 pairs of primers were used. The three advanced lines were differentiated with 10 primers. Besides polymorphic alleles were detected in these lines and not in their parents. Moreover, with only 14 primers, the 24 progenitor genotypes were identified and their diversity was estimated. This allowed identifying among parents with high yielding potential those that contributed the greatest genetic diversity. These findings contribute solid bases towards the selection of cultivars with greater plasticity.

139.

EVALUATION OF SOMACLONAL VARIATION IN MICRO-PROPAGATED RA 87-3 SUGARCANE SEEDLINGS

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The "Estación Experimental Agroindustrial Obispo Colombres" produces 30.000 healthy sugarcane seedlings annually, through hot water treatment and subsequent *in vitro* micropropagation. The availability of molecular profiles that define each genotype allows ensuring seedling genetic purity and detecting alterations produced by somaclonal variation. Our aim was to determine if micropropagated RA 87-3 seedling vulnerability to mosaic virus disease was attributable to somaclonal variation. Stalks of affected by mosaic and healthy RA 87-3 plants, and stalks of other conventionally propagated varieties were collected. DNA was extracted from meristematic tissue (Aljanabi *et al.*, 1999, *Plant Mol. Biol. Rep.* 17: 1-8) and the AFLP technique was used (Vos *et al.*, 1995, *Nucl Acids Res.* 23: 4407-4414). Differences among varieties were detected with the 19 primer combinations used, and with seven, differential profiles were obtained in two of the 16 RA 87-3 samples. No differences were found between healthy and sick plants, so greater vulnerability to the disease might be attributed to environmental factors, pathogen variations, or epigenetic changes in the plant.

140.

PHYTOTHERAPICS WITH ANTIBIOTIC ACTIVITY ON *STREPTOCOCCUS PNEUMONIAE* MULTI-RESISTANTZampini IC¹, Arias M², Cudmani N³, Isla MInés¹.¹Instituto de Estudios Vegetales, ²Instituto de Farmacia, Facultad de Bioquímica, Química y Farmacia. UNT. Tucumán. Argentina. E-mail: misla@tucbbs.com.ar ³Hospital de Clínicas Nicolás Avellaneda. Tucumán.

Streptococcus pneumoniae is responsible for affections such as otitis, acute sinusitis, neumonia and meningitis. Although *S. pneumoniae* has been sensible to numerous antibiotics, in the last years have been appearing antibiotic-resistant *S. pneumoniae* strains. In Argentina approximately, the 36% of the clinical isolation are antibiotic-resistant. The objective of the present work was to determine the sensitivity to commercial antibiotics and natural products of ten *S. pneumoniae* strains isolated of clinical samples obtained in a hospital of San Miguel de Tucumán. The minimal inhibitory concentration was determined by agar macrodilution assays. According with our results, 40% of the isolations were resistant to oxacillin, tetraciclina and Trimetropime/sulphametoxazol and sensible to Levofloxacime, Eritromicin, Rifampicin, Clindamicin, Penicillin and Cefotaxime. The 100% of the isolations were sensible to *Baccharis incarum*, *Baccharis boliviensis*, *Chuquiraga atacamensis* and *Parastrephia lucida* extracts. The MIC values were 10 to 40 µg/ml for *Baccharis* extracts and 20 to 80 µg/ml for the other plant species. In previous works we demonstrated that these phytotherapeutic also present antibiotic activity on other multi-resistant pathogenic human bacteria (Gram positive and Gram negative) and they act as free radical scavenging. Consequently these plant extracts could be used as antibiotic of topical use, to prevent states of oxidative stress and for the treatment of respiratory affections.

141.

IN VITRO EVALUATION OF ANTIGENOTOXIC ACTIVITY OF CASSIA APHYLLA EXTRACTS USING HEP G2 CELLS

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Cassia aphylla Cav. (Leguminosae), is a endemic plant specie distributed in the western Argentina. This specie is known under the common names of pichanilla or cabello de indio and traditionally used for the cough and as antiseptic or healing. In a previous work we reported the antimicrobial activity of ethanolic extract of this plant specie against multi-resistant Gram-negative human pathogenic bacteria.

The aim of the present study was to evaluate the antigenotoxic effect of *Cassia aphylla* ethanolic extract using the alkaline Comet assay on metabolically competent human-derived hepatoma (Hep G2) cells. The result showed that *C. aphylla* extract was able to diminish the DNA damage induced by benzo[a]pyrene (B[a]P) (indirect mutagen or promutagen) but did not present antigenotoxic activity against 4-NQO (direct mutagen). Otherwise, the assayed extract did show a weak genotoxic effect on Hep G2 cells in the first 4h of treatment, but no genotoxic effect was observed after 24 h. Although the antigenotóxic effect of the extract of *Cassia* are evident, is necessary to characterize chemically to the metabolite responsible for the effect before suggesting its use like phytotherapeutic product.

142.

EVALUATION OF TOXICITY AND MUTAGENICITY OF FLUID EXTRACT OF SECHIMUM EDULE (JACQ.) SWARTZ

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Sechium edule (Jacq.) Swartz, (n.v chayote) is an cucurbitacea which nutritional and functional properties. In previous works we demonstrated that phytotherapeutic preparations obtained from leaves of *Sechium edule* display antibacterial and antifungal activity on human pathogenic microbial. They showed free-radical scavenging capacity and inhibitory activity on hyaluronidase enzyme, which is associate to inflammatory processes. The aim of this work was to evaluate the toxicity/mutagenicidad of the fluid extract obtained with leaves of *Sechium edule* front to *Salmonella typhimurium* TA98 and TA100. As positive control were used a direct mutágeno, 4-nitro-o-phenylendiamine (NPD). The extract did not show toxicity on *Salmonella typhimurium* TA98 and TA100 until a concentration of 100 µg/plate. The values of mutagenicidad relation were always inferior to 2 indicating that the extract fluid of leaves is not mutagénico for the *Salmonella typhimurium* TA98 and TA 100. Our results justify its use in food and pharmaceutical industries

143.

EVALUATION OF THE BLUEBERRIES QUALITY CONSERVED WITH NATURAL ANTIMICROBIAL AND ANTI-OXIDANT

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V. corymbosum, var Santa Fe and Misty are cultivated in the south of Tucumán, Argentina. Due to the nutraceutic properties, the blueberries are highly commercialized. The quality depends not only on the variety of plant but on the processing of the harvested fruits. In previous works, we developed combined systems (plant ethanolic extracts, pH, temperature) to preserve the quality blueberries after harvested. The aim of the present work is to evaluate the blueberries conservation using different non-conventional systems with natural product (alcoholic and aqueous extract of plant species). The microbiological analysis showed that the number of mesophilic bacteria and fungi diminishes during the conservation period with aqueous and ethanolic *Z. punctata* extracts (EE and EA). The sensorial evaluation indicates that the color, firmness and general appearance are conserved. The blueberries conserved with natural products preserve the cellular structure with noticeable thickening of the cell wall and the epidermal cells retain anthocianin content.

144.

AMPHIPROTIC SOLVENTS: INFLUENCE ON THE SOLUBILIZATION PHENOMENON

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In a liquid pharmaceutical form it is necessary to select a technical strategy in order to increase the solubility of the substance in water (W). In this work, the cosolvent effect of poliethylenglicol 400 (PEG 400) and dielectric requirements (RD) of phenacetine (PHT), acetanilide (ACT) and N-methyl acetanilide (NMA) were determined and interpreted from the solubility profiles.

The densities and permitivities of the saturated solutions and water-PEG 400 systems were experimentally determined at 25°C ± 0.1°C. NMA and PHT solubility profiles show a solubility maximum while the ACT profile shows an exponential function. RD, the fraction f_{PEG} of maximum solubility and the molar solubility, S, values are presented next:

NMA:	RD = 32,88	$f_{PEG} = 0,8$	S= 1,5945 mol/L
PHT:	RD = 24,64	$f_{PEG} = 0,9$	S= 0,2390 mol/L
ACT:	—————	$f_{PEG} = 1,0$	S= 1,1126 mol/L

The effectiveness of PEG 400 on the solubility followed the order: NMA>ACT>PHT while the speed of change on the solubility, the cosolvent force σ , was $\sigma_{PHT} > \sigma_{ACT} > \sigma_{NMA}$. The solubilization phenomenon was highly dependent on the polarity-permitivity of the solvent medium which is attributed to the amphiprotic character of the components.

145. REPRODUCTIVE MODE IN THE GENUS *LEPTODACTYLUS* (ANURA, LEPTODACTYLIDAE): DEFINITION OF BIOLOGICAL CHARACTERS

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Species of *Leptodactylus* (and the recently incorporated *Adenomera*, *Vanzolinius* and *Lithodytes*) exhibit reproductive modes ranging from aquatic to terrestrial breeding. On base of the reproduction mode this genus was divided in five groups: the “*ocellatus*” and “*melanonotus*” groups have the most primitive reproductive modes; the “*pentadactylus*” group show the next step; and the more specialized modes are demonstrated by the “*fuscus*” and “*marmoratus*” (the species of *Adenomera* were included in this last group) groups. However recent data outline the necessity to carry out a revision of the traditional species groups. In the present work biological characters are defined in species of *Leptodactylus*. On base of literature data and personal observations 32 characters were defined. These characters refer to call (types, sites, etc.); amplexus, clutch; features related with the subterranean chamber; parental care; larvae; territoriality; etc. Ten of the 32 characters have assigned state for only one or two species. Information of only 40 of more than the 70 species included in the genus is available. Some species would not belong, according to their reproduction mode to of traditional species groups.

146. ANATOMICAL FEATURES OF *Sida rhombifolia* L.

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Many species of *Malvaceae* family, frequently known as “malvas”, are mainly used as emollient due to their mucilage content. Previously we have begun to characterize species of this family in order to its correct identification. The aim of this work was to establish anatomical features of vegetative organs of *Sida rhombifolia*, a medicinal plant named popularly as “afata”, “pichana”, “escoba dura” and used as emollient, aperitive, diuretic and against headache. Our results show the following characteristics: Stem cross sections reveal a limited peridermis, a cortical parenchyma composed by many cell layers with abundant clustered crystals and where mucilage cavities can be observed. Bast fibers are grouped in the form of wedges. A developed vascular cylinder presents xylem and phloem like a continuous ring with 2-3 seriate medullar rays; two mucilage channels are observed in the medulla parenchyma. Leaf relevant characters are stelate and glandular hairs mainly located on its lower epidermis; The occurrence of mucilage cells in both upper and lower epidermis was demonstrated in leaf transversal sections. Many of such cells are of considerable size and their inner portions penetrate the mesophyll. Midrib show a developed parenchyma only in the lower portion where a mucilage channel is observed. Root cortical parenchyma show abundant starch granules and clustered crystal but no mucilage cell or cavities could be observed.

147. ANATOMICAL CHARACTERS OF *Pavonia sepium* A. St. Hil, “MALVAVISCO DE CERCO” NATIVE SPECIE OF MEDICINAL USE

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Pavonia sepium Sin. *Pavonia malvacea* (Vell.) Krap. et Crist is a hemiwoody plant from Malvaceae family know as “malvavisco de cerco” and used popularly as pectoral and emollient, this native genus grows wildly in Argentina. The purpose of this work is to investigate and describe the histological aspects of root, stem and leaf of *P. sepium*, that could help to identify this species. The transverse section of leaves shows an epidermis of one cell layer in both faces and stellate and glandular hairs. Cresyl brilliant blue staining revealed the mucilage content of the glandular hairs. Subepidermically located there is a chlorophyllic parenchyma with large crystalline cells, spongy parenchyma and vascular bundles. The developed midrib presents one secretory channel, a vascular bundle surrounded by sclerenchymatic fibers in both faces, collenchyma and parenchymatic cells with abundant clustered crystals. The stem shows a stele differentiated in cortex and medulla separated by vascular cylinder. The medullary parenchyma contain four secretory channels, while abundant amyloplast and clustered crystals are observed within the cortical parenchyma. The root presents secondary structure with vascular cylinder very developed. Its vascular bundles are separated by one to biseriated medullar rays and the cortical parenchyma shows abundant amyloplasts and not, secretory channels.

148. *MUTINGIA CALABURA* L. MICROPROPAGATION

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This work was carried out to establish an *in vitro* propagation methodology for *Mutingia calabura* L., it is a native species of the mountains forests of the Yungas that is capable to populate disturbed areas inside this region.

Cultures were initiated from basal shots obtained after pruning the trees back to 10 cm to ground level. To establish *in vitro* cultures, nodal sections with lateral buds, from the actively growing shoots were desinfected in a 1,2% sodium hypochlorite solution, for 15 minutes and in a 70% ethanol solution for 30 seconds. All the solutions were added with a few drops of tween 80. To induce to the shoot multiplication the desinfected nodal explants were cultured in a half MS medium (Murashige and Skoog, 1962) solidified with TO - 1296 agar (Sigma Chemical) at 7 g. l⁻¹ it was added to the culture medium 0,1 mg.l⁻¹ of BAP (Bencilaminopurine) and 0,5 mg.l⁻¹ of ANA (Naftelenacetic acid). For the rooting procedure the biggest percentages were obtained with IBA (Indobutiric acid) to 0,5 mg.l⁻¹.

149. PHENOTYPIC IDENTIFICATION OF *Aeromonas* spp ISOLATED FROM CHILDREN'S FECAL SAMPLES IN HOSPITAL DEL NIÑO JESÚS

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The genus *Aeromonas* are agents which cause gastroenteritis watery diarrhea and dysentery. The aim of this research is the phenotypic identification at the level of complexes: *A. hydrophila*, *A. caviae*, *A. Sobria* and the testing of antimicrobial susceptibility of strains isolated from fecal samples from children with diarrhea in Hospital del Niño Jesús. All the strains were inoculated onto 5% sheep-blood agar to observe β -hemolysis. The tests were: Gram stain, oxidase activity, glucose fermentation and gas production, citrate usefulness; urease, phenylalanine hydroxylase, LDC, ODC, ADH, DNase, SH₂, indole production, motility and bile-esculin hydrolysis. Antimicrobial (ATB) susceptibility testing was also carried out using the Kirby-Bauer agar disk diffusion method. The ATB agents tried were Cefalotine (30ug), Ampiciline (10ug), Furazolidone (300ug), Fosfomicine (50ug), TMS (25ug), Cefotaxime (30ug), AMC (20/10ug) and Colistine (10ug). From a total of 25 *Aeromonas* tested, 14 belong to *A. Sobria* complex, 8 to *A. caviae* complex and 3 to *A. hydrophila* complex. All the strains studied were resistant to Ampiciline and sensitive (S) to Fosfomicine and furazolidone, but only 75% were S to TMS. As a conclusion it is important to achieve the identification at the level of complexes since this identification is related with epidemiology and the source of *Aeromonas* strains. Antimicrobial susceptibility showed a positive reaction at the clinic antibiotics.

150. ANEMIAS CLASSIFICATION IN THE PEDIATRIC POPULATION OF HOSPITAL DEL NIÑO JESUS

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Hematimetric indexes (HI) are absolute values result of the relationship between the number of red cells, hemoglobin concentration and Hematocrit. This HI are important useful for the anemia's morphologic classification, diagnostic and treatment. The aim of this work was performed morphologic classification of the different anemias types based on HI analyses in the pediatric population of the Hospital del Niño Jesús. We made retrospective study in outpatient older than 1 and younger than 14 years old to assisted guard service since October 2005 to August 2006. We examined 1312 blood samples using Hematologic counter COULTER-540®. We analyzed Hb (hemoglobin), MCV (media corpuscular volume) and MCH (media corpuscular hemoglobin). The pediatric populations studied was divided in 3 groups I, II and III according to ages; between (1-4), (5-9) and (10-14) respectively. The result showed that 11.58% of the population presented anemia. This individual groups was analyzed according to the HI the result were that 65.78% had normal MCV and decreased MCH. Also the 26.97% showed decreased of the MCV and MCH. Finally, the 7.24% had normal MCV and MCH. The most prevalence of anemias was in group I (40.79%). The dates obtained showed mostly patients had normocytic-hypochromic, microcytic-hypochromic, normocytic-normochromic and microcytic-hypochromic anemias. This study reveals the importance of the HI determination in order to know the cause that produce anemia.

151. MORRIS WATER MAZE AS A MODEL OF SPATIAL LEARNING IN CONTAMINATED LEAD RATS

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In the present study we have investigated the usefulness of Morris Water Maze to evaluate spatial learning in contaminated lead rats. On the 21st day of age, 24 male Wistar rats were divided into 5 groups: 4 animals in the control group and 20 in 4 groups which received either 5, 50, 100 or 500 ppm Pb as lead acetate in drinking water for 90 days. A pool (125 cm diameter, black sidewalls 75 cm high) was filled with warm water (23 ± 1°C), in which submerged platform was located (0.5 cm below water surface; 10 cm diameter in a fixed position). The apparatus was placed in a room rich in extra maze visual cues. For each trial, the rat was placed in the water at determinate position and had to find the platform and climb on it. The time needed to find the platform was measured. A maximum of 120 sec was allowed. If the animal failed to find the platform within this time, it was guided there. All rats were allowed to stay on the platform for 15 sec. Control rats found the platform more rapid than the experimental groups, which needed more time and until 4 trials to find it. This result suggests that the hippocampal impairment lead produced would be studied with this behavioral test.

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152. SOCIOCULTURAL CHARACTERISTICS OF FIRST YEAR STUDENTS OF FACULTAD DE MEDICINA, U.N.T.

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In previous work we have observed that most of the students that started medicine in the National University of Tucumán in 2006 resorted to tutors. We analyzed the sociocultural level of these students, their attempts to get into the system, and their secondary school background.

Methodology: a survey among 1st year students was carried out asking for information about the students and their parents. The results are as follows: 56% male students; 26% from other provinces; 95% from private schools and 59% received training in Biology at high school; 44% entered in their second or third attempt; 48% of the fathers and 47% of the mothers got a university degree; 28% of the mothers and 13% of the fathers got a college degree; 99% of the fathers and 90% of the mothers work and 60% and 30% respectively have a profession and/or work independently; 44% of the fathers and 16% of the mothers have a degree in medicine.

Conclusions: most of the students that enter the Faculty have a high sociocultural level. They come from private high schools with training in Biology and were helped by tutors for the admission test; whereas other students, including those from public schools, made two or three attempts to pass the test. In the 21st C. the citizens' skills, abilities, the development of knowledge and the capacity to think, analyse, imagine, cooperate, etc. will become both a nation's wealth and an indicator of quality education.

153.

Mal de Río Cuarto virus (MRCV): DETECTION OF VIRULIFEROUS AND INFECTIVE INSECTS IN TUCUMAN, NOT ENDEMIC AREA OF ARGENTINA*Velazquez PD, Mattio MF, Parra F, Truol G.**INTA-EEA Famaillá, Ruta Prov. N° 301 Km 32 (4132) Famaillá, Tucumán, Argentina. INTA-IFFIVE, Camino 60 Cuadras Km 5° (X5020ICA) Córdoba, Argentina. E-mail: pvelazquez@correo.inta.gov.ar*

Mal de Río Cuarto virus (MRCV, *Fijivirus*), causal agent of the most important disease of maize in Argentina, is transmitted mainly in the nature by *Delphacodes kuscheli* (Hemiptera: Delphacidae) in a persistent spread. The objective was to establish the relative importance of the species and to determine the percentage of viruliferous and infective insects for the MRCV in Tucumán, not endemic area. Eight delphacid species were registered where prevailed *T. propinqua* with 49.7%, following in order of abundance *Caenodelphax teapae*, *D. haywardi*, *D. kuscheli*, *Pyrophagus tigrinus*, *Tagosodes orizicolus*, *Dicanotropis fuscoterminata* and *Sogatella* sp. From the transmission tests realized the 10% of *C. teapae*, 3.6% of *T. propinqua*, 50% of *D. kuscheli* and 100% of *D. haywardi* were capable of transmitting the virus. MRCV was detected for serological analysis in *C. teapae* (12.5%) and *T. propinqua* (1.1%). The results demonstrated that in this not endemic area of the disease, where the principal vector is one of the least frequent species, other species exist as *C. teapae* and *T. propinqua* that have an important role in the dispersion of the virus.

154.

CHEMICAL DETERMINATIONS IN GCF OF HIV/SIDA PATIENTS UNDER TREATMENT*Salum MK¹, Koss MA¹, Manlla AM², Valdez C³, Recupero G³, López ME¹.**¹Cát. Quím. Biol., ²Fac. Agron., ³Hosp. Z. Santillán. Fac. Odont., UNT. Av. B. Aráoz 800, S.M. Tucumán, Argentina. E-mail: karina.salum@odontologia.unt.edu.ar*

The antiretroviral treatment (ART) of great activity has diminished the morbimortality of patients infected with HIV and those with AIDS. The formation of new viral particles causes continuous lymphocytes destruction. The ART suppresses viral replication. The aim of this work was to compare chemical determinations in Gingivo-Crevicular Fluid (GCF) of patients under ART. 15 HIV/SIDA patients both sexes, 33-45 yrs old, under Nucleosidic Inhibitor of the Reverse Transcriptase (NIRT) + Protease Inhibitors and Non Nucleosidic Inhibitor of the Reverse Transcriptase + NIRT were studied every 4 m during 1 yr. GCF samples were taken for 30 seg, in 6 places of the buccal cavity. The FGC was eluted, centrifuged and conserved at -15°C. Total proteins, Hydroxioproline, Lactate Dehydrogenase (LDH), Glutamic Oxalacetic Transaminase (GOT), Ig G and Ig M were determined in FGC. CD4 by flow cytometry and the quantification of copies of viral RNA in plasm were carried out. The data were analyzed with SPSS using the multivariate analysis of repeated measures. Differences were not observed for the chemical determinations among ARTs. Significant differences were for hydroxioproline, LDH, GOT, among initial and final samples. GCF variables reflect changes that could be due to the clinical evolution of patients under ART.

155.

ACOUSTIC ANALYSIS OF THE ALARM TRILL IN VICUÑA (VICUGNA VICUGNA)*Hurtado A, Black P.**Cátedra de Comportamiento Animal. Facultad de Ciencias Naturales e Instituto Miguel Lillo (UNT) Miguel Lillo 205. E-mail: diciembre211272@yahoo.com.ar*

The vicuña is a camelid inhabitant of the Puna that lives in small family groups, with one dominant male. The alarm trill is the characteristic male vocalization uttered when a strange person or animal approaches the group. In vicuña, alarm trills have a duration of $3 \pm 0,2$ sec. The mean length is 8 notes, with a pulsation rate of 3 notes/sec. The bandwidth of this call is 1396-6491 Hz. Within the call there is a range of maximum intensity from 1296-4054 Hz. Each note is formed by two phases with different bandwidths: 1960-3707 Hz. for the inspiration phase and 1642-4004 Hz for the expiration phase. The first notes of the alarm trill are atonal, but as the vocalization continues, the notes become more tonal and increase in duration. When this vocalization is uttered, the male dilates the nostrils and contracts the abdomen. When the other members of the group hear this vocalization, they rapidly move away from the danger. The alarm trill also seems to function as an alarm signal that indicates to the predator that it has been seen. The rapid succession of notes allows their intercalation between gusts of wind, diminishing distortion effects. Individual differences in the calls seem to exist.

156.

FUNCTIONAL TROPHICS GROUPS (DIPTERA ORDER) OF WATER STREAM LOS PINOS (CONCEPCION, CATAMARCA)*Salas L¹, Lizarralde de Grosso M²**¹Ex. and Nat. Sciences Faculty, National University of Catamarca. ²Natural Sc. Fac. And Inst. Miguel Lillo. National University of Tucuman. CONICET. E-mail: lbsalas@c.exactas.unca.edu.ar*

Diptera order, part of bentos of mountain stream water Los Pinos (Concepción, Capayán, Catamarca) are represented by 8 families and 15 genera. Object of this research is to categorize Diptera in the stream, by functional trophics groups (FTG). Station of samples is at 1.020 m.s.n.m. at 28° 37' 15'' of SL and 66° 02' 5'' WL. Vegetation is of Yungas ecoregion (Bosque Montano), mainly of *Podocarpus parlatorei*. Samples are obtained on June (low water station) with a "Surber" of 900 cm² of surface and 300 µm of mesh opening, fixed *in situ* with formol 4%. In laboratory the organisms were determined until genera and FTG was assigned following Merrit and Cummings (1996). Five trophics categories were determined: Filtering Collectors (*Simulium*, *Rheotanytarsus* y *Tanytarsus*); Gathering Collectors (*Odontomyia*, *Corynoneura*, *Thienemaniella*, *Parametrioneemus*, *Pseudochironomus*); Shredders (Limoniinae; *Cricotopus* y *Polipedium*); Predators (*Bezzia*, *Chelifera*, *Hexatoma* y *Pentaneura*); Scrapers (*Maruina*). FTG better represented were, predators and gathering collectors; this reflects the great provision of food resources of the stream, in the sample station in this month.

157.

DETERMINATION OF LD₅₀ AND LT₅₀ OF *Bacillus* NATIVE STRAINS TOXIC TO *Spodoptera frugiperda* (LEP.: NOCTUIDAE)*Alvarez A, Pera LM, Virla E, Baigori MD.*

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Introduction: *Spodoptera frugiperda* (Sf) is one of the most important corn pests in tropical and subtropical America. *Bacillus thuringiensis* (Bt) is an entomopathogenic spore-forming bacterium that produces parasporal crystalline proteinaceous inclusions (Cry). **Objective:** The aim of this work was to determine the lethal dose (LD₅₀) and the lethal time (LT₅₀) of native crystalliferous *Bacillus* strains against first instar larvae of Sf. **Materials and methods:** Insects come from a laboratory colony. The artificial diet was immersed in serial dilutions of Cry protein suspension. LD₅₀ and LT₅₀ were calculated by Probit analysis. **Results and conclusions:** The LD₅₀ (CFU) calculated for *B. sp* RT, *B. sp* LSM, *B. sp* LQ and *Bt kurstaki* (HD1) were 8.99 X 10⁶, 5.60 x 10⁷, 2.70 X 10⁷ and 1.04 X 10⁷, respectively. Under our assays conditions, *B. sp* RT shows the lower LT₅₀ for doses of about 6 X 10⁷cfu. These results show that *Bacillus sp* RT is an interesting strain for further development for Sf control programmes.

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158.

INFLUENCE OF CULTURE CONDITIONS ON A MYCELIUM-BOUND LIPASE PRODUCTION FROM *Aspergillus niger* MYA 135*Colín V, Baigori M, Pera L.*

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Introduction: Lipases (EC 3.1.1.3) are enzymes that hydrolyse the ester bonds of water insoluble substrates at the interface between the substrate and the water. This reaction is reversible. Lipases may also catalyze ester synthesis and transesterification in reaction mixtures with low water contents. **Objective:** The aim of this work was to study the influence of culture conditions on a mycelium-bound lipase production from *Aspergillus niger* MYA 135. **Materials and methods:** The fermentation medium comprised (in g/l): sucrose 10; NH₄NO₃ 2; KH₂PO₄ 1; MgSO₄·7H₂O 0.2; CuSO₄·5H₂O 0.06. The effect of modification in the environmental condition on lipase production was tested by changing the initial pH of the medium as well as by the addition of CaCl₂, FeCl₃ or Tween (20, 40, 60, and 80). Lipase activity was determined using 0.01 g of wet mycelium and p-nitrophenyl palmitate as substrate. **Results and conclusions:** The assayed culture conditions scientifically influences the lipase production. The highest specific activity (36.6 mU/g of DW) was obtained with either initial pH 8 or in presence of 0.5% Tween 60.

This work was supported by grants PIP 6062 and PICTO 761.

159.

POLYMORPHISM ANALYSIS OF ESTERASES PATTERNS FROM *Bacillus* STRAINS*Loto F, Baigori M, Pera L.*

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Introduction: Electrophoretic analysis of esterases (EC 3.1.1.1) patterns is one of the easiest ways to evaluate enzyme variants, providing valuable information in the study of species differentiation. **Objective:** The aim of this work was to analyze the electrophoretic profiles of esterases from *Bacillus* strains. **Materials and methods:** Microorganisms isolated from different sources were grown on LB agar during 48h. Extracellular esterases were extracted from the medium and chromatographed under nondenaturing conditions. Activities were detected using α-naphtyl acetate as substrate. Esterases were classified according to the band migration rate. They were recorded based on presence/absence in the nPAGE. The degree of similarity was estimated by simple matching coefficients. Clusters were then constructed using the UPGMA method. **Results and conclusions:** Fifteen different bands from fifty isolations were detected. A numerical classification reveals three main clusters with eighteen different enzymatic profiles. There was no correlation between the enzymatic profile and the source of strain isolation.

This work was supported by grants PIP 6062 and PICTO 761.

160.

PARTIAL CHARACTERIZATION OF ESTERASES AND LIPASES FROM *A. NIGER* MYA 135*Romero C, Pera L, Baigori M.*

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Introduction: Esterases (EC 3.1.1.1) and lipases (EC 3.1.1.3) catalyze hydrolysis and synthesis of esters. Their applications include hydrolysis of fats and oils, resolution of racemic mixtures, etc. **Objective:** The aim of this work was to study the effects of different conditions on the stability of esterases and lipases from *Aspergillus niger* MYA 135. **Materials and methods:** Culture supernatant was preincubated at several pH values and temperatures. Residual activities were analyzed by nPAGE using either α-naphtyl acetate or α-naphtyl myristate as substrates. Activities already separated by nPAGE were also used to evaluate their stabilities in organic solvents. **Results and conclusions:** Enzymes were active within the pH and the temperature range tested. Except at pH 9 and at 55°C where some bands were not detected. Enzymes preincubated in either 2-propanol, 2,3-butanediol or acetone showing the same pattern that the control without incubation. Some bands were not detected after preincubation with propanol, n-hexane, hexanol or n-heptane. No band was observed after preincubation with butanol. One of the bands shows a good stability pattern which justifies its application in biocatalysis.

This work was supported by grants PIP 6203 and PICTO 761.

161.
PRODUCTION OF BACTERIAL LIPASES BY SUBMERGED FERMENTATION

Rodríguez E, Baigori M, Pera L, Castro G.

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Introduction: Lipases (EC 3.1.1.3) constitute the most important group of biocatalysts for biotechnological applications such as the synthesis of biopolymers and biodiesel, the production of enantiopure pharmaceuticals, agrochemical, and flavour compounds, etc.

Objective: The aim of this work was to investigate the effect of different fermentor configurations on bacterial lipase production.

Materials and methods: *Bacillus* sp E12 was used throughout this work. The fermentation medium comprised (in g/l): peptone 10 and yeast extract 5. Fermentors showing different height to diameter ratio (A: h/d= 1.7, B: h/d=1.0 and C: h/d=0.4) were used. Lipase activity was determined spectrophotometrically at 405 nm with p-nitrophenyl palmitate as substrate.

Results and conclusions: Fermentor configuration significantly influences the lipase production. The highest specific activity (31.6 U/mg) was obtained with fermentor configuration A.

This work was supported by grants PIP 6203 and PICTO 761.

162.
SELECTION OF ESTERASES AND LIPASES PRODUCING MICROORGANISMS

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Introduction: Selective conversions of natural or synthetic substrates into useful products using esterases (EC 3.1.1.1) or lipases (EC 3.1.1.3) have been gaining an increasing importance. The enzymatic activity is often characterized by high chemo, region, and stereo-selectivity, which are very useful for the synthesis of fine chemicals. **Objective:** The aims of this work were to select esterases and lipases producing microorganisms and to evaluate their enzymatic reactivities toward different substrates. **Materials and methods:** Isolated microorganisms were grown on LB agar supplemented with both rhodamine B and 2% olive oil. Enzymes production was monitored by irradiation at 350 nm. Enzymatic reactivities toward different substrates were directly evaluated on LB agar colonies by using either α -naphthyl or β -naphthyl derivatives as substrates. **Results and conclusions:** Nineteen lipolytic strains were selected by using rhodamine-B/olive oil plates. Esterases and lipases with an interesting substrate specificity pattern were found. Enzymatic reactivity toward α -naphthyl derivatives of propionate, caprate, myristate, palmitate, estearate, and β -naphthyl derivatives of acetate and nonanoate were detected.

This work was supported by grants PIP 6203 and PICTO 761.

163.
IDENTIFICATION OF BOVINE MASTITIS PATHOGENS ISOLATED FROM DAIRY HERDS IN THE CENTRAL REGION OF CORDOBA

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Bovine mastitis is the most important disease of dairy cattle. *Staphylococcus aureus* and *Streptococcus agalactiae* are the main etiological agents. The aim of this work was identify bovine mastitis pathogens from three dairy heard in the central region of Cordoba. A total of 86 milk samples belong to 20% of milking cows were analyzed in regard to: a) bacterial count (ufc/ml), b) somatic cell count (SCC) and c) clinical (MC), subclinical (SM) and cronical (CrM) mastitis. A number of 113 strains were isolated. *S. aureus* was identify in 18.6% of the samples, whereas 1.8%, 33.6% and 5.3% were *S. intermedius*, coagulase-negative Staphylococci (CNS) and *Streptococcus spp*, respectively. In the 40.7% of the samples, others microorganisms (*Bacillus spp.*, *E. coli*, *Salinococcus spp.* y *Micrococcus spp.*) were isolated. From 86 animals, 10 (11.62%) had CM, 38 (44%) SM and 1 (1.16%) CrM. *S. aureus* was isolated in the 40% of the SM, alone (21%) and with other microorganism (19%). In the 55% of the SM, CNS were isolated, alone (21%) and associated to other microorganism (34%). The results shows a considerable increase of CNS isolated from bovine intramammary infections, even though, these microorganisms are part of the normal flora of bovine udder.

164.
IMMUNIZATION AGAINST STAPHYLOCOCCUS AUREUS IN HEIFERS BY VACCINATION WITH AN AVIRULENT MUTANT

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Staphylococcus aureus is the most important pathogen of bovine mastitis. Vaccination appear to be a rational approach for the control of staphylococcal mastitis. In this work the immunological response of heifers to vaccination with an *S. aureus* avirulent mutant was investigated. Nine healthy heifers were randomly assigned into 2 groups, vaccinated (VG) and non vaccinated (NVG). Five animals received the primary immunization 1 month before pregnancy followed by 3 boots: subcutaneously 30 and 10 days before calving and intramammarly (IM) 10 days after calving. Ten days after IM dose all quarters were challenged with 2×10^2 ufc of the homologous virulent *S. aureus* strain. Blood and milk samples were taken at 7, 14 and 21 days after challenge. Clinical signs, secretion of *S. aureus*, somatic cell count (SCC) and specific IgG (blood and milk), were determined. No local injury was observed due to the administration of the vaccine. A significantly increase ($p < 0.05$) of total IgG in blood and milk was observed in the VG. After challenge, bacterial shedding and percent of infected quarts were significantly higher ($p < 0.05$) in NVG than VG. No difference was found among groups in milk SCC These results are indicative of a positive immunization effect on heifers following vaccination.

165.

STUDIES OF EARLY PATHOGENESIS ON EXPERIMENTAL MASTITIS PRODUCED BY *Streptococcus uberis* IN CAPRINES

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Bovine mastitis induced by *S.uberis* (*Su*) has been little investigated. Caprine susceptibility to this species and the lower cost of these animals lead us to study experimental mastitis on them. The aim was to study early pathogenesis in milky caprines after intramammary inoculation with a *Su* strain. Two Sannen goats were used for each of the 2 assays. One ml (10^5 ufc/ml) of *Su* strain isolated from subclinical bovine mastitis was inoculated in the right gland (RG). Left gland (LG) was the negative control. Milk and blood were collected; clinical signals were observed during 54h. Progressive inflammatory signals were observed in RG at 12-16h post inoculation. No increase in rectal temperature was measured. RCS values in RG milk were normal even when there was an increase ($3,7 \times 10^6$ cel/ml) at 28-54h post infection. LG milk RCS (10^4 cel/ml) showed no variation. Pure *Su* cultures from RG milk and negative cultures from LG were obtained. High RBT values (3×10^7 ufc/ml) at 12-16h were recorded from RG, they decreased to 3×10^5 ufc/ml at 16-54h. LG showed 3×10^4 ufc/ml. Values were normal for cell blood composition, milk chemical composition, plasmatc proteins and fibrinogen. *Su* was not isolated from any different tissues. No histological changes were observed. Although we might speculate that the polymorphonuclear cells play an important role for the control infection in mammary gland, we can't conclude on the establishment of a subclinical mastitis.

166.

MINIMUM INHIBITORY CONCENTRATIONS FOR SELECTED ANTIBIOTICS AGAINST STREPTOCOCCI ISOLATED FROM BOVINE MASTITIS OF DAIRY HERDS IN ARGENTINA

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Antimicrobial therapy plays an essential role in the effective control against bovine mastitis (BM). *S. agalactiae* (*Sa*), *S. dysgalactiae* (*Sd*) y *S. uberis* (*Su*) are the most frequent streptococcal species related to this disease. Little information is available in our country about the susceptibility of streptococci isolated from BM to the selected antibiotics (Abs) for the therapy. These studies were done using the qualitative agar disk diffusion test which has been correlated with *in vivo* efficacy for BM in only a few Abs. Thus, minimum inhibitory concentrations (MIC) determination is the most appropriate method to investigate the pathogens susceptibility. The aim of this study was to determine the MIC of penicillin (P), cephalothin (C), oxacillin (O), neomycin (N) and erythromycin (E) in 100 strains of *Sa*, *Sd* and *Su* isolated from BM in dairy herds in Argentina. MIC breakpoints established by the NCCLS were selected to categorize strains as resistant or susceptible. CIM_{90} values for each Ab were similar in all species. P presented the lowest CIM_{90} ($8 \mu\text{g/ml}$) values followed by C and O ($128 \mu\text{g/ml}$). E and N showed the highest CIM_{90} values ($512 - \geq 1024 \mu\text{g/ml}$, respectively). We may infer that the empirical selection of Abs and their wide use in both dry and lactating dairy cows have contributed to the selection of streptococcal resistant strains.

167.

DEVELOPMENT OF A FUNCTIONAL FOOD WITH ANTIOXIDANT CAPACITY USING *SACCHAROMYCES CEREVISEAE* CELL WALL, CEREAL AND HONEY

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S. cerevisiae cell wall is a discarded product of a Tucumán industry. They are composed by β -glucans (50-60%), α -manans, manoproteins and chitin. They have many biological properties. In a previous work we demonstrated the antioxidant properties of *S. cerevisiae* cell wall and we developed with these wall a functional food (cereal bars). The aim of this work was to evaluate the antioxidant capacity in these nutritional products. The functional food was performed according to regulations of Código Alimentario Nacional. We used oats, inflated wheat, rice, cell walls and honey and water as agglutinating. Then the cereal bars was grounded and extracted with water. Dry matter, phenolic compounds, total sugar and total protein content were determined. The antioxidant activity was evaluated by free radical (DPPH) (1,1 diphenyl picrilhydrazyl) scavenging method. Humidity, water activity, quality and acceptability were also analyzed. The cereal bars showed good flavor and compatibility. The cell wall contributed with the 57% of the total phenolic compounds. The radical scavenging capacity was maintained after to heat treatment. Our results indicated that the *S. cerevisiae* cell walls represented a good source of antioxidant phenolic compounds and would be used as component in functional food.

168.

BIOLOGICAL EVALUATION OF POLYLACTIC-POLYGLYCOLIC ACIDS AT TOOTH EXTRACTION SOCKET IN RATS

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The aim was to evaluate bone formation ability of PLA-PLGA at tooth extraction socket in rats. Fifteen rats (90 g) were used. Under anesthesia, 1° upper molars were extracted. In experimental group, PLA-PGLA acids were placed and non materials in control group. The animals were euthanized at 1, 2 and 3 weeks after surgery. Samples were fixed in formol buffered 10%, slowly decalcified, processed in routine manner for light microscopy. Histological parameters were: gingival healing, granulation or fibrous tissue, bone tissue, inflammatory and foreign body reaction. The PLA-PGLA was cover and incorporate inside new bone formed. However, in all time periods a foreign body reaction was observed. There was not observe morphology differences between control and experimental groups in all studied periods. Conclusions were 1-tooth extraction socket is a natural defect, appropriated for bone materials evaluation. 2 -PLA -PLGA generate slight inflammation. 3-PLA-PLGA is unable to stimulate bone regeneration. 4- PLA-PLGA incorporate into new bone but with scaffolds preservation at 3 weeks.

169.
ANTIFUNGAL EFFECT OF *MICONIA IONEURA* GRISEB. MELASTOMATACEAE ON DIFFERENT SPECIES OF *CANDIDA*

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In the last years diseases produced by different species of *Candida* are a serious problem of health. Argentine Northwest flora constitute an important source of new antimicrobial compounds. *Miconia ioneura* M.i. growth spontaneously in the phytogeographical area of Yungas in Tucumán Argentina. The objective of this work was to evaluate, *in vitro*, antifungal activity of leaves of *M.i.* ethyl acetate extract (EA) and the isolated pure compound of this extract, sideroxylin. Biological activity was evaluated by agar diffusion method on *Candida tropicalis*, *C. albicans*, *C. guilliermondii*, *C. krusei* and *C. glabrata*. The (EA) and the pure compound showed antifungal activity with all strains except on *C. glabrata*. The most susceptible stocks were *C. krusei* and *C. guilliermondii*. From these results we concluded that sideroxylin is probably one of the responsible for the biological activity assayed.

170.
CHEMICAL COMPOSITION AND ANTIFUNGAL ACTIVITY OF ESSENTIAL OIL OF *SATUREJA BOLIVIANA* (BENTH) BRIG. FROM TUCUMAN, ARGENTINA

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The aim of this work was to study chemical composition and antifungal activity of *Satureja boliviana* Fam. *Lamiaceae*, collected in El Durazno Blanco, Tafi del Valle, Tucumán, Argentina. Essential oil of leaves and fresh flowers was obtained by hydrodistillation using a Clevenger type apparatus. Chemical composition was studied by GC and GC/MS. Antifungal activity was evaluated by the agar diffusion method on *Candida tropicalis*, *C. albicans*, *C. guilliermondii*, *C. krusei* and *C. glabrata*. Fifty-nine compounds were identified of essential oil. The main constituents were germacrene-D, β -caryophyllene, bicyclogermacrene, bornyl acetate, γ -terpinene, δ -cadinene, borneol, and linalool. Essential oil revealed similar composition with reported data to *S. boliviana* that it grows in other geographic zones and showed activity on all species of *Candida*. These results suggest their use for the candidiasis treatment.

171.
MORPHOANATOMY AND ANTIFUNGAL ACTIVITY OF *JATROPHA MACROCARPA* GRISEB. (EUPHORBIACEAE) LEAVES

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Jatropha macrocarpa (J.m.) is a native species of Northwest Argentine region. The objective of this work was to determine the morphoanatomic characters and antifungal activity of ethanol extract (EE) of leaves of *J.m.* Fresh leaves were processed using a routine histological technique for optical microscopy. Transverse section through one of the veins showed: epidermis with quadrangular cells of thickness cuticle, angular collenchyma and homogeneous parenchyma with specialized cells containing druses and laticiferous vessels and an U-shaped vascular bundle. Towards the adaxial face palisade parenchyma (4 stratus) is developed. The mesophyll is constituted by palisade parenchyma (3 stratus) and spongy parenchyma. Biological activity of EE was evaluated by agar diffusion method on *Candida tropicalis*, *C. albicans*, *C. guilliermondii*, *C. krusei* and *C. glabrata*. Morphoanatomical study allows to characterize leaves of *J.m.* The EE showed antifungal activity with all strains.

172.
ANTIMICROBIAL ACTIVITY OF *Zymomonas mobilis* AGAINST *Penicillium digitatum*, CAUSAL AGENT OF CITRUS GREEN MOLD

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Zymomonas mobilis (*Zm*) produces anti-microbial factors with inhibitory effect on a wide range of phytopathogenic microorganisms. The purpose of this work was to determine the degree of inhibition on *Penicillium digitatum* (*Pd*) of these factors synthesized in solid medium, compared with the fungicide imazalil. Four to 22 mg of local *Zm* cells, in 3 ml of standard medium, were plated in potato dextrose agar (PDA) and incubated at 30°C for 72 h. After that, cells were removed and *Pd* was plated on PDA+*Zm* metabolites employing two methods: a) giant colony, and b) spread of 20 μ l of 1×10^6 conidia/ml. Plates were maintained 20 days at 30°C. The trial was repeated four times and in all cases total inhibition of *Pd* was observed. These results show that the amounts of *Zm* biomass tested produced enough metabolites to avoid the growth of the fungus, and were equivalent to imazalil 100 ppm.

173.

MOLECULAR DIAGNOSIS OF *Bordetella pertussis* IN PEDIATRIC SUBJECTS AND HOUSEHOLD CONTACTS*Rubio Mas MA, Triviño L, Villagra de Trejo A.**Lab. de Microbiología / Hospital del Niño Jesús / (4000) Tucumán, Argentina. E-mail: rubiomiguel@yahoo.com.ar*

Pertussis is a pediatric infectious disease. Family and household members are important in its widespread. Clinical diagnosis needs Culture, Serology or Polymerase Chain Reaction (PCR) confirmation. The aim of this work was to assess and clinical validate tree PCR techniques for the diagnosis, prevalence determination and vaccine efficacy evaluation. 161 subjects with cough illness > 7 days duration and 36 contacts (mothers) were studied. The 191-pb-sized DNA fragment from pertussis toxin (pT) operon, the IS481 insertion sequence; and the flagelin gene, which distinguishes *B. pertussis* from *B. parapertussis* and *B. bronchiseptica*, were the target regions used for each technique. *B. pertussis* detection threshold were 75, 1.5 y 1.5×10^4 CFU, respectively, and 50 CFU for *B. parapertussis* and *bronchiseptica*. 62 (31%) subjects, including 56 children and 6 household contacts were PCR positive. High incidence (54%) was observed in < 2-months children, while for the others cases it reached up to 32%. All of the *B. parapertussis* and *B. bronchiseptica* PCRs were negatives. The 51% (43 of 85) of subjects that stated Pertussis clinical criteria were confirmed by PCR. pT and IS481 PCRs were more sensitive, specific and easier to perform than clinical diagnosis techniques. Children with none vaccine dose (<2 months) showed the higher incidence. Asymptomatic household contacts whom borne and widespread pertussis, should be included in diagnosis to prevent disease epidemical growths.

174.

ENANTIOSELECTIVE HYDROLYSIS OF ESTERS DERIVED FROM 1,8-CINEOL USING PIG LIVER ESTERASE*Loandos M del H, Villecco MB, Catalán CAN.**Instituto de Química Orgánica, Fac. De Bioquímica Química y Farmacia, Universidad Nacional de Tucumán, Argentina. E-mail: tuly@fbqf.edu.ar*

In previous works we have synthesised a number of racemic mixtures and *meso*-forms of alcohols and esters derived from 1,8-cineole (**1**). Since some of the compounds obtained by us are found in nature as single enantiomers we attempted to resolve the racemates of 5-acetoxycineol (**2**), 10-acetoxycineol (**3**) and 5,10-diacetoxycineol (**4**) and the *meso*-diester 5,8-diacetoxycineol (**5**) using Pig Liver Esterase (PLE). Incubation of racemic secondary acetate (**2**) with PLE selectively hydrolyzed the (-)-acetate to yield the corresponding (-)-alcohol which could be readily separated from the unaltered (+)-acetate by column chromatography on Si gel. The enzyme also exhibited selectivity with *meso*-diacetate (**5**) producing a single enantiomer of 5-hydroxy-8-acetoxycineol. On the contrary, with primary acetate **3** the enzyme did not show any selectivity and the ester was completely hydrolyzed after 30 minutes. Reaction with racemic **4** showed to be complex.

175.

EVALUATION OF STUDENTS ATTENDING MATERNAL LACTATION AS AN OPTIONAL SUBJECT- 2006*Rojo HP, Rojas S, Aguirre S, Deza H.**Facultad de Medicina, UNT. Av. Roca 1900. Tucumán. E-mail: heberojo@sinectis.com.ar*

Maternal Lactation is an optional subject for the those studying Medicine at the University of Tucumán. (UNT) For the evaluation of the students different times and instruments were used. Previous ideas, results in the dominion of cognitive learning and the development of attitudes, were all taken into consideration.

The aim of this work is to analyze the results of the different evaluations in order to obtain data which will serve to readjust the didactic process. The diagnostic evaluation was performed by an anonymous survey about different aspects related to lactation. Dramatizations made by students were filmed and analyzed according to the acquisition of attitudes concerning maternal lactation. The visitation to mothers in assistance centers were evaluated through observation of the students. As for the results of the final exam it was determined according to the distribution of grades obtained. The initial evaluation showed that many students have erroneous concepts of important aspects of maternal lactation. Through role-playing and the visitation to mothers a high level of commitment to lactation was shown. As for the final evaluation, 100% of the students surpassed the minimum grade of 6.

Different ways and times of testing can be positive for the complexity of the evaluation.

176.

THE OPINION OF ADVANCED STUDENTS OF MEDICINE CONCERNING THE BASIC SUBJECTS*Blanca RL, Blanca SR, Pace G, Getar A, Benvenuto S, Navarro Zavalía A, Orqueda D, Rojo HP.**Facultad de Medicina, UNT. Av. Roca 1900. Tucumán. E-mail: heberojo@sinectis.com.ar*

The basic subjects in medical school are Anatomy, Biology, Biochemistry, Histology, Biophysics, Physiology, and Public Health. The objective of this work is to know the opinion of 6th year medical students at the Universidad Nacional de Tucumán about certain pedagogical aspects such as contents, methodology and evaluations concerning the basic subjects. An anonymous survey was handed out to 104 students. The survey asked about changes they would like to see introduced in the basic subjects as to contents, methodology and the evaluation. The results were analyzed by putting together recurrent ideas. As for content, one of the suggestions was to shorten them, being as they are long and extensive and many times with a lack of practical application. With respect to methodology, they manifested a need of integration between the contents and the use of clinical cases. Most opinions were varied as to the evaluation, some preferring multiple choice and others the oral exam. Changes are taking place, such as teaching in blocks, subjects according to their discipline. The opinion of the advanced students is a great contribution which gives a base for these changes. Such is the case of the need of integration of contents or the presence of more practical and less theoretical classes.

177.

ANTIOXIDANT ACTIVITY OF MOTHER'S MILK IN VILLA VIEJA, TRANCAS*Ramasco L¹, Ordóñez R², Zampini IC², Rojo HP¹, Isla M I².**¹Fac. de Medicina, ²Cátedra de Fitoquímica. Fac. de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán. E-mail: heberojo@sinectis.com.ar*

Maternal milk is rich with aminoacids and glicoproteins, and the presence of antioxidant molecules have been brought to attention. The geographical area could be a factor for the antioxidant activity. The objective of this work is to determine the antioxidant capacity of samples of human milk from mothers from a rural population. Samples of human milk donated by mothers with previous consent were used. The watery fraction was used to determine the total proteins (Lowry and col.) and the antioxidant activity. This last one was evaluated using free radicals centered on nitrogen atoms such as DPPH (1.1 difenil – 2-picrylhydrazyl) and the radical cation 2,2-azinobis-(3-ethylbenzothiazoline-6-sulfonic acid) (ABTS⁺). The correlation between the total antioxidant activity and the protein content was determined by analytical statistics using a multi-level regression model. The coefficient grade of the multi-level regression model was -0.047. All the samples evaluated have antioxidant capacity which increases with the augmentation of the total protein concentration. Nevertheless, with the equality of protein concentration the depuration percentages in all the samples are different, indicating that the total antioxidant activity depends on the type of proteins and the levels of other components with potential antioxidant activity.

178.

KNOWLEDGE ABOUT MATERNAL LACTATION IN VILLA VIEJA, TRANCAS*Ramasco L¹, Isla M I², Rojo HP¹.**¹Fac. de Medicina, ²Cátedra de Fitoquímica. Fac. de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán. E-mail: heberojo@sinectis.com.ar*

The World Health Organization recommends breast feeding exclusively for the first 6 months. Maternal lactation constitutes an important health strategy.

Objectives: 1. To determine the proportion of mothers of children under 2 years of age in Villa Vieja, Trancas, who breast feed. 2. To evaluate the degree of knowledge of these mothers concerning maternal lactation.

A transversal descriptive study was carried out. The data on the degree of knowledge about lactation was obtained through a survey. The results obtained show that 73% of the babies 6 months or less, receive maternal lactation exclusively and the rest in a mixed way. As for the knowledge of the mothers about maternal lactation the majority said they received information from health experts. 47% were well informed or at least adequately aware of the practice of lactation. (IC 95%= [13%-53%]). There was no evidence that their level of education was associated with the degree of knowledge of maternal lactation. (Test Exacto de Fischer, p=0.77). As for the type of lactation observed, children of 6 months or less residing in Villa Vieja receive all or part of their nutrition through maternal lactation, being as the proportion of LME is high. It is worth noting that all mothers received instruction on maternal lactation and that 82% of them do not work. Both of these factors are positive for lactation.

179.

MOLECULAR CHARACTERIZATION OF *Mal de Río Cuarto Virus* (MRCV) VECTORS BY RAPD*Parra F, Alemandri V, Mattio MF, Truol G.**IFFIVE-INTA, Camino 60 Cuadras, Km. 5 °, X5020ICA Córdoba, Argentina. E-mail: federicoparra_@hotmail.com*

D. kuscheli, *Delphacodes haywardi* and *Toya propinqua* can transmit naturally *Mal de Río IV* disease. Beside *Tagosodes orizicolus* and *Pyrophagus tigrinus* are vectors experimentally. The aim of this work was based upon determining both RAPD profiles of MRCV vectors species and their genetic similarity so that obtained markers and external morphology would be helpful in rendering proper identification.

The experiment consisted in extracting DNA from 3 female individuals of *D. kuscheli*, *T. propinqua*, *T. orizicolus*, *P. tigrinus* and *D. haywardi* and then applying the RAPD-PCR technique by using OPA 04, OPA 07. The results was analyzed with the NTSYSpc-2.01e program using the arithmetic average (UPGMA). Results were displayed through a phenogram.

Profiles obtained with all primers in gel showed differences for all species. All this was confirmed by the phenogram as individuals grouped according to their species. *T. propinqua* broke away from other species with a 50% similarity.

It can be concluded that primers, particularly OPA 04, generated molecular markers which allowed species to be identified without difficulty.

180.

DETERMINATION OF *Wheat Streak Mosaic Virus* (WSMV) TRANSMISSION PERCENTAGE BY SEEDS ACCORDING TO ITS INCIDENCE ON NATURAL INFECTIONS IN WHEAT CROPS*Sagadín M, Truol G.**Instituto Nacional de Tecnología Agropecuaria (INTA). Researchers at the Instituto de Fitopatología y Fisiología Vegetal (IFFIVE), Camino 60 Cuadras km 5 ° (X5020ICA) Córdoba. E-mail: gtruol@correo.inta.gov.ar*

The WSMV has recently been detected and is spreading fast. Losses of up to 100% have been reported when wheat is exposed to early infection. Even though the virus spreads mainly through its vector *Aceria tosichella* Keifer, there is also transmission by seeds. Thus, the aim of this research work consisted in determining the transmission percentage by seeds in lots with known virus incidence. Three wheat lots with various incidence values of the WSMV disease were located in Venado Tuerto (Province of Santa Fe). Symptoms were assessed by visual inspection of such plots, where a partially guided sampling was performed to determine incidence of WSMV by indirect ELISA. Chosen cultivars were ACA 302, ACA 304 and Molinero, Incidence results obtained were: ACA 302: 53%, ACA 304: 71%, and Molinero: 64% while those of transmission by seeds were 0.48%, 0.07%, 0.55%, respectively.

181.
EFFECT OF INOCULATION, FERTILIZATION AND SEED PROTECTOR IN LENS CULINARIS (MEDIK), IN TUCUMÁN

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The Facultad de Agronomía y Zootecnia of the Universidad Nacional de Tucumán, leads field practices for the development of foods of high nutritional level as the lentil. The objective of the present work is to determine the effect to the fertilization, the inoculation and the seed protector, in the yields obtained without irrigation in *Lens culinaris* (Medik) subsp. *microsperma* and subsp. *macrosperma*. The trial was carried out in the Experimental Field that this Facultad possesses. The sows were carried out the first days of June of 2004. The experimental design was randomized blocks with 10 treatments and 3 repetitions. The plot was of 12 lines of 20 m of long, distanced to 25 centimeters and 50 seeds by lineal meter, to obtain 200 plants for m². Determinations of phases fenológicas, plant height, weight of 100 seeds and yield in kg.ha⁻¹, were realized. The harvest was carried out to ends September of 2004. The results indicate, in the case of subsp. *microsperma*, that the yields with seed protector, inoculation, and fertilization were increased in 30%. Whereas in subsp. *macrosperma* the plots tried with inoculation and fertilization its obtained 20% more of yield. The mixture of seed protector and inoculation, produced a yield decrease in both subsp.

182.
DETECTION OF UROKINASE TYPE PLASMINOGEN ACTIVATOR RECEPTOR (U-PAR) IN OOCYTE AND PORCINE OVIDUCT

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Plasminogen activators (PAs) are highly specific proteolytic enzymes that convert plasminogen (Plg) to plasmin (Pl). Two types of PAs are known: tissue type (t-PA) and urokinase type (u-PA). The u-PA receptor (u-PAR) is present in the plasma membrane of several cell types; the u-PA/ u-PAR complex permits the focalized Pl generation in a few areas of cellular surfaces and can active intracellular signal transduction systems. We demonstrated that porcine oviduct synthesizes PAs; in this work we analyzed the u-PAR presence in oocytes and porcine oviducts. Oocytes, obtained by aspiration of ovaries from recently slaughter housed sows, were selected, fixed and then analyzed by indirect immuno-fluorescence. An intense fluorescence over oocyte surface, but not in the zona pellucida was observed. Considering that Plg was previously detected in porcine oocytes, these results suggest that u-PA activates Plg near the oocyte surface. By indirect immunohisto-chemistry we also analyzed porcine oviducts, detecting u-PAR in epithelial and muscular cells but not in stroma cells from ampulla and isthmus. The presence of u-PAR in epithelial cells indicates that this molecule could bind the u-PA present in the oviductal lumen; the generation of Pl on the epithelial surface and the activation of intracellular signals would be important to the fertilization or early embryo development.

183.
BULBOURETRAL GLANDS SECRETIONS INVOLVEMENT IN LAMA OVIDUCT SPERM RESERVOIR FORMATION

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In previous studies we have suggested that the utero tubal junction (UTJ) plays a role as oviductal sperm reservoir in Llama. A substance that covers both the sperm and the oviductal mucose seems to participate in the sperm - oviduct interaction. This substance could have an oviductal or semen origin. Taking into account that semen viscosity is attributed to bulbourethral glands secretions; females with ovaries in mature phase, checked by ultrasound procedures, were mated with bulborethrectomized males. Uterine horns both oviducts were obtained by surgery 24 hs after mating. Oviducts were flushed for recovering the non attached sperm. After that, uterine horn, UTJ and isthmus were separated, fixed and processed to SEM observations. Results show sperm attached to the oviductal mucose by a laminar substance distributed as patches over the surface of UTJ of the females mated with control males. The absence of both of them, the adhesive substance and the sperm attached to the oviductal mucose in the females mated with bulborethrectomized males confirm the semen origin of this substance and its possible relation with the oviductal sperm reservoir.

184.
INSECTICIDAL AND ANTIFEEDANT ACTIVITIES OF FUSICOGIGANTONE A AND FUSICOGIGANTONE B ON *Spodoptera frugiperda*

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The diterpenoids Fusicogigantone A and Fusicogigantone B were isolated from Argentine collections of the liverworts *Plagiochila bursata* and *P. diversifolia*. Within the Hepaticae class, the genus *Plagiochila* is a rich source of various types of terpenoids. Our aim was to evaluate the antifeedant and toxic effects of these diterpenoids on larvae of *Spodoptera frugiperda* (Lepidoptera), a pest that affects corn crops in Argentina, in order to obtain environmentally acceptable insecticides from natural sources. Our results indicated that 100 ppm of Fusicogigantone B incorporated to the larval diet affected larval growth at early instars, leading to high rates of larval or pupal mortality. Additionally, both compounds displayed mild antifeedant activity at the same concentration.

185.
CONSUMPTION OF ENERGY DRINKS IN STUDENTS FROM TUCUMÁN

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Energy drinks (EDs) contain amino acids, carbohydrates and caffeine, in concentrations of approximately 100 mg per 250 ml. Their "energizing" effect is due to the high caffeine and carbohydrate concentration. EDs are been consumed among young people combined with alcoholic beverages in order to allow a higher alcohol intake. The objective of the present study was to interrogate students about their EDs consumption habits, and to relate it with age, gender, type of ED most consume and place where they are obtained. An exploratory close anonymous and self-assisted survey was performed. The survey was carried out during June and July 2006 involving 1644 students belonging to 21 different educational institutions. Results shows that 87% of people surveyed does not generally consume stimulant substances, 10% does it occasionally and 3% usually does. Last two groups are formed, mainly, for the 16-21 age group and there were no gender differences found. The most highly consume stimulants were Eds and they acquired them in the streets. Even though there is not a significant consumption, strong actions pointed to prevent poisoning by inappropriate use of EDs must be taken.

186.
INCIDENCE OF THE CONSUMPTION OF COCAINE AND COCAINE IN STUDENTS OF SAN MIGUEL DE TUCUMÁN

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The consume of cocaine causes accidents in consumer's life, is one of the most dangerous in public health by its effects on the CNS and Cardiovascular system, and their capacity to produce "dependence". The stimulating characteristics can generate psychiatric behaviours like irritability, confusion, lack of inhibition. Initially, it originates an active euphoria, but this phase, is followed by a phase of apathy, in which the individual tries to survive with new doses, that can take him to an overdose intoxication, beginning this vicious circle. In Argentine northwest, is promoted to chew or "acullicar" cocaine leaves, that have low concentration of the alkaloid. Our objective was to evaluate the percentage of university students and secondary level students who consume both substances, the reasons of consumption, their effects and the prevalence related to age and sex. We made surveys to 1644 students. The results indicate that the percentage of consumption of coca in this group is low, a 8%, predominating in men (91%), in both cases in olders than 21 years old. They begin to consume only for curiosity and continue because they want to stay awake. The main effects are insomnia, decrease of appetite, among others. The cocaine consumption is lower, also being higher in man. The prevalence of consumption is 47% in olders than 21 years old, 45% in the range of 16 to 21 years old and 8% in youngers than 15 years old. We suggest to intensify the actions of awareness in the student population and also promote university politics for the control and prevention of this problem.

187.
A FOCUS STUDY FROM A CASE OF HUMAN TRICHINELLOSIS IN CATAMARCA

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An epidemiological focal study was performed in Chumbicha, Catamarca, Argentina, in June 2006 to detect the origin of the infection in a human case of trichinellosis confirmed by an indirect-Elisa test. Between July and August a sampling was made in the urban, and rural area where it is located the house of the familiar group, already restored, and it was not possible to be obtained - before the refusal of the members- samples new blood. Pigs samples to determined antibody. Muscular pieces of pig meat for the research of L1 was obtained. Different wild species for their identification and examination from infection were collected. Eleven human serum samples was analyzed, 66 proprietors of pigs was visited, where 244 adult animals was bleed. Four sample serology of the patients of the patients was positive for trichinellosis confirmed by indirect-ELISA test, confirmed by positive Western blot with the following results: 1.399, 1.253, 1.354 and 0.559 (positive greater of 0.339). The pig serum samples presented 42 undefined. Infectant larvae in muscles of examined pigs were not observed (n=29), like thus either in the studied wild pieces (n=10). The results do not show prevalencias in the studied species. The possible introduction of elaborated commercial meat in another place is discussed.

188.
EVALUATION OF THE FUNCTIONALITY AND LOCATION OF EPF WITH THE USE OF PORCINE ANTI-EPF POLYCLONAL ANTIBODIES IN RATS PREGNANCY

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The objectives of this work were to evaluate the functions of early pregnancy factor (EPF), protein with immunosuppressive and growth factor properties, and to observe its regional distribution in placenta.

Mated rats were injected with 500 ug of anti-EPF pAb (TT) at 8, 16, 32 and 40 hs post mating i.p. via, we used controls group (saline solution-SS and nonspecific IgG-nIgG) and the embryo number, weight and size and corpora lutea number (CL) were determined on d 10 of pregnancy. Also studies of EPF were made in ovary and uterus by techniques of indirect immunohistochemistry. Relation Embryos/CL ratio was significantly decreased in TT group compared with the two controls groups ($p \leq 0.05$). Embryo average weights, number and sizes of TT group were significantly decreased ($p \leq 0.05$).

The results demonstrate that the anti-EPF Antibodies, applied in the pre-implantation stage, slow down the embryonic development, demonstrating that the EPF is required by the embryo during the early pregnancy. The presence of the EPF in placenta agrees with its function like factor of autocrine and paracrine growth for normal cells.

189.

CAPIA MAIZE RESPONSE TO DIFFERENT BIOFERTILIZERS

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Zea mays var. *amylacea* has high consumption in the Quebrada of Humahuaca (Argentina). The aim of this work was to select the most appropriate biofertilizer for Capia maize. Biofertilizer was formulated with phosphate solubilizing and auxin-producer bacteria isolated from compost (C) and vermicompost (L), obtained from carnic and tobacco wastes, and *Pseudomonas aurantiaca* to exert bio-control on pathogenic fungi. Four treatments, with five repetitions each, were established as follows T1: mixed inoculum of bacteria isolated from L, T2: bacteria from C, T3: bacteria from C and L + *Ps. aurantiaca* and T0: control. Maize were inoculated prior to sowing them in pots containing a mixed of sand/soil, 2:1 (pH 7,36 and organic matter 2,30%). Germination percentage, fresh and dry weight of shoots and roots and seedling length were evaluated. At sixth day the highest germination percentage (46%) was observed in T3, followed by T1, T2 and T0 having 40, 13 and 0% respectively, and at eight day it was 100% for T1 and T3. The variables related to seedlings were evaluated at eighteenth day. Among T1, T3 and T0 there were significant differences for seedling length and fresh weight of shoot. The lowest values were observed in T2. and highest values in T3. (ANOVA and LSD ($p \leq 0,05$)). Results revealed that T1 and T3 are promising.

190.

UTILIZATION OF DIETARY β -CAROTENE BY *Pleoticus muelleri* (CRUSTACEA, DECAPODA) REARED UNDER CULTURE CONDITIONS

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Crustaceans cannot synthesize carotenoids *de novo*, which must therefore be present in the diet. The objective of this study was determining the effect of dietary β -carotene on growth, survival and digestive enzyme activities of shrimp *P. muelleri*. Four diets (37% proteins, 7.5% lipids) contained 0 (C0), 50 (C50), 100 (C100) and 150 (C150) mg β -carotene kg^{-1} diet were tested in four replicates groups during 40 days. The juveniles ($0.18 \pm 0.012\text{g}$ body weight) were obtained from hatchery-raised postlarvae. Total proteolytic activity was highest in animals fed with C50 ($1.1 \text{ abs.}_{366} \text{ min}^{-1} \text{ mg protein}^{-1}$). The zimograms shows 5 bands of activity in all treatments (from 18.20 to 44.67 kDa). One serine proteinase (18.20 KDa), one trypsin (22.39 KDa), and one chymotrypsin (23.44 KDa) were found. Total carotenoid contents determined by spectrophotometry were: 18.13 (C150), 19.62 (C50), 23.19 (C100), and 28.98 (C0) μg carotene g^{-1} dry weights. Supplementation of 50 mg of β -carotene to diet of *P. muelleri* appears to enhance the digestive activity. There was no experimental evidence supporting a possible influence of this pigment on growth and survival under the conditions used in this study; further work will be required to investigate the efficacy of others carotenoids.

191.

HISTOPATHOLOGICAL CHANGES IN *Palaemonetes argentinus* (CRUSTACEA, DECAPODA) BRANCHIAL LAMELLAE CAUSED BY SALINE STRESS

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Palaemonetes argentinus is considered a typical freshwater species; although it has also been found in brackish coastal lagoons as Mar Chiquita. In these lagoons, salinity can vary between 1 and 35‰ within a few hours. The goal of this study was to analyze the histological changes in branchial lamellae of prawns exposed to different salinities. A three month experiment was carried out with 300 individuals of both sexes ($0.170 \pm 0.008\text{g}$ initial mean weight) from Sotelo stream ($38^\circ\text{S } 55^\circ\text{W}$), a tributary of Mar Chiquita lagoon. Prawns were maintained under four treatments by triplicate: 0 (control), 8, 16 and 24‰, at $22 \pm 1.8^\circ\text{C}$ and fed with a pelletized diet. Two prawns were sampled at the beginning of the trial and every 30 days; $3\mu\text{m}$ sections were stained with hematoxylin-eosin. After 30 days, individuals from all treatments showed lamellar alterations. Some of the observed histopathological changes were: collapsed lamellae, hyperplasia, epithelial necrosis, disorganized structure and interrupted cuticle. These alterations were increasing along the time. The present results suggest that the continuous exposure to the studied salinities produces severe tissular pathologies in branchial lamellae. However, the complexity of the lamellar epithelium allows this species to adapt to short-term salinity changes.

192.

DETERMINATION IMMUNOGLOBULIN G IN TISSUE PLACENTAL EXTRACTS AT DIFFERENT TIMES DURING SWINE PREGNANCY: studio preliminary

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There is not much information about humoral immune answer during porcine pregnancy. Pigs have IgG, IgM, IgA and IgE, Ig D has not yet been determined. The aim of this study was to demonstrate the presence of IgG in samples of placental tissue supporting the importance of immune system in the success of pregnancy; using maternal and fetal porcine placenta in different gestational periods ($n=20$) of ± 35 , ± 60 , ± 80 , ± 114 days of gestation. The presence of IgG was detected by a immunohistochemistry direct technique using a porcine antibody anti IgG conjugated with peroxidase. In the uterine lumen was observed positive expression of IgG, covering all the placental maternal villi, in all gestational periods. Also, IgG presence was detected inside blood vessel of maternal placenta villi. IgG presence was detected, in chorion of fetal placenta at term covering villi and blood vessels. In conclusion, these results support the hypothesis of the significance of the presence of antibodies in the interphase materno-fetal during porcine pregnancy, they protect the fetus and allow a successful pregnancy.

193. DETECTION OF APOPTOSIS WITH IMMUNOCHEMISTRY AND TUNEL DURING PORCINE PLACENTATION

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The apoptosis is a physiological, process highly regulated and preserved, that occurred in the different cellular types and essential to the development of placentation in most mammals. The aim was to study the expression of FAS B-10 and DNA's fragmentation through the technique of TUNEL in empty uterus and placental samples from different gestational periods, to determine cells apoptotic involvement in porcine placentation. Histological slides from porcine placenta of 30, 70, 114 days of gestation and empty uterus were used. FAS B-10 that recognizes FAS and the other members of the super-family of TNF-R1 in the immunoperoxidase technique was used. In the TUNEL technique was used DNA's enzymatic labeled ApopTag®. Results: for la detection of FAS B-10, it was negative at 30 and 70 days of gestation and positive at the term of it. In the studied periods positive results were detected in the connective tissues. In the TUNEL technique apoptotic cells were identified in placental villi at 70 days and at the term of pregnancy. In conclusion, at the term of gestation was observed higher cellular remodeling which would be due to apoptotic receptors FAS and TNF-R1.

194. PRESENCE OF GALACTOSA AND N-ACETILGALACTOSAMINA DURING PORCINE PLACENTATION

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Placenta in pigs is diffuse and epitheliochorial, the implantation is superficial and non-invasive. The aim of this work was to determine the presence of glicosilate galactose and N-acetilgalactosamina residues in placenta tissues of different gestational periods by lectins. Histological slides from porcine placenta (n= 17), of 35, 70, 114 days of gestation and empty uterus were used. The presence of glicosilated residues was detected by immunohistochemistry techniques using Dolichus biflorus agglutinin (DBA) lectin conjugated with peroxidase. In the empty uterus was observed positive (++) stained in epithelial cells, and negative in connective tissue. In the endometrial glands was observed positive (+) expression of DBA in the intraepithelial surface and in the serum secretion inside them. In fetal tissues, membranes of the trophoblastic cells were positive. In the intraepithelial capillaries we obtain positive (++) results in that periods analyzed. In conclusion, the maternal placenta showed the galactose and N-acetilgalactosamina residues in all the gestational periods. These data allow us to suggest that the glicosilated molecules recognized by DBA would take part in the interaction of the fetal and maternal placentation.

195. DETECTION OF SUBUNIT $\alpha 3$ OF INTEGRINS DURING PORCINE PLACENTATION

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The integrins are family of transmembrane glycoproteins composed of α and β subunits that govern cellular interactions with the extracellular matrix. They are implicated in the establishment of uterine receptivity and successful embryo implantation and trophoblast invasion. The porcine placenta is epitheliochorial, non invasive, and diffuse. The knowledge of placental integrins will let us understand a successfully gestation. The aim of this study was to determine the expression of integrin subunit $\alpha 3$ in placental tissue in different gestational periods. Placental tissue from porcine female of 37, 60, 70 and 80 days of gestation, at term, were used. The detection of the integrin subunit $\alpha 3$ was analyzed by indirect immunocytochemistry. The fetal trophoblastic and maternal villi exhibited high intensity of Integrin $\alpha 3$ throughout the pregnancy, as in fetal and maternal blood vessels during porcine gestation. In conclusion, this results suggested a probably rol of integrins subunit $\alpha 3$ in the molecular events needed for a successful adhesion of the fetal trophoblast with the endometrium of pregnant female.

196. PROTEIN AND GENE IDENTIFICATION OF ACETYLCHOLINESTERASE IN *Pseudomonas aeruginosa*

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The impossibility to identify the acetylcholinesterase gene (*achE*) by transpositional mutagenesis led us to purify, identify and characterize the protein in order to obtain the peptidic spectra and localize the gene in *P. aeruginosa* PAO1 genome. The steps were: *i*) obtainment of periplasmic extract by lysosyme-EDTA treatment; *ii*) precipitation with $(\text{NH}_4)_2\text{SO}_4$; *iii*) two consecutive Sephacryl S-300 columns; *iv*) 2D electrophoresis and enzyme identification; *v*) analysis of peptide mass fingerprints (PMF) using MALDI-TOF mass spectrometry followed by comparison with data base of genomic *P. aeruginosa* PAO1 DNA. Through these methodologies, the AChE protein was identified in SDS-PAGE with a molecular mass of 60,6 kDa and a pI of 8,5. Protein spot in 2D-gel analyzed by means of PMF using MALDI-TOF in CBMSO, Madrid, Spain. Preliminary results data indicated that PA4496 would be the gene involved in AChE synthesis in *P. aeruginosa*. Bioinformatic analyses show that PA5384 gene has also high homology with AChEs of different organisms.

197.

EVALUATION IN FIELD OF THE CV. LCP 85-384 (*Saccharum sp*) OBTAINED BY DIRECT ORGANOGENESIS*Díaz LP, Chaila S.**Cát. Caña de Azúcar, Fac. Agr. y Zootecnia. CC 125. (4000) Tucumán. E-mail: ldiaz@faz.unt.edu.ar*

In Tucumán (RA), LCP 85-384 occupies the 44% of cultivated area. The effects that produce propagation vias by organogenesis (O) and stakes (E) at first cutting were compared. Plantules from organogenic via were produced according to Díaz *et al.* (1997 and 2000) and Murashige and Skoog (1962). Plantules obtained by O and uninodal stakes from conventional propagation to 0.50 m and 1.50 m between furrows were implanted. The used design was randomized blocks with marked plants, stem diameter at 10 cm of ground, height from the base to the leaf+1 of Kuijper. The final evaluation was made at 8 months in the marked stumps by plot: bunch number, height and diameter of 10 bunches. ANOVA showed that the interaction between treatments and dates for the stem height is significant and the differences are significant for O with respect to the treatment E, in all lectures; for diameter there are significant differences between E and O, favorable to the first, for number of stems/ stump and number of stems/plot there are not significant differences. There are not significant differences in number of stems by stump as well as by plot between both treatments which may be caused for the characteristics of high capacity of producing bunches that presents the evaluated cultivar.

198.

EFFECT OF EARLY PREGNANCY FACTOR ON PIG LYMPHOCYTES PROLIFERATION*Grosso MC¹, Cuello MF¹, Martinez RA¹, Schade R³, Henklein P³, Moroy M⁴, Artero E⁴, Greco C², Vivas A¹.**¹Animal Anatomy and ²Microbiology and Immunology, UNRC (Postal agency 3). ³Charité Institute, Germany. ⁴Penny Lane, Rio Cuarto. E-mail: cgrosso@ayv.unrc.edu.ar*

Early Pregnancy Factor is immunosuppressive protein important along pregnancy. The aim of this work was evaluate the effect of EPF on pig peripheral lymphocyte proliferation. Castrated male lymphocytes were cultivated with or without 25 µg/ml of PHA-M (positive/negative controls); 5, 10 o 15 µg/ml and 25 µg/ml of PHA-M and 5, 10 o 15 µg/ml of EPF by 72 hs at 37°C with 5% of CO₂. Proliferation was evaluated by [³H] thymidine incorporation and expressed as a percentage of positive controls proliferation. With 5, 10 o 15 µg/ml of EPF the proliferation was 1.55, 1.74 and 1.66%, these were significant compared with positive control (p<0.001). With PHA and 5, 10 o 15 µg/ml EPF a significantly smaller proliferation was found (72, 71.2 and 79.3%) (p<0.001). These results show an immuno-suppressive effect of EPF on lymphocytes, suppressing PHA-induced proliferation. This could be due to lymphokines released by lymphocytes in response to EPF. Also, cpn 10 (identified as EPF) suppress the expression of CD3-zeta, a key component of T-cell activation.

199.

INTRACITOPLASMATIC ENZYMES IN GINGIVO CREVICULAR FLUID (GCF) IN AGGRESSIVE PERIODONTITIS (AP). A PRELIMINARY STUDY*Castro CE², Koss MA¹, López ME¹.**¹Cát. Química Biol., ²Cát. Periodoncia, Fac. Odontol., UNT. Av. B. Aráoz 800. Tucumán, Argentina. E-mail: cecilia.castro@odontologia.unt.edu.ar*

Periodontitis that leads to the loss of tissue in a relatively short period of time are actually called aggressive. This implies an infection by highly virulent bacterias and/or a very susceptible guest. They are characterized by a quick insertion, loss and bone destruction in healthy systemic patients. Periodontitis are located or widespread. The objective of this work was to determine chemical changes of intracitoplasmic enzymes in GCF of patients with AP. 21 patients and 20 controls without periodontal disease, both of 21-35 yrs old were included. FGC samples were taken in 6 places of the buccal cavity. The periodontal diagnosis was carried out by a single examiner and it included: depth and gingival indices, sondaje depth, insertion level, and bleeding. All individuals had absence of systemic diseases and previous periodontal therapy, and no antibiotic nor steroid antiinflammatory use in the last 6 months. Aspartate Amine Transferase (AST), Lactate Dehydrogenase (LDH), Alkaline Phosphatase (AP) and Collagenase were determined. There were statistically significant differences in the concentration of the enzymes in between AP patients and controls. A high collagenolytic activity was also evidenced. Conclusions: AST, LDH, AP and Collagenase from GCF could be used as markers of cellular destruction in AP.

Work subsidized by CIUNT.

200.

CAPACITIES DEVELOPED BY STUDENTS WHO COURSED BIOLOGICAL SUBJECTS IN AGRONOMY CARRIER*Amado ME, Rodríguez Rey JA.**Fisiología Vegetal. Agronomía y Zootecnia, UNT. Av. Roca 1900. 4000 Tucumán. E-mail: meamado@faz.unt.edu.ar*

The acquisition of proceedings follows a sequence from the establishing of a technical knowledge to the strategic use of these techniques, which allow the student to transfer what he learnt to new situations. The objective of this work was to relieve the capacities developed by the students that course biological subjects at first and second year of Agronomical Engineer carrier (UNT). In 2005, before Fisiología Vegetal inaugural class, an anonymous inquiry with closed questions was auto administrated to 70 students. The 67,1% of them developed the observation capacity; 52,9% the analyzing one; the 31,4% the theorizing one; 42,9% the synthesizing one and 38,6% the applying-transferring. Only 7,1% developed all capacities at two first carrier years. The first capacity is the most developed. It exists a relationship with teaching-learning activities like to use instruments, to collect herbariums, to do summaries, graphics, drawings, laboratory practices, to do informs. Students are at inferior level of proceedings scale and they not go to ideas and hypothesis integration and the critical thought development. For that, Fisiología Cathedra introduce innovating pedagogical practices orientated to the autonomous, creative, significant learning and learning of reasoning strategies, of problem solution and of transference of the knowledge.

201. SEX INFLUENCE ON ERUPTION PARAMETERS OF PERMANENT MAXILLARY CANINES

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The incidence of retention of the permanent upper canine is among 1-3% of the population. Its diagnosis at early stages avoids associated complications. The aim of this work was to compare eruption parameters of permanent canines (distance of the peak of the canine to the intermaxillary suture and external angle formed by the axis of the canine and the plane that cuts the intermaxillary suture in a perpendicular form) through XR in relation to sex. 48 children (aged 6-7, 8-9 and 10-12) were selected. A special systematized intraoral technique was applied to the right and left upper canines. Images were scanned and the parameters were measured with the UTHSCSA Image Tool program. Data were analyzed with the SPSS program. Results were: a) 6-7 yrs old: the test t did not show significant differences between sexes for distances and angles, as the regression analysis did not show association. b) 8-9 yrs old: the test t showed significant differences for the variable angle when comparing sexes. The regression analysis showed association between distance and angle. c) 10-12 yrs old: the test t for sexes and variables did not show significant differences. The regression analysis neither showed association between sexes. The studied parameters allow to predict anomalous position of the permanent upper canines at the age of 8-9 yrs old.

202. DIETARY RESTRICTION IN ALVEOLAR BONE MODELING AND REMODELING

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This work examined the influence of the dietary restriction in alveolar bone modeling and remodeling in growing mice. Twenty weaned Balb/C mice 17 days age were assigned to one of 2 groups. Control (n=10) and undernourished (n=10). Controls was fed with a conventional hard diet. Undernourished was fed with 75% of the amount of the diet of the control group. The corporal weight was registered in periodic form. At 60 days of experience, the animals were sacrificed, mandibles were dissected and procesed for embedded in paraffin. Buccolingually sections of the mesial root of the first molar were made and stained with H-E. Sections were photographed and tracings were performed for the histomorphometrical study The following parameters were evaluated following stereological principles: percentage of bone reabsorción, bone formation and bone rest surfaces, considering the 100% the total area of the remodeling and modeling alveolar bone walls respectively. Corporal weights were significantly smaller in the undernourished animals. The histomorphometrical study shows that dietary restriction produced an alteration in the process of bony modeling characterized by a reduction of surfaces covered by osteoblasts.

203. EFFECT OF THE EXTRACTION PROCESS ON THE PHYSICAL, CHEMICAL AND MICROBIOLOGICAL QUALITY OF HONEY

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Processing honey for human use demands caution in every stage of the process to avoid loosing both innocuousness and nutritional properties. This study is meant to diagnose the effect of machinery on the physical and chemical parameters of honey and to determine the sanitarium hygienic quality through microbiologic study. Frames, knives, trays, well and drums were sampled for physical-chemical analysis. Sampling, physical-chemical and microbiologic parameters went according to IRAM protocols. Physical-chemical parameters (color, HMF, acidity, and humidity) showed no substantial changes throughout the process. Results of color, HMF, acidity, and humidity.

parameters	frame	knives	trays	well	drums
Color	23,34	24,60	30,98	30,34	28,70
HMF	2,62	3,38	3,64	2,89	2,87
acidity	11,47	11,32	12,43	12,55	12,48
humidity	16,54	15,90	16,07	16,54	16,29

The number of fungus-yeast and total coliforms, however, did show a significant increase. According to results, machinery has no effect on physical-chemical parameters. Improper handling increases the number of fungus-yeast and total coliforms. Only the number of total coliforms exceeds the limits allowed by the C.A.A.

204. PROSTATE CELL PROLIFERATION IN MICE BEARING DMBA-INDUCED SALIVARY TUMORS: MODULATION BY DIETARY LIPIDS

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Introduction: Dietary lipids modulate cell proliferation. There would be an association between salivary gland and prostate tumorigenesis. However, no changes prostate cell proliferation was found in mice bearing DMBA-induced submandibular gland tumors.

Purpose: To analyze the prostate cell proliferation in mice bearing DMBA-induced submandibular gland tumors according to the type of dietary lipids.

Materials and methods: 20 BALB/c male mice were assigned to four dietary groups: corn (C, control), soy (S) and fish (F) oils and olein (O). Two weeks after beginning the diets with 5% of oils, tumors were induced by DMBA. At the 16th week, the animals were euthanized. Prostate samples were stained with AgNOR technique. The number of AgNOR particles was compared between the groups. **Results:** The means of AgNOR particles varied from 210,4 (C) to 271,46 (S). A significantly greater number was found in S as compared to C (p< 0.05).

Conclusion: Prostate cell proliferation was increased in animals fed a diet containing soy oil with 7.5% of n-3 fatty acids considered as protective in cancer.

205.

EPIDEMIOLOGICAL STUDY OF TUMORAL LESIONS IN THE ORAL MUCOUS

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Cancer is a frequent pathology, of unknown etiology, it doesn't respect age, sex, race neither socio-cultural conditions. Consultations have increased in the last years. The aim of this retrospective study was to determinate the prevalence and distribution by age and sex of tumoral lesions in the oral mucous, in patients of clinical rooms and external clinic of the Semiology Department and Stomatological Clinic of FOUNT in the years 2001-2005. The data were obtained from clinical histories and histopathological inform of 2978 patients. From all the stomatological consultations, 337 (11, 32%) corresponded to tumoral lesions. The tumoral pathologies were classified in: a) simple hyperplasic tumors, b) not well formative, c) neoplastic (benign and malign). The more prevalent was: a) 295 (87, 54%), of b) 21 (6,23%) and of c) 21 (6,23%), finding in benign 11 (3,26%) and in malign 10 (2,96%). The most frequent distribution by age in hyperplasic and not well formative tumors was between 21 and 30 years old. In benign neoplasia, between 21 and 30 years old and in malign was between 51 and 70 years old. In the three kinds of tumors the most incidence was in women. Conclusions: neoplastic lesions are not the more prevalent. But the dentist must put emphasis in prevention, early diagnosis and treatment with a multidisciplinary equipment.

206.

PRELIMINARY SEM STUDY OF THE EROSIIVE EFFECT OF IRRIGANT SOLUTIONS ON THE BOVINE DENTIN STRUCTURE

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Irrigation solutions are used during the endodontic treatment. Objective: to microscopically evaluate the action of irrigation solutions on dentin tissue. 12 roots of young bovine uniradicular teeth were longitudinally cut, a half part (control) was treated with distilled water and the experimental half, with: 1% NaClO, 17% EDTA, 1% Ca(OH)₂ and 0.2% Chlorhexidine (CHx) for 30 min by triplicate. They were fixed in glutaraldehyde and processed for Scanning Electronic Microscopy (SEM). The characteristics of the intertubular spaces and the organic remains were observed. The erosive action of NaClO is evidenced on the superficial remains of the dentin with extensive tubules, in coincidence with previous studies where proteins, hydroxyproline and calcium were detected in the irrigant solution. With EDTA no superficial modifications were observed in the tubules with regard to the control, although previous studies detected an important action on the organic and inorganic components of dentin. Ca(OH)₂ and CHx evidenced their partial solvent action on the organic remains. Conclusions: NaClO evidenced solvent action of the pulp tissue and erosive action on the dentin structure. The other irrigation solutions only showed a solvent effect.

Work partially subsidized by CIUNT.

207.

EFFECT OF L-MALIC ACID ON THE β-GLYCOSIDASE ENZYME PRODUCTION IN MICROORGANISMS FROM WINES

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Volatile compounds from odorless, non volatile-glycosides can be released by enzymatic hydrolysis, thus enhancing the aromatic wines profile. We previously demonstrated that the strains of *Oenococcus oeni* ST and *Pediococcus pentosaceus* 12p posed β-glycosidase activity in cellular suspensions. The aim of this work was to investigate in the same strains of *O. oeni* y *P. pentosaceus* the effect of L-malic acid on the β-glycosidase enzyme synthesis. Cells were cultivated in MRS medium with 15% of tomato juice (TJ) and in the same medium+1.5 g/l of L-malic acid at 30°C. β-glycosidase activity was measured in cellular suspensions utilizing p-nitrofenyl-β-D-glycopiranoside as substrate. L-malic acid addition to the medium increased 14.1% the *O. oeni* ST growth but did not modify the 12p strain development. Enzymatic activities were maxima in the cellular suspensions obtained at the end of exponential growth phase. In the ST strain, when L-malic acid was added to the MRS+TJ medium decreased 35% the maximum specific activity (485.2 nmol/mg/h). By contrast in *P. pentosaceus* 12p the L-malic acid increased 40% the maximum specific activity (520 nmol/mg/h). In conclusion, in the fermented grape must, *O. oeni* ST responsible microorganism for conducting malolactic fermentation in north Argentinean wines has higher potentialities to expresser the β-glycosidase enzyme when the L- malic acid decarboxylation had been concluded.

208.

CULTURE MEDIA DESIGN FOR SCREENING OF BIOGENIC AMINE PRODUCING LACTIC ACID BACTERIA

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Biogenic amines (BA), organic bases, generated by microorganisms could spoilage fermented foods. BA are measured by complex and expensive techniques, for this reason is important to set a reliable method for detection of lactic acid bacteria (LAB) that produce BA. The objective was to design a culture media that allows a qualitative detection of LAB isolated from apples that produce tyramine (tyra) from tyrosine (tyr). Two culture media were assayed: **Media 1** (M1) in g/l: peptone, 5; yeast, 3; glucose (glc) 0.5; tomato juice, 2%v/v; bromocresol green, 0.04%; **Media 2** (M2): peptone and yeast were not modified; glc, 1 g/l; tomato juice 5%v/v, bromocresol purple, 0.04%. The cultures media were added with tyr 1g/l, pyridoxal phosphate, 0.006 g/l; two initial pH values were tested: 4.5 and 5.2. Tyra was quantified by HPLC. In the first 5 days incubation pH indicators showed an acidification. The production of BA is indicated by media alkalization, changing the colour media (M1). This fact was observed after 5 days incubation for strains 44, 66, 68 of *L. plantarum* and 37, 72 of *L. brevis*, at both pH. In M2 persisted yellow colour during the 10 days incubation. Tyr decarboxylase activity was corroborated for the strains 44 and 72 of *L. plantarum*. The initial pH did not modify the results. The design M1 appears to be a simple method to detect LAB that produce tyra.

209.
SYNERGISTIC EFFECT OF FLAVONOIDS ON THE VIABILITY OF *Escherichia coli*

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The aim of this work was to investigate and compare the combined effect of mixtures of flavonoids quercetin, rutin and catechin, in equal final concentration on the viability of *Escherichia coli* ATCC 35218, a bacterium that may cause human infections. Growth experiments were performed in nutrient broth and agar medium. Phenolic compounds were added to the medium of two and three, to obtain a concentration of 100 mg/l. The media were inoculated at 7% with overnight culture. Bacterial growth was followed by incubation for 18h at 30°C in a tunable microplate reader. The plates used were microtitre plate flat form. The cultures were agitated each five minutes. Bacterial growth measurement was determined indirectly by measuring absorbance at 560 nm by the microplate reader and directly by enumerating the number of viable cells by plating serial dilutions in the Nutrient agar medium. The results showed a synergistic effect of cellular death that increased from 1 to 1.8 logarithmic cycles for the combinations of rutin-catechin, quercetin-catechin and quercetin-rutin. The greater inhibition effect was observed with the combination of three flavonoids compounds that increased 2 logarithmic cycles in the death of *Escherichia coli*. Our results confirm the importance of knowing the composition and concentration flavonoids compounds in these products.

210.
EVALUATION OF ANSWER TO THE NUTRITION WITH NITROGEN IN POTATO FOR CONSUMPTION (*Solanum tuberosum* L. cv. Spunta) IN THE PEDEMONTE TUCUMANO

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In Argentina the variety of more diffused potato is Spunta with 90% of the cultivated surface. The objective of the work was to evaluate the answer to the nutrition with N in potato for consumption (*Solanum tuberosum* L. cv. Spunta) in an area of the provincial Pedemonte. The experimental design was blocks at random with three treatments: T1 = control (without N); T2 = 80 Kg N.ha⁻¹; T3 = 100 Kg N.ha⁻¹ with six repetitions. The source of used N was Urea. Evaluated parameters: number of leaves of the cultivation (NH); I weigh fresh (PFA) and I dry air part (PSA); I weigh fresh (PFT) and I dry off of the tubers (PST) in two dates (F1 = 40 days) and (F2 = 90 days). Results: the ANVA and Test of Tukey (p=0,05): In PSA in the 2^a date were significant differences among T3 (24,9) regarding T2 (18,7) and T1 (10,9). In PFT in F1 and F2: T3 differs significantly of T2 and T1. PST-F1 T3 it differs significantly T2 and T1 and these are homogeneous. In F2 T3 (12,1) it differs significantly of T1 (5). The efficient use of fertilization in the systems of potato production increases yields, it improves quality and it contributes to improve the profitability.

211.
DERMATOPHYTES AND OTHER KERATINOPHILIC FUNGI FROM SOIL IN ANFAMA, TUCUMÁN, ARGENTINA

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Anfama is an area of difficult access with very few inhabitants located at 2000 m altitude in the northwestern part of Tucumán province between 26° 44' 57.02" south latitude to 65° 34' 57.46" west longitude and belongs to the Yungas biogeography. The present work study the keratinophilic mycobiota of the Anfama soil to contribute ecological, epidemiological and regional information. More than 100 strains of the keratinophilic fungi isolated from topsoil samples were analyzed. Isolation of the fungi was carried out with the technique by Vanbreuseghem. Strains grown on Sabouraud-agar and dextrose-potato-agar with antibacterial antibiotics and with or without cycloheximide. Identification of the genera and species was carried out by morphological study of anamorphic stages, physiological tests and characteristics of the teleomorphic stages. The results revealed a restricted number of species with limited growth compared to other areas in Tucumán. The mycobiota included species belonging to the *Microsporium*, *Chrysosporium*, *Aspergillus*, *Penicillium Verticillum*, *Paecilomyces* and *Fusarium* genera and some Zygomycetes. Very few species considered bioindicators for environmental contamination were isolated.

212.
MICROBIOLOGICAL QUALITY OF THE WATER. TAFI DEL VALLE (TUCUMAN-ARGENTINE)

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The fault in the microbiological quality of the same one, produces an increase in the risk that children acquire diarrheic diseases. The aim of the work was to evaluate the water quality that the population of Tafi del Valle consumes and uses in domestic activities. For the development of this work, water samples were taken between February and May of the current year, of different points of Tafi del Valle (schools, hospital, houses, etc). For the microbiological study official techniques were used to determine mesophilic aerobics, NMP Total and Fecal Coliforms, *E. coli* and *P. aeruginosa*. There is a variation in the microbiological quality of the water, the hospital and some houses of family present a very good quality of water, which is provided directly by plant of treatment. On the other hand the samples obtained in some schools and houses, can be thought that they are not suitable for consumption due to the presence of coliformes, in some cases of *E. coli*. The sources of supply in these cases were water eyes in bad hygienic conditions and of rivers. We can conclude that besides controlling the supply of drinkable water, it is necessary to bear other aspects in mind as elimination of you excrete of the population, control of free animals near water courses, as principal aim of prevention.

213.

EFFECT OF PHYSICAL AND CHEMICAL FACTORS ON THE GROWTH OF SALMONELLA IN A CLEAR CONCENTRATED LEMON JUICE

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The production of lemon in Tucumán has experienced in the last 10 years a significant average annual growth. The 75% of the production of lemon are destined to the elaboration of concentrated juices (CLJ), essential oils, flavour and dehydrated peel. The aim of the present work was to analyze the effect of physical and chemical factors on the Salmonella's growth at concentrated clear lemon juice. In this work used CLJ samples. The samples were inoculated with Salmonella (10^7 - 10^8 cells/ml). Salmonella was incubated at different temperatures, pH, NaCl, glucose and the microbiological monitoring was made by turbidity measurements. The variation of the physicochemical conditions may inhibit the growth of Salmonella (5% of glucose and NaCl, pH 5 and temperatures above 50°C). The pH modification in CLJ produce in all the cases inhibition of the growth but there was survival of the bacteria until 8 h of the assay; 1% NaCl and 1-5% of glucose briefly stimulated, the growth of the pathogen; incubation at different temperatures of the juice did not produce. The obtained results allow us to evaluate the importance of doing microbiological controls for JCL, due to the survival pathogens may represent an important risk to the consumer's health and a negative impact on the industrial activity.

214.

ISOLATION OF MICROORGANISMS FROM PIGS AND SELECTION OF POTENTIALLY PROBIOTIC ACID LACTIC BACTERIA

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In last years, prevention to avoid infection in livestock industry was increased. Probiotics are microorganisms that preserve intestinal microflora and avoid harmful bacteria development. The objects of this work were isolate acid lactic strains and pathogens from pigs and study the interaction between the microorganisms isolated. From fecal samples, it were isolated strains (acid lactic bacteria and pathogens) using different growth mediums. Pathogens and lactic acid bacteria (LAB) isolated were identified by biochemical tests. The inhibition's ability was studied by two *in vitro* techniques: I) supernatant agar diffusion, ii) mixed BAL and pathogens cultures. The inhibitory effect of BAL in most cases was due to acid production, but in three strains the inhibition could be by bacteriocins, because it was kept after neutralization. It was observed also BAL inhibition against pathogens using mixed cultures, without significant different values on the growth performance of potentially probiotic bacteria. The results of the present work suggest that these probiotic strains would be used to develop a probiotic food product for piglets to prevent infectious diseases.

215.

FOLIAR ANATOMY OF BOCCONIA PEARCEI (PAPAVERACEAE) IN THE PROVINCE OF TUCUMÁN

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Boconia L. is genus with 13 species distributed in Tropical America (Celis, 1993). *B. pearcei* Hutch. is shrub or tree de 2-5 m, alternate pinnatilobulate leaves, pubescent wrong side, inflorescence terminal, capsule fruits, seed one which aril (Digilio y Legname, 1966). In spite of the fact that this species is cited as synonym of *B. integrifolia* Humb. & Bonpl. (Lidén, 1995), the revision of bibliography and the external morphology observed in both species allow us to consider it in this paper as a valid species. The aim of this paper was analyze the foliar anatomy of *B. pearcei* Hutch. in the province of Tucumán. Conventional anatomy techniques were applied. Both epidermis present isodiametric cells, straight, curved and sinuous walls. The leaf is dorsiventral, amphistomatic, with anomocytic and actinocytic stomata. Simple trichomes, pluricellular, uni-multiseriate branch. Glandular trichomes multicellular uniseriate stalk and unicellular head. The abaxial epidermis is strongly papillose. Vascular bundles collateral. Presence of laticiferous in floem and calcium oxalate crystals. The elements of diagnostic value for the identification of *B. pearcei* are the type stomata, trichomes, laticiferous and crystals in drusa form.

216.

ANATOMY AND MYCORRHIZA IN ARGYROCHOSMA NIVEA VAR. TENERA (PTERIDACEA) IN NORTHWESTERN ARGENTINA

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Argyroschisma nivea var. *tenera* can be found in the mountains of the west and centre Argentina. It is a 15-25 cm fern that grows among rocks (Sota, 1977). The aim of the present work is to analyze the anatomy and mycorrhiza in *A. nivea* var. *tenera* (Gillies ex Hook) Ponce. The work was done with fresh and herborized material from Herbario LIL. Conventional anatomy techniques were used. Both epidermis present elongated cells with plain thick cuticle. Dorsiventral leaf blade, hypostomatic. Anomocytic and Polocytic stomata, at the same level as the epidermic cells. Reflex margin with lobated cells. Stem terete with vascular bundle, with endodermis. Pluriestratified pericycle and xylem in Y. Rhizome, dictiostele with concentric meristemes. Adventitious roots with a primary diarch structure. The presence of endomycorrhizas is registered. The characters of diagnostic value for the identification of the variety are: stomata type, absence of trichomes and waxes. The presence of endomycorrhiza is registered for the first time in this variety.

217. SYSTEMATICAL AND ANATOMICAL STUDIES ON NATIVE BAMBUSEAS IN TUCUMÁN (ARGENTINA)

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Chusquea lorentziana Griseb. and *Rhipidocladum neumanii* Sulekic, Rúgolo & L. C. Clark (Poaceae, Bambuseae) are Tucumán's native bamboo. *Chusquea lorentziana* grows at the Tucumán-Oranense forest, at the humid mountain sides between 1.000 and 1.500 m.o.s.l., usually associated with "aliso" (Parodi, 1941). *Rhipidocladum neumanii* grows at the moist hillside of the forest resting on the arborous vegetation. (Sulekic *et al.*, 1999). The aim of this paper is to determine the exomorphological and foliar histology characters to be used in the Tucumán's native bamboo diagnosis. The studies samples were taken from their natural habits, fresh material and herbarium specimen. The selected exomorphological characters were: cane, node, bud, ramifications, pods and foliar sheet. The foliar histology characters were studied making histological cuts at the medium third foliar sheet, saphranine coloring and glycerin-watered to setting up. To describe them we used the Ellis method (1976). The valued exomorphological characters to both species are: cane firmness, principal bud location at node and the secondary ramifications. The foliar histology characters are: sheet edge, epidermis (bulliform cells, macro hairs and papilla), clerenquima, mesophilous (clerenquima and fusoid cells), vascular bunches (number, disposition and structure) and bunch pod. The exomorphological and foliar histology characters allow the native bamboos characterization and differentiation.

218. TAXONOMIC REVISION OF THE PROPAGULIFEROUS SPECIES OF *POHLIA* IN SOUTH AMERICA

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Pohlia, is a genus with 100 species of world wide distribution and 36 in South American. These species are distributed along the Andean mountains and extra-Andean from Colombia to the south of Argentina and Chile, Paraguay and Uruguay. There are 4 species, *P. papillosa*, *P. drummondii*, *P. richardsii* and *P. apolensis*, producing propágula in the leaf axils. The purpose of this work is to carry out the taxonomic study of the species included in this group on the basis of the method of types and the morphologic variability of the propágulos and its distribution range. The obtained results demonstrate that exists a great homogeneity among the morphologic characters of the gametophyte and the sporophyte, and that the morphology of the propágulos its number and distribution in the plant can be considered of taxonomic value. From the recognized species of the group *P. papillosa* is the one of greater distribution in South America while *P. drummondii* has a disjunct distribution in the American continent, while *P. richardsii* is considered as a new synonym of *P. apolensis*. *P. australis* is a new record for America in Chile and the propágulos of *P. lonchochaete* are described for the first time for the science.

219. DIET OF DOMESTIC AND WILD SPECIES IN THE FIGUEROA DEPARTMENT (SANTIAGO DEL ESTERO)

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The Figueroa department, province of Santiago del Estero, is located in the Argentine chaco semi-arid region. The minor cattle, with extensive managing, shares the habitat with the wild animals which feeding source are the native forrages. This region has a humid station with abundance of green forage and another, drought. The aim of this work was to know the composition and overlapping of diets of the wild and domestic animals during both periods. The diets were studied in 2 wild species: guazunchos (**Gz**) (*Mazama simplicicornis*) and rabbits (**Co**) (*Oryctolagus cuniculus*) and in 2 domestic species: goats (**Ca**) (*Capra pyrenaica*) and sheeps (**Ov**) (*Ovis aries*). The botanical composition of diets was estimated by frequency of appearance of plant species in feces, according to the microhistological method. The amplitude of diet was determined using the Shannon diversity index (H), and the diet overlapping, with Spearman's index. The conclusions of this work indicate, depending on the diet diversity and overlapping, that the wild species (**Co** and **Gz**) and the domestic ones (**Ca** and **Ov**) can live together in the same ecosystem.

220. MAIZE LEAF CONSUMPTION BY *SPODOPTERA frugiperda* (LEPIDOPTERA : NOCTUIDAE) LARVAE INFECTED WITH *NOMURAEA rileyi* (FUNGI : DEUTEROMYCOTINA)

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Spodoptera frugiperda (Smith) (Lepidoptera: Noctuidae) is a polyphagous pest of great economical importance in the American continent, specially for maize culture. The pathogens of insects require some days to cause the death of their guests. The objective of the present study was to evaluate the impact of *Nomuraea rileyi* fungus on consumption by the fall armyworm *S. frugiperda* larvae in maize leaves. Fifth instar *S. frugiperda* larvae were infected with *N. rileyi* (2.4×10^7 conidia/ml). The daily consumptions were measured (green weight in grams) until pupation or death of larvae by mycosis. All experiments were conducted in climate controlled room at $25 \pm 1^\circ\text{C}$, $85 \pm 5\%$ R.H. and 14:10 (L:D) photoperiod. The statistical analysis was made by One Way ANOVA (Program NCSS, 2000) and by test "t" ($P < 0, 05$). Mean daily leaf consumption by infected fifth instar larvae differed significantly from the control after 2 days treatment. The decreasing daily leaf consumption in infected larvae persisted throughout the experiment, having obtained a total reduction of 56% with respect to the control. However, from the 4th day a high increase of the leaf consumption takes place by the healthy larvae.

221. EVALUATION OF RESULTS OF THE PROCESSES TEACHING-LEARNING OF CYTOLOGY AND GENETICS. PERIODS 1999 – 2006

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To learn and to teach are part of general a unitary process. Education in the superior level is based on certain form, an appreciation of the process to learn. Cytology and Genetics is a curricular subject on the Degree in Biological Sciences and the Teaching staff in Biological Sciences. The objective of this work is the one to present/display the results of the processes of education and learning of the students who have attended the subject between 1999 and 2006. Used design: theoretical classes and theoretical practices. Evaluation: two preliminary tests and one oral final examination. The results appear for Lic. and Prof. in Biological Sciences and in %, respectively: 1- The regular ones oscillate: (50-85.71) and (50-100) 2- The free ones by disapproved partial test oscillate: (0 – 42.68) and (0 – 50) 3- Of the general average, 35.43% of free, 7.70 and 5.06 they correspond to the new recruits but, they have no attended to classes. 4- Lower % than did not regularize in 2005 – the 2006 and most outstanding one, by regular: The 2004 observed values that would be more related to the reality of the group of students, than with the learning and education processes.

222. PEDAGOGICAL PROCESSES IN THE GENETIC DISCIPLINE: EVALUATION DURING PERIOD 2001 – 2006

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The search of the excellence in all educative process is a fundamental objective. Genetics is a curricular subject of the curricula of 2000 for the races of the Degree in Biological Sciences and the Teaching staff in Biological Sciences. The objective of the work is to offer information of the students who attended between 2001-2006. Scheme of study: theoretical classes and theoretical practices. Evaluation 1) Written: in each T.P. 2) Multiple choice test: preliminary tests 3) Oral: final examination. The methodology shows the following results, in % for the Lic. and Prof. in Biological Sciences respectively: 1- The % of regularized oscillates between 52-75 and 35-75. 2- The % of free by disapproval of preliminary tests oscillates between 17.30 - 32.44 and 11.11 – 36.84. 3- The % of free new students, that did not attended to classes, oscillates between 7.70 – 16.67 and 0 – 40.4. The % average for period 2001 – 2006, of regular and free was: 60 and 40 respectively. The results show that the learning and education processes are unforeseeable, divergent and each group of students puts in evidence different realities.

223. THE INFLUENCE OF METEOROLOGICAL VARIABLES IN FRUIT QUALITY OF HAMLIN ORANGE (*Citrus sinensis*, L.)

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The influence of meteorological variables in fruit quality of Hamlin oranges was studied by means multivariate method. The data of fruit quality of 20 successive years were studied next to the data of the meteorological variables. Fruit weight, thickness and colour of rind; equatorial diameter; percentage of juice; Ratio; Acidity; Total soluble solids and Vitamin C content were considered as influenced by Temperature; Relative humidity; Rainfall and Heliophany. High temperatures and humidity favoured fruit size while hot temperatures lead to precocious and sweeter fruits. High humidity lead to flattened fruits of thinner rinds and poor external aspect.

224. PRELIMINARY LIST OF THE EDAFIC MACROFAUNA ASSOCIATED TO THE CULTIVATION OF SOYA IN THE TOWN OF BURRUYACU, TUCUMÁN

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The cultivation of soya is one of the most important productions in the north region of the country. The intensive handling of practical agricultural (direct siembra) it produces the excessive agroquímicos use, what causes the alteration of the natural populations of beneficial fauna and of the control of plagues in a natural way. A square of the edafic macrofauna is presented. They took in the Dpto. Burruyacu, Tala Pozo and Cañete (campaign 2005-2006). The collection was based on the method TSBF (Anderson and Ingram, 1997) modified. They took and they analyzed floor samples. The squares highlight the taxones diversity: Insects (Coleoptera, Orthoptera, Hymenoptera, Lepidoptera, Isoptera, and in smaller measure Dermaptera and Neuroptera); Arthropods (Myriapodous and Araneae); Oligoquetos represented with more frequency by the Fam. Octochaetidae (Dichogaster bolau and D. saliens), sp. exotic that survive in altered ecosystems. In smaller proportion the Fam. Onerodrilidae, Lumbricidae, Megascolecidae and Glossoscolecidae. The presence of Oligoquetos is related with the periods of more precipitations in the collection time.

225.

EXPRESSION AND LOCALIZATION OF BRAIN AROMATASE AND ESTROGEN RECEPTORS (ER α and ER β) IN THE HYPOTHALAMIC-PITUITARY-GONADAL AXIS DURING THE REPRODUCTIVE CYCLE OF PEJERREY *Odontesthes bonariensis* Strobl-Mazzulla PH¹, Fernandino JI¹, Guilgur LG¹, Kah O², Somoza GM¹.

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The aim of the present work was to analyze the expression of both aromatases and ERs in the brain, pituitary gland and gonads of pejerrey during the sex cycle. Moreover, we characterized their localization by in situ hybridization (ISH).

The fish were grouped in three stages both in male and female. Brain aromatase expression was significantly increased during maturation at brain and pituitary level in both sexes. The expression of gonadal aromatase and ERs showed a drastically decrease during correlated with maturation in females. Brain aromatase and ERs were also detected in the testis by ISH. Brain aromatase and ERs were also detected by ISH in the brain and pituitary of both male and females.

This is the first work done in order to characterize the role of estrogens in the regulation of the brain-pituitary-gonadal axis in pejerrey. Although brain aromatase was classically considered to be specific of brain tissue it was detected in testicular tissue in pejerrey and can be important for testicular function.

226.

DETERMINATION OF CELL PROLIFERATION SITES IN ADULT BRAIN IN PEJERREY *Odontesthes bonariensis*

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The objective of this work is to determine proliferative brain areas in adult pejerrey and the possible existence of sexual dimorphisms. Briefly, adult male and female fish were injected intraperitoneally with BrdU (5-bromodeoxyuridine), an analogue of thymidine. 24hs before, brains were fixed and analyzed by immunocytochemistry. Highly proliferative areas were identified, mainly in periventricular areas of the ventral telencephalon, preoptic area, the hypothalamus, peripheral areas of the telencephalon and the *tectum opticum*. We also observed proliferating cells in the pituitary gland. A high density of immunoreactive cells was detected in cerebellum as well as in the *torus longitudinalis*.

These results evidence a high proliferative capacity of the adult pejerrey brain. We found proliferation in the same regions (periventricular areas of the telencephalon, preoptic area and hypothalamus) that had previously shown high expression of brain aromatase and estrogen receptors. Nevertheless, there was also proliferation areas not correlated with brain aromatase expression. The link between estradiol, the product of aromatase activity, and cell proliferation in fish brain needs to be further studied.

227.

CHEMOTYPES OF *Elyonurus muticus*' ESSENTIAL OIL: ACORENONE, CITRAL AND GERANIOL, IN VITRO EVALUATION OF THEIR ANTIMICROBIAL AND CYTOTOXICAL ACTIVITIES

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Elyonurus muticus is an aromatic grass widespread in the north of Argentina. Although this specie registers ethnobotanical antecedents only it is employed in the fragrance industries. Their essential oil (EO) was analyzed by CG-MS and it was confirmed the existence of the chemotypes: acorenone, citral and geraniol from the specimens collected in the different places in Argentina. It was possible to determine the MIC values by broth microdilution assay for all chemotypes against the bacteria: *S. aureus*, *B. cereus*, *E. coli*, *E. faecalis*, *P. mirabilis* and *P. aeruginosa*, in ranges of 14.87-248.8 mg/ml. In addition, the EO was active against six strains of *Candida spp.* isolated from pathological processes with MIC values from 0.087-6.219 mg/ml. Against the bacteria, in decreasing order, citral and geraniol were more actives, inversely to the fungal strains. The correlation between MIC and MNCC, previously obtained for each chemotypes allowed calculate the Chemotherapeutical Index only for geraniol and exclusively against the fungal strains with values of 2.14-4.2. Data are promissory and support the ethnobotanical potential of *Elyonurus muticus* revealing a new biotechnological application of specie in the phytomedicinal area and stimulating in parallel the protection or ecological conservation of these grasslands.

228.

INFLUENCE OF TEMPERATURES ON THE GERMINATION OF *Flaveria bidentis* (L.) O. KUNTZE AT DIFFERENT LEVELS OF WATER STRESS

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The aim of this work was to determine the influence of temperatures on the germination of *F. bidentis* at different levels of water stress. Solutions with osmotic potentials of -0.2 to -1.2 MPa with PEG 6000 were prepared. Fifty seeds were incubated inside germination rooms at 15 to 40°C \pm 2°C. The design was completely randomized with five repetitions. The proportion (p) and percentage of germination (PG) were calculated. The results were analysed through ANOVA. Test of mean differences were done through the Tukey test. At 15°C germination was not registered in the seed dressing assayed. At 20°C, the PG was of 18,5 % to 0 MPa, and of 4% to -0.2 MPa. For the other temperatures and potentials assayed the results were analysed in groups. For -0.2 MPa, a PG of 20% and 54% was obtained for the 25°C and 30°C temperatures respectively. A PG of 4% in both temperatures was only registered for the -0.4MPa. To 30°C, a PG of 2% to -0.6 MPa was registered. No germination was registered in any of the assayed temperatures for the rest of the potentials. To -0.2 MPa for 35°C and 40°C, the PG passed the 85%, no significant differences with the control were registered. To -0.4 and -0.6MPa significant differences were not registered in the PG that it was of 66% and 84% for the first; and 35% and 53% for the second. To 35°C, a PG of 39%, and 2% to -0.8MPa and -1MPa was registered respectively. To 40°C the germination was null from -0.8MPa on. *Flaveria bidentis* bears drought at high temperatures (35-40°C). This was showed in this assay through the germination register at low osmotic potentials.

229.**SEASONAL VARIATIONS IN ESTROGENS AND LH LEVELS DURING LACTATION IN OPEN AIR INTENSIVE SOWS BREEDING**

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The lactation is a key period in swine productive systems since when shortening this period. When temperature is modified, e.g. during warm or cold seasons, there is also a modification of gonadotrophic hormones and Eg levels. These modifications would also cause changes in reproductive activity (summer infertility). Blood samples from 10 multiparous sows, selected at random, at 14 and 21 days of lactation and at 3-5 days of weaning during the 3 months of summer and winter seasons. Maximum, medium and minimum room temperature was determined. Significant differences between the sows of 14 and 21 days of lactation and weaning in winter: 0.65 ng/ml vs. 1.093 ng/ml ($p=0.012$), 1.093 ng/ml vs. 1.61 ng/ml ($P=0.0236$). In summer, this difference was only observed between the 21 days of lactation and weaning: 0.842 ng/ml vs. 1.545 ng/ml ($p=0.000013$). Respecting the estrogens, a significant difference was observed between the winter and summer values in weaned animals: 8.55 pg/ml vs. 4.063 pg/ml ($p=0.0032$). Maximum winter and summer temperatures showed significant differences ($p=0.00001$); the rate was $20.08 \pm 0.83^\circ\text{C}$ y de $29.66 \pm 0.53^\circ\text{C}$ respectively. The highest LH levels detected in winter respecting not only the season but also the different sow stages allowed a better ovary development and thus, higher estrogens levels at the weaning which, may produce a good zeal and a better reproductive performance during winter.

230.**EFFECT OF LYOPHILIZATION IN THE FORMATION OF PAPRIKA PIGMENTS**

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This work has as objective the evaluation of the effect lyophilization has in the formation of red and yellow pigments in paprika. Samples of *Capsicum annum L.* from INTA Catamarca (National Institute of Agricultural Technology in Catamarca) and two drying treatments were used: lyophilization and direct exposition. Pepper extracts were taken with acetone at room temperature and protected from light. Red fractions were isolated using semi-preparing TLC (Thin-layer chromatography) plates, in a mixture of hexane / ethyl acetate / ethanol / acetone solvents. The spectrophotometrical method was used to calculate the concentration of the red (R) and yellow (A) fractions. Dehydration through lyophilization gave the following results: the yellow fraction represents 23% of the total carotenoids and the red fraction equals 77%. Drying the peppers through direct solar exposition allows for the observation that the yellow peppers are 31% of the total carotenoids and the red ones, 69%. These results make us conclude that the formation of pigments is related to the drying system used. Lyophilization is the system with the bigger content in the red fraction and the smaller in the yellow one. This would indicate that special conditions of temperature and pressure in lyophilization favour the formation of the red pigment.

231.**EFFECT CAUSED BY TEMPERATURE AND SCARIFICATION OVER THE EXTRUSION OF SUBSTANCES AND THE GERMINATION OF *Prosopis chilensis* (Mol.) Stuntz**

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P. chilensis seeds present tegumentary dormancy likely to be reverted by applying scarification techniques. The technique used in order to scarify, as well as temperature, can modify the re-hydration and reorganization of the plasma membrane during the first hours of incubation. The aim was to quantify substance extrusion from seed cells taking into account incubation temperature and scarification technique as indicators of membrane reparation during the germination of *P. chilensis* (Mol.) Stuntz seeds. Physically (H_2O at initial boiling temperature) or mechanically (sandpaper abrasion) scarified seeds were pre-treated for hydro-conditioning in the following ways for 24 hours: 1- Pre-incubation at 4°C . 2- Pre-incubation at 30°C . 3- Pre-incubation at 40°C . Electric conductivity (CE) and the total of dissolved solids (TSD) were determined in the pre-incubation solution. Water absorption, number of germinated seeds and average germination time (TMG) were calculated. Incubation took place, at 24 hours from the beginning of the treatment, in petri dishes, over filter paper, at 30°C in the darkness. In spite that in the mechanically scarified seeds an increment in CE and TSD was shown in the pre-incubation solution (at 24 hours), germination was not affected and TMG was not significantly modified. This can mean that water entrance registered did not affect the process of membrane reparation.

232.**SELECTIVE ACTION OF DECOCCIÓN OBTAINED FROM *Minthostachys verticillata* AGAINST FUNGI AND BACTERIA BY IN VITRO CYTOGENOTÓXICAL AND ANTIMICROBIAL ASSAYS**

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The capacity of the decoction (D) obtained from *M. verticillata* was evaluated in its antimicrobial activity and the selective action. The initial concentration of D was 34.59 mg/ml. The MNCC value, determined over Vero cells in monolayer was of $4.32 \mu\text{g}/\mu\text{l}$. The cytotoxic alterations, evaluated by the *Allium cepa L.* test, demonstrated that there were not statistically significant differences in the modification of the mitotic index and in the physiological and clastogenics aberrations between treatments vs control. Data indicated absence of genotoxicity. The MICs values were of: $0,144 \mu\text{g}/\mu$ for *H. pylori* and *S. aureus*, determined by disk diffusion methods and broth microdilution test (BMT), respectively. Whereas the MIC for *Rhodotorula spp.* was $0.033 \mu\text{g}/\mu$, and $0.067 \mu\text{g}/\mu\text{l}$ for *C. neoformans*, also defined by BMT. Microorganisms *C. albicans*, *E. coli*, *S. epidermidis*, *B. cereus*, *P. aeruginosa* and *Klebsiella sp* were not inhibited in their development by decoction. The chemotherapeutic index was in ranks of 30 to 130. At the active concentrations against sensitive microorganisms the absence of cytotoxic and genotoxic damages reveals a strong antimicrobial selective action to control certain pathologies by means of the use of *M. verticillata*'s decoction with a great security.

233.
OSMOREGULATION DIFFERENCES INDUCED BY SALINE STRESS IN LIMA RANGPUR (*Citrus limonia* OSBECK.) ROOTS

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It is known that in saline stress an osmotic adjustment is induced through the synthesis of compatible osmolites such as soluble sugars, proline, polyols and glycine betaine. In citrus, most of the studies related to saline stress have only been focused in the metabolic alterations that occur in leaves without considering other organs. In spite of the root to be the first organ that perceives the signal stress it has not been very studied. Thus, the objective of the present work was analyze the soluble sugars, proline and proteins alterations induced by saline stress in Rangpur lime roots.

Results showed that Rangpur lime roots under saline stress increased proline level significantly. However, sucrose content showed a diminution about 26%, while reducing sugars did not change. On the other hand, soluble proteins content showed an increase in response to salinity. According to these results the osmotic adjustment in Rangpur lime roots would take place mainly to proline accumulation. This study revealed that plants respond to stresses as a unique entity, however, the responses are not similar for all organs and they may vary according to the organ considered.

234.
ARCHAEOLOGY OF URBAN SOLID REMAINDERS (USRs): FORMATION PROCESS OF RUBBISH DUMP "LA AGUADA", COMPARATIVE ANALYSIS WITH NON IMPACT AREA

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The ground where rubbish dump is based is franc-sandy with some proportions of silt that do not allow introduction of USRs. In the area control that is ecologically homologous to "La Aguada", the same USRs density does not exist in rubbish dump - it is remarkably smaller -. An intentional transport exists towards the USRs zone (the type of remainders reveals an organized transport to transfer waste to this site). Some considerations appear about conformation of a culturally impact site and another homologous one - control area -, that has not been impact in the same form but in much smaller proportion. "La Aguada" ground is impact until a limit of 0.95 ms since ground type with little pluvial water contribution favors to geologic sub-layers noninterference. Control area indicates that existed an impact by agrarian activities in the past, it reducing to a 20% of vegetal cover. The USRs archaeology constitutes a useful tool to determine the impact level of the remainders in certain environment, providing data about typology and concentration of remainders.

235.
SPERMATOGENESIS IN *BAEACRIS PUNCTULATUS* (THUNBERG) (ORTHOPTERA, ACRIDIDAE, MELANOPLINAE)

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The subfamily Melanoplinae includes genera with the greatest diversity and geographic distribution of the South American acridiofauna, many species being important economically. The objective of this study was to analyze histologically the spermatogenesis process, and determine the sexual differentiation of the gonad and the development and maturation of male gametes. Captive specimens were obtained. They were fixed in Bouin and preserved in n-butyl alcohol. They were stained with Hematoxylin-Eosin. The male gonad was identified in stage X of the embryonic development. The outlines of the testicular follicles with the apical complex differentiated before hatching of the nymphs. The spermatogonial meiosis began during nymphal stage IV. The spermatogenesis process included five stages, which developed between the last nymphal stage and the first 24 hours of the adult stage. The liberation of mature spermatozoa, residual bodies and cyst cells occur five days after the adult emerges. Morphophysiological parameters are established for the identification of the gametes during the process of spermatogenesis. This will be useful in applying control methods of the species.

236.
COLESTEROL LEVELS IN ACTIVE VS PASSIVE WORKERS

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The aim of this study was to evaluate the plasmatic cholesterol levels and their subfractions in workers with different types from physical activity. Greater workers of 45 years, with more than four years in the same task, were studied and classified like: active workers (n=39) who make movement of whole body with transfer of loads, and passive workers (n=30) with static positions and movements of small corporal segments. Plasmatic levels of glucose, total cholesterol, HDL and LDL were determined. The average of these in the group of passive Active workers was of Glucose 0.92g/l, 0.84g/l; total cholesterol: 2.18gr/l, /2.28 gr/l; HDL: 0.34 gr/l / 0.33gr/l; LDL 1.35gr/l / 1.79gr/l respectively. Were numbers of high total cholesterol in 63% of the liabilities and in 41% of the assets (gr/l GOES 2.00), ideal numbers of HDL (greater 0,40 gr/l) were in the 15% of the assets versus 10% of the liabilities. In spite of the hoped thing total cholesterol levels high and HDL diminished in active workers were seen, which could suppose that the physical activity in work occasion would not be sufficient like protective factor of cardiovascular risk, since they would take part other factors that they would prevent or they would neutralize the efficiency of these metabolic systems (stress, pressure of time, tires).

237.

ACUTE TOXICITY DETERMINATION OF THE SKIN ALKALOIDS OF *Melanophryniscus rubriventris*

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Amphibian skins contain biologically active compounds such as alkaloids; whose most probably function is passive chemical defense against predators or microorganisms. New alkaloids were identified from other *Melanophryniscus* of the northeast and northwest Argentina. *M. rubriventris* is endemic from the eco-region of Andean Yungas, restricted to the provinces of Salta and Jujuy. *Artemia salina* larvae were used in bioassays, and results of LC50 tests were published for several toxins and known chemicals. The objective of the study was to determine the LC50 and acute toxicity after 24 h of exposure to alkaloids of the skin of *M. rubriventris* on larvae of *Artemia salina*. The skins preserved in 100% methanol were cut in small pieces and triturated. Alkaloids extraction followed standard protocols. Larvae were exposed to different compound concentrations and the LC50 and adverse effects were determined. After 24 h, mortality of the control group was 0%. At a 0,16 mg/ml concentration mortality reached 1%; at 0,2 mg/ml mortality was 3%; at 0,26 mg/ml 30%, at 0,4 mg/ml 60%, and at 0,8 mg/ml 100%. The results confirm the susceptibility of aquatic invertebrates to the alkaloids of the skin of *M. rubriventris*. The LC50 from the alkaloids extract under the study conditions was 0,33 mg/ml.

238.

CHROMOSOMES OF *Bowlesia incana* Ruiz & Pav.

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Bowlesia genus belongs to Apiaceae family (Umbeliferae). From South América, known as "cultivated sauce", they are annual, herbaceous, erects or creeping plants, with starry hairs in stems, form dense foliar mass covering the ground. Weeds of winter crops, cereals, orchards and domestic gardens and they prefer rich and wet soils. *Bowlesia incana* Ruiz & Pav. is cited as synonymous of *Bowlesia tenera* Spreng. Chromosomes of this species with the objective of contributing to the knowledge of cytogenetic characteristics of the genus were studied. Material came from La Rinconada, Yerba Buena (Tucumán- Argentina). For Mitosis, it was worked with root meristems pretreated with Paclosol, fixed in 3:1 (ethylic alcohol: acetic acid), hydrolized in HCl 1 N at 60°, and squashed with hematoxylin 2% as colorant and ferric citrate as mordant. A chromosomal number of $2n=16$ was determined. It is a diploid species according to the basic number of $x=8$ which coincides with that cited for *Bowlesia tenera*. Chromosomes have intermediate and big sizes with evident satellites. Because of the reduced number and adequate size of this species chromosomes further studies will be made with the purpose of knowing the different Meiosis stages and its Caryogram and Caryotype.

239.

CUMAVAR® AS CONTROL AGENT OF THE MITE *Varroa destructor* (Varroidae) IN HONEYBEE COLONIES OF *Apis mellifera* (Hymenoptera: Apidae)Pérez R¹, Leveratto D¹, Guardia López A¹, Marcangeli J.¹Curso Monogastricos Facultad de Ciencias Agrarias y Forestales UNLP, calle 60 y 119. 1900 La Plata, Bs. As. Argentina. E-mail: zooamg@ceres.agro.edu.unlp.ar. ²Fac de Ciencias Naturales UNMdP.

The aim of this work was to evaluate the acaricide efficacy of Cumavar® in plastic strips to control the mite *Varroa destructor* in honeybee colonies during autumn months 2005. Work was done upon experimental apiary located in La Plata city, province of Buenos Aires. Ten Langstroth hives were used divided in two equal groups. The first group received a total of two plastic strips with 1 gr of coumaphos during 45 days. The second one represented the control group. Dead mites were collected weekly from special floors designed to avoid mite removal by adult honeybees. Then, both groups received one Amivar® strip to kill remanent mites. Cumavar® showed an average acaricide efficacy of $81.97\% \pm 5.31$, showing significant differences with control group ($p \leq 0.05$). No negative effect on honeybee brood was recorded. In spite of high efficacy, Cumavar® is only suggested for autumn treatment as consequence of high possibilities honey contamination by this active agent.

240.

DETERMINATION OF THE INCREMENT AND DISTRIBUTION OF PHOTOASSIMILATED IN THE STRAWBERRY CROP

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Strawberry is very important crop in Lules (Tucumán). Its influence in zone economy took importance in the last years increasing the cultivated area. The objective of this work was to evaluate the dynamic of distribution of photoassimilated in different organs of strawberry plant during crop cycle. Research was made at Centro de Experimentación Adaptativa Lules (CEAL) since last May 2005 in Camarosa variety from Río Negro. Plantation was double row 0,3m x 0,35m on boards at 1,3 m with same management of commercial plantation. During all crop cycle entire plant samples were taken. It was determined different organs dry weight. Drawing the root dry weight, crown and leaves in function of sampling days, at first three dates a decrease of crown and an increase in leaves and roots of dry weight was observed. In other sampling dates, crown and root dry weight increases, then it stays stable from sixth date to the final cycle. Leaf dry weight significantly increases and stabilizes from ninth date. At first sampling dates the crown dry weight decrease is own to utilization of its stored photoassimilated for producing leaves and roots.

From third date those are used for vegetative growth. At sixth date the photoassimilated will be destined to flower and fruit production and will not to the vegetative organ production.

241.

LEVEL OF ASSIMILABLE PHOSPHORUS IN SOIL AND ACTIVITY OF PHOSPHATE SOLUBILIZING MICROBES

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The importance of microorganisms in soil nutrient cycling and their role in plant nutrition has been realized for a long time.

The objective of the present work was to determine the relationship between phosphate solubilizing microorganisms and the assimilable phosphorous level in different crops. The experience was carried out in plot tests, using marjoram, soybean and green-pea. Chemical analysis of soil (pH, OM, phosphorus available) and microbiological analysis (Colony Forming Units) were done.

Results showed that in marjoram the level of assimilable phosphorus was 76% higher than soybean and 27% higher than green-pea. It was observed a positive relationship between phosphate solubilizing microbes and phosphate available levels.

Work subsidized by CIUNT.

242.

CHARACTERIZATION OF THE ENZYMIC RESISTANCE TO β -LACTAMICS IN ENTEROBACTERIA

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Detecting the resistance to CTG in severe infections-by enterobacteria guides to successful treatments. The main resistance mechanisms are the production of extended spectrum β -lactamases (BLEE), chromosomal inducible or derepressed β -lactamases Amp-C type or plasmidic Amp-C. The aim of this study was to investigate and characterize the mechanisms involved in the resistance to CTG in clinical isolations of enterobacteria, by phenotypic and genotypic methods. 64 isolations resistant to CTG were studied (*K. pneumoniae*, *E. coli*, *Enterobacter spp* and *Proteus spp*). Antimicrobial agents sensibility and phenotypic detection of Amp-C and BLEE enzymes was performed by diffusion and dilution methods. In cefotaxime resistant *E. coli* and *K. pneumoniae* strains a possible enzymatic resistance mechanism was detected by Masuda Bioassay. The genes *bla* CTX-M-2 and *bla* PER-2 were detected by PCR. Of 64 isolations, 8 strains were presumptively producers of derepressed Amp-C and 56 were BLEE producers (with prevalence of CTX-M-2). Accompanying resistance was observed. Masuda Bioassay was negative and accompanying resistance suggests it is due an impermeability phenomenon. Our results confirm that the resistance to CTG in our strains is mainly caused by enzymes coded in plasmids so that it merit to establish epidemic control measures and to emphasize wise use of β -lactamic agents available.

243.

STREPTOCOCCUS AGALACTIAE DETECTION IN PREGNANT WOMEN OF 35 TO 37 GESTATIONAL WEEKS THAT CONCURRED TO PREGNANT CONTROL IN LA MADRID HOSPITAL. MONTEROS

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S. agalactiae is the main cause of newborn sepsis. The aim of this work was to determinated the prevalence of Streptococcus agalactiae (SGB), his antimicrobial sensitive and the association with risk factors in 26 pregnant women of 35 to 37 gestation weeks which have concurred to the Pregnant Control in General Hospital Lamadrid in Monteros. It was made a cross-sectional descriptive cut. The samples were obtained from two sites, lower vagina and anorectum. The swabs were transported in Stuart medium and processed in Catedra de Bacteriología. Fac Bqca, Qca y Fcia. UNT. The prevalence of SGB isolated was 15% IC_{95%} = (13%, 26%), it was not found evidence that the isolation was associated to the age of women studied (Exact Test of Fisher, p=0.56). All the strains were susceptible to penicillin and they were similar to those describe in international and national publications, but there was not association between risk factors and positive cultures. It is not stadarized then isolation of Streptococcus agalactiae in pregnant women in our city, we propose a screening in woman during pregnancy so antibiotic profilaxis could be inslated before the child is born.

244.

BACTERICIDAL EFFECT OF THE AQUEOUS EXTRACT OF POMEGRANATE SKIN ON *Shigella flexneri*

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Diarrheas caused by *Shigella* in Latin America are endemic with prevalence in children and with an increase in strains resistant to antimicrobial agents. The use of natural substances from medicinal plants could be an alternative treatment. **Objectives:** study the antimicrobial behavior of the aqueous extract (AE) of pomegranate skin (*Punica granatum* L) against *Shigella flexneri*.

Material and Methods: AE of pomegranate skin: 10 g in 250 ml water (4%). 1) Infusion for 10 min. 2) decoction for 1, 5, 10, 15, 20, 25 and 30 min.

Susceptibility studies: were carried out according to CLSI (Clinical and Laboratory Standards Institute) standards. a) Agar diffusion technique was applied with AE, determining the minimum inhibitory concentration (MIC) in liquid and solid medium, minimal bactericidal concentration (MBC) and bactericidal activity applying a death-time curve.

Results: AE produced 26-mm halos. MIC in liquid and solid medium was 0.5 mg/ml and MBC 1 mg/ml. The bacterial cell population diminished 3 log units after 6 h. Cell lysis was detected with transmission electron microscopy (TEM). These results encourage intensification of studies about the active agents of this plant with antimicrobial activity, which could be applied to alternative treatments.

245.

HYPOGLYCEMIC EFFECT OF SMALLANTHUS MACROSCYPHUS LEAVES. IDENTIFICATION OF THE ACTIVE PRINCIPLE*Cabrera W³, de Pedro A¹, Perotti ME¹, Grau A², Catalán C¹, Genta S³, Sánchez SS³.**¹Inst. de Química Orgánica e ³Inst. de Biología de la Fac. de Bioquímica Química y Farmacia; ²LIEY, Fac. de Ciencias Naturales; Universidad Nacional de Tucumán, E-mail: ssanchez@fbqf.unt.edu.ar*

Continuing our investigations on the genus *Smallanthus*, we have found that infusions prepared with aerial parts of *S. macroscyphus* exhibit a powerful hypoglycemic effect on streptozotocin-induced diabetic rats. *S. macroscyphus* is a wild relative of yacón (*S. sonchifolius*). A sesquiterpene lactone (SL), polymatin A (P-A), was found to be the main component of the water extract. The contents of P-A in leaves was determined to be 0.5-0.8% (dry weight). Glucose tolerance tests on Wistar rats showed that both the leaf decoction and P-A significantly diminished glycemia. Daily administration of a decoction containing ca. 70 mg P-A/100mL (dose 8 mL/Kg) or a water solution of P-A (dose 7 mg/Kg) during 30 days produced a marked decrease in plasma glucose levels of diabetic rats. Normal rats showed little or no change on plasma glucose levels. Our results indicate that P-A, a melampolide-type SL, is the major hypoglycemic principle of *S. macroscyphus*.

246.

PRODUCTION OF ANTIBODIES AGAINST A PNEUMOCOCCAL ANTIGEN IN YOUNG MICE BY IMMUNIZATION WITH RECOMBINANT *Lactococcus lactis**Villena J, Medina M, Racedo S, Vintiñi E, Raya R, Alvarez S*.*
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We developed a strain of *Lactococcus lactis* that is able to express on its cell-wall the pneumococcal protective protein A (PppA) after the induction with nisin. The immunogenicity of orally administered *L. lactis* PppA, (10^8 cells/mouse) was evaluated in young mice (3 wk); with (L+) or without (L-) previous induction. Control mice (C) received PBS. Two immunization protocols were evaluated: a) for 5 d (L+1, L-1 and C1 groups); b) for 5 d followed with an equal boost two weeks later (L+2, L-2 and C2 groups). Serum, broncho-alveolar (B) and intestinal (I) specific antibodies (Ab) (IgA, IgG, IgG1 and IgG2a) and the number of IgA+ cells in lung and intestine were determined on d0 and d14 after treatments. L+1 and L+2 treatments induced production of Ab in serum, B and I while there were not detected in the other groups. The L+2 group showed higher levels of mucosal and serum Ab than L+1 mice. Intestinal and lung IgA+ cells increased significantly in L+1, L+2, L-1 and L-2 groups when compared with C1 and C2. There were no differences between L+1 and L-1, and L+2 and L-2; however L+2 showed higher numbers than L+1 group. Oral immunization with recombinant *L. lactis* PppA was able to induce production of specific antibodies against the PppA antigen in mucosal and systemic compartments.

247.

PLACENTAL GLUCOSE LEVELS AND OXIDATIVE STATUS IN GESTANT SWINES*Martínez R, Gorla N, Vivas AB.**Dpto de Anatomía Animal. FAV. UNRC. Río Cuarto, Córdoba. E-mail: avivas@ayv.unrc.edu.ar*

Oxygen involved in the oxidation of substrates to produce energy in normal metabolic processes can produce toxic species, also called free radicals. The gestation involves severe metabolic changes. Little is known about the oxidative status in pigs in this circumstance. In the present work, Glucose levels and Thiobarbituric acid reactive substances (TBARs) in placenta of pregnant swines of different days of gestation were determined. Glucose was spectrophotometrically quantified with a commercial Kit and TBARs through Buege y Aust 1978 technique. TBARs are a marker of lipid peroxidation produced by free radicals. For six pregnant females the concentrations of glucose were 0.3- 0.2- 0.13 y 1*, for 30, 60, 90 and 114 days of gestation. The basal oxidative levels of 0.021 nmols of MDA/g of placenta remained constant during the former times to increase at 90 days with 0.093* nmols de TBARS/g of tissue * $p < 0.05$. The increase of glucose concentration from 60 days can be corresponded with the exponential growth of the conceptus. The increase of this important metabolic substrate is analogous to the greater oxidative status of the final of gestation in pigs. The results are similar of the ones observed in the woman, where exists an increase in the lipid peroxidation at the final of gestation.

248.

OBTAINMENT OF HYDROXYAPATITE AS A BIOMATERIAL FROM THE SHELL OF THE GASTROPOD *Pomacea canaliculata**Babot E, Catalán M, Winik B.**Laboratorio de Microscopía Electrónica. INSIBIO. Tucumán, Argentina. E-mail: bwini@fbqf.unt.edu.ar*

In osteological treatments, hydroxyapatite-based materials are often used. Hydroxyapatite (HA) can be synthesized from biogenic and non biogenic precursors. Coralline aragonite is an appropriate precursor for the obtainment of HA as a biomaterial. The present work is concerned with the potential use of *Pomacea canaliculata* shells, also composed of aragonite, as a biogenic source for the obtainment of HA. Shells, appropriately cleaned, were ground to a fine powder. 2 g of this powder was added to 15 ml of a buffer citrate-phosphate solution, pH 7.4, and the mixture was kept at room temperature for 5, 7 and 14 days. At the end of each period, samples were rinsed with distilled water to eliminate the buffer and dried at room temperature. Control samples were treated in the same way but the buffer was replaced by distilled water. Scanning electron microscopy (SEM) of control samples showed aragonite crystals. From day 5 onwards, experimental samples also showed another crystalline type with a morphology similar to HA, though only in small quantities. The degree of crystalline conversion was higher and more clearly defined after 14 days. Infrared spectroscopy (IR) studies on day 14 demonstrated the presence of phosphate bands not detected in the control samples. Comparative analysis of results allowed us to infer the conversion of aragonite into a compound of a different nature that would correspond to HA.

249.

ANALYSIS OF MICROSATELLITES MARKERS IN INTA ABRA PAMPA VICUÑA POPULATIONS*Longo AE, Barrera D, Valdecantos PA, Miceli DC.**INSIBIO (CONICET-UNT). Chacabuco 461, San Miguel de Tucumán; CP 4000. E-mail: doramiceli@fbqf.unt.edu.ar*

The breeding of South American Camelids (llama, alpaca, guanaco, vicuña) is a very important economic activity for the socio-economic development of the NOA communities. The vicuña population of INTA Abra Pampa, bred in semi captivity, was originated from a small number of founder animals; being possible to found a low genetic variability. We used microsatellites markers (highly polymorphic nuclear DNA markers found in the chromosomes of most eukaryotes) in order to begin the study of genetic variability in the vicuña population of INTA Abra Pampa. In this work we analyzed two known camelid microsatellite loci (LCA 19 and YWLL 8). Genomic DNA samples were obtained from the fibers roots of 20 vicuñas. A fast and simple protocol for DNA extraction was developed using guanidine thiocyanate lysis solution and a chloroform purification step. Results showed that the protocol of DNA extraction from the fiber developed in this work is effective and yields good quality DNA. The two microsatellites analyzed showed polymorphism. The numbers of variants corresponding to the loci LCA 19 and YWLL 8 was 9 and 7 respectively. Results obtained as well as standardization of the PCR and electrophoresis conditions will make possible the study of genetic variability in the population of vicuñas.

250.

FOLIAR FLAVONOIDS IN MUTISIA LEDIFOLIA WEDD., TIBU MUTISIEAE (ASTERACEAE)*Mendiondo ME, Juárez BE.**Fac. Ciencias Naturales e Instituto Miguel Lillo. CONICET. Fundación Miguel Lillo. Miguel Lillo 205/251. San Miguel de Tucumán. Tucumán. Argentina. E-mail: bejmem@csnat.unt.edu.ar*

The aim of this work is to analyze the presence of flavonoids in *Mutisia ledifolia* leaves to contribute to their chemical knowledge. Its distribution in Argentina is in Jujuy, Salta and Tucumán, between the 3000-4200 m. *Mutisia ledifolia*, well-known vulgarly as "chinchircoma blanca", is a shrub of 0,5-2 m of height, with intricated branches, alternating coriaceous leaves and dimorphic flowers.

The techniques of preparation of samples, for the extraction, chromatographic separation and purification, hydrolysis and identification of flavonoids are based on the existing bibliography (Mabry *et al.*, 1970, Markham, 1982 and Harborne, 1998).

According to the obtained chromatographical profiles and the spectral ultraviolet/visible data, it is inferred that in addition to the aglycon rhamnazin, the majority isolated compounds are mono and diglycosides derivative from quercetin and isorhamnetin.

These results demonstrate that in the subtribe Mutisieae exists a predominance of glycosilated flavonoids, in opposition to the established by Emerenciano *et al.*, 1987, who considers a chemosystematic glycosilation parameter of zero.

251.

ANTIBACTERIAL ACTIVITY OF METHANOL AND CHLOROFORM EXTRACTS OF *Ixhorea stchudiana* Fenzl. AGAINST ONION AND CITRUS PATHOGENS*Turbay S, Gordillo MA, Riscalá E, Fortuna AM.**Fac. de Agronomía y Zootecnia. Av. Roca 1900. E-mail: Silvia_turhar@hotmail.com*

There are strategies to replace synthetic chemical products by natural agents as control diseases of phytopathogenic bacteria from cultures of onion and citrus, and provide an environment with less contaminations and healthy products. We were studied the antibacterial effect produced by extracts from *Ixhorea stchudiana* Fenzl. Chloroform (CE) and methanol (ME) extracts against *Xantomonas axonopodis pv citri* (X.c) and *Xantomonas axonopodis pv phaseoli* (X.p). These results were compared with chemical agents (Copper oxychloride & Mancozeb), widely used in agriculture. Petri dishes were placed with LB and MH agar; inoculated with pathogens (10^5 ufc/mL), CE, ME and MZ (500, 250 and 125 mg/mL). Inhibition zones were measured at 48 hs. Was demonstrated that CE and ME (500 & 250 mg/mL) presents an important activity against X.p and particularly CE. CE and ME (500, 250 and 125 mg/mL) were effective against X.c. All the extracts (250 mg/mL) presented greater inhibition than MZ at equal concentration. In conclusion extracts have metabolites with antibacterial activity at lower doses than the chemical agents used in the agriculture.

252.

EFFECTS OF EXTRACTS FROM *Simsia dombeyana* ON *Bidens pilosa* GERMINATION AND GROWTH*Krautmann MI, Alvarez Giménez JM, Riscalá E.**Fac. Agronomía y Zootecnia. UNT. Avda. Roca 1900. E-mail: mkrautmann@herrera.unt.edu.ar*

The allelopathic activity of methanolic (ME), chloroform (CE) and hexanic (HE) extracts from *Simsia dombeyana* were studied in *Bidens pilosa* germination and growth. The extracts were prepared with flowers and stalks. Four boxes were used in each treatment (Kato *et al.*'s method). Three ME, CE and HE concentrations (300, 600, and 1000 mgL⁻¹) were used. Water was used as control. The number of germinated seeds, root and hypocotyl length and cell efflux conductivity were determined. None of the treatments influenced the number of germinated seeds. A decrease in root length was noted with all treatments. 300 mgL⁻¹ ME and 1000 mgL⁻¹ CE causes a marked reduction hypocotyl length. Efflux cell conductivity showed increases with all treatments but the most effective treatment was 1000 mgL⁻¹ ME. *Simsia dombeyana* inhibits the growth of *Bidens pilosa*. Mode of action will be determinate in future studies.

The results and means confrontation were analyzed with ANOVA and Tukey's test, respectively.

ERRATA**Biocell 2006, 30 (1)****PRELIMINARY STUDY OF CELLULAR APOPTOSIS DURING PORCINE PLACENTATION**

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In the apoptosis undesirable cells are eliminated from an organism without provoking an inflammatory response and this process is involved in the placentation. The aim was to study the expression of FAS/APO1 in empty uterus and placental samples from different days of gestation, to determine apoptotic phenomena in placentation necessary to achieve a successful pregnancy. Histological slices from porcine placenta of \pm 28, 60, 114 days of gestation and empty uterus were used. Two antibodies were used: FASB-10 that recognizes FAS and other members of the superfamily of TNFR-1 and FASC-20 that recognizes FAS and doesn't present cross reactions with other TNFR-1. Immunoperoxidase technique was performed. Results: at 28 days of gestation high and abundant labels were respectively observed in villi, due to the presence of APO-1 and other members of the superfamily of TNFR-1. At 60 days the label was positive for both receptors. However, at 114 days APO-1 was exclusively expressed and with high label. Conclusion: higher cellular reforms appear approximately one week after implantation and to the end of gestation. The first changes are produced by apoptosis receptors of TNFR-1; nevertheless to the end of pregnancy the apoptosis is due exclusively to APO-1 receptors.

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