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Miguel Lillo Lecture

ROLE OF NEUROTRANSMITTERS IN THE CONTROL OF TESTICULAR FUNCTION.
Ricardo S. Calandra

Male infertility has been attributed to alterations in the hypothalamus-hypophyseal-gonadal axis (H-H-G) in a reduced number of cases (Bartlett et al., Int.J.Androl., 1989). Furthermore, physiological intratesticular or potential factors are involved in the regulation of the testicular function at paracrine level.

GABA is a powerful neurotransmitter (N-T) of the Central Nervous System that takes part in neuron proliferation and in the modulation of neurosteroids production. GABA has been identified in rat testis (Ritta et al., Adv.Biochem.Psychopharm.,1986); Rs-GABA in rat Leydig cells (Ritta et al., J.Neurochem.,1991), Rs-GABA-A/B in testis Leydig cells from different species, including humans (Geigerseder et al., Neuroendo-crino-logy 2003), GABA-glutamate-decarboxylase enzyme (GAD65 and/or 67) and the expression of the vesicular inhibitory aminoacid transporter (VIAAT / VGAT). The presence of Rs-GABA-A-α1 subunit in rat Leydig cells has been confirmed by laser microdissection and RT-PCR. Our studies and other research groups have reported that human testis mastocytes are localized in the interstitial compartment and in the seminiferous tubules walls. Thus, testicular biopsies and immunohistochemical techniques revealed a significant increase of mastocyte population in samples from patients with Sertoli Cell and Germinal Arrest Syndrome (Meineke et al., Fert.Steril., 2000). Testicular mastocytes were also found to contain serine triptase protease (Frungerieri et al., PNAS USA, 2002). On the other hand, triptase exerts a fiber-proliferative action involving the receptor activation by proteases 2 (PAR2), an increase in the expression of cyclooxygenase 2 (COX2, essential for prostaglandins –PGs- biosynthesis) enzyme, and the binding of 15-deoxy-A12,14-PGJ2 (15d-PGJ2) to its nuclear receptors PPARγ. Since PAR2-COX2-15d-PGJ2- PPARγ tristate system components are present in the human testis, an increase in mastocyte population could be involved in the peritubular fibrosis of pathologies described.

Other authors (Izzo et al., J.Exp.Biol., 2004) suggest that Melatonin (Mel) regulates the number of testicular mastocytes. Our studies in hamsters revealed an increase in the number of testicular mastocytes and Mel levels when animals were exposed to short photoperiods (8h light/day) (Frungerieri et al., Neuroendocrinology, 2002). Mel effect on the H-H axis of photosensitive species is already well known. We have previously mentioned the interaction of the serotoninergic, catecholaminergic and CRF systems in hamster Leydig cells (Frungerieri et al., Neuroendocrinology, 2002). Serotonin N-acetiltransferase expression, essential for Mel synthesis, has been recently described for these cells. We have recently described Rs-Mel1α, inhibition of AMP, / androgen production post-hCG and also the STAR expression and related enzymes (Frungieri et al., Endocrinology, 2005). Briefly, the new findings on the testicular regulation of steroidogenesis suggest the importance of a “time tuning” of local components which could be significant for the understanding of Idiopathic Syndromes at cell level.

Opening Lecture

L. 2.
GEOLOGICAL TIME AND PALEONTOLOGY
Carlos L. Azcuay
Professor of Paleontology, Geological Science Department. University of Buenos Aires. CONICET Main Researcher.
E-mail: azcuay@ciudad.com.ar

Geological time is measured in millions of years and has been represented by means of tables in successive approximations, that have allowed the age of the planet and the beginning and later development of life in the world to be established. At first, the different degrees of evolution of the organic beings preserved on the terrestrial surface, which were called fossils, were used to segment the time represented by the enormous deposits of sedimentary rocks. That is how innumerable fossil remains were found among the strata, which were classified according to their morphological characteristics, recognizing in them most of the fila living at present, and their ancestors. This allowed for a frame of the evolution to be conform, which served as a basis for the first tables in which geological time was divided.

More recently the methodology of the absolute ages was developed, also measured in millions of years but on the basis of the radiation of certain elements present in the sediments or in the magmatic rocks, which transform into isotopes of the same element or into others. These measurements are based on the period of time that certain elements take to transform into others. A modern discipline based on research about magnetic paleopolos, and their displacement in the course of time, has also contributed to the knowledge of ages. This has allowed the position of poles in certain periods of time to be known, and, as a consequence, the paleolatitudes that the continents have had throughout time.

That is how the paleogeographical reconstructions of the different continents began to be established, especially Eurasia and Gondwana, which confirmed that during the Carboniferous, Eurasia was very close to the Equator, while Gondwana remained close to the Southern Pole.

The radiometric research practiced on rocks devoid of fossils allowed an age of 4600 MA for the planet, and 3200 MA for the first indication of life, occurred on the African continent, to be established: the discovery of a procarot fossil bacterium. However, the Panerazoic Era in which the appearance of the major part of the living fila occurred, is placed in 550 MA in the Cambic Period. Several important processes take place quickly during evolution: the passage to eucarotids, the conquest of the earth by vegetable plants, the apparition of multi-cellular organisms with the cellular specialization in the reproductive function and the later apparition of organs and tissues. An arguable datum was the concept of fossil, which is not given by its age, in other words a figure of thousands or millions of years since its demise, but by the time when it shows evidence of being subjected to the processes of diagenesis suffered by the rock or stratum in which it is contained; that is to say since the recent sediment transforms into hard rock, or sedimentit. A first division of fossil organisms found on the terrestrial surface allows for the following disciplines or specializations to be recognized: Paleoivertebrate, Paleovertebrate and Paleobotany. With the advent of the microscope another specialization began to be developed, micropaleontology, which included both vegetal and animal organisms and those of dubious system positioning.

In the Paleozoic Era sexual reproduction and a varied number of paleoivertebrate appear, such as the brachiopods; among the paleovertebrate the armoured fish appear, as well as the eucarot plants like algae and primitive vascular plants and ferns, and towards the end of the era, the first gymnosperms. During the Mesozoic plants were dominated by gymnosperms and ferns and only towards the end of the era angiosperms make their explosive apparition. Among the paleoivertebrate dinosaurs prevailed, and halfway through this era birds appeared. The Cenozoic had as a characteristic the dominance of plants with flowers and among the paleoivertebrate, mammals were dominant.
1. **UTILIZATION OF INOCULANT IN CITRIC PLANT SEEDS: I- EFFECT OVER THE RADICES OF GERMINATING SEEDS**

Figueroa RM, Gianfrancisco S, Fortas AM, Orell RV, Olivera G. Fac. de Agronomía y Zootecnia. (FAZ-U.N.T). Avda. Roca 1900. S. M. de Tucumán. E-mail: marines_figueroaro@yahoo.com

The inoculation of seeds is a technique which gives important results on the yields of crops. It plays an important role during the establishment of the plantules in the functioning of the cellular membranes of the radicles and in their capacity of importing reserve substances from specialized tissues of the seed. The objective of the present work was to determine the rhizogenic effect of the biologic-ecological inoculant applied on seeds of citrus rootstock *Citrumelo Swamp*. Material came from La Quebrada Nursery. Before sowing, a lot of seeds on trays were inoculated, in camera with controlled temperature, humidity and continuous illumination. At fourteen days samples were taken. Once radicles were separated it was determined the conductivity of the cellular efflux and subsequently the dry weight. It was worked with three replications and ANOVA and Test of Tukey were applied. The radicles with the inoculant showed a 44% more of dry weight than the control ones. The results point out that the application of inoculant favors the stability of the cellular membranes of the radicles because of the electrolyte loss decreases and the migration of reserve substances towards them increases, benefiting the establishment of the plantules.

2. **GOATS’ MILK LYSOZYME LEVELS OF A SEMI-INTENSIVE PRODUCTION SYSTEM**


The lactoperoxidase (LPO), and lysozyme (LZ) systems are innate defense mechanisms of milk most studied in artiodactyls. In goats, LZ system has a low enzymatic activity. The aim of this work was to determinate its activity in a semi-intensive production system. It was carried out by the bacterial lytic method. Goats belong to Creole, Nubian races, and its cross-breeding. Results showed that obtained levels, which are very low, were neither influenced by the racial structure nor the seasons the samples were taken. There was not correlation between LZ levels and values of mayor compounds of milk. It was found that from the first month the values decreased until the fourth, increased a little at fifth and then decreased again until the seventh. Curve obtained from scattered points showed association between LZ and lactation months. Correlation has a \( r^2 = 0.235 \), with a \( p<0.01 \). This first month mayor levels behavior and sequence until the seventh month are similar to LPO activity. In fact these variables behaviors are accord to the role of innate defense systems against bacterial pathogens. The conclusions are: a) The LZ goats’ milk levels of activity have independence respect to the racial conformation, the principal milk compounds, and the seasons of the year, b) LZ levels coincide through lactation with the LPO system, this similarity may be due to an adaptation to calf needs in its first period of life.

3. **GAMMA-Glutamyltranspeptidase activity in guanaco (Lama guanicoe) milk**

Medina M, Díaz A, Schoos SS, Von Thingen F, Fernández F, Yapur F.


Gamma-glutamyl-transpeptidase (GGT) is found as cell membrane-bound, and in plasma soluble forms. It is also found in milk, where we had observed its association with fat globule membrane in several domestic and wild species, including llama, vicugna and alpaca. The aim of present work was to determine, a) the activity of this enzyme in milk, caseins (Cn), fat globules (FG) and lactoserum (LS) of guanaco, and b) the Km of the membrane bound and the soluble form of GGT. Samples were obtained from Reserve C. Pellegrini and INTA-Bariloche. Results showed that enzymes' Km (40 \( \mu \)M), from FG and LS origin were almost identical. Otherwise presence of triton X-100 does not affect GGT activity. It is worthy to mention that obtained Km was similar to those previously obtained from vicugna LS. Enzyme activity in guanaco LS was \( 790 \pm 82 \) U/L, and total milk one reached \( 1880 \pm 195 \) U/L. As was establish for other species, most part of activity is associated with Cn and FG. Comparatively, total milk GGT activity observed in guanaco milk is higher than corresponding to others South American camelids. It is interesting to point out that in vicugna and guanaco milk, the two wild species, GGT activity is greater than those found in llama and alpaca.

4. **USE OF INTRODUCTORY INTERDISCIPLINARY THEMES IN SPECIALTY SUBJECTS**


The Career of Biological Sciences has five electives specialty subjects at the end of study courses. Its instrumentation may be strongly depending of the contents of the subjects and personal student’s interest. Previously we had observed that a preceding statement about related another disciplines had attracted notoriously the student’s attention. The aim of present work was to value results of formal implementation of this methodology where each theme contained an interdisciplinary introduction. The elected subject was Comparative Immunology, which had 80 hs classes, and promotional approval. Evaluation was carried out through a double qualification system: first corresponding to each class, and second to partial, integrative examination. Interdisciplinary introduction themes were: a) historic antecedents, b) biological evolution, c) physic anthropology, d) epidemic-epizootic events, e) migrations, f) molecular genetics, g) embryology and development, and h) globalization. All them were strongly bound to central theme of corresponding class. Results from employing this methodology were clearly seen through the student’s answers. Comparison of two evaluation probes showed a significant correlation (\( p<0.01 \)). Mean general qualification of students was 8.53 \( \pm \) 1.04 (0 – 10 scale), and seminars were qualified as Good (25%) and Very Good (75%). All obtained data show a high makes use of transmitted knowledge, and understanding of biological process.
Due to the intensive cultivation nowadays it is of great importance to handle easy, fast and precise monitoring tools to evaluate soil quality. In this sense, isothermal calorimetry is used in our laboratory. In this work we present results obtained from a recently dismounted sandy loam soil planted with lemon trees in Tucumán, Argentina. Our aim is to monitor soil evolution due to frequent applications of 2,4-D herbicide. Samples were collected in June 2004 from 20 randomly chosen points down to 10 cm depth. After sieving (2 x 2 mm), water content (WC = 5.6%), field capacity humidity (FCH = 35.7%), pH=6.45 (soil-water, 1:1) and soil organic matter (MO = 5.5%) were determined. For calorimetric experiments 1g of soil at FCH amended with glucose or glucose – (NH₄)₂SO₄ mixtures were used to find the best working conditions to monitor soil quality. Results indicate that the higher microbial activity was achieved with a 2.5 : 2.5 mg glucose – (NH₄)₂SO₄ mixture with a glucose degradation of 52% in 15 h. When soil was amended with 5 or 10 mg of glucose, only 25% was degraded in 35h.

There is little information concerning the participation of the arachidonic acid (AA) cascade and the role of prostaglandins (PGs) in the oocyte maturation process. That is why the aim of this work is to analyze the role of cyclooxygenase (COX) through the use of its inhibitors, the non-steroidal anti-inflammatory (NSAI) drugs, in the mechanism through which progesterone induces germinal vesicle breakdown (GVBD) in *Bufo arenarum* oocytes. Two types of NSAI drugs, indomethacin and rofecoxib, which are cyclooxygenase inhibitors, were used in denuded progesterone treated oocytes. A 2.5 µM dose of indomethacin was necessary to inhibit GVBD while in the case of treatment with rofecoxib a 400 µM dose was necessary. These results suggest that the AA metabolites resulting from the action of COX would be involved in the mechanism through which progesterone induces maturation in *Bufo arenarum* oocytes.

In previous works we demonstrated that in *Bufo arenarum* oocytes progesterone induces germinal vesicle breakdown (GVBD) through the activation of a cascade of secondary messengers. This work studies in greater depth the progesterone action mechanism in the oocytes of this species, analyzing: 1- The participation of G_i/o proteins. 2- The effect of the activation of adenyl cyclase (AC). Denuded oocytes, both competent and incompetent to undergo spontaneous maturation, were used in this study. The participation of G-proteins was analyzed using Mas-7, an activator of G_i/o-proteins. To determine the effect of G_i/o activation on AC, oocytes were treated with db-cAMP. The role of AC was studied by incubating the oocytes with different doses of forskolin, an AC activator. The results indicate that Mas-7 induces GVBD in a dose-dependent manner. A short exposure of the oocytes to Mas-7 was sufficient to cause GVBD after 6 h, in a similar way to progesterone. The activation of AC with forskolin inhibits GVBD in a dose-dependent manner when maturation is induced with progesterone or Mas-7. In the same way, co-incubation of the oocytes with db-cAMP and both types of activators inhibits meiosis resumption. These results allow us to suggest that in *Bufo arenarum* oocytes progesterone exerts a biological effect on meiosis resumption through a rapid non-genomic action mechanism requiring the activation of a G_i/o-protein that participates in the inhibition of adenyl cyclase.
9. N-ACETYLGLACTOSAMINE/D-GALACTOSE IDENTIFICATION IN THE INTESTINAL TRACT OF HORSE FOETUS IN DIFFERENT AGES  
Dauria P, Castagnino R, De la Cruz J, Armando R, Sona L, MacLoughlin V, Perrota F, Bonino F.  
Histologia. FAV-UNRC. (5800) Río Cuarto. Córdoba.

Like a productive unity the horse have a great income-producing impact. One of the aspects is the digestive system, therefore the gastrointestinal hormones and the glycoconjugates involved in the alimentary process. The objective was to identify N-acetyl galactosamine/D-galactose in the intestinal tract of horse foetus during different development stages. Taked out samples from intestinal tract and fixed in formaldehyde buffered and embedded in paraffin. PNA, DBA and PNA lectins were used. The results showed in foetus of 210 gestation days the presence of N-acetylgalactosamine in brush border of intestinal tract and goblet cells of duodenum and caecum. D-galactose in brush border of whole intestinal tract and goblet cells of caecum. In foetus of 120 gestation days identified N-acetylgalactosamine/D-galactose in brush border of intestinal tract and goblet cells of yeyunum and caecum. In foetus of 90 gestation days it detected N-acetylgalactosamine in brush border of duodenum and goblet cells of duodenum and yeyunum-ileum. D-galactose expressed in brush border of duodenum and goblet cells of yeyunum. It conclude that in horse foetus of different stages of gestation detected the presence of N-acetylgalactosamine/D-galactose with a pattern of distribution that vary along the intestinal tract.

10. VIP (VASOACTIVE INTESTINAL PEPTIDE) DETERMINATION IN DIFFERENT TISSUES AND STRUCTURES OF THE SNAIL HÉLIX ASPEREA M.  
De la Cruz J, Navarro O, Castagnino R, Dauria P, Tissera J, Corteggiano F, Daita J, Ledesma C, Alem P.  
Histologia/Zoología. FAV-UNRC. (5800) Río Cuarto.

VIP is a peptide with 28 amino acid pertaining to the secretin family jointly with gastric inhibitor peptide (GIP) and glucagon. Its characteristics is vasodilating property and the activity over the peripheric nervous system. Helix aspersa known like “garden snail” is an edible specie with great possibilities of exportation principally to Europe. Helicicultura it’s in complete expansion in our country, been a fertile place for the investigation. The objective of this work its to demonstrate the VIP in different tissues and structures of the snail. It obtained adults samples from breeding place of Río Cuarto and the region, fixed in formaldehyde 10% and embedded in paraffin, cut around 3 micras and subdue immunohistochemistry techniques. Primary antibody against the VIP were used and revealed subsequently employing the universal complex avidin/biotin peroxidase (ABC) and peroxidase diaminobenzidine (DAB) respectively. In the histologics sections were observed VIP positive cells in the connective tissue of foot and intestine; in the nervous plexus of salivary glands; in the smooth muscle tissue and in the adventitia of blood vessels. It conclude that in different tissues and structures it detect the presence of VIP in the snail.

11. A RAPID AND NONDESTRUCTIVE METHOD FOR ESTIMATING LEAF AREA OF Gossypium hirsutum CULTIVAR GUAZUNCHO II INTA  
Meloni DA, Oliva MA, Martinez CA.  
UNSE, F.AyA. Av. Belgrano (S) 1912, 4200 Santiago del Estero. Argentina. E-mail: dmeloni@unse.un.edu.ar

The development of mathematical models from linear leaf measurements for predicting total leaf area has been shown to be a useful tool in studying plant growth and development. The objective of this study was to develop and evaluate linear regression models that would accurately predict Gossypium hirsutum (cotton) cultivar Guazuncho II INTA leaf area, using nondestructive and simple linear leaf measurements. One hundred leaves were chosen at random from plants growing in solution culture under greenhouse condition. The methods of linear measurement used were: length of the central main vein (L), squared length of the central main vein (L^2), width of the tips of the two main veins (W), squared width (W^2) and (L . W). L and W were measured with a milimetric ruler and leaf area was measured in an area meter. Relationships were analyzed through regressions. Evaluation of the coefficient of determination (R^2), the F ratio and the error mean square for each calculated regression indicated that the best regression equation to predict cotton leaf area was: y = 0,7261 (L.W). These results demonstrate that cotton leaf area can be predicted using simple linear linear measurements.

12. PREVALENCE OF DISEASES APÍCOLAS IN TUCUMÁN’S PROVINCE: VARROA, NOSEMOSIS, AND LOQUE AMERICANA  
Popolizio E, Albarracin V, Budeguer C, Garat F, Aguilera M, Pérez M.  
Facultad de Agronomía y Zootecnia. Cátedra de Granja. U.N.T. Av. Roca 1900. (4000) Tucumán. E-mail: epopolizio@faz.unt.edu.ar

The province of Tucumán displays particular characteristics being important a receiving one of beekeeper at certain time of the year for the early multiplication of alive material. This from the point of view epidemiologist constitutes an infection risk that requires of information updated for the implementation of an apicultural sanitary plan.

The evaluated apicultural diseases were: varroasis, nosemosis, Foulbrood, and the exotic diseases Tropilaelaps sp. and Aethina tumida. The objective was to evaluate the prevalence of this diseases in our country and to develop an apicultural sanitary map of the province. The work was divided in two phases: Phase of Field and Phase of Laboratory. In the samplings to field, five different zones were considered, sampling 3.2% of the existing bee-hive in each one. Phase of Laboratory: for varroasis the modified David de Jong method was used. For American Loque the test of hanging drop. For Nosemosis count in camera of Newbauer according to the method of Cantwell was used. In consequence: Varroasis is an endemic disease for the Province of Tucumán. The presence of Nosemosis could affect the infestación levels in the next productive cycle. It is free of Fouldbrood, of Tropilaelaps sp. and Aethina tumida.

Raya FG1, Lotti de Santos M1, Salim R2.
1Fac. de Agron. y Zoot. UNT. Av. Roca 1900. (4000) Tucumán.
2Fac. de Bioquímica. UNT. Ayacucho 491. Tucumán. E-mail: franciscoreya@bigfoot.com

The aim of this paper is to inquire some strategies to articulate University with high school from the University Biological area point of view. This paper is part of a bigger project of CIUNT RE 301. The data were analyzed with a descriptive exploratory access (Sampieri, 1998), from the observation and the comparative constant method, and quantitative logical methodology (Glasser, 1967; Sirvent, 1999). Semiestructurated interview were made to General Botany, Agricultural Botany and Vascular Plant Morphology’s teachers from six Colleges at the northwest of Argentina (UNJu; UNSa; UNT; UNCa y UNSE). Some of the recurrants were: curricular contents, matter planned, objectives, teaching methods, bibliography and the evaluation process. The main difficulties on all of the NW Universities were related with the Laboratories equipment and library, and the student’s desertion (40% to 55%). This is due to a scarcity vocational process previous and in the other hand due to the deficiency in text comprehension and self production (40% to 70%). It is very urgent to use education innovate strategies in order to help new ways to learn, practice the reasoning and the knowledge integration.

14. PRODUCTION OF FRUCTOOLIGOSACCHARIDES BY Aureobasidium sp. ATCC 20524 IN STIRRED TANK REACTOR

Salinas M1, Pucci C1, Luque R1,2, Perotti N12.
1Universidad Nacional de Tucumán. Facultad de Ciencias Exactas y Tecnología. 2PROIMI-CONICET. Av. Belgrano y Pje. Caseros, San Miguel de Tucumán (CP 4000). Tucumán. E-mail: martinsalinas@proimi.org.ar

Introduction. Fructooligosaccharides (FOS) are considered both alimentary additives and nutraceutics. Several studies have demonstrated that prebiotic properties of these sugars favor the normal functioning of the digestive system.

Objective. The objective of this work was to produce FOS by Aureobasidium sp. ATCC 20524 in submerged culture on bioreactor using saccharose as carbon source. Kinetics parameters of growth, fructosyltransferasa enzymatic activity, and synthesis of FOS were studied.

Materials and Methods. The bioproduction was carried out in a stirred tank reactor, on a volume of 1 liter. The sugars were determined by HPLC and the enzymatic activity was carried out by the method of Glucose-oxidase.

Results and Conclusions. Maximum values of enzymatic activity (202.27 U/mL) and specific enzymatic activity (1.88 U/mL) were obtained on the fifth day. Maximum values of produced FOS were: 51.8 g/L for 1-kestose and 74.6 g/L for nystose. The values of enzymatic activity were higher than the ones found in the bibliography.

15. ANALYSES OF SCIENCE TEXTS READING COMPREHENSION TEACHING STRATEGIES IN THE PLURALMODAL CLASS ROOM

Dori MG1, Lotti de Santos M1, Salim R2.
1Fac. de Agronomía y Zootecnia 2Fac. de Bioquímica, Química y Farmacia. 1Esc. y Liceo Vocacional Sarmiento. UNT. (4000) Tucumán. E-mail: margaritalotti@arnet.com.ar

Students finishing the pluralmodal level should be able to read complex texts with autonomy and critical judgment. Comprehensible reading is a practice demanding peculiar teaching and learning strategies.

The objective is to analyze the teaching strategies for comprehensible reading of science texts in pluralmodal level and to implement actions in order to train teachers.

A poll was applied to Biology teachers to analyze the teaching strategies used in comprehensible reading. Ciapuscio and Kuguel’s typology was used in workshops including biology and Spanish teachers.

The most widely used strategies were: guidance to students, hierarchizing ideas, glossaries including technical vocabulary and determination of thematical progression.

The training actions developed emphasized a consensus in order to favor the comprehensible reading of texts transmitting disciplinal knowledge.

Because of the important fact that language is transversal in the learning process, comprehensible reading should be understood as a daily practice in every educational level.

16. CURRICULAR SENSE AND MEANING OF AGRO-TECHNICAL EDUCATION IN THE ARTICULATION OF SECONDARY SCHOOL WITH UNIVERSITY

Lotti de Santos M1, Raya FG1, Salim R2.
1Fac. de Agronomía y Zootecnia 2Fac. de Bioquímica, Química y Farmacia. UNT. Avda. Roca 1900. (4000) Tucumán. Argentina. E-mail: margaritalotti@arnet.com.ar

The objective is to inquire about the curricular sense and meaning of agrotechnical education in the articulation secondary school – university, from the student’s perspective.

A poll was applied to 70 students coursing the first year of Agromonic and Zootechnics Engineering (UNT) coming from private and public agrotechnical schools. 75% of students considered that new courses should not be incorporated and that it is essential to deepen contents, to include reading comprehension (9%) and study methodology (7%). 9% was of that opinion that the number of courses is sufficient, the most useful ones being: Mathematics, Chemistry and Biology. The least useful were Humanities and Social Sciences, because they did not have any relation with the career chosen. Students considered that contents are complex in relation to those ones in the secondary school.

A break exists in the functional interdependence between the contents learnt in the secondary school and those ones demanded by the university because of the independent growth of each educational level.

Students in the first year of studies are the casualties of this situation.
17. CASEIN MICELLES ASSOCIATED PROTEINS: COMPARATIVES ASPECTS
Fernández F1, Hernández de Sánchez M1,2.

The casein micelles structure is highly determined by the need of maintain itself in suspension. β-CN and both α-CN types are hydroporphic enough to precipitate when associated hydrophilic molecules are absent. Among these, κ-CN is recognized for this function. The aim of present work was assess the presence of non-caseinic proteins among the micelles components in six mammalian species milk: tapir, armadillo, llama, alpaca, and “cai” monkey. For doing that, different condition PAGE electrophoresis was carried out on exhaustively washed casein samples. Gels bands were scanned, digitalized, and its protein content calculated. Results showed that all studied species have additional proteins others that Cn. Those proteins, a) are different in distinct species, b) their MW were found between 20 and 120 kDa, c) are in different concentration, and not proportional to Cn, in distinct species, d) have some hydrophobicity, e) are distinct from caseins polymers, f) related species showed similar pattern. It is compatible with a structural model in which these proteins would play an additional role in maintaining micelles solubility. Extant models accept that hydrophobic micelle sites are accessible to water, in consequence to soluble proteins like observed. Such characteristic would constitute a trait with a favorable selection pressure.

18. THE PLANTS OF THE GOSPELS
Raya FG.
Fac. de Agron. y Zoot. UNT Av. Roca 1900. (4000) Tucumán. E-mail: franciscoraya@bigfoot.com

The objective of this work is to investigate in versicles of Gospels, about the plants that are mentioned, to locate them taxonomically and to discover the reasons for which they are included in sacred texts. A search was carried out through the 89 chapters of Gospels. 87 mentions of plants were detected, of which 68 belongs to 23 botanical families. Some plants are named in several versicles. They appear like this: Moráceas: higuera usitatissimun L. (1); Rutáceas: ruda Ruta chalepensis L. (1); Poáceas: trigo Triticum aestivum longifolia (L.) Roem. (8); Lamiáceas: menta Mentha L. (1); Liliáceas: lirio Lycoris radiata L. (12); Apiáceas: hinojo Cuminum cyminum L. (1); comino Cominum cyminum (L.) Roem. (1); Lináceas: lino Linum (1); Borseráceas: mirra Commiphora myrrha (1); incierno Boswellia sp (1); Vitáceas: vid Vitis vinifera L. (12); Apiáceas: hinojo Foeniculum vulgare Mill. (1); comino Cuminum cyminum (L.) Roem. (2); Asteráceas: cardo Cynara cardunculus L. (1); Poáceas: trigo Triticum aestivum L. (9); cebada Hordeum vulgaris L. (2); cizaña Lolium temulentum L. (1); caña tacuara Arundo donax (L.) Roem. (3); Liliáceas: lirio Lilium candidum L. (2); aloe Aloe vulgaris Lam. (1); Amarililáceas: nardo Polianthes tuberosa L. (1). This contribution for botanical studies, has been obtained through the testimony of the stories of four Gospels.

19. HISTOMORPHOLOGY AND HISTOCHEMISTRY OF THE SALIVARY GLANDS IN THE APPLE SNAIL Pomacea canaliculata
Catalán M, Cruz ME, Bertrand L, Canelada C, Avila A.

P canaliculata is an amphibious gastropod mainly phytophagous used in aquatic weed control. This work analyzes the histological and histochemical characteristics of the salivary glands in relation to their function. Samples were processed following the routine technique for light microscopy and stained with histochemical stains for carbohydrates. The salivary glands drain through ducts into the mouth cavity. The secretory cells of the acinus have a basal nucleus and a basophilic foamy cytoplasm. These cells are mostly alcianophilic pH 2.5, ortochromatic and, to a lesser degree, PA-Schiff reactive. There are two secretory cell varieties: light cells with large vacuoles and basal nuclei, and dark cells with smaller vacuoles and mid-basal nuclei. There are also a few acidophilic cells. The stroma consists of a thin capsule of dense connective tissue and strands of loose vascular connective tissue. The tribucary ducts have a single epithelium with acidophilic ciliated cylindrical cells and metachromatic goblet secretory cells. The larger ducts also present a muscle-connective layer. The salivary gland secretions, formed mainly by acidic glycoconjugates, would favor food swallowing and transit. The basophilic secretory cell varieties would correspond to different functional states of the same cell type. The ductal secretory cells would provide sulphated mucines to the primary saliva. The citia and muscle fibers would favor the movilization of the secretions toward the mouth cavity.
21. ACTIVITY OF SERUM LYSOSONAL ENZYMES (LE) IN PATIENTS WITH PROSTATIC PATHOLOGIES

Sandoval N, Valdavia M, Guber RS, Baca C, Arias N, Ruiz de Martínez N, Soria de González A.
LAPAM, Fac. de Bioq., Qca. y Farm. UNT; Tucumán, Argentina. E-mail: gonzalez_stojan@uolsinectis.com.ar

The aim of this work was to determine the activity of LE B-galactosidasa (B-Gal) and Hexosaminidasa (Hex) together to Prostatic Specific Antigen (PSA) to evaluate the diagnosis of the prostate cancer (PC). There were studied 156 men to those whom determined the PSA and the activity of LE. Group A n= 123, Group B n=18 and Group C n=15 patients with PSA levels <4.0 ng/ml, between 4.1 and 10 ng/ml and >10 ng/ml respectively. The 91% of patients of the group A did not present prostatic pathologies. The pathological values of B-Gal and Hex were in 11.6% and 0% respectively. The 9% of patients of this group were diagnosis with prostatitis being that 27.3% and 9.1% presented pathological values of the B-Gal and Hex. When there was evaluated the clinical state of the patients of group B, 61% were diagnosing with being prostatic hiperplasia (BPH) and 39% with PC in early stages. In the patients with BHP were found pathological levels of B-GAL and Hex in 82% and 54% and in the patients with PC in 71% and 0% respectively. The patients of group C were diagnosed with PC in advanced stages and determined pathological levels in 53% and 20% for B-Gal and Hex. These results suggest that the activity of LE overlap in patients with benign pathologies and PC indicating that it does not recommended as complementary tool for the PC’s diagnosis.

22. METALOPROTEINASAS’ DETERMINATION FOR ZIMOGRAPHIC ANALYSIS

Arias N, Guber RS, Tefaha de Chaban L, Martínez M, Soria de González A.
“LAPAM”, Fac.Bioq., Qca. y Farm., UNT, Tucumán, Argentina. E-mail: gonzalez_stojan@uolsinectis.com.ar

Metalloproteinases (MMPs) participates with other proteolytic enzymes in the invasion processes and metastasis in patients with cancer. The aim of this work was to standardize the conditions of preparation of samples and analyze zimograms in healthy givers. We studied 19 samples of healthy givers. The euglobinas were prepared in fresh and analyzed by electroforesis in gel of poliacrilamida-SDS to 9% in absence of reducing agents that contains 0.2% of gelatin. Zimograms was made with the Mini-Protean III system (Bio-Rad Laboratories, CA) to 100 volts. When it corresponds the gelatinolitics bands were analyzed in the presence of EDTA or PMSF (Phenylmethanesulfonyl Fluoride). Zimograms were marked with Coomasie Brilliant Blue R-250. The location and expression of the proteolytic activity were determined evaluating the bands nonmarked. The M.W. was determined using a M.W. marker (Prestained SDS-PAGE Standards, Broad Range). The analysis of zimograms revealed the presence of two main bands of gelatinolitic activity that migrate approximately to 70 KDa and 90 KDa. In the presence of EDTA, a selective inhibitor of MMP, both bands disappear; when PMSF (inhibitor of serin proteinases) is added the gelatinolitic activity is not modified. These data suggest that the bands detected by zimografic analysis of the preparation of euglobinas of serum as of plasm of healthy givers correspond to MMP-2 (72 KDa) and MMP-9 (92 KDa).

23. SULFUR FERTILIZATION EFFECTS ON PROTEIN AND DRY MATTER CONTENTS IN SOYBEAN GRAIN (Glycine max (L) Merr)

Fernandez MC, Colacelli NA, Orlando CA, Arrigo NF.
1Departamento Ecología, Facultad de Agronomía y Zootecnia; U.N.T. Av Roca 1900. S.M de Tucumán. E-mail: usonorb@faz.unt.edu.ar; 2Cat. Edafología. F.A. UBA.

The actual economy tendency requires higher costs efficiency in order to be competent for international markets. The objective of this work was to determine if minimun dosis of sulfur fertilizers would increase the protein and dry matter contents in soybean grain. The study was carried out in Garmendia, Tucuman (R.A.), and it was used one treatment in a dosis of 12 kg of Sulfur pellets 98% /ha, with five repetitions.in an experimental design totally randomized. The results revealed significant differences for the protein contents and no significant differences for dry matter. We can conclude that the sulphate fertilization in a 12 kg of sulfur /ha dosis produces a significative increase for the protein contents in soybean grain.

24. NATURAL MOLLUSCIDICES: AN ALTERNATIVE IN THE CONTROL OF SCHISTOSOMIASIS

Borkosky SA, Ponce de León SC, Bardón A. UNT-Tucumán. E-mail: sabk@fbqf.unt.edu.ar

Schistosomiasis, commonly known as bilharzias, is endemic to about 75 countries throughout South America, Africa and the Far East. About 250 million people are annually infected. It is caused by parasitic flatworms of the genus Schistosoma and some snails, particularly of the genus Biomphalaria, are directly implicated in the transmission of the disease. Incidence of schistosomiasis is increasing as a result of the construction of dams and irrigating schemes, which inadvertently provided ideal breeding sites for the snail vectors. Chemotherapy is one way of controlling this disease, though a disadvantage of the method is the high cost of the drugs and the possibility of re-infection. The intermediate host, the mollusc, constitutes the weakest link in the cycle of transmission and thus is the logical point of attack to control the disease with molluscicidal agents interrupting the parasite’s life cycle and preventing infection of human in contact with water in high-risk areas. The World Health Organization has given plant molluscicides a high priority as tools for the integrated control of schistosomiasis because their low cost and rapid biodegradability. In previous investigations, we identified groups of germacranolides that displayed molluscicidal effects in preliminary bioassays. We carried out the isolation of the bioactive sesquiterpenoids from native plants. Our results indicated that some structure-activity relationships can be derived. Active compounds are shown below.
25. BIOCHEMICAL CHARACTERIZATION OF A RECOMBINATION Aβ-GALACTOSIDASE FROM Lactobacillus fermentum CRL 722


The use of microbial α-galactosidase (α-Gal) which hydrolyzes α-1,6 galactose links is a promising alternative to eliminate α-galactooligosaccharides (α-GOS) found in soy-derived products. These sugars often pass through the small intestine and reach the large intestine where they are fermented by the intestinal microbiota, producing gases that can cause physiological problems in sensitive individuals. The goal of this study was to characterize the α-Gal of Lb. fermentum CRL722 produced by E.coli. The α-Gal gene was amplified using degenerate primers, sequenced and cloned into E. coli. The recombinant enzyme was purified and compared to the α-Gal from the original strain (CRL722), both being active in a wide range of pH and temperatures and in the presence of various ions. The complete gene will now be amplified and inserted in probiotic microorganisms which would then be able to degrade α-GOS in situ in the gastrointestinal tract or use to produce novel fermented foods.

26. INFLUENCE OF YOGURT CONSUMPTION ON IMMUNE RESPONSE TO Streptococcus pneumoniae INFECTION


Streptococcus pneumoniae (Sp) may result in asymptomatic carriage, mucosal or invasive disease. Recent studies have given support that yogurt consumption may indeed be beneficial to health and it has been suggested that it may increase pathogen clearance and reduce lung injury. The aim of this work was to examine the influence of yogurt consumption on local immune response of mice infected with Sp. Conventional balanced diet of swiss-albino adult mice was supplemented for 5 consecutive days with yogurt (5dy). The local immune response was evaluated before and after challenged with Sp (10^5 CFU ml^-1 mouse^-1) during 15 days postinfection (dpi): Total and differential blood (B) and broncho alveolar (BAL) leukocyte counts; Mieloperoxidase (MPO) activity in B and lung homogenate (LH); % of Nitro blue tetrazolium (NBT)+ phagocytes cells from BAL and IgA+ producing cells in BAL (brancho associate lymphoid tissue) by IF. The 5dy group showed increase of the number of BAL leucocytes at 1dpi. (p<0.05). A significant increase of MPO activity in B and LH, and NBT+ cells % in early time postinfection was observed in this group (p<0.05). Moreover, there was a significant increase of IgA+ cells in BALT on 10 and 15 dpi in mice treated (p<0.05). Yogurt consumption showed an impact -taint influence on the local immune response to S. pneumoniae infection, which was related with a higher clearance of the pathogen and reduced lung injury observed in a previous work.

27. Lactobacillus casei ADDITION TO A REPLETION DIET INDUCE MODIFICATIONS ON Spleen and Bone MARROW CELL POBLATIONS


The addition of Lactobacillus casei (Lc) to a repletion diet, induce proliferation and differentiation of bone marrow (BM) myeloid and lymphoid series, in malnourished mice (UM). Lc administration accelerates the clearance of pneumococci during a respiratory infection in UM. Aim: To study comparatively cell populations of spleen and BM, during the repletion with or without Lc; and to analyze cellular mobilization in order to explain the possible mechanisms involved in the pathogen clearance. UM were fed 7, 14 or 21 days with: balanced diet (BD) or BD with supplemental Lc on the last 2 days of each repletion period (BD+Lc). After treatments, we determined: body weight (bw) increase, spleen and thymus weight, hemograma, % of reticuloocytes, % of peroxidase positive cells (P+) in peripheral blood (PB) and BM, CD4+, CD8+ and CD19+ cells in spleen and BM. Results: All diet increased the bw, spleen and thymus weight in UM. Leukocyte counts were normalized with 21d of both diets. Malnutrition induced an important decrease in the % of reticuloocytes in PB. At 7d, both diets increase this parameter which was higher with BD+Lc. The % CD19+ cells in spleen and BM were normalized with 7d BD+Lc and 14d BD. CD8+ cells in spleen and BM reached the normal values with 14d BD and 14d BD+Lc. BM CD4+ cells were normalized at 7d with both diets, but in spleen the normalization happen at 7d just with BD+Lc, while with BD was normalized at 14d. Conclusion: The addition of L. casei to the repletion diet, accelerates the normalization of cellular populations in the spleen and BM. The increase of peroxidase activity and the number of lymphoid cells in the spleen, would explain the more efficient cellular mobilization in the presence of the infection.

28. INFLAMMATORY RESPONSE MODULATION BY Lactobacillus casei IN AN EXPERIMENTAL MODEL OF PNEUMONIA


We studied the effect of Lactobacillus casei (Lc) on the inflammatory process induced by Streptococcus pneumoniae (Sp) respiratory infection, in a malnutrition model. Swiss-albino mice were malnourished (M) with protein free diet. Animals were re-nourished for 7d with balanced conventional diet, with (B+Lc) or without (B) Lc supplementation (10^9 UFC/day). Replete groups, M controls and well-nourished mice (W) were infected intranasally with the pathogen (10^7 UFC/mouse) in order to obtain an inflammatory state. During 10d post-infection (dpi) we performed: a) Albumin (Ab) concentration and lactate dehydrogenase activity (LDH) in bronchoalveolar lavages (BAL) b) lungs histological examination c) TNFα, IL1β and IL10 concentrations in BAL d) Fibrinogen (fg) and e) Fibrinogen deposition in lungs by immunohistochemistry. Lung injury was significantly higher in M than W, as seen by Ab, LDH and histological examination. M had lower levels of cytokines and fg, and higher fg deposition in lungs than W. B+Lc group showed reduced lung injuries and normal cytokine levels. Parameters studied were higher in B compared with M, but did not reach levels of W. This data suggests that Lc modulates beneficially the inflammatory response against pneumococci in malnourished mice by inducing different cytokine profiles.
29. **PREVENTIVE ADMINISTRATION OF LACTIC ACID BACTERIA IN *Streptococcus pneumoniae* INFECTION MODEL. POTENTIAL USE AS VACCINE VECTORS**

Villena J, Medina M2, Alvarez S2,4.

1Inst. Biq. Aplicada. UNT. Balcarce 747. 2CERELA. Chacabuco 145. Tucumán (4000).*E-mail: salvares@cerela.org.ar

We studied the adjuvant effect of *Lactococcus lactis* NZ9000 (Ll) and *Lactobacillus plantarum* 37A (Lp), orally administered, in a *Streptococcus pneumoniae* (Sp) respiratory infection. Swiss-albino adult mice were treated with Ll or Lp (107, 108 or 109 UFC/day) for 2, 5 and 7 days (d). At the end of each treatment mice were infected intranasally with Sp (106 UFC per mouse) and during 15 d post-infection we performed: A) Bacterial cells counts in lung and blood samples, B) Hematocrit and haemoglobin, C) Total and differential leucocytes counts in blood and broncho-alveolar lavages (BAL).

**Results:** Only Ll administered for 5d in a dose of 108 (Ll5d8) was able to reduce significantly the pathogen counts in lung and blood samples. The number of leucocytes and neutrophils in blood and BAL increased significantly in all groups after the challenge, but mice treated with Ll5d8 showed higher levels than the controls. Lp failed to improve resistance against Sp. **Conclusion:** The oral administration of Ll in the appropriate dose, improves the resistance against Sp, by inducing a stronger recruitment of inflammatory cells. This immunoadjuvant effect and their ability to be easily transformed made Ll a good candidate as delivery system for mucosal vaccination.

31. **ANTIBACTERIAL PROPERTIES OF WINE PHENOLIC COMPOUNDS AGAINST PATHOGENIC BACTERIA**

Rodríguez Vaquero MJ, Alberto MR, Manca de Nadra MC.

We have demonstrated that *Lactobacillus casei* (Lc) administration prevents the bacterial translocation (BT) from the gut in acute liver injury induced by D-Galactosamine (D-Gal) in BALB-c mice. The Kupffer cells (KC) are hepatic macrophages and their increase would be an important event in the D-Gal hepatotoxicity. Because the bacterial endotoxin activates KC, we want to study its participation in D-Gal hepatotoxicity and to determine the effect of Lc administration on KC. Adults BALB-c mice were injected with D-Gal (DG) another group were orally fed with Lc during 2 days previous to D-Gal injection (Lc+DG). Control mice with and without Lc, (Lc) and (NC) respectively, were inoculated with saline solution. Every group was injected with china ink and afterward liver was taken for biopsy to count the KC. Liver injury was tested by serum GPT and tissue damage. The hepatic architecture was normal in every group. However, the GPT and CK were increased in DG and Lc+DG groups respect to the NC and Lc groups (p<0.05).

Conclusion: KC and GPT; probably would be necessary to try other Lc dose.

30. **EFFECT OF LACTOBACILLUS CASEI ADMINISTRATION ON D-GALACTOSAMINE HEPATOTOXICITY: ROLE OF KÜPFER CELLS**

Lazarte S, Vintiñi E, Alvarez S, Agüero G.

FBQF- FAZ-UNT. CERELA-CONICET. Chacabuco 145. S. M. de Tucumán. E-mail: gaguero@fbqf.unt.edu.ar

We have demonstrated that Lactobacillus casei (Lc) administration prevents the bacterial translocation (BT) from the gut in acute liver injury induced by D-Galactosamine (D-Gal) in BALB-c mice. The Kupffer cells (KC) are hepatic macrophages and their increase would be an important event in the D-Gal hepatotoxicity. Because the bacterial endotoxin activates KC, we want to study its participation in D-Gal hepatotoxicity and to determine the effect of Lc administration on KC. Adults BALB-c mice were injected with D-Gal (DG) another group were orally fed with Lc during 2 days previous to D-Gal injection (Lc+DG). Control mice with and without Lc, (Lc) and (NC) respectively, were inoculated with saline solution. Every group was injected with china ink and afterward liver was taken for biopsy to count the KC. Liver injury was tested by serum GPT and tissue damage. The hepatic architecture was normal in every group. However, the GPT and CK were increased in DG and Lc+DG groups respect to the NC and Lc groups (p<0.05).

Conclusion: The Lc administration doesn’t avoid the increase of KC and GPT; probably would be necessary to try other Lc dose.
33. **CLINICAL ALTERNATIVE TO REESTABLISH BIOLOGICAL SPACE. PRELIMINARY CLINICAL STUDY**

Valdivia G, Montero CA, Ballesteros G, Aragón HN, Gordillo ME, Loi JA.

Periodontics Chair, University of Odontology, U.N.T. (National University of Tucumán). E-mail: joseloij@odontologia.unt.edu.ar

Biological conditions represent the key factor for the clinical treatments of periodontitis. Several authors reported non-surgical and surgical treatments. **Objectives:** preliminary information about a non-invasive procedure, preserving a normal area which allows the reinsertion of collagen and the adhesion of the epithelium union, thus re-establishing the biological space in a new position. **Materials and Methods:** seven single permanent roots were selected, in which forceps were used for their luxation and supragingival removal; then they were splinted in a semi-rigid way. Clinical records were taken in relation to the gingival margins of neighbouring teeth. The radiographic measures registered the distance between alveolar bone crest and the enamel -ceint limit in mesial and distal relation to the neighbour teeth. **Results:** with Friedman test ($p > 0.05$) no significant changes were seen. Radiographic analysis (two-way ANOVA), didn’t show changes between groups neither ($p > 0.05$). The mobility variable doesn’t show any change after 60 days. **Conclusions:** this technique preserves aesthetics, biology, and can be performed by the general dentist. Subsidized by C.I.U.N.T. (Investigation Center of the National University of Tucumán).

34. **REPRODUCTION IN MARSUPIAL FROG Gastrotheca christiansi** (Amphibia, Anura)

Pucci Alcade A, Alcade M.

Fundación Miguel Lillo, Tucumán. 4000. E-mail: felisaalcaide@hotmail.com

Gastrotheca Christiani has a particular reproductive mode, his eggs are carried in a female dorsal incubatory pouch, form by a skin fold. This paper is the histomorphological and histochemical study of the ovary, oviducts and embryos are fixed in Siteve and were colored with H-E, TB pH5.6; AB pH 2.5 and 0.5 combined with PA-Schiff. In the ovary we can find a dense and highly vascularizated connective tissue we can find a dense and highly vascularizated connective tissue and a stratificated epithelium and mucosae glands. The embryos are in different developments stages. The toxic or coarser granulation (TG) is the word that describe the toxic or coarser granulation of neutrophils, that becomes a great staining with the Giemsa reactive. They can appear in infections, inflammation or intoxication. Aim: to study the presence of TG in normal pregnant woman in different periods of gestation. We realized micro-hematocrit determination, the total and differential count of leukocytes (40x) and the search of TG by optic microscope (100x), in 50 pregnant patients. Three groups of 10 patients were chosen in aleatory way, corresponding to 1° trimester and 2° pregnancy, with an average of age from 20 to 42 years old. **Results:** Hto (%): $T1°=39.8\pm3.9, 2°=37.6\pm3.8, 3°=39.1\pm4.4$. Leukocytes ($10^3/\mu L$): $T1°=7.68\pm1.1, 2°=9.35\pm2.07 y 3°=10.42\pm2.26$. Neutrophils(%): $T1°=68.4; 2°=68.6^\%; 3°=69.2$. **Conclusions:** The find of TG, related with the trimester of pregnancy, in normal pregnant woman need to be investigated in order to know the real import, of their finding in different pathologies of obstetric origin.
37. RELATION OF PLASMA D-DIMER (DI-D) WITH METALLOPROTEINASE-9 (MMP-9), AND CA 15-3 IN PATIENTS WITH BREAST CANCER
Diaz de Amaya E, Guber RS, Arias N, Ruiz de Martinez N, Soria de González A.
LAPAM, Fac. de Bqca, Qca y Fcia, UNT, Argentina. E-mail: gonzalez_stojan@uolsinectis.com.ar

The aim of this work was to analyzed the relationship between serum levels of the MMP-9, DI-D and the circulating levels of scoreboard tumour CA 15-3 in patients with breast cancer (BC) with or without response to the treatment. There were studied 32 patients and separated in two groups: A) 21 patients with BC in stage I or II that were put under surgical therapy and response favorably to the treatment and B) 11 patients with primary BC without treatment or with progressive disease after the therapy. The MMP-9 was determined using a technique with microparticles of latex. The seric determination of CA 15-3 took place using the autoanalyzer. The values of reference for MMP-9, DI-D, CA 15-3 were: 705 ng/ml, 0,4 mg/ml, 22 U/ml respectively. The averages values of the group A were of 328 (DS=123,3) ng/ml, 0,9 (DS=0,52) mg/ml, 13,3 (DS=9,53) U/ml and of group B were of 929,1 (DS= 103,9) ng/ml, 1,08 (DS=0,30)) mg/ml, 13,3 (DS=9,53) U/ml respectively. The averages values of MMP-9, DI-D, CA 15-3 were: 705 ng/ml, 0,4 mg/ml, 22 U/ml respectively. The results suggest an association between MMP-9 and CA 15-3 and clinical state of the patients with BC by what they can be used as scoreboard of progression. Nevertheless, DI-D although is high in this patients would not be related with other scoreboard tumour.

38. DETERMINATION OF THE BACTERIOLITIC EFFECTS OF ACANTHOSPERMAL B BY ELECTRON MICROSCOPY
Cartagena E, Winik B; Bardón A*.
*Cat. de Qca. Orgánica III. 2Lab. LAMENO. Fac. de Bioq., Qca. y Farmacia UNT. E-mail: ecartagena@bfqf.unt.edu.ar

Our recent investigations indicated that many sesquiterpene lactones present in several Argentine native plants exhibited selective antibacterial activity against pathogenic strains but resulted inactive on beneficial species of Lactobacilli. Particularly, Acanthospermal B (AB) isolated as the major sesquiterpene lactone from our collection of the indigenous herb Acanthospermum hispidum D.C., displayed moderate antibacterial action against Staphylococcus aureus F 7 (methicillin resistant strain).

In order to establish the antibacterial mode of action of AB, a suspension of S. aureus, in Müller Hinton (MH) liquid media, was exposed to AB during 45 min, 75 min, 2h and 4h. The concentration of the mentioned LS, in the liquid media was 1.25 mg/mL. A MH suspension of the microorganism was taken as control. After the cited periods of exposition, aliquots of treatment and control were separated from the media and processed for transmission electron microscopy. Comparison of the ultrastructural morphology between control and treated bacteria showed that AB is adsorbed on the cell wall after 45 min of treatment, beginning a litic process on the cell wall after 75 min that finished after 2 h with total fragmentation of the cells. After 4 h no full cells or cell rests were observed. Therefore our results suggest that Acanthospermal B is a bacteriolic agent.

39. INTAKE OF MACRONUTRIENTS, GROWTH AND CHEMICAL INDICATORS IN SCHOOLCHILDREN FROM SAN MIGUEL DE TUCUMAN
López S1, Yurquina L1, Ousset M2, Portela M3.
1Htal. del Niño Jesus, Tucumán; 2Faculty of Biochemistry, UNT; 3Nutrition Depart., Faculty Biochemistry, UBA.

Objectives: to study in schoolchildren the effect of contents of macronutrients in the diet during the growth and to detect nutritional hazards by biochemical indicators. Materials and methods: 38 boys in two groups, G1: n=15, from low economical background (7,3±0,6 years old); G2: n=23, from middle class (7,3±0,6 years old). Weight (W) and height (H) was recorded. An eating habit survey was carried out in 5 days. Biochemical check up in urine samples (2nd in the morning in fast) to determine the relationship Calcium/ Creatinine (Ca/Crea) and Nitrogen Ureic/Creatinine (NU/Crea). Results: G1 showed shorter H than G2 (p<0,002), 53% of boys with low H/age; W/H was normal. G2 recorded H/age between 50 and 75 percentiles, with cases of overweight. Calcium intake (ICA): G1: 240±119 mg/d; G2: 578±183 mg/d (p<0,0001). Energetic intake: Kcal/d: G1: 1430±251; G2: 1727±372 (p<0,05); Kcal/Kg; G1: 63±59; G2: 62±14 (ns). Protein intake was smaller in G1 (p<0,05) with the predominance of vegetal protein, and animal protein in G2. % lipid calories: G1: 18,0±4,1; G2: 26,6±3,2 (p<0,0001). Ca/Crea: G1: 0,08±0,05; G2: 0,13±0,09 (p<0,05). NU/Crea: in nomogram of reference G1 did not cover the protein needs, but G2 did. Conclusion: the nutritional failures in G1 affected their H. The low values of Ca/Crea urinary in G1 and its correlation with ICA confirm the usefulness in the index of study to detect low ICA and implement correction.
41. INCREASE OF ANTIOXIDANT ENZIMES IN THE PLACENTA OF STRESSED RATS

Romanini MC1, Paz DA1, González E2, Soñé CA1, Mugnaini MT2, Rolando A1, Bozzo A1, Pastorino I1, Gauna HP3.
1Departamento de Química Orgánica, Facultad de Bioquímica, Química y Farmacia Universidad Nacional de Tucumán, Ayacucho 471 (4000) Tucumán. Argentina. E-mail: cromanini@ayv.unrc.edu.ar
2Estación Experimental Agroindustrial Obispo Colombres. Av. William Cross 3150, Las Talitas. Tucumán 4101, Argentina.

The placenta is a fundamental organ to maintain the homeostasis of the maternal-fetal phase, and it is able to reflect any anomaly in the maternal environment, for example, an increment in the stress. The maternal stress is translated in an alteration in the profile oxidative placentary. Reactivate oxygen species (ROS), (hydrogen peroxide, superoxide anions and hydroxil radicals) are oxidants of molecules that integrate the cells, damaging them. Superoxide Dismutase (SOD), eliminates the superoxide anions and Catalase (CAT) descompose the hydrogen peroxide. Our objective was to evaluate the impact of the maternal stress on the activity of SOD and CAT under controlled conditions of laboratory in placentas of controls (C) and stressed chronically (S) Wistar rats of 12, 17 and 21 days of pregnancy. The chronic stress was achieved by immobilization during 45 min. /3 times per week. The enzymatic activities of SOD (Yamanaka’s technique) and of CAT(Kankofer’s technique) were determined in placentary homogenates. Our results show that SOD and CAT were increased in 17 and 21 days of pregnancy in S rats with statistical significant differences (p<0.05 and p <0.01 respectively). We conclude that the high levels of ROS induce a compensatory increment in the activity of these enzymes. The absence of impact oxidative by the middle of the pregnancy is probably due to the proliferation of the placentary labyrinth zone during the advanced pregnancy, which little developed in the day 12. This proliferation accompanies of angiogenesis and vasculo-genesis, processes in turn characterized by an increment of ROS that is accentuated in the placentas of stressed mothers. Probably, stress activates placentary angiogenic growth factors.

42. EVALUATION OF MUTAGENICITY OF ACETOGENINS ISOLATED FROM ANNONA CHERIMOLIA (ANNONACEAE)

Álvarez Colom O1, Fernández R1, Ordóñez R2, Mesón F, Isla MF1, Neske A1, Bardón A1.
1Departamento de Química Orgánica, Facultad de Bioquímica, Química y Farmacia Universidad Nacional de Tucumán, Ayacucho 471 (4000) Tucumán. Argentina. E-mail: aneske@fbqf.unt.edu.ar
2Estación Experimental Agroindustrial Obispo Colombres. Av. William Cross 3150, Las Talitas. Tucumán 4101, Argentina.

Annona cherimolia (Annonaceae), is a tree cultivated in the northwest of Argentina. Our investigation of a methanol extract from the seeds yielded a group of annonaceous acetogenins (Acg), seven of which could be identified as molvizarin, itrabin, almúñequin squamocin, cherimolin -1, cherimolin -2 and tucumanin by spectroscopic methods (HR-MS and mono and bidimensional NMR). The use of them by the native population as an insecticide encouraged us to evaluate the effects produced by Acg on the preference of sites for oviposition, adult mortality, oviposition capacity, and viability of the offspring of the Mediterranean fruit fly. Our results indicated that the oviposition capacity was severely altered in females that fed on diets with 250 ppm of the acetogenins tested. In addition, significant differences were detected in the preference of oviposition sites when the acetogenin itrabin was spread on the surface of artificial fruits at doses of 30 µg/cm².

43. EFFECTS OF ANNONACEOUS ACETOGENINS ON MEDITERRANEAN FRUIT FLY (CERATITIS CAPITATA)

Álvarez Colom O1, Salvatore A2, Willink E2, Neske A1, Bardón A1.
1Departamento de Química Orgánica, Facultad de Bioquímica, Química y Farmacia Universidad Nacional de Tucumán, Ayacucho 471 (4000) Tucumán. Argentina. E-mail: aneske@fbqf.unt.edu.ar
2Estación Experimental Agroindustrial Obispo Colombres. Av. William Cross 3150, Las Talitas. Tucumán 4101, Argentina.

Annona cherimolia (Annonaceae) is a South American plant, with edible fruits. In a previous work, we have isolated and purified by RP-HPLC two annonaceous acetogenins (Acg) from its seeds. The Acg are potent inhibitors of the mitochondrial complex I, insecticides, pesticides, antiparasitics and have antimicrobial activity against human pathogenic Gram positive and Gram negative bacteria. In this work, we evaluated the toxic and mutagenic effects of squamocine (1) and itrabin (2), both natural products by using a short-term test. The assay using Salmonella typhimurium TA 98 and TA 100 was performed in presence of 4-nitro o-phenylenediamine (NPD) as mutagenic substance. The Acg showed no toxicity to assayed strains at concentrations that have antimicrobial activity (0.25-2.5 µg/ml). The Acg 1 and Acg 2 showed MR (mutagenicity relation) values below 2, which indicate that does not exert mutagenic effects.

44. ASSESSMENT OF THE INCIDENCE OF COMPUTER SCIENCES IN THE FORMATION OF STUDENTS OF THE CAREER OF AGRONOMY AT THE COLLEGE OF AGRONOMY AND ZOOTechnics - NATIONAL UNIVERSITY OF TUCUMAN. (FAZ-UNT)

Budeguer M, Nasif A, Havkes V, Martínez Pulido L, Jaime M. FAZ. FACEyT. UNT. E-mail: mdeguer@yahoo.com.ar

Benbenaste supplies an innovating proposal highlighting the contribution of informatics to the construction of scientific knowledge. He places the learner in the computer era, naming him “computational subject”. The aim of this work was to assess the incidence of informatics in the formation of the students at the professional cycle of the career of Agronomy at the FAZ – UNT on this basis. Questionnaires were presented about ten main topics during May, 2005 to a sample of 50 students, randomly chosen, from the professional cycle (4º and 5º years of the career). Answers show: a close relation with computers to access to internet to obtain and exchange information; membership to groups within the academic institution to e-mail information about study subjects, for fun and for organizing lectures about different issues; appraisal of availability of informatic devices to carry out their activities at the FAZ; need of remedial classes and help from teachers through e-mail; recognition of the value of informatics in the development of understanding and reasoning. We conclude that most of the students at the FAZ fit into the concept of “computational subjects”. 
Phenolic compounds are categorized into subgroups, flavonols, non-flavonols and tannins. They have attracted much interest recently because many studies suggest that they have a variety of beneficial biological properties, which may play an important role in the maintenance of human health. The aim of this work was to investigate the effect of two phenolic compounds; the non flavonoid gallic acid and the flavonoid catechin on the growth 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 to obtain a final concentration of 25, 50, 100, 200 and 500 mg/l. At 25 mg/l, gallic acid and catechin produced 19 and 33% of inhibition on the growth rate, and 11 and 22% inhibition on final cell density, respectively. Gallic acid and catechin decreased the number of viable cells 44 and 72%, respectively. The bacterium growth inhibition increased with the concentration of phenolic compounds. Catechin was the inhibitoriest phenolic compounds. This phenolic compound could be considered as a potential natural inhibitor of this pathogenic bacterium.

At present, Diabetes constitutes an authentic world epidemic. This chronic and multifactorial disease, along its evolution promotes several complications, which determine its high degree of morbidity and mortality. The objective of this work was evaluate haematological parameters in an infant-juvenile population with type 1 diabetes (D1) and their relation with the glycemic control. Fifty-nine D1 patients (33 girls, 26 boys), age 5-15 yr, evolution time of disease 3.8 ± 3.1 yr, that was compared with a control group. The glycemic state was evaluated by fasting blood glucose, glycosylated haemoglobin (A1c) and fructosamine. The haematological parameters evaluated were: erythrocytes (RBC), leucocytes (WBC), haematocrit (Hct), haemoglobin (Hgb), medium corpuscular volume (VCM), medium corpuscular Hgb concentration (MCH), medium corpuscular Hgb (MCHc), platelets (Plt) and globular sedimentation speed (GSS).

D1 patients present higher levels statistic significant of RBC, Hct, Hgb, MCH, MCHc, Plt and GSS with respect to controls. When diabetic patients were classified according glycemic state in diabetics with good glycemic control (DGGC, A1c<8%) and diabetics with poor glycemic control (DPGC, A1c>8%), significant differences were not found between both groups. The higher values in diabetic patients could be on account of the hemoconcentration by the osmotic diuresis motivated by the chronic hyperglycaemia state.
MICROALBUMINURIA AND NON-HDL ChOLESTEROL (NHDL) IN TYPE 1 DIABETES PATIENTS
Prado MM, Carrizo TR, Velarde MS, Martinez G, Bazán MC, Abregú AV.
Servicio de Endocrinología del Hospital del Niño Jesús, Cátedra Práctica Hospitalaria, Facultad de Bioquímica, Química y Farmacia (UNT). Balcarce 747. San Miguel de Tucumán (4000).
E-mail: vabregu@arnet.com.ar

Microalbuminuria (MI) is a nephropathy precursor and a potent predictor of cardiovascular disease (ECV). The disease duration, the increase of haemoglobin A1c (A1c), dyslipidemia and visceral obesity, are associated to atherosclerotic damage in patients with type 1 diabetes (D1). The NHDL calculation is considerate a sensible marker of ECV, according with ATP III recommendations, that permits evaluate all atherogenic lipoproteins. The aim of this study was to relate the presence of MI and NHDL levels in infant-juvenile patients with D1.

Fifty-eight patients, medium age 11.3 ± 2.6 yr and evolution time of disease 3.1 ± 3.1 yr were studied. The parameters evaluated were fasting blood glucose, A1c, total cholesterol (TC), HDL-cholesterol (HDL-C), triglycerides (TG), and NHDL and Body Mass Index (BMI) were calculated.

The patients were grouped in i) Diabetics with MI (DWM, n=15) and ii) Diabetics with normoalbuminuria. When both groups were compared, DWM patients (25.8%) presented higher evolution time of disease (p=0.003), TC and NHDL levels, but in the two latter, the differences were not significant. DWM group showed good correlation between A1c and NHDL (r=0.50), and MI and HDL-C were negatively related (r=-0.50).

These results suggested that it is important evaluate either glycemic control and NHDL and MI presence in children with D1, to prevent or delay the CVD.

EPIDERMICAL DIFFERENCES IN TWO SUBTROPICAL PASTURES
Correa S, Catán A, Degano C.
E-mail: sivicor@hotmail.com

Panicum maximum and Cenchrus ciliaris are subtropical forages adapted to climate conditions of Santiago del Estero province, Argentina. Different parts of the plants (leaf, sheath and stem) selected by the animals, can be identified through epidermical characteristics. Epidermical characteristics were identified in leaf, sheath and stem, and also the differences among them, using microhistological technique. Samples of the different parts were collected and oven dried at 60ºC, milled, and sieved with 1mm mesh. They were digested with Na hypochlorite at 60%, clarified with chloral hydrate, and mounted in glycerin gelatin. Observations were made at 400x. P. maximum leaf shows unicellular long hairs with acuminate apex and cushion base; in the intercostal zone there are little prickles with quadrangular base and triangular subsidiary cells. There are no hairs in C. ciliaris, prickles are little with rounded base and stomata with spherical-arched subsidiary cells. In the sheath, P. maximum have two kinds of hairs, ones short unicellular with simple base and others long with cushion base; papillae can be observed. In C. ciliaris there are no hairs or papillae, but bulliform cells can be observed. In the stem, P. maximum does not have hairs; instead, C. ciliaris do have unicellular hairs. So, there are conspicuous differences between both grasses. Leaf, sheath and stem epidermis, in both grasses show characteristics that let the establishment of differences between them.

WEEDS OF THE MULCHING OF SUGARCANE (LOLITA NORTE-TUCUMAN-ARGENTINA)
Chaila S, Mendoza P, Villagrán FL, Arévalo RA, Sobrero MT.
Fac. Agr. y Zoot. UNT. Inst. Campinas. Fac. Agr. y Agroind. UNSE.Esteo. E-mail: sach@faz.unt.edu.ar

Soil cover with sugarcane harvest rests constitutes a good weed management technique with innumerable benefits. Normal populations of this study zone are altered and very few species are adapted to the new conditions. The objective of this work was to know these species, their characteristics and incidence on the future sugarcane yield for establishing adequate management strategies. This work was realized in Lolita Norte (Cruz Alta, Tucumán) on sugarcane cultivar LCP 85-384 harvested with integral machine with multiple ore separator. Twenty 10 m long per 4 furrows wide plots (64 m²) were randomly marked in 50 sugarcane crop ha. Inside each plot three 1m² mulching samples were weighted. In October, November and December each plot was passed over and the present species were identified comparing their apparition with the control sugarcane crop in the same area. The harvest rests average found was 12.73 t/ha. Species were: Nierembergia hipoamónica, Cyperus rotundus, Sorghum halepense, Portulaca oleracea, Talinum paniculatum, Oxalis corniculata; Cynodon dactylon, Nicotiana longiflora, Amaranthus quitensis, Verbena bonariensis, Digiaria sanguinalis, Cardus sp., Cucurbitella asperata. The weeds that appear in the mulching of Lolita sugarcane crops are closed entailed to the cultivar vegetative composition, agroecological study area, water management, culture and harvest systems.

SPATIAL AGGRESSIVENESS INDEX (Iea) OF Flaveria bidentis (L.) O. Kuntze FOR SUGARCANE CROPS OF THREE TUCUMAN (ARGENTINA) LOCALITIES
Chaila S, Arévalo RA, Sobrero MT, Piscitelli FR.

Spatial aggressiveness index (Iea) is a weed distribution biocological parameter since it comes to area and its progress in colonization or competence. The objective of this work was to determine Iea for three sugarcane localities and to compare population behavior. It was worked between September 2004-January 2005 in three Tucumán Eastern localities (El Naranjito, Favorina, La Tala) on cultivar 2-3 year ratoon LCP 85-384. For F. bidentis index calculus a model that interrelates following components was used: principal plant height and dry biomass, plant number that invade study area around this, average dry biomass, average height. Surface was of 600 m² for all localities. ANOVA, Tukey 5% were made. Statistical analysis show that El Naranjito Iea has significant differences with La Favorina and La Tala, but there were no differences between last two. When surface increases Iea will increase. Principal plant height will cause variations and Iea will increase. At great plant height, great seed dispersion. When increase the number, height and average biomass of neighboring plants, Iea will decrease. A low index indicates that numerous plants grow around the principal one. Species index is not the same for different localities. At same surface invaded by one species, index can be different for different localities.
53. **“CSR” STRATEGIES IN THE BEHAVIOR OF THE SPECIES Eupatorium laevigatum, Flaveria bidentis and Wedelia glauca**

**Chaila S, Sobrero MT, Nasif AMM, Diaz LP.**
Fac. Agr. y Zoot. U.N.T. Fac. Agr., Agroindustrias. UN Santiago del Estero. E-mail: sach@faz.unt.edu.ar

CSR strategies or Grime Triangle graphically represent species function into habitat and equilibrium situations among competitor plants, stress tolerance in a generalized disturbance situation. The objective of this work was to make a practical adaptation of Grime concepts for *Eupatorium laevigatum, Flaveria bidentis* and *Wedelia glauca*. In Tucumán sugarcane zone, information of three weed species behavior during 2002, 2003 and 2004 was collected. Information was about density, cover, seed production, viability, aggressiveness, association with other species, survival, dispersion, losses, adaptation, fire treatment survival, garbage collector preference, establishment phase, among others. Competitor, ruderal and stress tolerant were analyzed on 10 characteristics evaluated on 20 points for high (10), intermediate (6), low (4) y null (0) values. Then it was diagrammed over an equilateral triangle divided in 100 equal parts or cells. *Eupatorium laevigatum* has CSR of 54-24-18 being inferior. *Flaveria bidentis* has CSR of 60-40-20 being intermediate. *Wedelia glauca* is a dangerous weed. It has the greatest values as competitor, ruderal and stress tolerant with CSR of 72-60-82. The three studied species have CSR strategies reflected in the scale. Only one of them (*Wedelia glauca*) has high values on the three strategies.

54. **PROPOSAL FOR THE STUDY OF THE CSR STRATEGIES IN THE WEED SPECIES QUALIFICATION**

**Chaila S, Nasif AMM, Árevolo RA, Sobrero MT.**

CSR strategies and Grime triangle (1974) represent competitor (C), ruderal (R) or stress tolerant (S) strategies in function of vegetative and reproductive characteristics, adjustments to diverse capacities to stress conditions, disturbance or factor combinations. The objective of this work was to adapt CSR Grime strategies and to establish determined characteristics for defining the interrelations and interference with crop capacities. First, CSR characteristics evaluation is made. Once the species and the representative area are chosen, 30 qualitative and quantitative characteristics in a number of 10 for each case are valued; 20 points for each one expressed as big (10), intermediate (6), low (4) and null (0). Second, an equilateral triangle divided at 100 equal parts is made (each cell is=1). At superior angle comes C, at left inferior angle comes R, at right inferior angle comes S. Result permits to establish numerically if the species are mainly Competitor, Ruderal or Stress tolerant, to make comparisons and to define their potential. An example in a weed species for C strategy predominance can be 80-10-0, for R 5-90-5 and for S 15-15-70. Determination of weed CSR characteristics and graphics with triangles and symbols will permit a rapid sight of aggressiveness characteristics and invading potentialities of the problem species inside the crops.

55. **ALLOMETRY IN SPECIES OF THE FUSCUS GROUP OF GENUS LEPTODACTYLUS (ANURA, LEPTODACTYLIDAE)**

**Ponssa ML.**
Inst. de Herpetología. Fundación Miguel Lillo. Miguel Lillo 251. 4000 S.M.de Tucumán. Argentina. E-mail: mlponssa@arnet.com.ar

Allometry, relations between size and shape of particular structures provides data for assessing heterochronous morphological events. In some small species of the fuscus group of genus *Leptodactylus*, some osteological characters showed patterns of heterochrony. Using bivariate and multivariate morphometric analyses was tested the hypothesis that in the fuscus group of genus *Leptodactylus*, the species with heterochronous characters should have allometric growth. Twenty-one osteological variables were measured in five species of the fuscus group. Regression slope indicate that in *L. latinasus*, structures scaled with negative allometry; in *L. fuscus* and *L. mystacinus* with positive; in *L. spixi* with a mixture of both, and in *L. elenae* were isometric. Significant differences (p<0.05) of multivariate isometric growth were founded only in *L. latinasus*. This is expected because this species presents characters that suggest heterochronic patterns. In general, a direct relationship between the kind of allometry present in the characters and the size of the species was evident.

56. **EFFECT OF THE POPULATIONS OF APHIS GOSSYPII GLOVER ON THE YIELD OF COTTON**

**Lescano JA, Helman S, Beltrán R, Garay F.**
U.N.S.E. F AyA, Av. Belgrano (s) 1912, 4200 - Santiago del Estero, Argentina. E-mail: silhema@unse.edu.ar

The cotton aphid, *Aphis gossypii G.* is present during all the cotton crop. In Argentina, is indicated like critical period the phase that elapses from emergency to first square. However, other studies indicate that the aphids present in the periods of squaring and flowering are potentially the ones that can to cause greater damages due to that compete with the development of squares and bolls by the photosyntates limited. The objectives of this study were to know the susceptible phase of the cotton crop to the presence of aphids and their implications on the yield. The design utilised was blocks with four repetitions. The treatments were: T1 without presence of aphids during all crop life, T2 Presence of aphids from emergency to first square, T3 Presence of aphids since first square to the end effective flowering, and T4 presence of aphids during all crop life. The aphids were monitored weekly in the fifth leaf of the main stem situated from the apex. The predatory species were monitored in a meter of row. The results showed that *Ériopis connexa G.* was the most abundant one of the predatory species found in the crop. During the phase vegetative they were not registered aphids, while densities among 60–120 aphids per leaf were presented during the period of flowering. These densities found did not cause decrease in the yield, not being found you differentiate significant among the treatment evaluated.
The aphids were present along the entire cotton crop, but the highest populations were observed at the emergence of the first square at the end of effective flowering. In this stage the efficiency and residual of different foliar insecticides were evaluated in controlling the Aphis gossypii in cotton crops. The trials were conducted during the agricultural season 2002-03 and 2003-04 in the experimental field of La María (EEA Santiago del Estero). The design was block at random with 4 repetitions and the following active principles: Thiametoxan GW 25, oxidemeton metil CE. 25, oxidemeton metil CE. 25, Clorpirifos CE.48, Dimetoato CE 50 and untreated control. Four samplings was determined one previous to the applications and the rest to two, seven and twenty days later to applications. The counts of the aphids by leaf were in the fifth leaf of the main stem situated from the apex. The treatments began with an average density of 40-120 aphids/leaf with a uniform distribution in the test area. The results show to a significant difference between the untreated control and the different evaluated active principles. The Thiametoxam and metil Oxidemeton applied to the foliage significantly reduce to the population of aphids in the crop until the twenty days later to the treatments, providing levels of control over 70%.

Bacterial vaginosis (BV) is one of the most frequent reasons of consultation by fertile and pregnant women. The normally lactobacilli are replaced by a polymicrobial flora with abundant short and curved bacilli, usually Gram-negative or variable (Gardnerella, Mobiluncus and anaerobic morphology). One hundred sexually active women, aged between 15 and 66 and treated at the Maternity in Tucumán, Argentina, were examined (35 of them were pregnant). From each patient samples were taken (cervix), carrying out a microscopy study. Gram staining was applied to study bacterial morphology using the Nugent scale, based on a semi-quantitative microscopy analysis of the vaginal flora, and Giemsa staining and a PAP test. In 96% of the cases fewer than 7 PMN per microscopic field were observed. Prevalence of BV was 23% and an intermediate stage was observed in 37%. 30% of the women under study were between 21 and 30 years of age, 26% between 31 and 40, 22% between 41 and 50 and 22% under 20, 37% of the patients manifesting the disease were pregnant. Analyzing associations with BV Trichomonas vaginalis was found in 17% and yeast in 9%. Only in 2 pregnant patients without BV colilocyte and virocyte type cells were detected. The typical microscopy findings allow differentiation between normal and infectious secretions. Detection of colilocytes and virocytes is important, because they predict the presence of Papilloma virus.

The family Anablepidae is composed by 3 genera. Among them, Jenynsia, is the most diverse. Ghedotti (1998) analyze the phylogenetic relationship of the specimens from Río Arenales are separated in all genera: Jenynsia, J. alternimaculata, J. maculata, possibly conforming two different species.

The taxonomic status of the specimens of the latter river is tested in this work. As the type locality of Jenynsia alternimaculata is in the Río Bermejo Basin and the Río Arenales do not belong to it, the taxonomic status of the latter is very similar to the specimens found in Río Arenales. The latter is very similar to the specimens found in Río Arenales. The family Anablepidae is composed by 3 genera. Among them, Jenynsia, is the most diverse. Ghedotti (1998) analyze the phylogenetic relationship of the specimens from Río Arenales are separated in all genera: Jenynsia, J. alternimaculata, J. maculata, possibly conforming two different species.
61. MALE GAMETE MORPHOLOGY OF OLIGO-CHAEOTA AND GASTROPODA: IMPLICATIONS IN BIOLOGICAL FERTILIZATION AND PHY-LOGENY

Alderete de Majo AM, Moreno DR, Murillo Dasso SS.
Cátedra Invertebrados, Fac Cs. Naturales e IML, UNT. E-mail: alderetedemajo@arnet.com.ar

The objective of the present work was to determine sperm morphology implications of two terrestrial species: Amynthas havayanus (Rosa, 1891) (Oligochaeta, Megascolecidae) and Sarasinula linguaeformis (Sem-per, 1885) (Gastropoda, Veronicellidae). Both of them undergo a reproductive pattern involving direct transfer sperm during a copulatory process. The 114 specimens of A. havayanus and 58 of S. linguaeformis employed were collected in Tucumán, Argentina. Samples, carried out using air-drying technique, modified for terrestrial oligochaeta and gastropoda, were stained with Giemsa pH 7 for 15 minutes. Results indicated that fied for terrestrial oligochaeta and gastropoda, were stained with fied for terrestrial oligochaeta and gastropoda, were stained with Giemsa pH 7 for 15 minutes. Results indicated that. A. havayanus spermatozoon exhibited an elongated nucleus with the acrosome and a long flagellum about 120 µ. It could be concluded that male cell morphology of A. havayanus correlated to fertiliza-tion biology and to phylogenetic relations; nevertheless, spermatozoon morphology of S. linguaeformis was concerned to phylogenetic relations. This last fact concurred with chromosomal, structural and ultra structural morphological studies, which allowed to propose hypothesis about new taxonomic classifications of Veronicellidae (Alderete de Majo, 1996).

62. PHYSIOLOGICAL BASIS OF PHENOLICS PHYTOTOXICITY FROM SUGARCANE STRAW

Sampietro DA, Vattuone MA, Isla MI.

Postharvest sugarcane residues can inhibit weed growth. Previous studies showed that this material contains phenolics as vanillic (VA), ferulic (FA) and syringic (SA) acids. The aim of this work was to evaluate the effect of these compounds on the growth of Lactuca sativa L. and four weeds. The effect of these compounds on physiological processes of L. sativa was also determined. Phenolics inhibited root growth of the test plants. These compounds increased membrane permeability and reduced dehydrogenase activity of the root cells of L. sativa. They also reduced chlorophyll content of the cotyledons. VA and FA inhibited cell division while SA stimulated it. Scanning electron microscopy of root tips indicated that VA increased root hair density and reduced cell expansion. Root cell membrane would be the first phenolics action site. The loss of organic and inorganic compounds from root cells could change cell expansion and reduce the energetic metabolism leading to a reduction in cell division. Changes in root cells would produce other modifications such as the inhibition in chlorophyll synthesis. More studies are in progress to establish the impact of phenolics in sugarcane agroecosystem.

63. LIGHT STRESS IN OCTOBLEPHARUM (Octoblepharaceae, Musci) IN COSTA RICA

Suárez GM1, Watkins JE2.
1Fundación Miguel Lillo. E-mail: suarezgm@csnat.unt.edu.ar
2Universidad de Florida, Gainesville, Florida, USA.

The genus Octoblepharum (Octoblepharaceae) is comprised of 15 pantropical and 9 neotropical species. Of these species, Octoblepharum albicum is perhaps one of the most widespread species. It can be found growing territorially in the dark under-story and epiphytically in the most exposed parts of the canopy. Species with such dramatic ecological ranges are unusual and provide an interesting system in which to study local adaptations to different light regimes. The goal of this study was to better understand how the natural distribution of Octoblepharum albicum, along a gradient of light intensity, is linked to this species ability to recover from the effects of high light stress. This study took place at Biological Station La Selva, Costa Rica where we collected samples from various populations along a natural light gradient. Initially, we measured chlorophyll fluorescence (Fv/Fm) after 15 minutes dark adaptation. Individuals were then exposed to a 2 hour average light stress of 1350.50 µmol m- 2·sec-1. We then measured the rate of recovery of Fv/Fm and related this to the individual’s natural light regime. We found that species that naturally occurred in high light environments exhibited significantly higher recovery rates relative to those from low light environments. The data from this study further support the notion that species stress tolerance is linked to distribution.

64. ANTIMICROBIAL ACTIVITY OF ESSENTIAL OILS EXTRACTED FROM Schimus areira Campos E, Castillo MC de, Viturro C, Aulet O.

Plants provide a great variety of chemical compounds, some of them show in vitro activity comparable to clinically used antibiot-ics. The objective of this study was to examine the antimicrobial activity of essential oils (EO) from Schimus areira, extracted from different parts of the tree, and their variability during the different seasons. 45 EO samples from leaves, twigs and fruits, gathered during the four seasons. Susceptibility to EO was examined with the following pathogens ATCC: S. aureus (25923 and 29213), Ps. aeruginosa (27853), E. faecalis (29212) and E. coli (35218 and 25922) and two strains isolated from patients S. enteritidis and Sh. sonnei. Antimicrobial activity assaying was carried out according to NCCLS. Ethanol 96º was used in all cases as solvent due to oil’s insolvibility. Plates were prepared with MH agar, supplemented with the EO at the following final concentrations: 0.01, 0.1, 1, 10 and 50 µl/ml. The minimum concentration (MIC) for each EO against assayed strains was determined. Most of the 45 EO assayed against both ATCC S. aureus strains presented a MIC 10 µl/ml, except for 3, showing a MIC of 50 µl/ml for strain 29213. All EO inhibited S. enteritidis and 35 E. faecalis with a MIC 50 µl/ml. The MIC’s value against Sh. sonnei and E. coli was ≤50 µl/ml, except for 3 which showed a MIC >50 µl/ml. P. aeruginosa was the most resistant strain: 31 EO showed a MIC of 50 µl/ml and 4 inhibited at a MIC >50 µl/ml. EOs extracted demonstrated higher antimicrobial activity during spring and summer.
65. GENETIC DIVERSITY OF METHICILLIN-RESISTANT Staphylococcus haemolyticus AT A HEMODIALYSIS CLINIC


Methicillin-resistant coagulase-negative staphylococci (CNS) represent worldwide a severe clinical and epidemiological problem. During the last years S. haemolyticus has shown a relevant increase as hospital-acquired pathogen. Macrorestriction analysis of Small-digested chromosomal DNA, using pulsed-field gel electrophoresis (PFGE) is a highly sensitive sub-typifying method that allows differentiation between closely related strains and establishing an epidemiological relationship among them. In 2001 80 CNS strains were isolated from urine samples from patients that attended a hemodialysis clinic. From 28 S. haemolyticus, 12 were oxacillin-resistant and mecA gene (+). The objective of the present paper was to establish the clonal relationship between methicillin-resistant seven S. haemolyticus mecA (+). The molecular typifying technique applied was PFGE using a CHEF-DRIII equipment. Small was used as restriction enzyme. It was determined that the 7 isolates belonged to 6 types of different clones: A, B, C, D, E, and F. Only two isolates belonged to the A-type and seemed to be genetically related. Analysis of macro-restriction fragments showed a great genetic diversity among the strains, during the short period of time that lasted this study.

66. LIFE CYCLE OF STAURORHECTUS LONGICORNIS GIGLIO-TOS 1897 (Acrididae: Gomphocerinae), A VORACIOUS SPECIES IN TUCUMÁN, ARGENTINA

Turk SZ1, Aquino AL2.
1Fund. Miguel Lillo. Inst. de Ent.. Miguel Lillo 251. S. M. de Tucumán. Argentina. E-mail: soniaturk@ciudad.com.ar
2Ecología General. Fac. Cs. Nat.. UNT. M. Lillo 205. 4000 S. M. de Tucumán. E-mail:ala@csnat.unt.edu.ar

Severe damage in crops and pastures are sometimes produced by Staurorhectus longicornis G.-Tos. Careful biological studies of this species had not been undertaken yet. This paper deals with the results of laboratory rearings and observations carried out in the “chaco” of Tucumán province: typical flora of the region and behaviour of several generations of the pest are included. Egg pods, diapause, and nymph development were analyzed in the laboratory. A variety of species of grasshoppers is present in the herb layer but Dichroplus and Staurorhectus are dominant. S. longicornis has only one generation per year, egg-pods are 37,5 mm long and the eggs are distributed in 4 ranks. Male nymphs go through 6 stages: 6 or 7 were registered in females. The species feeds on grasses: periodic high populations damage pastures. Adults are controlled (but previous ovipositions are the species reservoirs). As direct sowing do not destroy the eggs, early control of nymphs is suggested in order to preserve the plant biomass and prevent oviposition.

67. CHRONIC ENDEMIC REGIONAL HIDROARSENICISM (CERH): AN AVOIDABLE PROBLEM

Martínez M, Tefaha L, Bellomio C, Toledo R, Mónaco M, Gaber RS, Arias N, Soria de González A. Fac. de Medicina. UNT. Tucumán. Argentina. E-mail: hassan_chaban@arnet.com.ar

Chronic arsenic (As) toxicity due to drinking arsenic-contaminated water has been one of the worst environmental health hazards. The aim of this work was to investigate if in the system of health there exist in the operative level systematical search and patient’s captation of risk, as likewise mechanisms of reference and contrareference. With this purpose different activities were realized: analysis of six works of epidemiological investigation on CERH developed by pupils of the rural internship. Construction and application of questionnaire for members of the community to analyze the level of knowledge of the population in risk. In 100% of the works evaluated was an inverse relation between the depth of the well and the concentration of As, and a direct relation between the exposure time, the exposure level of As and the frequency of signs of arseniasis. Of the epidemiological analyzed studies realized in zones with high levels of As it is possible to suggest that there is necessary the training of the health care professional for the systematical search of cutaneous and extracutaneous signs and symptoms of arsenicism. Besides, offer to the community in general the information brings over of the harmful effects of the As in the water of consumption. It is urgent: the incorporation of the CERH in the pathologies of obligatory denunciation and the sanitary assistance of the members of the exposed community.

68. DEMOGRAPHIC CHARACTERIZATION AND CLINICAL FEATURES OF A POPULATION EXPOSED TO HIGH ARSENIC LEVELS IN THE DRINK WATER

Bellomio C, Martínez M, Tefaha L, Toledo R, Mónaco M, Gaber RS, Arias NN, Soria de González AG. Fac. de Medicina. UNT. Tucumán. Argentina. E-mail: hassan_chaban@arnet.com.ar

The aim of this work were to analyze the clinical characteristics of resident in east part of Tucumán, where previous studies demonstrated of arsenic-contaminated water and to determined the level of knowledge of the community on the toxic effects of the presence of arsenic (As) in drinking water. We conducted a study with 51 participants who lived in areas where then drinking water contained As. They had to be at least 50 years of age and live in the zone of risk for the previous 15 years. The analysis of the surveys demonstrated that alone 17.6% of the people presented signs related to arsenicism, of which 9.8% was hiperkeratosis in the palm or sole and 1.9% leucomelanodermia more hepatomegaly, the 7.8% had hepatomegaly, of which 75% declared not to have alcoholism antecedents. The 82.4% of the people expressed not to know about the toxic effects. The 35% referred that in some opportunity they had hepatomegaly, of which 75% declared not to have alcoholism antecedents. The 82,4% of the people expressed not to know about the toxic effects. The 35% referred that in some opportunity they collected water samples for the analysis of the same one, but they had not been informed about the results. Conclusions: the affected populations must be informed about the toxic effects of the As. It is necessary to make: advanced training courses destined health care professionals and students and adjust the survey in order to obtain major information about the situation of the exposed people.
69.

ANIMAL WELFARE IN A PIG HERD. REPRODUCTIVE BEHAVIOR DIFFERENCES WITH INTENSIVE AGAINST FREE RANGE SYSTEM

Cisneros Núñez C, Máscaro PM, Blanco M, Ibáñez MA, Real M, Chueca CP.
Faculty of Agronomy and Zootechnics, UNT. Roca Av 1900. 4000 S.M. of Tucuman, Argentine. E-mail: jciesneros@faz.unt.edu.ar

The studies of animal welfare carried out in England in sixties showed its incidence in the animal production and the importance to consider free range system as a way to reduce the stress animal. In this research the reproductive behaviour was evaluated during the gestation period under two breeding systems: Intensive (in farrowing pens) and free range system. The trails carried out in Tucuman during November 2004 to May 2005. It worked during gestational period with 23 sows Landrace by Yorkshire cross, by each system. In one of the farm, the sows were in cement floor farrowing pens with 3m2 surface by animal. In a free range system the surface by sows were of 30m2. The results were: the following: Intensive system (farrowing pens): 1) Farrow: 23; 2) Birth piglets: 221; 3) Weaned piglets: 187; 4) Weight weaned: 11.5. Free range system: 1) Farrow: 23; 2) Birth piglets: 219; 3) Weaned piglets: 198; 4) Weight weaned: 12.6. The nutritional and sanitary care were the same for two groups. The major weights achieved by the sows under free range system could be attributed to its better corporal conditions as well its milky production rate than the animals under intensive systems.

70.

ORGANIZATION AND DYNAMICS OF ANIMAL DIVERSITY I SIGNATURE: 2001-2004 ACADEMIC PERIODS

Alderete de Majo AM1, Claps LE2, González P1, González RE2.
1Cátedra de Invertebrados, 2Cátedra de Didáctica Especial de las Ciencias Biológicas; Facultad de Ciencias Naturales e IML, UNT; E-mail: alderetademajo@arnet.com.ar

Animal Diversity I is a signature of basic cycle in the careers of Biological Sciences. It aims at the acquisition of introductory knowledge about Invertebrates (excluding Arthropoda). This paper aims at assaying the pedagogical methodology used, related to an investigation model, and the results achieved for the 2001-2004 academic periods. The interactive classes and workshops for a medial number of 108 students, consisted of theoretical-practical classes which the different topics taught were approached according to a guiding questionnaire and supplemented with the observation of biological material and photonic and electronic microscopy. Evaluations were performed by objective and traditional methods. Group oral evaluations were employed in partial and final examinations. On analysing the achieved results for the cited academic periods, it could be concluded that: 1- Regular students average was 81.06% and irregular 18.94%. 2- Regular students average who approved final examinations was 97.5% and who disapproved was 2.5%; irregular students average who approved final examinations was 100%. 3- The pedagogical strategy used facilitated the acquisition of knowledge, technical and specific vocabulary, increasing student’s motivation and participation, while encouraging the development of critical-reflexive attitudes and the acquisition of critical tools and methods to generate scientific knowledge.

71.

ENTREPRENEURSHIP STUDENT’S EVALUATION OF THE READING AND WRITING CAPABILITIES AS SOCIAL AND ACADEMIC EXCLUSION FACTORS

Schallmach JN1, Cohen de Chervonagura E2.
1Cátedra de Química Biológica, Facultad de Odontología. U.N.T. 2Cátedra de Lengua Española II, Facultad de Filosofía y Letras. U.N.T. – CONICET, Av. Benjamín Aréoz 800. (4000) S.M. de Tucumán. E-mail: judit.schallmach@odontologia.unt.edu.ar

According to Giner et al., (1998, cited by M. Rubio and S. Monteros, 2002:21) social exclusion is a social process of separation of a person or a group from work, economic, political and cultural possibilities available to other persons. Writing, oral expression and reading problems could be factors that will exclude people from society insertion, since these capabilities are essential for an academic and professional activity. In this regard, new students at the University will need these tools during their studies and later on in their professional activity. However, at the UNT Dentistry Faculty, is not available any space to develop these skills. The aim of this work is to analyze the Spanish language reading, writing and oral expression values of the new students at the UNT Dentistry Faculty and their importance as academic and social exclusion factors.

It was found that 86% of the 66 students consulted, consider that a good orthography is necessary, 83% consider that a dentist should read properly and 79% agree with the fact that a dentist should read other texts. They suggest that the Faculty should offer orthography and oral expression courses. In summary, they will be benefit in their professional life by a program including development of speech, writing and reading skills.

72.

ISOLATION AND CHARACTERIZATION OF Butyrivibrio fibrisolvens FROM BOVINE RUMINAL CONTENT

Cerón ME1, Cannilla ML1, Garcia PT1, Fernandez D1, Bissio M2, Gallardo M2, Gaggiotti M2, Cravero SL1, Rossetti OL1, Arakaki LC1.
1INTA Castelar. 2Fac.Cs Vet.(UBA). 3EEA-INTA Rafaela. E-mail: carakaki@cicv.inta.gov.ar / mceron@cicv.inta.gov.ar

The goal of this study was to isolate and identify native strains of Butyrivibrio fibrisolvens from bovine rumen. The samples were collected by manual extraction from two bovine provided with a permanent ruminal cannula. The samples were inoculated in a prereduced non-selective media using the isolation method for strict anaerobic bacteria (roll tube). Eighty colonies were isolated from 10^2 and 10^4 dilutions, and then all colonies were studied to identify them. We isolated two strains putatively identified as B. fibrisolvens. The bacteria developed only in a strict anaerobic environment at 39°C; They showed a curved rod morphology, motile, Gram-negative, and they fermented diverse carbohydrates being butyric acid the main product of fermentation. By PCR, the two strains amplified a DNA fragment corresponding in size to Butyrivibrio spp (480pb amplicon) and B. fibrisolvens (160pb amplicon). A phylogenetic analysis using the DNA sequence of these two amplicons confirmed the identification of these strains as Butyrivibrio fibrisolvens. The importance of this isolation is due to the production of CLA (conjugated linoleic acid) by this bacteria which is very important because of its nutraceutical properties. These native strains will be used for the isolation of genes encoding the linoleate isomerase (the enzyme that synthesizes CLA).
ACROSOME REACTION IS MODULATED BY SPERMINE IN SPERMATOZOA FROM HAMSTER EPIDIDYMIS
Negro ML, Calandra RS, Gonzalez-Calvar SI.
Instituto de Biología y Medicina Experimental, Facultad de Ciencias Exactas, UNLP, Instituto Multidisciplinario de Biología Celular, La Plata, Facultad de Medicina, UBA. Obligado 2490.
Bs. As. E-mail: scalvar@dna.uba.ar

The present study demonstrates that spermine (Sp) regulates the acrosome reaction (AR) in spermatozoa (Stz) from cauda epididymis of adult hamsters through two different mechanisms: 1) Sp exhibits an inhibitory action on AR. This effect was reverted by okadaic acid (OK) and sodium pervanadate. These results suggest that Sp would regulate phosphatase activity preventing a premature AR of Stz during storage in the epididymis; 2) Sp failed to inhibit the stimulatory effect of ionomicin (INM), a calcium channel activator, although it stimulated the AR in the presence of NMDA (agonist glutamatergic receptor) and glycine, regardless of the occurrence of OK. Then, it is feasible to speculate that when Stz reach the female genital tract, Sp participates in the activation of NMDA receptor and in the events leading to AR.

WATERFOWL ASSEMBLAGE IN AN ANNUAL CYCLE IN LA ANGOSTURA RESERVOIR, TAFÍ DEL VALLE, TUCUMÁN
Echevarría AL, Chani JM, Marano CF, Cocimano MC.
Fundación Miguel Lillo, Miguel Lillo 251, 4000, Tucumán. E-mail: adaecchevarria@yahoo.com.ar

The concept of bird community is important because it present attributes such as composition, structure and function, that can be studied and describes, being this attributes exclusive of this organization level. A very used concept in the communities study is the concept of assemblage or functional groups, wich are defined as a conjunt of species with a clear taxonomic position and similar ecologic features. Our aim is to study the structure in assemblage of waterfowl in La Angostura reservoir (26°55’ S 65°41’ W). The study was carried out between august 2004 and august 2005 and 42 species of waterbirds were registered. The species were assembled in three functional groups over the base of how and where they search (tactics & microhabitats) and what they feed on: 1- Birds that look for food over swimming on the surface (18 sp.), 2- Birds that look for food diving or plunging (5 sp.), 3- Birds that look for food walking on beaches and shallow waters (19 sp.). The resources availability along the year, show as this wetland is capable to support very different functional groups regarding to reproductive and food requirements.

FORMATION OF THE ODONTOLGY STUDENT THAT ENTERS TO THE CLINICAL CYCLE
Di Paolo L, Colloca ME, Mitre P, Aybar A, Delgado AM, Falon C, D’urso M.

The aim of this study was to release the knowledge about some subjects necessary for the attendance of Pharmacology at Dentistry UNT, and to investigate on important topics like citizens. Before beginning the inaugural class of 2005 was made an anonymous test to all students at 4th form. The test consisted of 15 structured items about Histology and Chemistry (1st year), Physiology (2nd year) and of General Culture. From the test the correct answering frequencies were analyzed and related to the other variables such as: a) years of permanence in the career, b) sex, c) age and d) if it attends or not all the subjects of the year. The group was constituted by 85 students, with an average of 24,1 years. The average of years of permanence in the career was 6,5 years. 76% (n=65) were attending all the subjects at 4th form. The frequency of students according to the degree of knowledge in the different studied areas was: Histology (67%), Biological Chemistry (20%), Physiology (2%) and General Culture (20%). Sufficient evidence does not exist to assure that the degree of knowledge in all the areas is associated to the sex or the cause that attends or not all the subjects. Sufficient Evidence exists to assure that students who obtained a good level of knowledge in General Culture are younger than those that obtained a regular level, and these are not significantly different from whom obtained a lower level (ANOVA p=0.05). The student population revealed having a good level of knowledge in Histology in relation to the other subjects, whereas the level in General Culture was regulate.

BIOLOGY TEST FOR THE CAREER OF MEDICINE ADMISSION SYSTEM AND SIGNIFICATIVE LEARNING ASSESSMENT
Mirkin S, Haro MI, Alonso C, D’Urso M, Lotti M.
Fac. Medicina. U.N.T. Tucumán. E-mail: smirkin@fm.unt.edu.ar

Significative learning is essential to a Medicine student for it allows him to relate new knowledge with the one already acquired through the recovery of long-term memory information. The aim of this work is to prove whether the learning for the School of Medicine Admission Test in the subject Biology was significative or memorized. For this study, 50 2nd-year students of Medicine participated voluntarily, taking the same Biology test they had in the 2004 admission. The contents evaluated were: cytology, genetics, embryology, histology, physiology, anatomy and public health. Some of these contents are included in 1st year subjects, so students have seen and reviewed them (reviewed contents). Other contents are included in future subjects (unreviewed). The data were analyzed with the t Test. Out of the 25 items in the test, 11 belonged to reviewed contents. Results indicate that the average correct answers for these items was 6.8 in 2004 vs. 8.4 in 2005 (p<0.0001); and for the unreviewed items it was 9.1 in 2004 vs. 10.3 in 2005 (p<0.0002). It would seem that the learning for the Biology test is significative acquisition, which is fundamental as the processes that are automatically constructive require active involvement so as to locate and retrieve it in the necessary context.
77. APPLICANTS’ SELECTION ACCORDING TO THEIR PROFILE TO THE CAREER OF MEDICINE
Avila N, Vallejo D, Mirkin S, Deza H, Fajre L. Fac. Medicina. UNT. Tucumán. E-mail: smirkin@fm.unt.edu.ar

The School of Medicine has implemented for years a carefully regulated Admission System. With an Admission Test, it is tried to select those with a profile according to the one proposed by this academic institution. The aims of this work are: 1) To analyze the efficacy of the Admission Test 2) To apply psychometrical indicators to evaluate the quality of the Test according to the cognitive complex capacities required. The factors analyzed are linked to the efficacy of the Test carried out in the year 2005: Reliability of the test (reliability coefficient c), Grade of difficulty (index of difficulty p) Items discrimination (biserial punctual coefficient rbis) according to the cognitive capacities involved. It is also considered the objectivity of the grades and how it reflects its goals when elaborating the evaluation. The analysis was applied to all the applicants (n = 978). The results indicate that the Test had a high grade of reliability (c = 0.93) to evaluate cognitive complex capacities: to select, to analyze and to synthesize information, to solve problems and to interpret texts. The items had in general an Average level of difficulty (p = 0.60) and a power of Excellent discrimination (rbis = 0.43). It is concluded that the Admission Test is valid and reliable for a suitable applicant selection and guarantees the entrance of those that possess certain cognitive complex capacities specified in the medicine school profile.

78. SALIVA BUFFERS IN CAVITY PROPHYLAXIS
Merletti SM, Pérez LI, Alderete MS. Dentistry Faculty, National University of Tucumán, 800 Benjamín Araoz Avenue, San Miguel de Tucumán (4000) Tucumán. E-mail: stellamerletti@hotmail.com

Cavities are produced when bacteria ferment carbohydrates, thus producing acids which dissolve hydroxapatita crystals that form 98% of the enamel composition. Salivary flow with its capacity, consistency and composition decisively influence on the speed of the attack and the organism defence against the cavity. The objectives of this work were firstly, to state the saliva protective effect against cavity formation, and secondly, to determine the buffering power of the saliva buffers in cavity prophylaxis. 47 school students between 6 to 13 years old from 365 School, Piedra Grande, Alpachiri, Tucumán, Argentina were chosen for this work. A quite meticulous buco- dental test was carried out in order to determine the plaque rate (O’Leary) and the Cavity rate (Cyc). The salivary secretion was stimulated for 10 minutes on a piece of rubber one hour after breakfast and after mouth hygiene. The salivary samples were collected by means of a soymilk flow determination test and a Krebs test were done on the cooled samples.

The results showed that in those cases with more C+c component, more drops of latic acid were needed for having a 5 pH. In both variables a test was done by the Chi Square Test with Yates correction (p 0.05) and no important differences were found whatsoever. This means independence from them. We can conclude by saying that the results are apparently opposed to Dreizen Theory since the saliva with much buffering power shows a high number of cavities. It is important to take into account that the complete deficiency in mouth hygiene could have modified what was preestablished.

79. SOYMILK ASSOCIATED TO AN HIPROTEIC DIET. THE ROL IN THE GROWTH AND JAW DEVELOPMENT

The purpose of this study is to determine for histological and biochemical methods, the roll of the soy milk in mandibular growth and development in an experimental model of protein malnutrition during 30 days. The osteoblastic activity (OBA) and the osteoclastic activity (OCA) was determined in % of the total bone activity. In malnourished animals it was observed that the OBA arriving to 10±3% with inverse values in the OCA (90±4%) (NV: OBA:80±3%; OCA: 20±4%). The animals fed on protein free diet and water, the histology reveals qual and quantitive changes in the jaw cellular population, with predominance of osteoclasts. In the soymilk diet, OBA as well as OCA stay in values near to the controls (AOB: 74±9% AOC: 26±8%). The indicators of bone activity shows an increase in the population of osteoblast, osteoid, osteoclast and lining cell. The rol of the soymilk associated with protein free diet contributes to: 1- To prevent the effects of the undernourishment. 2- To allow the grow and development for increase of osteoblastics activity. 3- To fix the Ca contributed by the diet.

80. ANTIFUNGAL COMPOUNDS IN EXTRACTS FROM PHORADENDRON LIGA (VISCACEAE FAMILY)

Some hemiparasitic plants of the region, were used by its benefic effects in popular medicine. Preliminar researchs show that Phoradendron liga has interesting properties. For this, it could be used in the development of agronomic formulas as pesticides. Our purpose is to detect antifungal activity of its leaves alcoholic extracts against phytopathogenic and xylaphagous fungi. Biological activity was detected using bioautographic method and radial inhibition on plates. By the last method we proved that 0.3 mg phenolic compounds/ml of extract inhibits strongly the growing of Aspergillls niger (96%) and Fusarium sp (88%), whereas the Macrophomina sp (35,1%) and Phomopsis sp (52,03%) show less sensitibility. The results obtained are particularly encouraging because the in vitro antifungal activity found on the Phoradendron liga extracts lets us to suggest its possible use in plants protection from fungi attack that may cause different plagues. Natural products obtained from regional plant may be used to the development of pharmaceutical and agricultural formulas.
81. LEAF EPIDERMIS OF CHUSQUEA AND RHIPIDOCLADUM (POACEAE, BAMBOSEAE) FROM TUCUMAN PROVINCE

Parrado MP1, De Marco N2.


E-mail: ronqui@arnet.com.ar

Chusquea Kunth and Rhipidocladum McClure are American genus of shrubby bamboos. Both of them are represented in Tucumán Province including one species each, Chusquea lorentziana Griseb. and Rhipidocladum neumannii Sulekic, Rugolo & L. G. Clark. The objectives of this paper are: to describe the abaxial and adaxial leaf epidermises of Chusquea lorentziana Griseb. and Rhipidocladum neumannii Sulekic, Rugolo & L. G. Clark. and also to determine the micromorphologic characters of taxonomic value to differentiate both entities. Observations were accomplished by means of optical and scanning electron microscopy. The following elements are described on the abaxial and adaxial epidermises: costal and intercostal zones, long cells, short cells, stomata, macro-hairs, micro-hairs, prickles and papillae. The diagnosis micromorphologic characters are the differentiation of costal and intercostal zones, estomata and macro-hairs. The analysis of the epidermises in surface view of both species revealed that differentiation characters do exist for identification.

82. RAPHAurus SATIVUS L. (nabón), A WEED WITH FUNGITOXIC ACTIVITY

Sgroi NA1, Selis AN2, Vattuone AM3, Quiroga EN3.


E-mail: nsgroi31@hotmail.com / insveg@unt.edu.ar

The search of new substances with antifungal activity to be applied to protec plants and to preserve food and feed is an important task. The aim of our work was the search of fungitoxic principles present in Raphanus sativus L. (nabón). R. Sativus L. is a weed that spontaneously grows in the northwest of Argentina. The used phytopathogenic and xylophagous fungi and yeasts were isolated, identified and conserved in the Cát. de Fitoquímica, Fac. de Bioq., Qea. y Fcia., UNT. Ethanolic and aqueus extracts were prepared from dry flowers. The biological activity was determined by bioautography, radial growth tests and growth zonal inhibition. The tincture was the most active preparation. Bioautographic assays showed different degrees of growth inhibition on the outlined fungi. Radial growth of xylopha gous fungi was inhibited between 30-92% with 0,15 mg of phenolic compounds/mL in the culture medium. The behavior of phytopathogenic fungi and yeasts was variable (21-100% of inhibition). Fungal zonal inhibition showed that the tincture extract has a high inhibition on Aspergillus nomius VSC 23 and Aspergillus flavus. Our results revealed the presence of biomolecules with activity in the ethanolic extracts of Raphanus sativus L. (nabón).

83. PREVAILING OF NON-LIPIDICS CARDIOVASCULAR RISK FACTORS IN A POPULATIONS OF STUDENTS

Cardinale M, Corolina E, Olmos Fassi J, Morales M, Coviello A, Bianchi J.

Facultad de Odontología (UNT). Avda. Benjamín Araoz 800. S.M. de Tucumán. E-mail: marcecardi@hotmail.com

Introduction: Cardiovascular disease is the main cause of death in industrialized countries.

Objective: To know prevailing of nonlipidics cardiovascular risk factors in a population of students of both sexes between 19 and 25 years.

Materials and methods: The population was of 195 women and 66 men. Corporal mass index, a questionnaire to register familiar antecedents of cardiovascular morbid-mortality, arterial pressure and heart rate in 3 opportunities were registered. Results: a significant difference for values of systolic, diastolic, mean arterial pressure, and coroporal mass index (p<.01) was registered.

Conclusion: Results show a high index of risk factors and hypertension.

84. EVALUATION OF COMPREHENSION AND LEARNING PROCESSES OF PHYSIOLOGY STUDENTS FROM THE FACULTY OF ODONTOLOGY OF THE U.N.T. (FOUNT)

Erimbaue M, Cardinale M, Corolina E, Bottcher S.

Facultad de Odontología (UNT). Avda. B. Aráoz 800, S. M. de Tucumán. E-mail: erimbaue.marta@hotmail.com

Some inconveniences such as independent study, are observed in Physiology students. The lack of adequate strategies for a proper learning is a problem to be solved if we want to improve mecha-

ized studies. In order to investigate this problem, the objective of this paper was to learn about the Learning Strategies of the students. An anonymous survey elaborated by the Instituto Cordinador de Programas de Capacitación (ICPC) was carried out on 126 students which were coursing the subject in the year 2004. As to reading comprehension, 82% of the students related the information with other topics, 69% compared the information with other authors, 54% classified the information. 69% of the students made summaries, 37% synthesis, 86% diagrams, 17% files, 28% charts, 44% comparatives diagrams. Once the information was organized and elaborated, 32% apprehended, 43% made diagrams, 15% practices and 9.5% carried out other techniques. If the pupils recognized their own processes, selected strategies for a constructive learning and verified the ones they are using, they would have the essential tools for college time.
85. PREVIOUS KNOWLEDGE OF BIOPHYSICS IN STUDENTS FROM THE FACULTY OF ODONTOLOGY OF THE U.N.T. 
Aldereite MS, Coromina E, Erumbaue M, Cardinale M, Merletti SM. 
Facultad de Odontología (UNT). Avda. Benjamin Aráoz 800. S.M. 
de Tucumán (4000). E-mail: estelacoromina@uolsinectis.com 

One of the problems found in college education is the low performance of the students in the subjects which they regularized or passed in previous years. The objective of this paper is to assess the previous knowledge of Biophysics in students who are about to course physiology. The population was composed by 184 students in the second year of the Physiology Department of the FOUNT. A diagnostic anonymous evaluation was carried out. The questionnaire consisted of twenty six structured, comprehension and application questions, about topics related to both subjects. The maximum score was predetermined in twenty six. Scores from 0 to 16 with an average of 6.7 were obtain. 50% of the students obtain 6 or a lower score. The scores increased significantly (p<0.001) over the recent years in which the students entered the FOUNT and they passed Biophysics. Conclusion: the non significant learning and the time passed since they joined the university have a major influence on the low previous knowledge needed to generate new concepts. Better articulation between the two subjects is needed.

86. INHIBITORY ACTIVITY OF PLANT EXTRACTS FROM ARGENTINIAN NORTHWEST ON THE MEMBRANE LIPID PEROXIDATION 
Soberón JR, Sgariglia MA, Quiroga EN, Vattuone MA. 
Cátedra de Fitotecnica, Instituto de Estudios Vegetales “Dr. A.R. 
Sampietro”. Facultad de Bioquímica, Química y Farmacia. 
Universidad Nacional de Tucumán. Ayacucho 471. (4000) S.M. 
de Tucumán. Argentina. E-mail: instveg@unt.edu.ar

Free radicals are non-stable species that react with biomolecules (e.g. proteins, nucleic acids, lipids). When the target are the membrane lipids, they start a chain reaction, known as lipid peroxidation, with serious consequences as the decrease membrane fluidity, increase phospholipid exchange between monolayers, increase leakiness, loss of membrane protein function and eventual loss of integrity becoming the cellular lysis. Antioxidants are substances that can avoid these effects by neutralizing free radicals. The aim of this work was the measurement of the inhibitory activity of 12 plant extracts on the lipid peroxidation. The assay determines the ability of a substance to prevent the generation of malondialdehyde (a compound produced by lipid hydroperoxide decomposition). Our results showed the most active extracts. These findings turn the mentioned species as interesting natural sources of antioxidant substances.

87. OSMOPROTECTIVE METABOLITES IN PROSOPIS CHILENIS (Mol) Stuntz. PLANTS UNDER OSMOTIC PRIMING 
Killian S1, Hilal M2. 
1Fisiología Vegetal. Fac. Cs. Agrs. UNCa. Belgrano y Quiroga 
4700. Catamarca. E-mail: martinezkillian@uol.com.ar; 2Fisiología 
Vegetal, Fac. Cs. Naturales IML, UNT. Miguel Lillo 205. 4000 
Tucumán, Argentina.

In the arid regions, plants growth is limited by hydric deficit and salinization. Under these conditions, plants produce osmorregulating substances (proline, betaine, glicilbetaine and carbohydrates), which contribute to maintain both hydric and osmotic potential. Priming techniques improve abiost stress tolerance in P. chilensis seeds and plants. This work objective was to determine whether sucrose and proline would be involved in the tolerance mechanism to P. chilensis salinity. Unprimed and primed seeds with NaCl 1M were incubated in NaCl 0, 150 or 300 mM solutions. Sucrose and proline were determined in roots and cotyledons by spectrophotometry. Results showed a differential response in both analyzed organs. Under NaCl 150 mM, sucrose and proline levels were increased in roots, while in cotyledons it was only observed a proline increase. In primed plants, under NaCl 300 mM both metabolites were increased. In unprimed plants a grant increased in sucrose content was observed. This response will be associated to early senescence.

88. SUBCLASS IIa BACTERIOCINS PURIFICATION AND OVEREXPRESSION STRATEGIES 
Salvucci E, Saavedra L, Sesma F. 
CERELA-CONICET. Chacabuco 145. San Miguel de Tucumán. E- 
mail: esalvucci@cerela.org.ar

The bacteriocins secreted by Lactic Acid Bacteria (LAB) have a promisorious future as biopreservatives in food industry. Class IIa bacteriocins have demonstrated strong antiisterial activity and a consensus YGNGV amino acid motif near the N terminus. These peptides act by pore formation in the cellular membrane and consecutive dissipation of the proton motive force. Enterocin CRL35 is a 43-aa peptide produced by Enterococcus munditii CRL35. The complete biosynthetic cluster of this peptide was successfully cloned, sequenced and expressed in Escherichia coli. The aim of this work was to obtain large amounts of purified bacteriocins. Specific primers were designed to amplified the coding region for the mature peptide of enterocin CRL35. This ORF was cloned using pET28b(+), pGEX4T-3 y pBAD24, and transformed in E. coli BL21(DE3). Also enterocin A, dervicin V41 and enterocin CRL35 were purified from the culture supernatant by precipitation with ammonium sulfate and by solid phase extraction chromatography C18. The purified extracts are being used for structure/activity assays to plan the future application strategies in a food model.
89. ANTIMICROBIAL EFFECT OF XENOPHYLLUM POPOSUM ON ACTINOMYCES NAESLUNDII
Torres S, Tracanna MI, Amani S, Poch M, Cárdenas L, Ferro M, Gutiérrez S.
E-mail: sofiaitorresar@yahoo.com.ar

The control of dental caries involves the mechanic elimination of dental plaque with the use of antimicrobial agents. The inhibition of Actinomyces naeslundii, associated to this disease, due to ethanolic extract of Xenophyllum poposum was demonstrated by our laboratory. The aim of this work was to determine the Minimum Inhibitory Concentration (MIC) and Minimum Bactericide Concentration (MBC) of the ethanolic extract of X.poposum on A.naeslundii. Dilutions of 1%, 5%, 10% and 20% of extract were assayed. DO₅₆₀nm at 0, 24 and 72 h was determined and the count of colonies in Thioglycolate Agar was made to determine MBC. All the tests were made by duplicate. Results: 1) The MIC of the extract in study was 10%. 2) The MBC was 10%.

Conclusions: The determination of MIC and MBC of the ethanolic extract in study is important to control of A. naeslundi. Alternative therapies must keep in mind the ecological aspects of oral cavity to maintain the balance of the total microbiota in mouth.

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90. EVALUATION OF INFECTION CONTROL IN STUDENTS OF FAC. OF DENTISTRY, UNT
Granillo BA, Annan MS, Benito de Cárdenas IL.
Microbiology Dept. Fac. Of Dentistry. UNT. Benjamin Araoz 800. San Miguel de Tucumán. E-mail: granillo@arnet.com.ar

It is necessary to standardize the preventive measures inside the Program of Infection Control in Faculty of Dentistry. The objective of this work was to evaluate through questionnaires to students of Fac. of Dentistry-UNT, on knowledge and application of the norms of infection control. It was compared to students’ groups according to time of course in Microbiology. A multiple and anonymous survey of questions was designed. Results: 53% is immunized for HVB; 93% uses physical barriers; 86% make a correct sterilization; 67% recognizes the importance of the handwashing; 87% assumes that the all healthcare is responsible in the prevention of cross-infections. We empathize the percentage of negative answers: 73% doesn’t carry out disinfection of surfaces; 76% doesn’t purge the pipes of the dental water lines; and 50% not know the measures in postexposure accidents.

Conclusions: The students know the risks to those that are exposed in the clinic. It should be carried out monitoring and surveillance in the clinical practices, immunization for HVB and to insist in the Prevention Postexposure.

Supported by CIUNT.

91. COMPARATIVE STUDY BETWEEN PLANT EXTRACTS (CAESALPINIA PARAGUARIENSIS) WITH ANTIBACTERIAL ACTIVITY AND SYNTHETIC ANTIBIOTICS OF FREQUENT APPLICATION IN ANTIINFECTION THERAPY
Sgarigilda MA, Soberón JR, Quiroga EN, Vattuone MA.
Cátedra de Fitoquímica. Instituto de Estudios Vegetales “Dr. Antonio R. Sampietro”. Facultad de Bioquímica, Química y Farmacia. UNT. Ayacucho 471. (4000) S.M. de Tucumán. Argentina. E-mail: instveg@unt.edu.ar

The aim of this study was the evaluation of the in vitro antibacterial activity of Caesalpinia paraguariensis extracts (Infusion, Decoction and Tincture) against 22 bacteria. This activity was compared with that of synthetic antibiotics. Synthetic drugs: Amoxicillin and Ciprofloxacin, were chosen taking into consideration their antibacterial spectrum, action mode and mechanisms, their frequency of use as therapeutic indication. Streptomycin sulphate, an ample spectrum antibiotic, was employed to compare the plant pathogenic action. We determined MICs and MBCs by broth microdilution method, and agar dilution method respectively (Muller Hinton medium). Although plant extracts and synthetic drug MICs and MBCs are not comparable from a quantitative point of view, some strains were sensible to the assayed extracts and simultaneously resistant to synthetic antibiotics. Moreover, we will use them as reference in the bioactivity-guided purification process.

92. ANTIBACTERIAL ACTIVITY OF CAESALPINIA PARAGUARIENSIS EXTRACTS
Sgarigilda MA, Soberón JR, Quiroga EN, Vattuone MA.
Cátedra de Fitoquímica. Instituto de Estudios Vegetales “Dr. Antonio R. Sampietro”. Facultad de Bioquímica, Química y Farmacia. UNT. Ayacucho 471. (4000) S.M. de Tucumán. Argentina. E-mail: instveg@unt.edu.ar

The ethnomedicinal use of plants reveals their importance as source of bioactive compounds and orients us toward the search of new substances with potential therapeutic applications. The objective of this study was to validate the antibacterial (AB) activity of extracts of a native species of Argentinean North, used in popular medicine as vulnerary, Guayacán (Fabaceae) bark extracts (Infusion (I), Decoction (D) and Tincture (T)), according Argentine Pharmacopoeia VI Ed., were assayed against 22 bacteria: Gram (+) and Gram (-) isolated from superficial wounds, ATCC and plant pathogenic bacteria (CECT). Broth microdilution and agar macrodilution techniques were employed in Muller Hinton (MH) medium. MIC and MBC values were determined. All tests were performed by quadruplicate. The extracts have a wide antibacterial activity, showing an evident growth inhibition and bacterial death on all the assayed strains. MIC values of I and D were 20-300 and 24,9-398,7 µg. Extracted Material / 100 µl, respectively, that are higher than T AB activity (20-650). MBC values were coincident or higher than MIC values.

The comparative study of the action of Caesalpinia paraguariensis extracts (Infusion, Decoction and Tincture) against 22 bacteria. This activity was compared with that of synthetic antibiotics. Synthetic drugs: Amoxicillin and Ciprofloxacin, were chosen taking into consideration their antibacterial spectrum, action mode and mechanisms, their frequency of use as therapeutic indication. Streptomycin sulphate, an ample spectrum antibiotic, was employed to compare the plant pathogenic action. We determined MICs and MBCs by broth microdilution method, and agar dilution method respectively (Muller Hinton medium). Although plant extracts and synthetic drug MICs and MBCs are not comparable from a quantitative point of view, some strains were sensible to the assayed extracts and simultaneously resistant to synthetic antibiotics. Moreover, we will use them as reference in the bioactivity-guided purification process.
Plants are exposed to adverse environmental conditions and to pathogen invasion by fungi and bacteria. In answer to these problems they can produce many compounds to protect themselves.

In this work we studied the fungitoxic effect of ethanolic extracts of aerial parts of Goffroea decorticans (chatarr), a tree widely distributed in the center and north of Argentina. It can inhibit the growth in vitro of various phytopathogenic fungi isolated from infected plants of the region. By solvent partition in batch we can separate a bioactive fraction with ethyl-acetate. From the comparison of Minimal Inhibitory Concentration (MICs) we showed that the biocidal activity occurs as follows: synthetic compounds > ascorbic acid > ethyl-acetate fraction > whole extract.

In conclusion, the fungitoxic activity exerted by isolated sub-fractions of G. decorticans suggests many interesting perspectives for the use of biological control methods on plant protection against phytopathogenic fungi, minimizing environmental impact and reducing dependency on chemicals. With the development of pesticide-resistant strains, the replacement of chemicals by alternative natural products is of considerable interest in the agriculture.

Genotoxicity is a substance ability to bound DNA specific sites. Some bioactive drugs show genotoxic effect under certain conditions. This research’s aim was to evaluate the genotoxicity of argentinian northwest plant extracts used in folk medicine. Microplate Bacillus subtilis “rec assay”, based on the differential growth of two B. subtilis strains (called rec+ and rec-) against a genotoxic substance was used. The enclosed area between the survival curves of both strains was calculated (S-probit) for each extract to evaluate the genotoxicity. T. acutifolius, P. cuneifolius and J. rhombifolia tinctures showed strong genotoxic response (S-probit=0.593), while L. sibiricus tincture showed no genotoxic response (S-probit between –0.123 and 0.199). K2Cr2O7 and Dimethylsulfoxide were used as strong genotoxic and no genotoxic drugs (S-probit>0.593), while K2Cr2O7 and Dimethylsulfoxide were used as strong genotoxic and no genotoxic drugs (S-probit=0.593). 2% sodium hypochlorite for 15 minutes and rinsing 3 times with distilled water. The meristems extraction (0.3-0.5 mm) was made with the aid of a binocular magnifying glass. Explants were incubated at 25°C, 2000 lux luminance intensity and 16-hours photoperiod. After 40 days, for Churqui variety and, 60 days for Tafinista, 5 cm plantlets were obtained, which multiplied by cutting stems in segments with a bud and transferred to multiplication medium. Subcultures were made every 30 days. Multiplication average rate was 8 for Churqui and 3 for Tafinista. The sanitary diagnosis will be made by using immunoenzymatic technique Enzyme Linked Immunoabsorbent Assay (ELISA) and will be propagated only those virus free lines.

In this work the effect of a rich diet in trans fatty acids (from a commercial hydrogenated vegetal oil) in Wistar rats is studied. Commercial maize oil was used as cis fatty acid source and control sample. 32 Wistar rats, males, between 100-120 g, assigned in 2 groups of 16 animals each one, fed during eighty days with isoenergetic diets, were used in the tests. Different controls were made: dairy consumption and weight of the animals, triacylglycerol and cholesterol concentrations in blood samples by enzymatic methods. The collected data showed that triacylglycerol and cholesterol concentrations in blood samples were superior in the animals fed with hydrogenated vegetal oils, being the triacylglycerol level a 38% more and the cholesterol level a 9% more than in the control diet. In relation to the weight, the rats fed with the rich diet in trans fatty acids increased a 26% more than the ones fed with the rich diet in cis acids in the 40 first days, but at the end of the test the difference was only of 5% between both lots. Consumption was superior in a 23% in the first period, but there were no differences towards the end of the test. It can be concluded that the rich diet in trans fatty acids have a behavior similar to saturated fatty acids, showing an increase of cholesterol and triacylglycerol levels, but no significative differences were observed in terms of weight and consumption at the end of the test.
97. EVALUATION OF THE DICTATION OF A ORIENTED ELECTIVE SUBJECT TO THE CONSERVATION OF THE ENVIRONMENTAL
Albarracín P, Davolio F.
Dpto. Qca. FACET. UNT. Avda Roca 1800. Tucumán. (4000). Argentina. E-mail: fdavolio@herrera.unt.edu.ar

The present work shows to the results of surveys, seminars and examinations obtained in the subject: «Residual Waters» as it forms to demonstrate the thematic impact produced in the environmental one with the dictation of this course. The subject, of a fourth month period of duration, consists of classes weekly 4 theoretical-practices of hours where problems applied to real cases of treatments of effluents are solved and be examined by the students. The students attended it in group reduced just in the second year of their offer, regularizing and promoting all. As of that moment the number of new recruits took an important height and happened to be elevated, surpassing widely the expectations and extending the frame of the race: Chemical engineering, to summon students of other races and other academic units. Another profit that is possible to emphasize is that the subject managed to wake up in some students next to graduate a special treated interest in the thematic one. It is as well as some of them, at the moment for being received decided to decide on scholarships to specialize in environmental subjects and in individual in the design of plants of treatment of residual liquids, thus five withdrawn at the moment are in the outside making studies of fourth level in this subject.

98. PECTIN EXTRACTION AND IDENTIFICATION FROM LEMON AND CAYOTE
Décima JG, Guennam MV, Sollazz Cisint SE, Genta ML, Alvarez N. Laboratorio de Tecnología Alimentaria. Facultad de Ciencias Exactas y Tecnología. Universidad Nacional de Tucumán. Av. Independencia 1800. (4000) S.M. de Tucumán, Argentina. E-mail: nalvarez@herrera.unt.edu.ar

Pectins are structural elements of the cellular system of plants. Their main component is the polgalacturonic acid partially esterified with methanol.

Raw material, lemon peel and cayote fibres mixed with shell and seeds, was dried and milled to increase the superficial contact area. The acid hydrolysis was done by hot extraction working at pH 2.5 during 90 minutes. The solution was filtered after resting 30 minutes. Ethylic alcohol was used for pectin precipitation. Pectin was filtered, washed and dried until constant weight. In order to homogenize particle size it was milled in a mortar.

The quantitative and qualitative determination of galacturonic acid was carried out by molecular absorption spectrophotometry. In all the cases the maximum absorbance was at 443 nm, which is the characteristic longitudinal of the acid.

It is possible to obtain a good powered pectin. Yellow pectin was obtained from lemon peel while a brilliant brown one from cayote fibres mixed with shell and seeds.

99. INHIBITORY EFFECT OF LACTIC ACID BACTERIA AGAINST POULTRY INTESTINAL PATHOGENS
Gusíls C, Ross GR, González S.
Fac. Bqca., Qca. y Fcia., UNT, 4000, San Miguel de Tucumán, Ayacucho 491. Tucumán. E-mail: cgusils@yahoo.com.ar

The objective proposed for the development of this work was to study the interaction of probiotic BAL poultry with intestinal pathogens. The isolation of indigenous intestinal pathogenic was carried out employing selective and differential media. For the study of the capacity of inhibition were employed two technical in vitro: i) diffusion in agar; ii) mixed cultures (the interaction was followed by measuring optical density and CFU/ml).

A high percentage of enteric bacteria were isolated form gastrointestinal tract of chicken (E. coli, Salmonella, Shigella). Poultry BAL showed inhibition effect against a few enteric strains, Salmonella, E. coli, Shigella; and this antibacterial activity was due to the effect of acid substances. Mixed culture studies indicated that selected BAL was able to inhibit the development of some intestinal pathogens (Shigella sp) as thus also an antibacterial effect on other intestinal pathogens (E. coli, Salmonella).

We can conclude that the poultry BAL presented beneficial effects al to inhibit and/or to kill poultry indigenous pathogens, and this effect due mainly to the effect of acid substances.

100. VIABILITY OF ENCAPSULATED LACTIC ACID BACTERIA
Ross G, Gusíls C, González S.
Fac. Bqca., Qca. y Fcia., UNT, Ayacucho 491. (4000) Tucumán, Argentina. E-mail: grossfbqf.unt.edu.ar

Encapsulation is a process used to protect substances against oxidation, to improve their transport, etc.

There is a wide kind of coating materials: hydrogenated oils, starches and gums like sodium alginate.

The aim of this work was study the viability and survival in gastrointestinal conditions of probiotic lactic acid bacteria encapsulated in calcium alginate.

The optimal encapsulation process was achieved using same relation (v/v) of non fat milk cell suspension (20%) and sodium alginate (1.8%). It was also added EDTA (1%) This mixture was aseptically dropped in calcium chloride solution (0.1M) bringing up capsules.

The survival of encapsulated bacteria in simulated gastrointestinal conditions was studied

Electron microscopy was used to demonstrated shape and structure of capsules and also presence of viable cells inside them.

The results of this study indicated that calcium alginate encapsulation protects lactic acid bacteria of gastrointestinal conditions Our data demonstrated that calcium alginate capsules were able to keep viable cells inside them and therefore they could be used as a safe delivery vehicle for administering probiotic bacteria.
A rapid and transient generation of AOS (Active Oxygen Species) in *F. x ananassa* leaves challenged with an avirulent isolate of *Colletotrichum sp.* that produces an incompatible interaction, was observed. However, the latter phenomenon did not take place with fungal pathogens that produce compatible interactions. The aim of the present work was to demonstrate the importance of this “oxidative burst” in the establishment of defense response. In order to confirm this hypothesis, we have used the system glucose (2.5 mM)/glucose oxidase (2.5 U/mL) (G/GOD) to provide a sustained accumulation of H$_2$O$_2$ on leaves to mimic the pathogen-induced oxidative burst. Our results showed that when the G/GOD system is applied simultaneously to the infection with the virulent pathogen that produces a compatible interaction, anthracnose symptoms were not observed in plants. However, when strawberry leaves were pretreated with the G/GOD system 1 h before the infection, the generation of H$_2$O$_2$ was enough to abolish the disease symptoms in strawberry.
The Aloes had been used along the human history until our days in several sicknesses. The aim of this work was evaluate through different radiographic techniques (retro alveolar bisectal, parallaje and parallelism) all the information about lower third molars’ root structure. Those techniques were performed to seven patients. Only one observer did the inform: total number of roots; number of mesials’ roots; curvature of mesials’ and distals’ roots; and disposition; between all the Rx techniques previously named. The results show that with the bisectal and the orthoradial technique, 71,4% of the lower third molars observed had two roots; when modifying the horizontal angulations of the central ray, 42,9% of the roots were fusioned and the 57,1% were separated. With the orthoradial technique, and the one varied from mesial and distal, 28,6% of the roots were fusioned and 71,4% were separated. For mesials roots, with bisectal and Orthoradial technique, 57,1% had only one root, and the 42,9% left had two roots, but when modifying the angulations from mesial and distal, 85,7% had one root, and 14,3% had two roots. Conclusion: A higher percentage of cases where roots are separated is observed when modifying the angulations of the central ray in parallaje technique and it also improves the visualization of mesial’s root curves, all very useful parameters to predict the kind of difficulties the surgeon could face during surgery.

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It was studied the antagonistic action between Rhodotorula glutinis, and pathogenic fungi of lemon: G. candidum, F. moniliforme, A. clavatus, P. expansum and P. digitatum. Were made solid assays to evaluate the existence of antagonistic action. A suspension of R. glutinis (1 x 10⁸ UFC/ml) was dispersed all over the surface of Sabouraud plates, after 1 h at room temperature, was carry out in the center of the plate a hole, it was filled with 20 ul of phytopathogenic fungi (1 x 10⁴ spores/ml). The plates were incubated during 5 days at 28°C, after this time the percentage of inhibition of phytopathogenic growth was evaluated. In presence of R. glutinis was observed a total inhibition of G. candidum growth, (sour rot). There was also a total inhibition of F. moniliforme growth (saprophytic fungi of lemon), that produced a cotton-like material and gave bad aspect to fruits. The growth of A. clavatus, P. expansum and P. digitatum (green mold) was inhibited among 75-80%. Our next objective will be determinate the mechanism of action of this biocontrol agent.

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In the present paper, radical system of vegetable sponge (Luffa cylindrica (L.) Roem.) is characterized, during the first twenty days of its growth. Vegetable sponge seeds were sown in flower pots with a transparent flat face (50% soil and 50% sand). Root growth was being traced every day. Average data obtained from the traces permitted characterize morphology and initial growth of radical system. The vegetable sponge radical system is typical, with a main axis and lateral ramifications. Principal root reached 32 cm of depth during the first 20 days of the experience. First order ramifications born in the third day from the sowing, when principal root reaches 8 cm of length. These ramifications are plenty in three zones, separated by scarce or void ramifications sections. The most frequent angle formed by lateral roots with the main axis is 80°. The growth rate of the principal root varies between 1 and 2 cm per day, coinciding the smaller values with the stretching of the first order ramifications.

The indicators are used in the management of the environmental resources, giving information of the state and intensity and direction of possible changes. Objective of the work: elaborate and select water indicators that allow research the availability and quality water resource in terms or sustainability. The Marapa river was compared at 1- river basin high S27°37’26,8 “W65°14 21,2” with 2- low river basin S27°39 ‘ 22.6 “W65°14 41” The samples were taken at April and May 2005. Variable analyzed and results: pH (method APHA QPT 35-23) diminution 13.16% April, increase 6.6% May; Electrical Conductivity (method APHA QPT 35-23) diminution 37% April, increase > 100% in May; Chemical Demand of Oxygen (method APHA QPT 35-23) increase > 100% both months; nitrite (by colorimetric method) increase > 100% both months; nitrate (by CAA QPT 40-51) increases in both, Faecals Coliform (by CAA QPT 40-66) equal previous; Aeruginosa Pseudomona (by modified APHA QPT 40-67), absent and Salmonella spp (by modified APHA QPT 40-68) present. Conclusion: they are recommendable parameters like indicators, by its sensitivity.

In sustainable agriculture the management of agro-ecosystems requires the use of indicators for the research of the tendency in the three pillars of the sustainability. Objective: establish if the parameters of soil quality can be used like indicators of sustainability in an ecosystem of the Chacopampeana plain, under production of grain cultures in direct sowing, in reference to the native forest. Analyzed parameters and results: Structural stability SS (Method of Leenheer and Boond) less 60%, Bulk Density BD (method of the cylinder) more 16%, pH (potenciometry) more 20%, total Nitrogen N (Kjeidal method) less 52%, and Organic Matter MO (method of Walkley and Black) less 49%. Made the statistical analysis (Test of comparison of averages) the differences were highly significant. In order to evaluate sensitivity like indicator of sustainability of the five studied parameters, each one were analyzed with respect to fourteen characters, assigning the value one to the positive answers and zero to the negatives, obtaining the following results: SS 10 (ten); BD 12 (twelve); pH 13 (thirteen); Total N and MO 14 (fourteen). Conclusions: the studied parameters can be recommended to be including in a set of indicators of sustainability in a system soybean - wheat in agroecosystems like the studied one.
113. PRESENCE OF FLAVONOIDS IN **POHLIA INTEGRA** (BRYACEAE, MUSCI)

Mendiondo ME, Schiavone MM, Suárez GM, 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: bejemem@csnat.un怒.edu.ar

The aim of this work is to analyze the presence of flavonoids in **Pohlia integra** in order to contribute to the chemical knowledge of the bryological flora of subtropical Argentina. Up to now there are not phytochemical data of the genera in the bryological literature. The plants of **Pohlia** are easily recognized by the lax laminal cells of very shining yellowish color and numerous red rhizoidal tubers. These species characterize the environments of height. The flavonoids of **Pohlia integra** which is recorded for the first time for Argentina, are analyzed.

Like preliminary phytochemical study, in the bidimensional chromatography, **Pohlia integra** has shown, only one compound of low value of Rf in AcOH 15% and high in TBA, dark brown coloration to the ultraviolet light in presence and absence of ammonia fumes and yellow with reactive NA (Naturalstoffereagenz). According to these results, and the spectral ultraviolet/visible data, it is inferred that the isolated compound belongs to the structural type of the biflavonoids, being the presence of these metabolites very common in bryophytes.

114. PREVALENCE OF ORAL LESIONS ASSOCIATED TO THE INFECTION FOR HPV

Ansonnaud A, Wierna A, Chaya ME, Ansonnaud C, Camino E, Gonzalez Mac Donald M, Ferrari M.
Estomatological Cl. Depart. FOUNT. Av. B. Araoz 800. C.P. 4000. E-mail: mauriciomacdonald@yahoo.com.ar

The aim of the present work is to determine the prevalence and distribution by age, sex and location of oral lesions by HPV in the Estomatological Service FOUNT during the years 2001-2004. Methodology: the used methodology was the clinical Exam and the anatomopatological study of the lesions. The information gathered in clinical histories and protocols was summarized in charts of frequency of simple and double entrance.

Results: of the total of 1447, 173 patients presented virose illnesses. For the obtaining of the results the pathologies were grouped by virus type being of more prevalence those originated by SHV type I, 152 patients HPV 13 patients Varicella-Zoster 5 patients **Urtiaino** virus 2 patients and **Paramico virus** 1 patient.

The most frequent distribution for age in infections by HPV was understood between 11 and 24 years. Related to the sex there was observed more frequency in masculine sex (61,53%) than in feminine (38,46%). The most frequent localization was lips (53,84%) followed by tongue (23,07%) commissure (15,38%) and Jugal mucous (7,69%). Conclusions: infections by HPV are factors of risk in Oral carcinogenesis that is why the dentist must Putemphasis in their prevention, precocious detection and treatment.

115. CA(OH)2 PASTES ON MICROHARDNESS AND ACTION ON THE SURFACE OF ROOT DENTIN

Pacios MG1, Lagarrigue G2, López ME1, Niewa N1
1Cát. Quím Biol, 2Cát Mat Dent, Fac Odontol, 3Lab Física del Sól, Fac C. Exactas, UNT. Av.B Araoz 800. 4000 San Miguel de Tucumán. E-mail: gabriela.pacios@odontologia.unt.edu.ar

Ca(OH)2 is very used in Endodontics as a topical medication during the treatment of necrotic teeth. Microhardness is a biomechanical property sensitive to changes of the surface and composition of the tooth. The aim of this work is to evaluate the action of the Ca(OH)2 associated to distilled water (DW) and propilenglicol (PG) on the microhardness of root dentin and to microscopically evaluate the changes of the tooth surface. The root canal of 10 recently extracted human teeth was instrumented and 20 disks of 2 mm thickness were cut, included in acrylic resin and the surface was refined. Dentin disks were treated with Ca(OH)2+DW and PG, and placed at 37ºC. Microhardness was measured at times 0, 3, 7 and 14 d. A Vickers durometer was used, applying a 300 g force in 15 s; each disk received 5 indentations to 1 mm of the root canal. Observations were performed in a Metalographic Optic Microscope. Results were analyzed by ANOVA and T Test. With Ca(OH)2+PG a significant decrease of the microhardness was observed from 7 to 14 d with regard to the control. With Ca(OH)2+DW a decrease of the microhardness was observed at day 7 but not significant with regard to the control. Hardness decrease was significantly higher with Ca(OH)2+PG than with Ca(OH)2+DW. Microscopic changes were observed from the 7 d for the two pastes. Pastes of Ca(OH)2 diminished the hardness and affected dentinal surface.

116. INDUCTION OF CHRONIC GASTRITIS IN MURINE MODEL. PREVENTIVE EFFECT OF LACTIC BACTERIA

Rodríguez C1, Medici M1, Mozzi F1, Font de Valdez G1,2
1CERELA-CONICET, Chacabuco 145, 4000 Tucumán, Argentina. 2Cát. Microb. Superior UNT, Argentina. Tel: +54 381 310465. E-mail: gfont@cerela.org.ar

Exopolisaccharides (EPS) from lactic bacteria have been claimed to have immunostimulatory and anti-ulcer effects in the host. Objective: To evaluate the potential preventive effect of fermented milks with EPS-producing **Streptococcus thermophilus** (CRL1190: EPS+; capsule producer, CPS+; ropy, R+ and S. thermophilus CRL804: EPS+; CPS; R) in BALB/c mice displaying chronic gastritis induced by acetyl-salicylic acid. The inflammatory degree was determined through the histopathologic structure and cytokine-producing cells (IL-10+ and INFγ) of the gastric mucosa. Results: S. thermophilus CRL1190 produced a marked decrease of INFγ, an increase of IL-10+ and showed similar histological structure to the control. In contrast, S. thermophilus CRL804 did not show prophylactic effect on the gastric mucosa. Conclusion: oral administration of fermented milk with S. thermophilus CRL1190 could regulate the inflammatory gastritis process.
117. VITAMIN B12 DEFICIENT MURINE MODEL. CLINICAL STUDIES
Molina V1, Medici M1, Taranto MP1, Font de Valdez G1,2.
1CERELA–CONICET, Chacabuco 145, 4.000 Tucumán. Tel: 381 4310465. 2Cat. Microb. Superior UNT, Argentina. E-mail: gfont@cerela.org.ar

Vitamin B12 (Vit.B12) deficiency can cause specific (nerve degeneration) or non-specific symptoms (anemia). This deficiency is caused for strict vegetarian diets, or physiological states like pregnancy. The aim of this study was to develop a Vit.B12 deficient murine model to evaluate enriched B12-functional foods. Clinical and hematological parameters were evaluated in different groups of BALB/c mice fed with a deficient Vit.B12 commercial diet for different periods. The animals which presented characteristic symptoms of the Vit.B12 deficiency in the shortest period (42 days) were selected as the optimum model.

118. BIOCOMPATIBILITY FROM VARIOUS ENDODONTICS CEMENTS IMPLANTED IN SUBCUTANEOUS CELLULAR TISSUE
Romano T, García Rusco A, Olmos Fassi J, Missana L.
Oral Pathology & Experimental Pathology Tucumán University, Dental School & CONICET. Av. B Araoz 800. 4000 Tucumán, Argentina. E-mail: missli@arnet.com.ar

The purpose of this study was to evaluate the biological response of Mineral Trioxide Aggregate, MTA (ProRoot USA); Portland Cement, (CP–Arg.) and Calcium Hydroxide, Calen (SS White–Bz) at subcutaneous connective tissue in order to select a biocompatible endodontic cement. These materials were placed in silicone tubes and implanted into dorsal connective tissue of fifteen Wistar rats according to ISO/FDI 1994 standard regulations. The animals were euthanized at 7, 15 y 30 days. The implants and surrounding tissues were removed, fixed in 10% buffered formol solution, and processed in routine manner. The results demonstrated that CP was the material better tolerated (20%), whereas Calen presented a larger severe reactions (53%) and MTA showed important moderate reactions (46%). In the control group connective tissue was observed at 7 days, whereas at 15 and 30 days fibrous tissue were found. CP showed best biocompatibility, followed by MTA. However, Calen showed a poor biocompatibility response.

119. PAMIDRONATE DISODIUM EFFECTS ON BONE CALVĂRIA THICKNESS
Territoriale E, Pastorino N, Juárez J, Kozuszko S, Missana L.
Labatory Pathology Research. Oral Pathology. Dental School. Tucumán University & CONICET. Av. B Araoz 800. 4000 Tucumán. E-mail: missli@arnet.com.ar

Bisphosphonates (BF) are osteoclastic resorption inhibitors, used in metabolic bone diseases. BF’s effects on bone resorption are know. However, its action on bone formation remains confuse. The main of this work was to evaluated their osteogenic action on rat parietal bone. Forty Sprague Dawley female rats (220 ±20 gr) were sorted in experimental group EG (20n) and control group CG (20n). EG were intraperitoneal injected by BF PMD (1mg/kg/day) at 0, 24, and 48 hs respectively; and in CG (20n) by sterilized distill water in the same manner. The animals were euthanized after one, two, three and four weeks treatment. The samples were fixed in formol buffer 10%, slowly decalcified, processed in routine manner and stained by H&E. The data were statistically analysed and showed significant differences at one week (P<0.009). It could be concluded that BF were not able to promote bone formation under these experimental conditions.

120. NANDROLONE DECANOATE EFFECTS ON DENTIN-PULPAR COMPLEX. HISTOLOGICAL EVALUATION
Kozuszko S, Territoriale E, Pastorino N, Missana L.
Oral Pathology & Experimental Pathology Tucumán University, Dental School & CONICET. Av. B Araoz 800. 4000 Tucumán, Argentina. E-mail: silviakozuszko@yahoo.com.ar

The Nandrolone Decanoate (ND) is a synthetic androgenic steroid, used in high doses by body-builders with important action on protein syntheses. There are few studies related to his effects on dental tissues. The aim was to evaluate ND action on dentin-pulp complex in young rats. Twenty rats (five ws old) were used. The animals were separated in Group A Experimental (10n) injected by via intramuscular (vi) by 10 mg/Kg/week of ND, and Group B Control (10n) injected with physiological solution by vi. The animals were euthanized after 1 and 6 weeks post-treatment. The samples were fixed with formol buffer 10%, slowly decalcified, processed in routine manner and stained by H&E. Histological and morphometrical studies were performed. GA showed increased amount of dentin and predentin formation in contrast with GB. The data were statistically analysed and showed significant differences for predentin thickness (P=0.012, P=0.0037 and P=0.031) for predentin thickness. It could be concluded that DN were able to promote dentin and predentin formation under these experimental conditions.
121. ISOLATION OF Candida SPECIES FROM DIFFERENT NICHE OF ORAL CAVITY IN PERIODONTAL PATIENTS, AND ITS RELATIONSHIP WITH SYSTEMIC CONDITIONS

López Rubio AC1, Garbero F1, Testa MM1, Cárdenas IL1, 2.
1Microbiology Department. 2Preventive Dentistry. Faculty of Dentistry. National University of Tucuman.
E-mail: carolopezrubio@hotmail.com

The aim of this work is to determine the prevalence of Candida species in different ecological niches of the mouth: periodontal pockets, saliva and oral mucosa, in periodontitis patients with and without systemic diseases. Thrity-three periodontitis patients between 19 and 76 years old were studied. Samples used for micological diagnosis were: subgingival plaque, mucosa of palate, cheek and tongue, and saliva. They were seeded in CRHOMagar for colony counts and species identification. From the total of patients, 4 had diabetes, 1 had a cardiovascular disease, 4 were hypertensive, and 7 were smokers. Candida was isolated from tongue in 45.5% of patients, from saliva in 39.4%, from cheek mucosa in 24.2%, from palate in 21.2% and from subgingival plaque in 18.2%. C. albicans was the most prevalent species in all ecological niches and the only species identified in periodontal pockets. C. krusei was isolated from saliva, tongue and palate; C. tropicalis in saliva and tongue, and C. parapsilosis only in tongue. Significant statistical differences (p=0.004) between smokers and non-smokers related with Candida isolation from saliva. There were no significant statistical differences between having or not other systemic diseases, except when diabetic condition and smoking were considered together (p=0.01). Tongue is the ecological niche with higher diversity of Candida species, being the most prevalent C. albicans, and it was the only species isolated form periodontal pockets. Diabetic patients who are smokers had more risk to be colonized by yeast. Supported by CIUNT.

122. KNOWLEDGE OF GRADE AND POST GRADE DENTISTRY STUDENTS OF DENTAL ATTENTION OF PREGNANT WOMEN

Garbero F1, López Rubio AC2, Navarro A1, Gutiérrez de Ferro MM1, Cárdenas IL2.
1Microbiology Department. 2Preventive Dentistry. Faculty of Dentistry. National University of Tucuman.
E-mail: carolopezrubio@hotmail.com

The aim of this work was to evaluate grade and postgrade students’ knowledge about dental practices in pregnant women. A qualitative-quantitative research was realized using an auto-administered questionnaire in a group of 28 dentistry students and 14 residents. The questionnaire considered: knowledge of the clinical pregnancy history, derivation to dental control during pregnancy control (PNC), aspect of mouth health during the pregnancy, dental treatments that can be realized without risk for the fetus, best moments for clinical therapy, etc. Mean age of students was 24.7 ± 2.7 years old, 6 were males and 36 women. 69% does not know the clinical perinatal history, 59.5% knows derivation norms for dental surveillance during PNC, and 73.8% thought that written authorization of physician was need for any dental practice. 71.4% of the students considered gingival status as the main problem. About the main reason of dental complications, 90.5% of the students considered poor oral hygiene, 81% hormonal changes in pregnancy and 54.8% vomiting of the first quarter. 88.1% considered that basic periodontal therapy does not represent risk for the fetus, and 47.6% believed that the second quarter was better for therapy. There were no significant differences in knowledges between grade and post-grade students. Knowledge demonstrated by dentistry students and residents about dental practices during pregnancy were insufficient. Supported by CIUNT.

123. RELATIONSHIP AMONG Candida SPECIES ISOLATED FROM ORAL CAVITY WITH CARIES AND PERIODONTAL DISEASE

Lopez Rubio AC1, Garbero F, Testa MM1, Cárdenas IL1.
1Microbiology Department. 2Preventive Dentistry. Faculty of Dentistry. National University of Tucuman.
E-mail: carolopezrubio@hotmail.com

It has been suggested that the use of broad spectrum antibiotics can promote superinfections with yeast in periodontal pockets. Candida albicans is considered among dental caries associated microorganisms. The aim of this work was to establish the relationship among Candida isolation and caries and periodontal disease, and to describe species distribution in both groups. Thirty-three patients of the Faculty of Dentistry, with periodontal disease (PD) and the same number with dental caries (C) were selected. A clinical examination recording the following parameters were done: sugar intake, plaque index and CPOD (number of teeth with caries, lost and obturated). At the same time saliva samples for micological studies were collected. Samples were seeded in CRHOMagar for colony counts and species identification. Plaque Index mean was: 1.37 ± 0.67 (C) and 1.66 ± 0.60 (PD), (p<0.05). Saliva CFU/ml mean were: 481.33 ± 962.45 (C) and 249.70 ± 896.64 (PD) (p>0.05). In the 66.7% (C) and 63.6% (PD) yeast species was not identified. 24.2% (C) and 30.3% (PD) were C. albicans and 3% of each group had C. tropicalis. C. krusei was isolated in only one periodontitis patient and C. parapsilosis in two caries patients. There was not difference in Candida isolation between the two oral areas. C. albicans was the species most frequently isolated in the two groups. Supported by CIUNT.

124. RELATIONSHIP BETWEEN PROSTAGLANDIN E2, AND ANTIGEN PRESENTING CELLS IN AN ANTITUMORAL IMMUNOTHERAPY EXPERIMENTAL MODEL

Valdez JC, Gobbato N, Mercat GT, Huaman M, Mercat G.
Facultad de Medicina, Cátedra de Histología. Av. Roca 2100, (4000) Tucumán. E-mail: pumavaldez@hotmail.com

Introduction: Dendritic cells (DC) are of transcendental significance in the induction of antitumoral response. Prostaglandin E2 (PGE2), and chemotherapic agents can inhibit the immune response. We analyze the relationship between splenic and plasmatic PGE2, with the generation of splenic DC in the context of mice breast cancer treated with chemotherapy and immunostimulation.

Material and methods: 12 Balb/c mice with M3 breast cancer where separated in four groups: Mice in Group D were inoculated with IV doxorubicin (D) 0.2 ml (150 ug /ml); Group V received 0,1 ml of IM Ribovac Vaccine (2,5 ug of bacterian RNA + 280 mg of proteoglycans/ml); group DV received D and after 24 h Ribovac Vaccine, while group T served as control. PGE2 concentration and the presence of DC were determined.

Results: The concentration of PGE2, was significantly higher in group D (460±57 pg/ml) and D+V (480±67 pg/ml) p < 0.05. The percentage of DC was also higher in group V (28±2.9) when compared with T (18±2.2) p<0.05, D (13±1.2) and DV(11±2.2) p<0.01. D significantly diminished the percentage of DC in group D and DV in relation with T (p<0.05) and V (p<0.01)

Conclusions: Treatment with doxorubicin and vaccine, whether they were being applied alone or combined, increase PGE2 production. However, vaccine treatment does not revert DC depletion produced by doxorubicin.
Lectins are proteins that recognize and bind to the carbohydrate moiety of glycoprotein, glycolipids and to polysaccharides. Some of them are capable to inhibit the protein synthesis in an irreversible manner by an rRNA subunit depurination. The purpose of this work was to study the molecular and biochemical properties of bark and leaf lectins isolated and purified from *S. peruviana*. In bark we have isolated two lectins , one is an homodimer, its Mr is 150.000 Da with two identic subunits of 39.800 Da. The other produces an inhibition of protein synthesis (RIP) . It has an Mr of 250.000 Da with two subunits of 36.000 Da and 26.000 Da. It was isolated as a tetrameric or dimeric form. Its IC₅₀ is 0,85 mg of protein/ml. In leaves we isolated a RIP. Its Mr is 65.000 Da, with two subunits of 31.700 Da. Its IC₅₀ is 0,74 mg of protein/ml. In the three subunits of 31.700 Da. Its IC₅₀ is 0,74 mg of protein/ml. In the three subunits of 31.700 Da. Its IC₅₀ is 0,74 mg of protein/ml. In the three lectins the erythrocyte agglutination was inhibited by the same sugars. They have the same pH and temperature stability. The molecular and functional characteristics of lectins isolated from bark and leaves indicated that they have some different properties. It is important to continue with this work because of the possible biological applications.

Esterases are enzymes that hydrolise esters of short chain fatty acids (C2-C10), producing piquant flavours and intense aromas. Esterases of lactic acid bacteria are also involved in the development of fruity flavours. The aim of this work was to evaluate the intracellular esterolytic activity of *Lactobacillus* strains isolated from goat’s and ewe’s milk and cheese. Post-electrophoretic detection of esterase activity showed the presence of 1 to 3 bands per strain. The most intense bands were detected on α-naphthylacetate. Carpine strains presented higher activity on α-naphthylbutyrate (0.57-4.93 U/mg). Significant activities were also detected on α-naphthylcaprate (1.14-4.68 U/mg) and α-naphthylacetate (1.40-4.20 U/mg). In ovine strains, esterolytic activity was only detected on α-naphthylacetate. No hydrolysis of α-naphthylurate was observed. The strains studied in this work released short chain fatty acids and therefore, they would actively contribute to the development of milk and cheese flavour.

The purpose of this work is the taxonomic, morphoanatomic and histochemical study of native plants used as medicinal in the argentinian northwest. These plants are used and sold as herbal remedies in the NOA. A check list of 53 native species from vascular plant families is given. For each one is pointed out their botanical family, scientific names, folk names, and main principles uses attributed to them. The morphoanatomic characters of three species were investigated: root of *Krameria lappacea* (Dombey) Burdet & Simpson, stem of *Aristolochia triangularis* Cham, leaves and rhizome of *Microgramma squamulosa* (Kaulf) Sota. The microscopic study determines different cellular types characteristics for each species. We conclude that the morphologic, anatomic and microscopic studies on plants employed in popular medicine are useful for their characterization and quality control of species.

Within the Training Program of Human Resources of this Faculty, the chair of Animal Histology promotes the training of teaching assistants through theoretical-practical activities for teaching, research and extension. This work aims at the comparative evaluation of the methodology used by the chair during 2004-2005 in relation to earlier periods. It also shows the strategies used in the instruction of human resources through the academic, technical and scientific training with the preparation of practical works based on the thematic nucleus Animal Respiratory Organs. Five assistants carried out the following activities: specialized bibliographical research, dissection and histological processing of respiratory organs of different zoological groups, analysis and interpretation of images through light microscopy, theoretical-practical seminars for data integration and consolidation, cooperation in the design of a students’ Teaching Guide and teaching practice. The methodology evaluated constituted an improvement with respect to the one used in former periods, since it integrates laboratory with teaching practice. The academic, technical and scientific training constituted a valuable experience that allowed the design of a teacher’s profile, contributed to the instruction of teaching assistants in the Microscope Morphology area and encouraged their initiation in research work.
129. CONTENT OF POLYPHENOLS IN LEMON JUICE FROM TUCUMAN
Alvarez A, Jorrits M, Genta M.

The content of total polyphenols is a parameter that allows to characterize the lemon juice from a certain geographical region and also to contribute information about a nutritional component that has positive effects on the human health, since there has been demonstrated that the polyphenols reduce the risk of cardiovascular diseases. The objective of the present work was to evaluate the content of total polyphenols in lemon juice from Tucumán as a parameter of characterization and to compare it with other drinks reported in the bibliography as source of polyphenols, such as red wine and black tea. There were analyzed 47 samples of concentrated juice of lemon, representative each one of a batch of 10000 liters of concentrated juice. The concentrated juice was diluted up to reaching the brix corresponding to a natural juice. The determination of total polyphenols was realized for Folin Ciocalteu’s method. The average content of total polyphenols was of (933.0 ± 11.3) mg/L of Gallic acid equivalent for liter. This concentration is four times higher than the content of polyphenols of red wine (210 mg/L) and black tea (235 mg/L). In conclusion, the lemon juice from Tucumán has a high content of total polyphenols.

130. RADIOGRAPHIC STUDY OF MIXED DENTITION ACCORDING TO NUTRITIONAL STATUS
Romero S1, Páez R2, Lencina V3, Lorca A1, Delgado AM2,4.
1Salad de Rayos, 2Odont. Preventiva, 3Farmacología y Terap. Fac. de Odontología. 4Bioestadistica, Fac. de Medicina. UNT.

Objective: To determine radiographically on size, shape, number and mineralization stage of primary and permanent dentition on normal and malnourished children from S.M. de Tucumán Material and Methods: Two groups were formed: one of uterochildren and other malnourished. Retroalveolar radiograph from left lower arch were taken. Dental age was determined by the dental developmental stage adapted by Haavikko. Results: Sample was constituted by 34 malnourished and 55 normal. Proportion of children with studied alterations, didn’t vary according to nutritional status. (P>0.15 in all pathologies). It was detected though, that 1st permanent molar eruption grade differ significatively according to child nutritional status (P=0.023), non erupted 1st molar proportion is higher in malnourished children and root calcification degree differ according to nutrition status (P=0.01). Proportion of children with deficient radicular development degree (< a 1/3) is higher between malnourished than normal. Conclusion: studied pathologies don’t differ according to nutritional state. Among malnourished 1st molar eruption degree and radicular development is lower than that in normal children.

131. ISOLATION OF A PROTEIN DERIVED FROM SPERM EXTRACTS CAPABLE OF INDUCING THE ACTIVATION OF Bufo arenarum OOCYTES MATURED IN VITRO
Bonilla F, Ajmat MT, Sánchez Toranzo G, Zelarayán L, Oterino J, Bühler MI.
Instituto de Biología. UNT - INSIBIO. Chacabuco 461. (4000) Tucumán. E-mail: mbuhler@unt.edu.ar / mbuhler@unt.edu.ar

In the fertilization of most animals, egg activation is accompanied by an increase in cytoplasmatic Ca++; however, the mechanism through which the fertilizing sperm induce this phenomenon is still controversial. This work aims at: a) the isolation of the active fraction of the sperm extract; b) the analysis of its effect on egg activation under different experimental conditions. The sperm extract was subjected to gel filtration chromatography and the fraction with biological activity was dialyzed against 1% NaCl; then polyacrylamide-SDS electrophoresis was carried out. The experiments were performed with in vitro denuded Bufo arenarum oocytes. The activation parameters considered were the disappearance of the white spot, the elevation of the vitelline envelope and the cortical granules exocitosis.

The results indicate that in the fraction with biological activity of the sperm extract there is a protein of approximately 30 Kda. This protein is capable of activating the eggs in a dose-dependent manner when it is added to the culture medium; however, it has no effect when microinjected into the egg cytoplasm. These results indicate that the protein isolated from the sperm extract would interact with receptors on the oocyte membrane capable of activating the signaling pathways that lead to activation. 

132. MICROBIOLOGICAL MONITORING OF SUGARCANE JUICE AT DIFFERENT STAGES OF THE CLARIFICATION PROCESS
Anduni G, Gusils C, Ruiz M, Cárdenas G.
EEAOC. Av. Williams Cross 3150. Tucumán, Argentina. E-mail: guilleanduni@eeaoc.org.ar

Cane sugar manufacturing process begins with the reception of sugarcane in the sugar mill, where it is crushed to extract its sugared juice, which is subsequently filtered, sulfated, decanted, limed and heated. The juice is then decanted in clarifiers to obtain clarified juice. During all these stages, the microorganisms existing in sugar cane play an important role in relation to the efficiency and quality of the final product.

As a first step to control microbiologic quality, the microbial content of sugarcane juices obtained in Tucumán sugar industry, was analyzed. The microbiological methodology was performed according to ICUMSA official protocols.

When analyzing the values obtained, it could be observed that in the case of first expressed juice and mixed juice, most of sugar mills exhibited very similar count of bacteria, fungi, yeast or polysaccharide-producing microorganisms. In clarified juices, values obtained were low, and fungus and yeast were absent.

From the results mentioned above, it can be stated that it is important to control different aspects of the clarification process in order to avoid the appearance of undesired microorganisms affecting yield efficiency.
Clinic as well as experimental evidence demonstrated that dislipemia is a major risk factor (RF) in cardiovascular diseases associated to hypertension (HT) and diabetes. Objective: Development of an hipercholesterolemic animal model without overimposed RF. 12 male Flanders’ hybrids rabbits 2-3 weeks after weaning (800-1000g) were used and separated into two groups: DC standard and DH cholesterol (1%) enriched diet. Pellets were formed by rehydration/dehydration with 10% starch. Body weigh, food and water intake were registered for 5-6 weeks. After this, blood samples were obtained in order to determine total cholesterol (CT), LDL, HDL, triglycerides (TG) and glycemia. Mean arterial pressure (MAP) was measured by direct method. Results: no differences were found between glycemia and MAP in DH vs DC. Significant increases in CT, LDL and HDL were found in DH (41 ± 16 p<0.05 and 13 ± 3 vs 244 ± 127 mg/dL p<0.05) whereas TG value was similar in both groups. These results indicate the development of a hipercholesterolemic model without associated RFs. An specific protective role of HDL must be investigated.

Endotelial release of nitric oxide (NO) may be due to agonist or mechanic stimulation. The aim of this work was to study whether the presence of a relationship between the degree of tone developed during agonist stimulation and the relaxation induced by endothelial release of NO.

The typical flavor of wine is mainly due to volatile compounds deriving from the grapes. They can appear in their free form or as odourless, non-volatile glycosides. The volatile compounds from glycosides can be released by acid or enzymatic hydrolyses. The aim of this work was to select strains of Lactobacillus hilgardii, Pediococcus pentosaceus and Oenococcus oeni, from argentinean wine, with ability to produce aroma compounds from glycosilated flavor precursors. We investigated β-glucosidase and α-arabinoarabinofuranosidase activities in cultures supernatant, cellular suspensions and cells free extracts. Cells were cultivated in MRS and MRS+10% grape juice media at 30°C. Enzymatic activities were detected only in cellular suspensions, with specific activities from 0.27 to 15 and from 0.02 to 1.4 µmol/mg/h for β-glucosidase and α-arabinoarabinofuranosidase, respectively. The highest values were observed for O. oeni strains derived from MRS medium at half of exponential growth phase (13.9 and 14.4 µmol/mg/h for specific β-glucosidase activity of X.L and ST strains, respectively). The activity of P. pentosaceus 12p was also significant. The enzymes were not liberated to extracellular medium and they were not detected in cells free extracts. Considering the results, in terms quantitatively, we selected the O. oeni X.L and ST strains to continue these investigations.

The object of this work is to identify the social cultural framework of the operatives and the influence of personal hygiene on the innocuous results of the frozen fruits.

Two samples were taken, 30 based on the quantitative basic needs unsatisfied and 30 based on capacities to show specific activities showing the harmless effects of the product. The variables were: a) Age and sex b) Domestic units: blood relations or shared relationships under the same roof c) Incomes and outgoings d) Regular activities in the plant, quality of operatives permanent or casual e) Health cover and freedom to select medical care and services f) Education and highest grade obtained g) Type of material, infrastructure, basic services h) Special abilities and knowledge of good practice during the packing process. Results obtained by the application containing coded questions from which we infer differences in normal working practices.
137. INFLUENCE OF MEDIUM COMPOSITION ON ESTERASE ACTIVITY FROM BACILLUS STRAINS
Loto F, Baigori M, Pera L.
PROIMI Av. Belgranoy Pje. Caseros, 4000 Tucumán. Tel: 4344888, E-mail: lpera@hotmail.com

Introduction. Carboxylesterases (EC 3.1.1.1) can catalyse ester synthesis and transesterification. They have been widely used in industrial application such as in food, chemical and pharmaceutical industries. Selective conversions of natural or synthetic substrates into useful products using whole cells or isolated enzymes have been gaining an increasing importance among the methods for the production of organic substances. Objective. Evaluation of the influence of medium composition on both free and biomass-bound esterase activity. Materials and methods. Free and biomass-bound esterase activities were studied with Bacillus sp. A60 and Bacillus subtilis 168, respectively. Esterase activity was determined by using p-nitrophenylacetate as substrate. Microorganisms were grown at 37°C using a set of modified Luria-Bertani media (LB). Results and conclusions. When 12.5 g/l tripteine was added the extracellular esterase specific activity was improved. Interesting, when either tripteine or yeast extract were not added significant increased specific esterase activity was observed. This work was supported by grant CABBIO 2000 cod 012.

138. DETERMINATION OF MYCELIUM-BOUND β-N-ACETYL-D-GLUCOSAMINIDASE ACTIVITY FROM ASPERGILLUS niger MYA 135 IN SUBMERGED PROCESS
Calin V, Romero C, Baigori M, Pera L.
PROIMI Av. Belgranoy Pje. Caseros, 4000 Tucumán. Tel: 4344888, E-mail: lpera@hotmail.com

Introduction. Filamentous fungi grow by apical extension, localized apical syntheses that creates a tubular hyphal morphology. Besides linear tip extension, filamentous fungi branch to form new intercalary growing tips. Wall lytic enzymes have an important role in the process of apical growth. However, the events involved are still not clearly understood. One of the wall lytic enzymes is the activity β-N-acetyl-D-glucosaminidase (NAGase), that we use as a relative marker of the wall lytic potential. Objective. Evaluation of NAGase activity during fungal development in submerged process. Materials and methods. Aspergillus niger (ATCC MYA 135) was grown at 30°C in MB (g/l): sucrose 10; NH₄NO₃ 2; KH₂PO₄ 1; MgSO₄ 7H₂O 0.2; CuSO₄ 5H₂O 0.06; pH5. NAGase activity was determined using 0.01 g of wet mycelium and p-nitrophenyl-N-acetyl-β-D-glucosaminide as substrate. Results and conclusions. Both NAGase specific activity and branch frequency increase during fungal growth. The maximum NAGase specific activity was 0.550U per mg of dry weight. This work was supported by grant 693/04 CONICET.

139. PREVALENCE OF ORAL LESIONS DIAGNOSED CLINICALLY AS EPULIS. ITS HISTOPATHOLOGICAL STUDY
Wierna A, Alvarez M, Gonzalez Mac Donald M, Ansonnnaud A, Ferrari M.
Clinical Department. FOUNT. Av. B. Araoz 800. Tucumán. E-mail: mauriciomacdonald@yahoo.com.ar

The aim of this work is to show the prevalence of tumoral lesions (Epulis) and its distribution by sex and age, as well as the evaluation of the importance of the anatomopathological study in their diagnosis. Materials and Methods: it is a retrospective study carried out during years 1996-2005 in which were studied a total of 300 patients that went to an external clinic of the Stomatological Service of FOUNT. It was used as diagnosis method a correct clinical evaluation and complementary exams: radiographies and anatomopathological study. Results: on the total of patients registered from the clinical point of view 8,99% corresponded to Epulis. The histopathological study revealed that 66,66% were of type fibrinous, 22,22% granulous, 7,40% giant cells and 3,70% carcinoma spinocellular. Related to sex, it was observed more frequency in feminine 63% than in masculine 27%. The range of ages was between 10 and 76 years being more frequent between 10 and 36 years. Conclusions: the anatomopathological study must be the routine exam in lesions diagnosed clinically as tumoral lesions of gum.

140. ISOLATION OF A BACILLUS STRAIN TOXIC TO SPODOPTERA frugiperda (LEP.: NOCTUIDAE)
Alvarez A, Pera LM, Via E, Baigori MD.
PROIMI Av. Belgranoy Pje. Caseros, 4000 Tucumán. Tel: 4344888, E-mail: alvarez_analia@hotmail.com

Introduction. The fall armyworm, Spodoptera frugiperda (Sf), is one of the most important corn pests in tropical and subtropical America. Some microorganisms are important candidates for its control. Bacillus thuringiensis (Bt) is an entomopathogenic spore-forming bacterium, which produces proteinaceous crystalline parasporal inclusions (Cry). Objective. Evaluation of ten “Cry” producer strains against first instar larvae of Sf. Materials and methods. Individuals comes from a laboratory colony maintained under controlled conditions (25°C, 70-75% RH and 12:12 L/D). The artificial diet was immersed in sterile water “Cry” protein suspension. Microorganisms isolated from soil and dead larvae were used. Larval mortality was determined during 7 days. Results and conclusions. One of the native strains tested, called RT3, had a strong toxicity against Sf larvae. Considering two independent assays, a mortality level from 76.6 (F=60.5; gl=1; P=0.0015) to 100% was observed after 3 and 4 days, respectively. Finally, in the first assay no larva was survived. Larval mortality using serial dilution of “Cry” suspension was also determined. According to these results, the isolated RT3 can be considered an active strain. This work were supported by grant CIUNT D308 and CONICET.
114. LIPASE ACTIVITY FROM ASPERGILLUS niger MYA135 ON AGARIZED MEDIUM
Romero C, Rodriguez E, Pera L, Baigorri M.
PROIMI Av. Belgrano y Pje. Caseros, 4000 Tucumán. Tel: 4344888, E-mail: baigorri@hotmail.com

Introduction. Lipases (E 3.1.1.3) are biotechnologically important enzymes that catalyze the hydrolysis and synthesis of a wide array of esters. Industrial demand for new sources of lipases is continuing to stimulate the isolation and screening of new lipolytic microorganisms.

Objective. Evaluation of different agarized media for selection of fungal producer lipases.

Materials and methods. Hyphae of Aspergillus niger (ATCC MYA 135) were grown at 30°C on MB agar plus rhodamine B medium supplemented with either olive oil or different kind of Tween (20, 40, 60, and 80). Both MB agar medium and MB agar medium supplemented with olive oil were also evaluated. MB (g/l): sacarose 40, 60, and 80). Both MB agar medium and MB agar medium supplemented with olive oil or different kind of Tween (20,

Results and conclusions. The presence of rhodamine B and either Tween 40 or olive oil showed the same sensibility for lipase production. A little bit lower sensibility in medium supplemented with only olive oil was observed. Interesting, the presence of Tween 40 also delay conidiation process.

This work was supported by grant CABBIO 2000 cod 012.

115. EXTRACELLULAR AND MYCELIUM-BOUND LIPASE PRODUCTION BY PENICILLIUM corylophillum
Rodríguez E, Romero C, Pera L, Krieger N, Castro G, Baigorri M.
PROIMI Av. Belgrano y Pje. Caseros, 4000 Tucumán. Tel: 4344888, E-mail: baigorri@hotmail.com

Introduction. Lipases (EC 3.1.1.3) are enzymes that catalyze the hydrolysis of triglycerides in the oil-water interface. Both extracellular and mycelium-bound lipases from fungi are important in industrial applications. In particular, the use of a naturally-bound lipase can be cost effective because the biomass can be used directly, thus eliminating isolation, purification and immobilization procedures. Objective. The aim of this work was the evaluation of both extracellular and mycelium-bound lipase activity production by a strain of Penicillium corylophillum. Materials and methods. P. corylophillum was grown at 30°C in MB medium with and without supplementation 2% olive oil. MB (g/l): sacarose 10; NH4NO3 2; KH2PO4 1; MgSO4.7H2O 0.2; CuSO4.5H2O 0.06; pH 7. Lipase production was monitored by irradiating plates with UV light at 350 nm.

Results and conclusions. Specific activities obtaining in presence of olive oil were 1.5 U per µg of protein (supernatant) and 1.8 U per mg of dry weight (mycelium).

This work was supported by grant CABBIO 2000 cod 012.
Synthetic fungicides represent a significant risk to human health. Thus, there is an urgent need for alternative approaches, as natural products, able to control phytopathogenic fungi. Currently, we are evaluating the amounts of solvents and surface polymers to be used to dissolve the treatments, and to improve their dispersion in aqueous media, respectively. The concentrations of solvents and surfactants should not be inhibitory to the fungus strain. We assessed ethanol, ethyl acetate and DMSO at 2–4% with and without PEG 400 at 2%. Fungicidal activity of solvent and surfactant were evaluated using an agar dilution assay. The centre of each PGA plate (control and treated) was inoculated with a plug of growing mycelia and was later incubated until the mycelia reaches the Petri dish border. Mycelial growth diameters were measured for control and treated experiments (3 replicates) and results were analyzed statistically. Fusarium oxysporum was not inhibited by treatments with EtOH (2%), EtOH (2%)-PEG, EtOAc (2%), EtOAc (4%)-PEG and DMSO (2%)-PEG, while Botrytis cinerea was not inhibited by EtOAc (2%) and EtOAc (2%)-PEG.

Reabsorptions at the apical localization in XR images. External artificially created reabsorptions can be firstly detected at the cervical, half and apical thirds: a) small (0.5mm) b) medium (1mm) c) large (1.5mm). Intraoral XR with parallelism technique. 360 artificial cavities were carved in proximal root surfaces of mandibular and maxillary incisors of 6 skulls. Andreasen et al., 1987, reported that reabsorption cavities at the proximal root surfaces of mandibular premolars of cadavers can be detected when cavities are of 1.2 mm, but do not differentiate cervical, medium and apical cavities. The aim of this in vitro work was to evaluate artificial proximal external reabsorptions. 20 central and lateral maxillary incisors of 6 skulls were selected and intraoral preoperative XR were taken using the parallellism technique. 360 artificial cavities were carved in proximal root surfaces at the cervical, half and apical thirds: a) small (0.5mm) b) medium (1mm) c) large (1.5mm). Intraoral XR with Kodak E-F Insight film were taken using a 70kw, 8Ma/s Satelec, Kwit-bite, Switzerland) located the film at 40cm of the XR tube standardized the geometric projection. An acrylic plate of 1.8cm interposed between the skulls and the XR tube simulated soft tissue. The same observer applied a x3 magnification. Data was analyzed by SPSS with the Chi Square test. Significant differences (p<0.001) among cervical and apical and apical and media localizations for small cavities were obtained, but not (p>0.05) for others. External artificially created reabsorptions can be firstly detected at the apical localization in XR images.

Several classes of dietary compounds have been suggested to reduce the level of biomarkers of oxidative damage. The antioxidant actions may occur by inhibition of reactive oxygen species generation or by its direct scavenging. Simple experiments can be performed to examine direct antioxidant ability in vitro. This work describe a new autographic method to detect lipophilic and hydrophilic antioxidant compounds in food, phytotherapeutic or other mixtures using a preformed radical monocation of 2,2 azinobis-(3- ethylbenzothia-zoline-6-sulfonic acid) (ABTS+). Different concentrations of reference antioxidant compounds seeded in TLC were covered with agar containing ABTS+ or sprayed with an ABTS+ solution. The detection limit was 0.1µg for naringenin and quercetin, 1 µg for rutine and β-carotene, 2.5 µg for ascorbic acid and 0.15 µg of phenolic compounds from plant extracts. This method is rapid, sensitive and reproducible for screening of complex mixtures with antioxidant properties and for the bioguide isolation of antioxidant metabolites.
149. SCAVENGING ACTIVITY OF NITROGEN ATOM-CENTERED FREE RADICALS BY PLANTS FROM EXTREME PLACES
Mesón Gana J, Zamponi IC, Ordóñez R, Sayago J, Nieva Moreno MI, Isla MI.
Cátedra de Fitoquímica. Facultad de Bioq., Qca. y Fcia. UNT.
Ayacucho 471. S.M. de Tucumán. Argentina. E-mail: misla@tucbbs.com.ar

Previously, we demonstrated that the plant species which growth in Puna, Argentina (Baccharis incarum, Baccharis boliviensis, Chuquiraga atacamensis, Parastrephia lucida) show high scavenger capacity on oxygen free radicals (ROS). In present work, we evaluated the antioxidant activity of these plant ethanolic extracts on DPPH radical (1,1-difenil-2-picrylhidrazyl) and ABTS• cation (2,2′-azinobis (3-ethylbenzothiazoline-6 sulfonic acid). The results were expressed as the trolox equivalent antioxidant capacity (TEAC, μmol Trolox equivalents/100 g dry weight). The phytochemistry pattern by TLC and phenolic compound and flavonoid contents were also analyzed. The TEAC values ranged from 14706 for P. lucida to 4167 for C. atacamensis. A positive relationship between phenolic compounds and antioxidant activity was observed. IC50 values for DPPH scavenger show that P. lucida was the most active extract. Our results demonstrated that these plant species are potential sources of natural antioxidant compounds for multiple biotechnological uses.

150. FUNCTIONAL PROPERTIES OF YEAST CELL WALLS (Saccharomyces cerevisiae)
Carrasco Juárez B, Ordóñez R, Isla MI
Cátedra de Fitoquímica. Facultad de Bioq., Qca. y Fcia. UNT.
Ayacucho 471. S.M. de Tucumán. Tucumán. Argentina. E-mail: misla@tucbbs.com.ar

Numerous pathological processes may overproduce oxygen-centered free radicals and other reactive oxygen species, eventually leading to many chronic disease. For this, is important to find news antioxidant natural product. In this work we evaluated the antioxidant capacity of natural products extracted from Saccharomyces cerevisiae cell walls. This biological material was obtained by autolysis in the yeast extract production process in a Tucumán food industry. The cells walls were washed and then extracted in ethanol and water at different time and temperature conditions. The total phenolic compounds, proteins, dry materia and total sugars were determined. The alcoholic and aqueous extracts showed a high DPPH radical scavenging capacity with IC50 values of 30 μg/ml. The ethanolic extract had more protective effect on lipids peroxidation (β-carotene bleaching inhibition) than aqueous extract. Our results suggest the potential exploitation of this industrial discarded material, that may yield sub-products with biological activity.

151. MODIFICATIONS OF THE BLOOD PRESSURE AND CARDIAC FREQUENCY DURING THE ORAL TREATMENT WITH THE DINAMAP MONITORED METHOD
Olmos Fassi JL, Morales Abújder EM
Cátedra de Fisiología FOUNT Av. Benjamin Araoz 800. S.M.T. E-mail: drmiguelmorales@hotmail.com

Since the oral treatment produces physical and psychological stress, it is possible associated with rises in the blood pressure and the cardiac frequency. The aim of this study was to evaluate the changes in the meanings of blood pressure (Diastolic Blood Pressure DBP, Systolic Blood Pressure SBP, Medium Blood Pressure MBP), and Cardiac Frequency (CF). Three different situations were compared: 1. before the oral treatment (while the Clinic Story is been made) 2. During the oral treatment (while the dentist is working) 3. Five minutes after the end of the oral treatment. Thirty patients of both sex, supposedly healthy and with no pharmacological treatment were selected. The patients from a rank of age of 18 to 43 years old went to the Deontology Center of the Faculty of Dentistry, U.N.T. Following the rules of the National Committee for the Prevention, Evaluation and Treatment of the high blood pressure, just one operator evaluated and registered the different meanings of the variables studied (SBP; DBP; MBP and FC), in the three different situations using an oscillometryc tensiometer, which determines automatically the called meanings (Dinamap). The data were transcribed to the SPSS statistic program and them analyzed by the two way ANOVA test, with their respective post hoc test of multiple comparations (Tukey And Tamahane). The results shown no statistical differences of the variables SBP; DBP; MBP, and CF in the different moments of the oral treatment (p>0.05). In this study, no variations in the blood pressure neither cardiac frequency were found in the different moments of the oral treatment.

152. INHIBITORY EFFECT OF LACTOBACILLI ON THE GROWTH AND BIOFILM PRODUCTION OF Klebsiella STRAINS ASSOCIATED WITH CATHETERS
Maldonado N, Cecilia M, Nader F, Silva C.
Bacteriología. Fac de Bioqca, Qca y Fcia. UNT.

Infections related with catheters and other devices are a challenge for prevention and treatment; therapies are not always effective due to new virulence mechanisms developed by microorganisms: production of biofilms. To avoid catheter-associated infections a great variety of technological innovations has been applied but without success. Recently, OMS recommended bacteriotherapy. Numerous studies have shown the protecting effect exerted by lactacid bacteria (LAB) against a diverse range of infections. The objective of the present study was to examine the inhibition of the formation of biofilms and growth of catheter-associated Klebsiella by using Lactobacillus strains. For the inhibition assaying the O’Toole technique was used. A decrease of between 3 and 7 log regarding bacterial growth, whereas biofilm production was completely inhibited. Inhibition of biofilm formation and growth of Klebsiella by lactobacilli and their acid and neutral supernatant could indicate a useful and economical alternative method for prevention of catheter-associated bacterial infections.
153. DETECTION OF VIABLE NON-CULTURABLE Vibrio cholerae O1 (NCVC) FROM RIVERS IN TUCUMAN, ARGENTINA

Bacteria can use a variety of adaptive strategies to survive in the environment. The temperature, light, evaporation and plankton can affect the survival of microorganisms regarding their persistence or ability to cause diseases. *V. cholerae* belongs to this group of bacteria. In Tucumán the bacterium was sporadically isolated associated with diarrhea. Due to its capacity to colonize sweet water the objective of this study was to detect *V. cholerae* (NCVC) using immunofluorescence (IF) to find environmental reservoirs, assessing rivers in Tucumán. Three preestablished spots of the rivers Lules (1) and Salí [Banda (2) and north canal (3)] were sampled during the four seasons. The filter membranes for water were suspended in 8 ml of PBS. To 1 ml of the PBS suspension and 1 ml of phyto and zooplankton 100 µl of ANY medium was added and the mixtures were incubated at 37°C for 6h. Then 4% formaldehyde was added. Detection of Vibrio O1 NCVC using IF DFA-DVC (New Horizons Diagnostics Lab, Columbia, MD, USA) Samples were fixed on slides and reagent was added. Were incubated in a humid chamber at 37°C for 30 min without light. Then they were washed with PBS and examined. Vibrio O1 NCVC was detected in all the samples with highest numbers in summer. It is necessary preventative measures to avoid transformation of the rivers into a source of infection.

154. MICROBIOLOGICAL CONTROL OF TEA FROM SUPER-MARKET SHELVES
Porcel N, Castillo M. Cátedra de Bacteriología. Fac. de Bioq. Qca y Fcia. UNT. Ayacucho 491, CP: 4000.

Tea is a pleasant, popular, economical, safe and socially accepted beverage, which is consumed daily by millions of people around the world. It is obtained through an infusion of leaves from the *Camellia sinensis* plant. This study make an assessment of the microbiological quality of tea commercialized in S. M de Tuc, Arg, in 2004. Ten different tea brands, 5 coming in teabags and 5 in leaves, were analyzed on the following: Total Mesophilic Aerobic Bacteria. Total Coliform Bacteria at 37°C (C37) in Mac Conkey broth (most probable number technique; MPN/100 ml), Fecal Coliform Bacteria at 45°C (C45) in brilliant green broth, Presence or Absence of *Salmonella* and *Shigella* (S/Sh) in fungus and yeast medium supplemented with chloramphenicol, Total Coliform Bacteria at 37°C (C37) in Mac Conkey broth (most probable number technique; MPN/100 ml), Fecal Coliform Bacteria at 45°C (C45) in brilliant green broth, Presence or Absence of *Escherichia coli* (EC) and *Salmonella* and *Shigella* (S/Sh) in lactose broth, selenite and tetrathionate *Salmonella* Agar. TMAB ruling the objective of this study was to detect *V. cholerae* (NCVC) using immunofluorescence (IF) to find environmental reservoirs, assessing rivers in Tucumán. Three preestablished spots of the rivers Lules (1) and Salí [Banda (2) and north canal (3)] were sampled during the four seasons. The filter membranes for water were suspended in 8 ml of PBS. To 1 ml of the PBS suspension and 1 ml of phyto and zooplankton 100 µl of ANY medium was added and the mixtures were incubated at 37°C for 6h. Then 4% formaldehyde was added. Detection of Vibrio O1 NCVC using IF DFA-DVC (New Horizons Diagnostics Lab, Columbia, MD, USA) Samples were fixed on slides and reagent was added. Were incubated in a humid chamber at 37°C for 30 min without light. Then they were washed with PBS and examined. Vibrio O1 NCVC was detected in all the samples with highest numbers in summer. It is necessary preventative measures to avoid transformation of the rivers into a source of infection.

155. INDUCTION OF AN EXPERIMENTAL MODEL OF AUTOIMMUNE DISEASE BY INOCULATION OF THE RNP ANTIGEN
Haro MI, Valdés JC, Valverde M, Marsiglia R. Histology Department, Faculty of Medicine, Universidad Nacional de Tucumán. E-mail: mariiasabelharo@yahoo.com.ar

Mixed connective tissue disease (MCTD) is an illness of autoimmune etiology with overlapping signs and symptoms of lupus, dermatomyositis, rheumatoid arthritis and scleroderma and is associated with anti-RNP antibodies. Objective: to induce an experimental model for MCTD by inoculation with ribonucleoprotein (RNP) antigen. Materials and Methods: 18 BALB/c mice of 40 weeks were inoculated as followed: group I) was injected with 100µg of RNP SC in complete Freund’s adjuvant and then weekly with 50 µg in incomplete adjuvant until completing four inoculations; group II) received 50 µg of RNP IP in complete Freund’s adjuvant, continuing weekly with 50 µg until. Control mice were inoculated with Freund’s adjuvant. Results: 8/18 mice showed visceral hypertrophy; 4/18 alopecia; 2/18 corneal opacity; 2/18 malnutrition; 4/18 arthritis. There were no differences in function of sex or inoculation route. No control mice shown signs or symptoms of MCTD. Conclusion: our findings in inoculated mice with RNP in Freund’s adjuvant were consistent with clinical features described in patients with MCTD.

156. HISTOPATHOLOGICAL FINDINGS IN LUNG OF AN EXPERIMENTAL MODEL OF AUTOIMMUNE DISEASE
Valverde M, Uñates J, Alabarse G, Nuñez JM, Carmona L, Haro MI. Histology Department, Faculty of Medicine, Univ. Nacional de Tucumán. E-mail: martahvb@hotmail.com

Mixed connective tissue disease (MCTD) was considered a pathology of benign evolution but the clinical manifestations are now well-known where the histopathological changes are wide and diverse. Objective: to describe the histopathological findings in lung using an experimental model of MCTD. Material and Methods: 18 BALB/c mice, of both sexes and 40 weeks of age were inoculated with ribonucleoprotein (RNP) in Freund’s adjuvant (9 mice IP and 9 SC) in four doses, according to established protocol. Control group: mice were only injected with Freund’s adjuvant. After the third month of last inoculation mice were sacrificed and the organs were processed (H-E and Gallego’s staining). Results: the most characteristic findings were: lymphoid interstitial pneumonitis, interstitial fibrosing pneumonitis and granulomas in subpleural area. Conclusions: the histopathological findings in the lung of the mice inoculated with the RNP antigen would be similar to lesions described in patients with MCTD.
157. **PURIFICATION OF NUCLEAR RNP FOR CLINICAL AND DIAGNOSTIC APPLICATION IN A AUTOIMMUNE EXPERIMENTAL MODEL**


Histology Department, Faculty of Medicine, Universidad Nacional de Tucumán. E-mail: jcvvaldez@fbaf.unt.edu.ar

Mixed connective tissue disease (MCTD) is an autoimmune disorder associated with anti-ribonucleoprotein (U1-snRNP) antibodies. The aim of this study was to obtain RNP to induce an experimental model (in mice) and for use in ELISA assays. Materials and methods: Purification of RNP. Blobel and Potter’s methods was used for the collection of the nuclei of rat liver. The RNP was purified by ultracentrifugation and by fractionated precipitation. The molecular weight of the isolated protein was determined by SDS-PAGE. ELISA assays: 96 well plates were sensitized with 1 μg RNP in 100μl per well. We used MCTD patients’ sera as positive controls and normal individuals’ sera as negative controls. Sera of all induced animals were tested. Results and conclusions: The molecular weight of purified RNP was compatible with one fraction of U-1 snRNP (45 kDa) and was reactive with the MCTD patients’ sera. Most animals inoculated with the RNP antigen were highly reactive, others only somewhat. Non-inoculated mice were all negative.

158. **NEW REMAINS REFERABLE TO THE FAMILY NOTOHIPPIDAE (MAMMALIA, NOTOUNGULATA) FROM THE LUMBERRA FORMATION (EOCENE) FROM SALTA PROVINCE**

García López, Daniel A.


E-mail: dgarcialopez@csmat.unt.edu.ar

Several remains of small notoungulates were found in 1999 at El Simbolar, Guachipas Departament, Salta Province, in the Lumbrera Formation (above the “Faja Verde I”). Some of these notoungulates had been tentatively assigned to the Oldfieldthomasiidae on the basis of dental morphology. Additional material allowed a more complete analysis. These remains are reassigned here to the Notohippidae. The studied material, assignable to at least three individuals, includes mandibular, maxillary and premaxillary fragments with complete and incomplete teeth. They were compared to several known paleogene species of the family. It is concluded that they belong to a species very close to Notoungulata. The studied material, assignable to at least three individuals, includes mandibular, maxillary and premaxillary fragments with complete and incomplete teeth. They were compared to several known Notoungulata. It is suggested that those belong to a new taxon.

159. **IMPAIRMENT IN ENDOCHONDRAL OSSIFICATION CAUSED BY PROTEIN MALNUTRITION IN GROWING RATS**

López Miranda L1, Martin A1, Garat J1, Pani M1, Ruiz Holgado N1, Meheris H1, Gonzalez S1,2,3.

1D. of Histology. D. School UNT. 2CERELA. CONICET. 3D. Public Health, Fac. of Biochemistry. UNT.

E-mail: juan.garat@odontologia.unt.edu.ar

This study examine for histomorphometrical methods alterations in endochondral ossification in femurs of growing rats subjected to protein free diet. Ten Wistar rats, 21 days age were used. After weaning the animals were separated in 2 groups: Control (n = 5) fed on conventional diet ad libitum and undernourished (n = 5) fed on diet lacking in proteins administered ad libitum during 5 weeks. At the end of the experiment the animals were sacrificed, the femurs were dissected and processed for embedding in paraffin. Longitudinally sections were obtained and stained with H&E. Sections were photographed and tracings were made to perform histomorphometrical study. The following parameters were evaluated, according to stereological principles: 1. Length of the femurs taken in direct form with precision caliper. 2. Bone activity of the bone subcondral. 3. Bone volume in the bone subcondral. 4. Thickness of the cartilage of growth. The length of femurs was lower in the undernourished group (p<0,05). Histomorphometrical study indicated in the undernourished group a reduction in bone surfaces covered by osteoblas (p<0,05), related to an increase in bone areas associated to lining cells. Bone volume was lower in the undernourished group(p<0,05). Thickness of the cartilage of growth did not show significant differences between control and experimental group.

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160. **DIETARY RESTRICTION IN BONE FORMATION IN ALVEOLAR BONE MODELING AND REMODELING**

Martin A1, Garat J1, Pani M1, Lopez Miranda L1, Holgado Ruiz N1, Meheris H1, Gauftin P1, Gonzalez S1,2,3.


E-mail: juan.garat@odontologia.unt.edu.ar

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 25 days of experience, the animals were sacrificed, mandibles were dissected and processed 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 reabsorption, 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 and remodeling characterized by an increase of the bony surfaces covered by lining cells (rest) associated to the statistically significant reduction of surfaces covered by osteoblasts (p<0,05).
161. REINTERPRETATION OF A MIDDLE EOCENE NOTOUNGULATE JAW FROM THE LUMBRERA FORMATION (SANTA BARBARA SUBGRUP, SALTA GROUP) FROM NW ARGENTINA

Deraco MV, Powell JE.
Facultad de Ciencias Naturales e I.M.L. Universidad Nacional de Tucumán. Miguel Lillo 205. (4000), S. M de Tucumán, Argentina. E-mail: virginia_deraco@yahoo.com.ar

The aim of this contribution is to reanalyze a complete jaw with all its teeth, previously assigned to the Family Notohippidae (Mammalia, Notoungulata), which is referred here as a Leontiniid. It was found in the upper third of the Lumbrera Formation (over the “Faja Verde II”) at El Simbolar, Guachipas Dept., Southern Salta Province. Its dental formula is 3i; 1c; 4pm; 3m. Incisives roots are compressed. The i3 is the biggest, a diagnostic feature of Leontiniids. Incisives and canine are procumbent. Premolars and molars are brachyodont. Premolars increase in size gradually from the pm2-pm4. Molars lack posterior fosetid. The symphysis is short and reaches the mesial portion of the p1. New discoveries in the same site and stratigraphic level have cleared up this misinterpretation. The size of the i3, the compression of the incisives and the extent of wearing of lophids of the molars, allow to consider this material as a new basal representative of the Family Leontiniidae. It differs from other leontiniids of El Simbolar in its size and the morphology of the symphysis.

164. DETECTION OF THE HIV VIRUS IN TOTAL SALIVA OF HIV/AIDS PATIENTS

Salúm MK1, Tonello U2, López ME1, Diaz Ricci JC2.

Certain evidences suggest that orofaríngeous tissues can reserve the HIV and sustain viral replication. Total saliva (TS) is a complex mixture of gland secretions, where recent studies detected the virus by ELISA and Western Blot in HIV patients with gingivo-periodontal affection. The aim of this work was to associate viral RNA presence in TS of individuals HIV/AIDS, using the PCR technique, with the immunologic state. 15 HIV+ patients, both sexes, 33-45 yrs old were selected. Non stimulated TS was collected in 10 min of the sublingual and vestibule regions, centrifuged at 12000 rpm 60 min at 4°C and conserved at −70°C. Patients were divided according to their CD4 values: 500 cel/µl, 500-200 cel/µl and <200 cel/µl. After the viral RNA extraction, retrotranscription using RT Superscript enzyme, amplification with specific primers of the highly conserved region of the GAG gene virus (SK 38, SK 39, SK 145) and detection by agarose gel electrophoresis were carried out. Positive and negative controls were included. CD4 was determined in blood, while the quantification of copies of viral RNA in plasm was carried out with the Quantiplex HIV-1 RNA 3.0 Assay when TS was obtained. In 4 CD4 (<200 cel/µl), 5 (500-200 cel/µl) and 6 (>200 cel/µl) patients the virus was present. PCR technique allows to determine the presence of HIV in TS of moderate and severe immunosupression patients.
The periodontal disease (PD) is characterized by the histological degradation of collagen. Gingival injuries are associated with HIV infection. The aim of this work was to carry out a comparative histopathologic study among biopsies of patients with PD with and without HIV/AIDS. 44 patients of 20-60 yrs old were selected. Diagnosis included periodontal and gingival indices, probing depth and insertion leve, and was applied for all patients. 11 HIV/AIDS and 12 with chronic PD without infection were selected and histopathologically classified in 3 Gingivitis groups: Levee (I), Moderate (II) and Severe (III). Biopsies were obtained during the basic therapy by a mucoperiostic tornpiece and processed by the routine technique. The study at the epithelial level included: queratinization, atrophies, focal or diffuse hyperplasia, espongiosis, exocitosis and presence of bacteria. At connective level: congestion hemorrhages and predominant cellular types (lymphocytes, plasmocytes, polimorfonuclear neutrophils, PMN). Group I with HIV/AIDS showed similar features, except for the high PMN infiltrate. Groups II and III with HIV/AIDS showed diffuse hyperplasia, higher number of colonies in epithelial and connective tissues, leucocytosis and PMN infiltrate. Groups without infection showed inflammatory focal hyperplasia and epithelial lymphocytes infiltrate. Results show different activity between HIV/AIDS patients and the group without infection.

The Periodontal Disease is characterized by inflammation (gingivitis) due to bacterial colonization that progresses toward the support tissues of the tooth. One of the characteristic signs of Moderate and Advanced Periodontitis is the mobility of the pieces and support loss. Mobility is classified in degrees (Miller): I (the tooth moves 1 mm in horizontal sense), II (more than 1 mm in horizontal sense) and III (horizontal and vertical mobility). The aim of this work was to determine chemical composition of GCF of patients with Periodontitis and dental mobility. 25 patients with diagnosis of Adult’s Chronic Periodontitis, aged between 25 and 55, ten with mobility type I, 11 with mobility II and 5 with mobility III were included. The periodontal diagnosis was carried out by a single examiner, and consisted on: periodontal index (IP), gingival index (GI), probing depth (PD), insertion level (IL) and bleeding (B). GCF samples were taken from two places of the same mobile unirradicular tooth. Aspartate Amine Transferase, Lactate Dehydrogenase Alkaline Phosphatase and Collagenase (zimography) were determined. Statistically significant differences were observed for AST, LDH and AP with regard to controls. Enzymes in GCF could difference Moderate and Severe Periodontitis, but not mobility degrees.

The effects on the dentin tissues of irrigation solutions are studied in order to optimize their employment in Endodontics. Objective: the histological and chemically evaluation of the action of irrigation solutions on the structure and composition of human dentin. Methodology: 10 uniradicular roots of human antero superior teeth were extracted by orthodontic reasons and cut in 2 mesial and distal halves being one as control. The other half was exposed to 1 ml of: 1% NaClO, 17%EDTA, 1%CatOH2, 0.2% Chlorhexidine and distilled water 30 min, fixed 3h in buffered formol pH 7 and conserved in alcohol 70%. Halves were fractioned in thirds, treating the cervical and half thirds until a thickness from 6-8 µm and colored with Hematoxilin-Eosine (H-E), Ailican Blue pH 2.5 with PA-Schiff (AB-PAS) and Alizarin Red pH 9.3. Total proteins, hydroproline, Calcium and Phosphor in the irrigation solutions were determined. Results: Tissue disorganization was observed with NaClIO and EDTA. NaClIO eliminated proteins and calcium. EDTA solution had a highly content of hydroproline and Phosphor. Conclusions: 1%NaClIO evidenced its oxidizer action on collagen and mineral; 17%EDTA demonstrated its quenel power affecting the mineral and the organic components. Photographer F. Pucci.
169. CONTENT OF N–P–K IN DIFFERENT COMPONENTS MORPHOLOGICS FROM STRAWBERRY PLANTS cv. SELVA IN CULTURE OF 1st AND 2nd YEAR IN TAFÍ DEL VALLE, TUCUMÁN, ARGENTINA

Fac. de Agron. y Zoot. UNT. Av. Roca 1900. (4000) Tucumán, Argentina. E-mail: ezbran47@yahoo.com.ar

The objective of the work was to determine the content of NPK in plants of strawberry, cv. Selva of 1st and 2nd year cultivated in 2003/04, in Tafi del Valle at 2000 m.o.s.l. Fertilization was: 50, 20, 100 UF of NPK, in culture of 1st year and 110, 45 and 220 of UFN-P-K in the 2nd year. It was determined the content of NPK % in fruits, leaves and petioles in plants of 1st and 2nd year in March of 2005. ANVA and Test of Tukey in plant and correlation of Pearson of NPK % in fruit took place. Significant differences in 2nd year with respect to 1st year of N in fruit of 1,4 and 1,2; leaves of 2,4 and 2,3; and petioles of 0,9 and 0,7; P in: petioles of 0,19 and 0,18; K in: petioles of 2,8 and 2,3, respectively, and significant differences in culture of 1st year with respect to 2nd year of P in: fruit of 0,2489 and 0,24; K in: fruit 2,1 and 1,7 and leaves of 1,9 and 1,7, respectively, were found; and negative correlation in fruit between P and N (-0.5736), K and N (-0.8277); and positive correlation between K and P (0.4976) were founded. Its results suggest it is necessary to adjust the fertilizers according the smaller fruits demand of P and K % in the 1st year.

170. EVALUATION OF YIELDS AND ABSORPTION OF N–P–K IN TUBER (Solanum tuberosum L. Spunta) SEED IN TAFÍ DEL VALLE, TUCUMÁN, ARGENTINA

Brandán de Antoni E, Villagra E, Hernández C, Fernández R, Torres C, Antoni HJ, Carrasco MP.
Fac. de Agron. y Zoot. UNT. Av. Roca 1900. (4000) Tucumán, Argentina. E-mail: evillagra@faz.unt.edu.ar

The object of the trial was to evaluate the yields and absorption of NPK by seed potato, cv. Spunta, in Tafi del Valle, in 2004/05. The experimental design was Blocks at random with 6 treatments: T1.Control, T2.100 Units of fertilization of N/ha, T3.100 UFN+90 UFP/ha, T4.100 UFN+150 UFP/ha, T5.100 UFN+90 UFK/ha+150 UFP/ha, T6.130 UFN+160 UFP/ha, and 5 repetitions. The ANVA and LSD in tuber yield, Test of Tukey in tubers and correlation between production of seed potato and NPK in tubers were realized. Differences in yield of tuber were detected between T6(22,140) and T5(20,164) with respect to T1(12,404) kg/plot. Significant differences in content of N were detected between: T6(1,6), T3(1,4), T2(1,4) and T4(1,4) with T5(1,3) and T1(1,1); between T2(1,4), T5(1,3) and T3(1,3) with T1(1,1); in content of P between T2(0,26), T3(0,26), T5(0,26) T6(0,26) and T1(0,24) with T1(0,23). There were no differences in K in tubers. Positive correlation between yields with N (0.3233) and P (0.1338) and low correlation of K (0.0648) in tubers were found. Its results suggest it is necessary to realize adjustment fertilizer according the absorption and accumulation of NPK by the tubers seed.

171. RELATIONSHIP BETWEEN LOW TEMPERATURES AND TISSUE DAMAGE IN LEMON (Citrus limon L.)

Lemon has become very important crop in Tucumán in the last years. This province presents big thermic variations with frequent Autumn-Winter frosts. At -2°C flowers, at -3°C leaves and -9°C woody tissues are damaged. Damage is related with the duration of low temperatures. The objective of this study was to evaluate tissue damage caused by low temperatures in different top sectors of lemon plants. It was worked in El Manantial with Eureka variety top and Citrange Troyer rootstock trees. The low temperature incidence on North and South top sectors was evaluated. The mean minimum registered was 3°C. The cellular flux conductivity of leave tissue was determined as Dexter (1932) modified by Amado and R. Rey (1984). In each sampling date, 10 samples were incubated at 25°C, 15 hs. (control) and 10 treated at -10°C, 2 hs., then incubated the same as control. Tissue damage index (T.I.I., Singh and Kanwar, 1978) was calculated: T.I.I=Control Conductivity (25°C)/Treatment Conductivity (-10°C). Conductivity determination of the cellular flux of congealed and uncongealed cells permits to evaluate the low temperatures damage to the membrane system functioning. Results show greater tissue damage at leave level at top South sector than at the North one owing to the cold front advance from that orientation.

172. EFFECT OF THE THERMIC FACTOR IN THE REPRODUCTIVE DEVELOPMENT OF PEPPER CROP

The pepper production in greenhouse constitutes an important activity for Tucumán province (Argentina). Pepper is a species with high sensibility to low temperatures, manifesting a growth detenion at 10°C and minor flower coagulation at 18°C. The objective of this study was to evaluate the development of the pepper crop in a determined thermic cycle for the 2005 year employing the minimum temperatures occurred in the greenhouse. It was worked from last May to middle September in the Centro de Experimentación Adaptativa Lules (CEAL) dependent of the Instituto Nacional de Tecnología Agropecuaria (INTA) located at San Isidro de Lules (Tucumán province). It was used the Margarita hybrid. The implantation was made to a distance of 40 cm between plants and 120 cm between lines. Evaluations were made from May 31st to September 19th consisting on the extraction of three entire plants. Fresh weight, dry weight and number of flowers per plant were determined according to the methodology of evaluation and analysis of the growth. Results show a decreasing of the number and dry weight of flowers in an 80% when minimum greenhouse temperature decreased from 10°C to 3°C which indicates minor flower coagulated and low yield of the pepper crop at cooling temperatures.
173. EVALUATION OF ORAL HEALTH RELATED HABITS IN A GROUP OF TEENAGER STUDENTS
Luna SB, Lencina V.
Cát. Educación para la Salud, Facultad de Odontología, Cát. Bioestadística, Facultad de Medicina. U.N.T. Av. Benjamín Araoz 800. S.M.de Tucumán. E-mail: selva.luna@odontologia.unt.edu.ar

The aim of this study is to evaluate oral hygiene and alimentary related habits in teenagers’ students of Odontology School taking the class of Health Education and to estimate the importance that they give to buccal health and the frequency of visit to the dentist office. This study was made with 64 students, 46 female and 18 male, aged 18 (n= 7), 19 (n= 41) and 20 years old (n= 16), during the first day of class in 2005. Answers indicated that they brushed their teeth 1 to 6 times a day (mean 3 times a day). 55% of the students changed teeth brush each 3 months, 33% each 6 months and 12% each 12 months. 77% of the students used other kind of implement like dental floss (64%) or dental rinse (33%) as a complement of buccal hygiene. 86% of the students ate lacteous products every day but also cariogenic food (sodas 3 to 4 times a day and candies 1 to 2 times a day). 60% of the students gave the same importance level to oral health than body health, they visit the dentist office mainly because caries and less frequently to obtain preventive care or orthodontic treatments. The detection of inadequate buccal habits and the perception that students have about oral health let us to implement preventive strategies of self-care and specific protective procedures in this special group of students that in a next future will be responsible of public oral health.

174. INTERDISCIPLINARY PROJECT: USE OF MEDICINAL NATURAL RESOURCES IN THE ARGENTINE NORTH-WEST
Tracanna MI, González AM, Amani SM, Hernández R, Poch MF, Sulaiman C, Daud C, Sidan M, Bianchi J
1Fac. de Medicina (FM). 2Fac. de Bioquímica, Química y Farmacia (FBQF). 3Fundación Miguel Lillo. Universidad Nacional de Tucumán. Ayacucho 471. Tucumán. Argentina. E-mail: amgonzalez@fbqf.unt.edu.ar

The rescue of popular knowledge and its revaluation require the contributions of the community and numerous scientific disciplines. With the objective to generate a interdisciplinary experience to investigate use of medicinal natural resources in the Argentine north-west it is instituted a project between the Medical Anthropology and Unit of Medical Practices (FM) and Pharmacognosy (FBQF) of Universidad Nacional de Tucumán. The application of technique of operations groups with an ethnographic boarding is used like methodology from emic-etic perspective. The protagonists are teachers, students and the studied community. In the first stage developed in the locality of Lamadrid, Graneros, province of Tucumán, semi structured survey was released to Know the use of medicinal natural resources between the settlers. The results obtained allowed to integrate the knowledge with other disciplines to program joint operations and to interact with the community from an approach emic-etic.

175. CHEMICAL STUDY AND BIOLOGICAL ACTIVITY OF Jatropha macrocarpa Griseb. (Euphorbiaceae)
González AM, Amani SM, Tracanna MI, Rodríguez AM, Poch M. Cátedra de Farmacognosia. Instituto de Farmacia. Facultad de Bioquímica, Química y Farmacia. Universidad Nacional de Tucumán. Ayacucho 491. San Miguel de Tucumán. Argentina. E-mail: amgonzalez@fbqf.unt.edu.ar

Jatropha macrocarpa Griseb., Fam. Euphorbiaceae, commonly called “higuera de zorro” is native of Argentina and growth in La Rioja, Catamarca, Salta, Jujuy and Tucumán provinces. Other species of Jatropha are used in the traditional medicine as antirheumatic, hemostatic, laxative and skin diseases. The objective of the present work was to carry out a study the chemical composition and biological activity in this species. Leaves of Jatropha macrocarpa was dried and extracted with ethanol and fractionating into different constituents according to polarity. On the other hand successive extractions with hexane, dicrolemethane and methanol for biological activity were made. The effect of extracts on ATCC bacteria: Staphylococcus aureus, Escherichia coli and Pseudomonas aeruginosa by agar diffusion method was assayed. Ethanolic extract revealed steroids, flavonoids, alkaloids, triterpenoids and quinones compounds. All extracts tested showed highest antibacterial activity.

176. AINeS PRESCRIPTION BEFORE PAIN IN CHILDREN DENTISTRY
Fernández PM, Basulado MM, Gerbán JA, Ibáñez HG.
1Cát. de Odontopediatría. 2Cát. de Farmacología y Terapéutica. F.O.U.N.T. E-mail: patriciamfernandez@gmail.com

Analgesics, antipyretics and antiinflammatories (AINEs) prescription in children, must be based on the analysis between probable benefits and risks of adverse effects. Aims: 1) Evaluate the pharmacological treatment duration. 120 students of the F.O.U.N.T. and dentists were interviewed with structured surveys for data collection in order to determine: a) Therapeutic attitude before dental pain in children, b) AINEs prescription selected by specific criteria according pharmacological action. Dose and intervals of them, d) Pharmacological treatment duration. Results: In both groups, first election AINE was Ibuprofeno, giving priority to anti inflammatory action like selection criterion. Second criterion of selection more used by the dentists was based on the analgesic-antipyretic action. Whereas in students group, second election criterion continues based on anti inflammatory action. Doses and intervals were correctly prescribed in both groups, nevertheless the treatment length was not optimal. Conclusions: Predominant pharmacological treatment election in students and dentists was Ibuprofeno, based on its main anti inflammatory action.
Plants metal biosorption are affected by species, growth and chemical elements characteristics. In Tucumán there is a copper filter plant that produces metal contamination in agriculture surrounding areas. The aim of this work was to determine Cu accumulation in maize plant and its capacity of growth. Maize seeds were germinated in sterile, humid and dark conditions at 30 °C for 3 days, being later seeded in an inert material. The plants were watered 10 days with nutritive broth, 6 more with also CuSO₄ 250 mg/L and kept at 30 °C with light cycles of 12 h. The growth was evaluated in roots, stems and leaves. Cu accumulation was measured by atomic absorption spectrophotometer. A growth diminution of 10% in roots and absorption was observed compared to the controls. Only steams and leaves presented 16 and 13% weights reduction. Steams Cu accumulation was 93% more than the controls, however in roots and leaves were 83 and 86%. The capacity of Cu(II) accumulation by a food plant, could be prejudicial for the trophic chain because their toxicity in high concentrations.

Plasmogogen activators are highly specific serine-proteases that convert plasminogen to plasmin, an active protease with a very broad spectrum of substrates. In previous works, we determined the activity of plasmoglobin activators and the expression of urokinase type plasmoglobin activator (u-PA) in the epithelium of the porcine oviduct. The aim of this work was to demonstrate that tissue type plasmoglobin activator (t-PA) is synthesized and secreted in the porcine oviduct as well as to study the differences between the phases of the estrous cycle. Western Blot assays performed with oviductal fluid obtained in the follicular and luteal phases, by using a monoclonal antibody against t-PA, showed a band of 72 kDa corresponding to MW reported for porcine t-PA. The presence of t-PA was observed in both phases of the estrous cycle. The t-PA concentration was higher in samples obtained during follicular phase than luteal phase. The expression of t-PA gene studied by semi-quantitative RT-PCR in both ampulla and isthmus oviductal regions indicated no significant differences between both segments. When we studied the t-PA gene in the epithelial cells, an up-regulated expression during the follicular phase in this tissue was observed. According to these results, the presence of t-PA in epithelial cells was also confirmed by immunohistochemical assays. This work indicates that the t-PA is synthesized in the porcine oviduct and secreted to the oviductal lumen, where it could activate plasminogen to plasmin near gametes or embryos. This enzyme could act directly or indirectly on the extracellular matrix (ECM) components in the last case by activating matrix metalloproteases or grow factors present in the ECM.
Blueberries (Vaccinium corymbosum) are been recently cultivated in Tucumán, Argentina. Its production and commercialization is influenced by the short time of shelf life of them, principally for the presence of bacteria and fungi. In a previous work, we determined the efficacy of plant extracts to inhibit growth of microorganisms. The phytopreservatives were effective in the suppression of the growth of microbes during 12 weeks of storage at 4°C. The color and firmness are important factors that determine the quality of fresh and processed fruits. For this, the textural quality was studied using microstructural and compositional data. Phytopreservatives was able to retain the integrity of epidermal and subepidermal cells, the epidermal cell layers number, the cell wall and epidermal pigments (anthocyanins) were preserved. Consequently, phytopreservatives are promissory as natural antimicrobial and antioxidant agents in foods such as minimally processed fruits.

Mucosa-associated lymphoid tissues have been referred to as MALT. In salivary glands, reactive proliferations include the benign lymph epithelial lesion (B.L.E.L.). Most lymphomas are non-Hodgkin lymphomas, phenotype B. There is some controversy and debate in our environment and kidney is quite vulnerable to toxic injury. The aim of the present study was to investigate the pathophysiological relationship between lead exposure and the gangliosides expression in the development of lead nephropathy. Adult male Wistar rats were given 0.06% lead acetate in their drinking water for 4 months whereas the controls received ordinary tap water. Gangliosides composition was analyzed using TLC and their gangliosides expression was measured using TUNEL detection. Apoptotic cells were investigated using TUNNEL detection. Gangliosides are sialic acid containing glycosphingolipids. They are constitute molecules of plasma membranes and play important roles in cell function. Due to their abundance and electronegative charges, these molecules may be involved in the maintenance of glomerular filtration. Kidney tissue was characterized by high concentrations of GD3. This ganglioside and his 9-O-acetylated form are responsible of diverse events such proliferation, differentiation and apoptosis. Lead is one of the most common toxic metals present in our environment and kidney is quite vulnerable to toxic injury. The aim of the present study was to investigate the pathophysiological relationship between lead exposure and the gangliosides expression in the development of lead nephropathy.
185. EVALUATION OF THE USE OF MOLECULAR ANIMATION IN THE LEARNING OF TRANSMISSION MECHANISMS OF HORMONAL SIGNS

Bautista Herrera L., Deza H., Rojo HP.
Facultad de Medicina. UNT. Av. Roca 1900. Tucumán. E-mail: heberojo@sinectis.com.ar

The aim of this study is to evaluate the use of two molecular animations for the learning of transmission mechanisms of hormonal signs used in a Biochemistry class for students of medicine at the National University of Tucumán, taking into account the knowledge acquired by the students and their opinions. The animations were obtained from the book Molecular Cell Biology by Lodish et al., and from the internet. After a class with fixed images in power point, a questionnaire was handed out to the students (87) with multiple choice questions about the concepts presented. Following, the animations were shown and then the same questionnaire was again handed out but including questions of opinion about each animation. In all of the questions there was an increase in correct answers after having visualized the animation between 5 and 30% depending on the question. Among the questions of opinion the vast majority answered that they liked the animations, they found them useful, the movement helped comprehension and that concepts were clearer in those cases. Conclusions: Molecular animation tools are good teaching and learning aids. The students recognize the virtues of images in movement for conceptual comprehension. Its use motivates students as well as achieves greater learning.

This study was subsidized by the CIUNT.

186. INCIDENCE OF GENDER IN THE GENERAL KNOWLEDGE OF MATERNAL LACTATION OF MEDICINE STUDENTS OF THE NATIONAL UNIVERSITY OF TUCUMAN

Petros C, Rapetti Salik G, Deza HA, Rojo HP.
Facultad de Medicina. UNT. Av. Roca 1900. Tucumán. E-mail: heberojo@sinectis.com.ar

The role of health professionals promoting maternal lactation is crucial. This establishes the need to have a space for learning about maternal lactation for future medical doctors, beginning with the previous knowledge of the students. The aim of this study is to determine whether there are differences in the previous knowledge concerning maternal lactation in the 3rd year students of medicine at the University of Tucumán, taking into account the gender of the students. Throughout lectures of 3rd year students in 2003 (85 females and 43 males) and in 2004 (35 females and 26 males) a survey with questions about different aspects relative to maternal lactation was handed out. (For example the best time to begin lactation, the duration of maternal lactation, cases in which maternal lactation is not recommended). The surveys belonging to female students were processed separately from those of the male students. The results obtained showed different degrees of knowledge depending on the topic and in some cases on the groups surveyed. Even though it is expected that women be more informed on maternal lactation, no marked tendency was found in the groups and aspects studied, that reflect superior knowledge among one of the sexes over the other.

This study was subsidized by the CIUNT.

187. SUGARCANE SYSTEMIC DISEASES DIAGNOSIS AT “ESTACIÓN EXPERIMENTAL AGROINDUSTRIAL OBISPO COLOMBRES (EEAO)"

Filippone MP, Noguera A, Salgado M, Viruel E, Perera MF, Ramallo J, Castagnaro A.
Estación Experimental Agroindustrial Obispo Colombres CC 9. (4101) Las Talitas. Tucumán, Argentina. Fax (0381) 4276561 int. 231. E-mail: biotecnologia@eeao.org.ar

Sugar industry is one of the most important in Tucumán. Therefore, to know the crop health situation is fundamental to prevent or reduce the losses caused by diseases. Consequently, a precise and highly sensitive diagnosis method is required. “Enzyme Linked Immunosorbertent Assay” (ELISA) immunoenzimatic technique and its variants, are the most commonly used, although Polymerase Chain Reaction (PCR) molecular technique has been found to improve pathogen detection. At EEAOC, ELISA and since 2005 PCR, are used for optimizing disease diagnosis. Thus, the molecular diagnosis of four diseases caused by Leifsonia xyli sp. xyli, Xanthomonas albilineans, Sugar cane Mosaic Virus (ScMV), Sugar cane Yellow Leaf Virus (SeYLV), was optimized. The analysis of 160 samples with both diagnosis techniques showed no differences in bacterial pathogen detection, whereas with PCR a greater number of positive samples for ScMV was determined. From this results, we suggest to apply the serological technique and then PCR in the negative samples; it will allow a balance between sensitivity and analysis cost.

188. ACCREDITATION OF THE MEDICINE CAREER: EVALUATION OF THE INFORMATION IN STUDENTS OF FIRST YEAR

Cocimano C, Gandulfo C, Neme N, Orqueda D, Cena A, Petrino S Cat. de Biología, Fac. de Medicina. U.N.T.

In order to know the level of information on the processes of accreditation of the Medicine career of the UNT, It made a survey (S1) to 120 students of first year. After an informative class, a second survey (S2) was made to evaluate the acquired knowledge. After 2 months, the same group of students was re-evaluated by means of a third survey (S3). The S1 showed that 77% knew about the CONEAU 2000 accreditation, a 46% in relation to CONEAU 2006 and a 57% concerning to MERCOSUR 2005. Although there was an increase of the knowledge of the students on the accreditation processes, It was not the adequate. Survey 2 revealed that the 100% recognized the meaning of abbreviations CONEAU and a 91% the meaning of MEXA. S3 indicated that a 85.5% knew on relation of CONEAU 2000 accreditation, a 83.6% of CONEAU 2006 and 89% on regarding to MERCOSUR 2005. Only a 13% identified the abbreviation CONEAU and nobody MEXA. We concluded that the information process must be continuous, which would favours the sense of property of the students, who are the true protagonists of our studies house.
Membrane fusion is an essential event for life and cellular development. However, the mechanism involved in the initiation and regulation of this process are still unclear. Divalent cations induce aggregation, deestabilization and fusion of phosphatidylserine (PS) small unilamellar vesicles while monovalent cations can induce only aggregation. In order to study fusion and permeability of more complex systems, we have purified citoplasmic membrane lipids from phylogenetically related organism such us Escherichia coli, Salmonella typhymurium and Pseudomonas aeruginosa. We have improved the lipid extraction with a modification of the standard Folch technique. The obtained lipids were tested qualitatively and quantitatively obtaining better yield with our modification. The small unilamellar vesicles were prepared by sonication methods and their stability were checked by liberation of preencapsuled calcein. The obtained results show that the vesicles are stable. The permeability and fusion of the vesicles induced by mono and divalent cations was studied by fluorescence techniques. The results suggest that the changes in permeability and fusion of the vesicle membranes depend on the bacterial origin of the lipids used in the liposome’s preparation.

These results could be useful to elucidate basic aspect of exocytosis in Gram negative bacteria.

The species that tolerate and germinate after the normal Glyphosate doses, complete its reproductive cycle and increase their population, are called emergent weeds. The use of new technologies for weed control in grain-crops proves the increment on the emergent weeds populations. So it is necessary to identify the emergent weeds to know their behavior in order to make emergency predictive models. The aim of this paper is to register and characterize the emergent importance weeds in grain crops in Tucumán. The samples were collected in chemical fallow on the soybean-wheat system during 2004-2005. The samples were identified at species level using the specialized bibliography. The scientific name, the botany family, the common name, the life cycle, the phenology, the exomorphological and reproductive characters are described. The weeds of emergent importance found are: Avena fatua L.; Bromus catharticus Vahl.; Chloris dandyana var. breviristata (Hack.) A.M. Molina & Rágolo; Papophorum pappiferum (Lam.) Kuntze; (Family Poaceas); Commelina erecta L. (Family Commelináceas); Amaranthus quillensis Kunth (Family Amaranátceas); Cyclanthera hystric (Gillies ex Hook. & Arn) Ern. (Family Cucurbitáceas); Manettia cordifolia C. Martius (Family Rubiáceas); Solanum loretzii Bitter (Family Solanácceas); Euphorbia postrata Aiton (Family Euporbiáceas); Triandhema portulacastrum L. (Family Aizoáceas).

Objective: to identify the social representations that teachers from General Basic Education 1 and General Basic Education 2 have about “Education for Health” in San Miguel de Tucumán.

Materials and Methods: 64 teachers working at schools belonging to the program oral EDSA were questioned about the concept “Education for Health” and were asked to give their point of view. With the resulting data a meaning factorial analysis was made. A semantic profile was determined from the values obtained.

Results: distribution of the 24 pairs: fourteen with a positive direction: Important/Unimportant, Necessary/ Unnecessary, Good/Bad, Desired/Not desired, Significant/Insignificant, Prime/ Superfluous, Unique/ Not necessary, Right/wrong, Basic/trivial, Opportunate/ Innappropiate, Positive/Negative, Simple/Complicated, Sure/Dubious, Unpredictable/Reject able. Three have a neutral meaning: Obscure/Defined, Efficient/Inefficient, Able/Disabled. The rest is negative: “slightly containing, dynamic and positive”, “rather forgotten, scarce, partial and lacking”.

Conclusion: The predominant direction of the opposed pairs is positive. The relevant intensities are “slightly” and “rather” The attitude is that of acceptance of the object.
193. LEARNING HABITS AND MOTIVATION IN ODONTOLOGY STUDENT

Castro C, Delgado AM.
Periodontics Chair. Faculty of Odontology of National University of Tucumán. E-mail: Cecilia.castro@odontologia.unt.edu.ar

Learning habits and motivation have the goal to detect the deficiencies that students might have, and to achieve an improvement in their intellectual techniques, which would prognosticate a better academic success.

Objectives to change learning habits in 4th year students, attending Periodontics course, belonging to clinical studies of Odontology career. Methods: two comissions of students attending Periodontics regularly during 2004, were selected. These students were given a 56 point structured., consisted of 7 items: I Environmental factors, II Physical and Emotional Health, III Aspects about the learning method, IV Plans and Schedules Organization, V Examinations performance, VI Information search, VII About the learning motivation. Results: the sample was finally constituted by 48 students. 84 % found difficult to concentrate with noises. 71% revealed that emotional problems damage their performance, 68% makes a general exploration before they start studying. Most of them express that they separate the most important items out of each subject, and they also underline the main content of what they study. 54% can’t distinguish clearly the words indicating what they really have to do. 65% doesn’t know the general structure of a scientific job. Conclusions: most consider study as something personal, and feel that it is a means to recreate and spread knowledge.

194. PRELIMINARY STUDIES OF VOCAL REPERTIORE IN Conepatus chinga

Hurtado A¹, Black P¹, Chamut S².
¹Fac. de Ciencias Naturales e IML; ²Fac. Bioquímica, Qca., y Fcia. (UNT). E-mail: diciembre211272@yahoo.com.ar

As far as the case with many carnivores in Argentina, investigations on the hog-nosed skunk, Conepatus chinga, are limited, numerous aspects of its biology being unknown. The aim of the present work is to increase our knowledge of an important part of its behavior: the acoustic communication. We recorded and analyzed the calls emitted by 5 individuals of this species. By means of the analysis of different physical parameters (duration, range of frequencies, repetition rate, pulse duration, etc) we defined seven different calls. Only one call was tonal (breat) and it was produced by the newborns. There were four pulsed calls which had high repetition rates. Yelp was formed by an increase in the repetition rate of squeal. Snort had a lower repetition rate, and is more regular. Bubbling had an upper frequency of 4000 hz. The two atonal calls, (cough and hiss) were similar, but they differed in the emission situation. Most vocalizations had components over 8000 hz; the breath is ontogenetically the first and occurred only in the newborn-mother context. The importance of this study is not only that it is the first on this species, but also that a spectrographic description allows us a better identification, and more appropriate comparison with other species of the same genus and the same family.

195. A COMPARATIVE HISTOLOGICAL STUDY OF SKIN FROM BACK AND LEGS IN VICUÑA (VICUGNA VICUGNA) FROM BACK AND LEGS IN VICUÑA (VICUGNA VICUGNA)

Chamut S¹, Cancino AK², Black-Décima P³.
¹Histología. Fac. Bioquímica Qca. y Fcia. ²Fac. Ciencias Naturales e IML. U.N.T. ³Campo Experimental de Altura. INTA Abra Pampa, Jujuy. E-mail: schamut@jbqf.unt.edu.ar

The vicuña is a wild South American camelid of great economic importance for its fine wool. On ranches each vicuña is sheared every 2 years, obtaining 2 classes of wool—one from the dorsal hair coat and one from the legs and belly. The objective of this paper was to compare the histological characteristics of hair follicles from these 2 areas. Biopsies obtained from an animal from INTA Abra Pampa, Jujuy and processed with conventional techniques for light and electron microscopy. The back epidermis was thin, flat, layered and keratinized with many collagen fibers. The dermis had many compound hair follicles with primary and secondary hair follicles, sudoriferous and sebaceous glands. The ratio of secondary to primary follicles ranged from 28:1 to 50:1 (mean=40:1). Follicle diameter ranged from 103-221 µm (mean=170) for primary hairs and from 20-61 µm (mean=38) for secondary hairs. The belly-leg dermal layer was thicker with some collagen, blood vessels, erector pili muscles and more glands. Secondary to primary follicles ranged from 6:1 to 12:1 (mean=9:8:1). Follicle diameter ranged from 156-256 µm (mean=190) for primary and from 41-82 µm (mean=63) for secondary hairs. Vicuña skin thus showed a greater ratio of secondary to primary follicles and smaller diameters on the back than for llama, alpaca or merino sheep, in accordance with fiber diameter and economic importance.

196. NEW CONTRIBUTIONS TO THE VOCAL REPERTIORE OF HOWLER MONKEY (Alouatta caraya) IN CAPTIVITY

Martín FG, Black de Décima P, Chamut S.
Facultad de Ciencias Naturales e I.M.L. U.N.T. Miguel Lillo 205, CP4.000. San Miguel de Tucumán. E-mail: fgmarti@yahoo.com.ar

The howler monkey (Alouatta caraya) has an extensive vocal repertory, used in diverse social contexts, with important functions in social facilitation, exploration, coordination of displacement, localization and territory delimitation. The objective of this study was to analyze the vocal repertoire of this species, according to the age of individuals. The calls of five individuals were recorded; these vocalizations were analyzed, and classified according to sound parameters. We identify four news calls: Caw (1000–2500 Hz), Bark (1000 - 2000 Hz), Teeth chatter (2000 – 4000 Hz) and Lip smack (2000 – 6000 Hz). The typical signal obtained from infants up to six months old was Lip smack, and juvenile calls from six months old included: Caws, Burks and Teeth chattering. In adults from 1 1/2 years old the calls were: Guf, Roars, Howls, pure vocal calls and bleating. These data suggest that howler monkeys present an extensive vocal repertory. The present investigation represents an advance in the area, since this is the only one that analyzes the spectrographic characteristics of the acoustic signals and their behavioral function.
197. PRODUCTION OF A FUNGAL POLYGALACTURONASE AND ITS APPLICATION IN BIOTECHNOLOGY

Molina F, Sobrón JR, Sgariglia MA, Sampietro DA, Quiroga EN, Vattuone MA.
Cátedra de Fitotoxica. Inst. de Est. Vegetales “Dr. A.R. Sampietro”. Facultad de Bioq. y Farmacia. UNT. Ayacucho 471. (4000) Tucumán. Argentina. E-mail: instveg@unt.edu.ar

Pectinolytic enzymes are very useful in the industry for the extraction, purification and liquefaction of fruit juices and wines, to macerate plant fibres and fruits, etc. They are classified in three main groups: lyases, hydrolases and esterases. The polygalacturonases (PGs) are hydrolases and according to their function can be endo-PGs (EC 3.2.1.16) or exo-PGs (EC 3.2.1.67). Many filamentous fungi are frequently used in the commercial production of polygalacturonases.

The purpose of this work was the production and characterization of an exo-polygalacturonase from Pycnoporus sanguineus and the study of its use in biotechnological processes.

The highest yields of the PG activity was obtained in liquid medium at pH 4.8 and pectin as carbon source. Its Mr is 40 kDa. The TLC analysis of the products of the enzyme action on polygalacturonic acid and pectin showed that the enzyme is an exo-PG which main product is polygalacturonic acid. The enzyme is stable at pH 3.5-8 being its optimum at 4.8. It works at temperatures up to 65°C and has a Kmax = 2.20 mg/ml for polygalacturonic acid and 2.88 mg/ml for pectin. Consequently, this enzyme would be an useful tool for the processing of materials rich in galacturonanes.

198. INJURIES CAUSED BY SHARP INSTRUMENTS AND FIREARMS. HOSPITAL CIRCLES IN PROVINCIA DE TUCUMÁN (2001-2003)

Afar R. Martinez Riera N, Gallardo P.
Public health department. Or. Toxicology. Faculty of Medicine. Av. Roca 1900. E-mail: norymar@arnet.com.ar

Violent behaviour in Latin América is a serious public health problem and it is also the cause of a decline in the quality of life, health, welfare, social and economical balance of the population. The number of patients who enter hospitals with different traumatism caused whether by firearms (F) or sharp instruments (SI) has significantly increased.

The objective of this paper is to determine whether the number of patients who entered hospitals with (F) and (SI) injuries through Hospital Emergency Departments Pre and Post institutional crises (2001-2003) has changed or not.

Total number: 345 patients who entered the operating room of the main emergency department, (2001-2003), with (F) and (SI) injuries; no significant differences. 2001: 106 patients, 66 SI; 40 F. 2002, 129 patients 69 Si and 60 F. 2003, 110 patients, 59 SI and 51 F. Frequent average age (13-30), sex: 91% male.

This paper is a contribution to provide updated data about this pathology and to emphasize the role of the Phisycian as to create a working protocol which registers in a single book all the injury incidents and not only those which enter the operating room.

199. LEAD INTOXICATION: HEMATOLOGICAL ALTERATIONS IN CHILDREN. PRELIMINARY REPORT

Martinez Riera N, Feldman G, Chain S, Riera N.
Facultad de Medicina. Departamento de Salud Pública (orientación Toxicología). Avenida Roza 1900. (4000). Tucumán. E-mail: norymar@arnet.com.ar

Lead intoxication and the enviroment pollution produced by lead represent a public health problem all over the world. This metal affects several systems of the human body, mainly, the central nervous system, the hematopoyetic, the renal, the endocrine, the osseous system and others at early stages of life.

The objective of this paper is to evaluate the complete hematological profile in children intoxicated with lead and to use this evaluation as a tool to analyze the general conditions of public health. Several children of both sexes with a defined exposure source to lead were studied: Laboratory complete hemogram, with hematometric indices; plombemia an ALA-D. The statistics used was descriptive. Average age of the seven children was 6.2 (DE± 1.6), the average hematocrit 31% (DE±0.02), average hemoglobin 10.2 g/dl (DE± 0.78). 100% presented defined hypocromy, microcitosis and anisocytosis. Average ALA-D was de 8.9 U/L (DE±4.5); average plombemia was 37.9 ug/dl (DE± 6.22).

The enviromental problems at early stages of life affect health, survival and quality of life at late stages. All preventive measures to improve the enviroment can be considered as a human investment which will positively influence the economical and social development of the population in a near future.

200. EXPERIMENTAL MODEL: ENDOTHELIAL MINIMAL CHANGES OF LEAD EXPOSITION. PRELIMINAR COMUNICACION

Dep de Salud Pública-Or. Toxicología. Fac de Medicina. Av Roca 1900. Tucumán (4000). E-mail: norymar@arnet.com.ar

The endothelial function can be modified by environmental toxic substances such as lead. Microalbimunina is an indicator of the endothelial disfunction and it reflects an early and general alteration of the integrity of the endothelium. It is associated with hypertension and it is a significant indicator of cardiovascular morbidity-mortality.

The objective of this paper is to determine whether rats exposed to different concentrations of lead present microalbimunina and if this is correlated with exposure dosis.

Wistar white rats will be used (0.5; 500 y 1000 ppm lead acetate). Laboratory: ALA_D, microalbuminura, urea and creatinine. Results: microalbimunina mean is 3.25mg/l (DE± 0.5); 0.5 ppm:3.6 mg/dl (DE±0.79); 500 ppm: 5.5 mg/l (DE±0.52) and 1000 ppm: 7.1 g/l (DE±0.67).

Although there is a significant difference between control rats and rats treated with 0.5ppm doses this might be due to exposure time or low doses. Significant differences were found between controls (500 and 1000ppm), and this suggests that the endothelial disfunction progresses according to the doses. This strengthen the hypothesis of the close relationship between microalbimunina, endothelial damage and the role that lead plays in the genesis of cardiovascular diseases.
201. **EARLY ATHEROSCLEROTIC ALTERATIONS AND LEAD**

**Feldman G, Martinez Riera N, Chain S, Riera N.**

Dep. de Salud Pública.-Or. Toxicología. Fac. de Med. Av. Roca 1900. C.R. Méndez Collado Muñecas 444. Tucumán (4000). E-mail: norymar@arnet.com.ar

Lead exposure produces alterations in the structure, cardiovascular and endothelial function of children and adults. These alterations can unchain precocious atherosclerotic and vascular modifications. There are evidences that the effect of several metals, such as lead, increases the lipid peroxidation, which produces a deterioration of the cell membranes, one of the risk factors for the cardiovascular diseases.

The objective of this paper is to evaluate whether there are modifications in the intima media thickness of the common carotid artery in a group of children exposed (EC) to a lead pollution source, compared with healthy control children (HC).

Twelve children were evaluated (average age: 11.2 years old), (8 EC and 8 HC) with toxicology laboratory (ALA-D, plombemia). A protocol testing on carotid artery was carried out. Inner and outer diameters of the common carotid artery were measured.

It was observed that the EC group has significantly higher values. EC group Me: 0.5 and group HC Me: 0.4, p: 0.034 when evaluating the intima media carotid thickness. Lead exposure in children alters the endothelial function, which should be valued in a risk study and as an early indicator of an atherosclerotic disease related with enviroment pollutants.

202. **BIOSYNTHESIS OF RED AND YELLOW PIGMENTS DURING THE DRYING PROCESS OF THE PAPRIKA**

**Arjona M1, Díaz Ricci JC2, Amaya S1.**

1Fac. de Cs. Exactas y Naturales. UNCa. Av. Belgrano 300. (4700) Catamarca. E-mail: milarj2002@yahoo.com.ar; 2INSIBIO-UNT. E-mail: juan@unt.edu.ar

This work’s aim is to evaluate the production of red and yellow pigments in two drying processes under very different conditions, such as direct solar exposition and liofilization. The paprika extracts were made in acetone at a temperature of approximately 20°C and protected from light. The red and yellow fractions were isolated using semi-prepared plates of TLC (Thin-layer chromatography) of silica gel 60 GF 254 (glass plate of 20 x 20 cm, 0.7 mm thickness) in solvent mixture of hexane / ethyl acetate / ethanol / acetone (95:3:2:2). The spectrophotometrical method was used to calculate the concentration of the red (R) and yellow (A) fractions. The evaluation of the pigments in the samples dried through direct solar exposition presents the following composition: total carotenoids 5530.53 ± 0.2 µg/mL, yellow fraction 1732.04 ± 0.2 µg/mL and red fraction 3798.49 ± 0.3 µg/mL. In the sample dried through liofilization the following results were obtained: total content of carotenoids 5921.89 ± 0.3 µg/mL, yellow fraction 1262.52 ± 0.2 µg/mL and red fraction 4559.37 ± 0.2 µg/mL. The variation in the pigments of the different drying systems is explained thanks to the activation or inversion of the biosynthetic ways and the synthesis occurs from the pigments, that would work as precursors.

203. **MODIFICATIONS IN THE PLANT OF THE COTTON FOR TWO DIFFERENT SPACINGS**

**Garay F, Lescano A, Beltrán R, Werenitzky D, Helman S.**

FlyA-UNSE. Av. Belgrano (S) 1912. (4200) Santiago del Estero. E-mail: fegaray@unse.edu.ar

Out of the 266,387 ha cultivated whit cotton in Argentine 19% of them was in the province of Santiago del Estero during the period 2003-04. The price of the cotton decreased along the year, and a form of increasing the yield was attempted, reducing the distance between the rows of the crop in order to obtain a better to distribution of plants. The purpose of this research was to determine the changes operated in the crop when the distance between rows was modified. Two distances between rows were tested (0,35 and 0,75 m) and the variables controlled were: yield (Y) and total dry weight of plant per hectare (Tdw.pl/ha) measured as kg.ha⁻¹. The number of open boll by plant (Nob/pl), fiber weight per open boll (Fwob), seed weight per open boll (Swob), weight of the open boll (Wob) and the dried weight per plant (Dw/pl) measured in grams. Thirty two samples of both distances were evaluated, and the results were compared using the t test. The results showed statistic significant differences between the two treatments, being the variables Y and Tdw.pl/ha 30 and 31% higher in 0,35 m than 0,75m. On the other hand the variables te Nob/pl, Wob, Swob, and Dw/pl the sample of 0,35 displayed inferior values 37%, 4%, 6% and a 32% than 0,75 m. In the variable Fwob, no difference was observed between samples. The smaller distance cause than the plants individually has minors values of N.cap, the P.cap, the S.cap, and the Ps.pl, but that when improving the distribution of these in the surface is obtained an increase in the yield due to an increase of the total biomass of the crop.

204. **RELATIONSHIP BETWEEN CARDIOGENIC FACTORS AND THE PREVALENCE OF CARIES IN A RURAL CHILDREN POPULATION**

**Martínez C, Mayocchi K, Battista S, Restelli MA.**

Fac. Cs. Naturales y Museo. Fac. de Odontología UNLP. Paseo del Bosque S/N. 1900. La Plata. E-mail: marestelli@speedy.com.ar

The aim of the present study was to relate two cariogenic risks factors and caries prevalence in a rural children population from the Municipio Florencio Varela, Buenos Aires Province. Sixty three children were studied without evident pathologies, (mean age 9 years) in groups 0-6 ; 7-12 and 13-17 years old. Different Indexes were determined: a) For permanent teeth DMFT (Desease, Missing, Filled Teeth) and DMFS (Surface). For temporary teeth: dmft and dmfs. Plaque Index (Löe and Silness) and Sugar Moments were also determined. Main caries activity was observed in 0-6 and 13-17 years groups and the median was the principal population per-centage. No important differences were found in Sugar Moments, which average 6 indicated a moderate risk, but related to DMFT and DMFS index were considered high risk. The survey results of this rural school-children groups were lower compared to other similar studies and we inferred they could be due to socio-economic crisis in 2001 with none children population health dental control. High values in 13-17 years group we think they were because of adolescent hormonal changes and none odontological attendance as a consequence of the pauperization.
The use of deteriorated seeds, not only causes problems to this crop, but also to final quality of the product. This research was aimed to study the effect of the 51 B strain on the development and yield of beans by inoculating seeds with differences in their vigour; for this, the beginning of the phases of flowering (R6) and maturity at harvest (R9) were evaluated; and as components of yield also the number of pods and the grains/plant, as well as the number of grains in 100 gram, to do this, lots of the cultivars Alubia (white) and NAG 12 Norte and Cerrillos (blacks) were subdivided: a) controls, and b) with one day of artificial damage. These in turn split in i) without inoculation, and ii) inoculated with fluorescent Pseudomonas 51 B (10^6 cfu/ml). Results have shown that while control aged seeds of white bean did not emerge in the field, treatment with the 51 B strain stimulated significantly (p<0.05) the emergence of seedlings, increasing also the size of grains. On the other hand - while the inoculation to seeds with high vigour of the cultivar Norte modified the beginning of the R6 and R9 stages - it induced the same response on lots having medium vigour when the beginning of stage R6 was recorded. Moreover, inoculation of seeds with both vigour levels, of the cv. Cerrillos resulted in advancing R9 as compared with responses of the controls lots. Finally, bacterization of high vigour seeds of black bean cv. Cerrillos increased the size of grains produced. The mentioned would indicate that inoculating of the 51 B train to seeds of the studied cultivars, will have different effects on the development and yield, depending on the cv. and of quality of the seeds being utilized.

The diagnostic and interpretation of dento-alveolus diseases and their analyses in extinct populations is necessary for their osteographic reconstruction. The aim of this study was a) to determine the insertion level as a periodontal disease index in three extinct populations from Republica Argentina; b) to infer the possible dietary influence and technological manipulation on the possible variations that were found. In this survey, 28 craniums and 7 calvarium (512 teeth) from araucanos (La Pampa and Neuquen provinces) 25 calvarium and 2 craniums (246 teeth) (Pampa Grande, Salta); and 9 craniums and 2 calvarium (117 teeth) (Santa Cruz), from collection of the Museo de Ciencias Naturales of La Plata were studied. They were classified according to insertion level into light, moderate and severe diseases. There were no significative parameter began to act, in roots the metabolic behavior is different.

The method of Anderson (1985), TNP by Gallego, (1999) and FQ by Heath (1968). MDA was measured according to Heath (1968). GSH by reducing Glutathione (GSH), non protein thiols (TNP) and reactive oxygen species. These species react with lipids, proteins, pigments and nucleic acids, producing liperoxidation, enzymatic inactivation, so affecting the cellular viability. Objectives: a) Determine liperoxidacion parameters like TBARS (Thiobarbituric acid reactive species). b) Measure reduced Glutathione (GSH), non protein thiols (TNP) and phytochelatins (FQ), in leaves and roots of Glycine max. L. Materials and Methods: Roots and leaves with 24 and 72 h of intoxication with arsenic (16 and 160 µM), in plants with 10 days of development, using like control plants with equal development free of arsenic. MDA was measured according to Heath (1968). GSH by the method of Anderson (1985), TNP by Gallego, (1999) and FQ were determined by difference between the TNP and GSH. Results: TBARS showed a significant increase in leaves (p<0.001), roots showed a significant decreased (p<0.01). TNP showed a similar behavior respect to TBARS in leaves (p<0.01), in roots a decrease was observed at 24 h (p<0.01). GSH increased in leaves (p<0.001), in roots decreased (p<0.05). FQ decreased with 24h of treatment (p<0.001), in roots. Conclusions: While in leaves an oxidative stress was observed and GSH as a non enzymatic defense parameter began to act, in roots the metabolic behavior is different. With higher As concentration and 72 h of treatment an oxidative stress is verified in soybean plants.
209. INCIDENCE OF PLANT DISEASES IN CITRIC FARMS OF SANTIAGO DEL ESTERO
Abdala GC, David RN, Legname CR, Targa Villalba G, Ayrault G. FhyA. UNSE. Av. Belgrano (S) 1912. (4200). E-mail: gabyabdala@hotmail.com

In order to determine the presence of diseases in citric farms in the irrigated area of the province of Santiago del Estero, fifty-one farms were evaluated, whose planted area ranges between 2 and 300 hectares. The aforementioned farms were implanted with lemon, oranges, tangerines and grape fruit. The incidence of infections was evaluated in plants aged between 3 and 20 years. Samples were withdrawn every month for two years starting in 2003. Twenty-nine variables were analyzed, being 5 of them quantitative: total planted surface, and discriminated orange, tangerine, grape fruit areas, also age of plants. The remainder 25 variables were qualitative: drought, frost, wind, wind barrier, control of frequent fungi, bacterial and viral diseases, etc. The presence of pathological agent were classified a “serious”; “occasional” and “absent”. The data were analyzed with the multivariate method using ACM, included in the SPAD 3.5 Software. According to the results is possible to admit that the infections could be favored by environmental factors such as management practices, dimension of planted area, pruning, etc. Most of fungi diseases such as melanosis, anthracnose and others were found in “serious” stage, while fogimate were found as occasional disease. Exocortis virus was the only viral disease found.

210. PRESENCE OF PLAGUES IN CITRIC FARMS OF SANTIAGO DEL ESTERO
David RN, Legname CR, Ayrault G, Abdala G, Targa Villalba G. FhyA. UNSE. Av. Belgrano (S) 1912. (4200) Santiago del Estero. E-mail: rnabdaladar@unse.edu.ar

In order to recognize the plagues that affect the citric plants of Santiago del Estero, 51 citric farms cultivated with oranges, tangerines, lemon and grape fruit were studied. The commercial citric plantation studied were located in the zone of irrigation of the province, and they were sampled every month for two years starting in 2003. Thirty three variables were analyzed, being 5 of them quantitative: total planted surface, and discriminated orange, tangerine, grape fruit areas, also age of plants. The remainder 25 variables were qualitative: drought, frost, wind, wind barrier, control of frequent fungi, bacterial and viral diseases, etc. The presence of pathological agent were classified a “serious”; “occasional” and “absent”. The data were analyzed with the multivariate method using ACM, included in the SPAD 3.5 Software. According to the results it is possible to admit that the infections could be favored by environmental factors such as management practices, dimension of planted area, pruning, etc. Most of fungi diseases such as melanosis, anthracnose and others were found in “serious” stage, while fogimate were found as occasional disease. Exocortis virus was the only viral disease found.

211. ONCOIMMUNOLOGIC TREATMENT IN A MURINE BREAST CANCER: PRELIMINARY REPORT
Holgado S, Mercat GT, Valdez J, Lorente C, Mercat G. Biomedical Department. (Histology) Faculty of Medicine; Normal Histology Bioch, Chem and Pharmacy Faculty. UNT. Roca 2100 Tucuman. E-mail: silviaholgado@hotmail.com

Introduction: Since neoplastic cells express different antigens regarding normal cells, the development of an antitumoral vaccine is attractive. We therefore studied the effect of antitumoral therapy and immunotherapy in a murine breast cancer model.

Material and Methods: 15 Balb/c mice with M3 breast cancer were studied and separated in four groups: Group 1 (n=5) received IV doxorubicin (D) 0.1 ml (0.15 mg) at 12 days, in 1 doses (subgroup 1a n=4) or 2 doses ( subgroup 1b N=1) separated by 12 days. Group 2 (n=6) received D 0.1 ml at 12 days plus 0,1 ml of IM Ribovac Vaccine at 14 days (subgroup 2a) or twice separated by ten days (Group 2b). Group 3 (n=4) received 0,1 ml of IM Ribovac Vaccine, 1 dose at 12 days (subgroup 3a) or two doses at 12 and 24 days ( subgroup 3b). Group 4 served as control.

Results: Mice in group 1a showed hyperplasia (Hy) in spleen white pulp (HWP), Hy in external zone of lymph nodes (HLN) and mild necrosis. Group 1b revealedsignificant Hy in spleen red pulp (HRP), HLN and a marked increased in the number of spleen megakaryocytes (M), as well as intense necrosis. In Group 2b, HWP and HRP were seen in 5 mice, while 4 of them showed HLN. Group 3b showed the most severe HRP and increase in M. More research is needed in order to elucidate immunotherapy response.

212. EFFICIENCY OF TRANSMISSION OF POPULATIONS OF WHITEFLY GEMINIVIRUS VECTORS
Alemandri Y, Cassol A, Truel G. IFFIVE-INTA, Con. 60 Cuadras, km 5 , X5020ICA Córdoba, Argentina. E-mail: vanialemandri@yahoo.com.ar

The objective of the present work was to determine the efficiency of transmission of Geminivirus of two originating populations of whitefly of different geographic regions, Las Peñas and Monte Cristo (province of Córdoba, Argentina). The populations of Bemisia tabaci are established under conditions of temperature to 25°C, and photoperiod of 18 hs. of light, on the species Ipomoea setosa L. As source of inoculum were used plants of Leonturus sp., and proved cultivating of Munasqa soybean. Twenty emerged recently flies were used, of each population by each cage to foliar, using the times: 2 days of acquisition, 2 days of latency and 2 days of infection. Individualized these times the flies they were eliminated and the soybean plants were located under conditions of greenhouse until the appearance of symptoms. Its infection was corroborated by observations of thin sections to the electron microscope. The efficiency of transmission of the population Las Peñas was of 100% and for the population Monte Cristo of 80%. The transmission of Geminivirus is reported from the Leonturus sp. weeds to soybean, which probably can be happening in the nature.

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213. EFFECT OF ABIOTICS STRESS ON THE GROWTH AND ANTI-OXIDANT ENZYMES IN Bradyrhizobium japonicum E109
Ruffino AMC, Lascano RH, Melchiorre MN, Racca RW, Trippi VS
INTA-IFFIVE. Camino 60 Cuadras Km 5 y 1/2. (X5020ICA). Córdoba. Argentina. E-mail: ruffinoa@hotmail.com

The objective of this work was to evaluate the growth of _B. japonicum_ E109 and the activities of antioxidant enzymes under stress conditions. The conditions were induced by different concentrations of sodium chloride and sorbitol. The oxidative stress was caused by hydrogen peroxide. The results showed that growth with NaCl was affected by salt stress but not sorbitol and peroxide. The activities of superoxide dismutase (SOD) and glutathione reductase (GR) was greater with sodium chloride not with sorbitol. Similar data showed that SOD increase with peroxide but not GR. We concluded that _B. japonicum_ E109 is tolerant even to 200 mM with sorbitol without affecting significantly its growth. The salinity induces the EAOs and the activities of SOD and GR. The osmotic component seems to be determining factor of tolerance/susceptibility in bacteria.

214. PRELIMINARY STUDY OF EXPRESSION OF SUBUNIT β1 OF INTEGRINS DURING PORCINE PLACENTATION
Williamson D, Koncurat M
Dpto. Ciencias Básicas. FCV, UNLPam. E-mail: dmw@vet.unlpam.edu.ar

The integrins constitute a family of proteins that have functions in adhesion, migration, invasion and control of cell physiology. These molecules involve a great family of protein heterodimers composed of α and β subunits. These subunits form 23 known heterodimers. The porcine placenta is epitheliochorial, noninvasive and diffuse; therefore to analyze the presence of placental integrins would permit us to understand the porcine gestation. The aim of this study was to determine the presence of integrin subunit β1 in placental tissue in different gestational periods. Placental tissue from porcine female of 37, 55, 60, 70 and 80 days of gestation, at term, and empty uterus were used. The presence of the integrin subunit β1 was analyzed by indirect immunocytochemistry. The fetal trophoblastic and uterine epithelium villi exhibited high intensity of Integrin β1 throughout the pregnancy; this expression was significantly less in at term placenta. Integrin β1 was strongly expressed in maternal placental glands and in fetal and maternal blood vessels during porcine gestation. In conclusion, Integrin β1 would allow porcine gestation throw placental remodeling processes.

215. INCIDENCE OF THE LEVELING COURSE ATTENDANCE UPON PREVIOUS KNOWLEDGE IN GENERAL BIOLOGY FOR STUDENTS OF VETERINARY MEDICINE IN UNLPam.
Ciencias Básicas. FCV, UNLPam.

The admission to the National Universities has been a theme for debate. The incomers rely on previous knowledge unequal, due to the fact that they proceed from high schools with different orientations. The course of leveling that is dictated in the faculty of veterinary is a tool implemented to give students, a previous approximation to the biological themes. The objective of this work is to analyze the incidence of the effect of this course upon the previous knowledge the students possess. The students that enrol to the carrier can have access to the didactic material “Notebook on Biology”. The course lasts three weeks. At the very beginning the students undergo a diagnostic evaluation of previous knowledge. Another evaluation is required at the end of the course. In 2005, from a total of 186 enrolled students, 45,16% came from biological oriented schools, 41,93% from schools with other orientations and there is no register of the remaining 12,90%. In the data analysis we observe evident changes in the academic performance of the incomers. This allows a reflection on the positive incidence of the levelling course previous.

216. INMUNOHISTOCHEMISTRY OF THE INTERSTITIAL CELLS OF CAJAL IN THE ABOMASUM OF CALF
Márquez SG1, Galotto JM2, Barbeito CG2, Portianky EL2
1 Instituto de Patología. Fac. de Ciencias Veterinarias. UNLP. 2 Dep. de Biología. CBC. UBA. Freire 183, CP1426. Ciudad de Buenos Aires. E-mail: smarquez@uba.edu.ar

The interstitial cells of Cajal (ICC) have been described in different mammals. ICC generates and propagates slow waves and plays a critical role in motility regulation in the gastrointestinal tract. The present study analyzed the distribution of c-kit positive cells in the normal abomasum samples obtained six one week old calves. C-kit immunohistochemistry was performed on 4±1 mm sections from 10% formalin fixed paraffin-embedded specimens, according to the LSAB® method of DAKO Co. In myenteric plexus, several types of c-kit positive cells were observed, multipolar periganglionic and intraganglionic positive cells was significantly higher and cell area smaller. This cells present short dendrite processes. In circular muscle tunica, positive cells appeared as bipolar cells with long prolongations, interconnected among them. In longitudinal muscle tunica, positive cells distributed within muscle bundles. The specificity of the reaction anti-c-kit and the location of these cells agree with the descriptions in the stomach of other species. We have identified, for the first time, cells in abomasum with morphological and immunological phenotypes similar to ICC.
The carbohydrate expression of goblet cells in the intestine of pigs, rabbits and horses was characterized by a lectin histochemical study. The intestinal sections were deparaffinized and incubated with the following biotinylated lectins: Con A, WGA, DBA, SBA, PNA, RCA-1 and UEA-I. Except for some rectal goblet cells of pigs and horses, no reactivity was found to Con A. An heterogenous lectin binding pattern of goblet cell was observed in all the intestinal sections of the species studied with DBA, WGA and RCA-1. PNA reactivity was absent in the small intestine, except for some cells in the horse. DBA did not bind to colonic goblet cells in the pig, whereas SBA not only did not label colonic goblet cells of the pig, but also those of the horse. RCA-1 staining was negative in the large intestine of the horse. Most of the goblet cells of the whole intestine were intensely labelled with the lectin UEA-I; however, goblet cells of the small intestine of rabbits, colon of horses and rectum of pigs remained unstained.

Our results allowed us to conclude that the lectin binding pattern of the intestinal goblet cells varies among the three analyzed species.

In order to increase the knowledge of thrombocyte kinetics in chickens we have studied the short time response to the endovenous injection of colloidal carbon, taking advantage of the ability of circulating TBCs for endocytose particulate materials. Six (one month age) chickens were intravenous injected with 0,5 ml/k india ink (Pelikan Argentina, Batch 0206T1) diluted 50/50 in steril physiological solution. Two control chickens only received physiological solution. After previous evaluation of the initial thrombocyte blood count, blood samples were collected at 5', 15, 30' and 60' after the injection, and the TBC count was evaluated. A marked thrombocytopenia (49.035 ± 29.66% of the inicial count) was detected after 5' of india ink injection. This thrombocytopenia is transitory because at 15' the TBC count increases, recovering initial values at 30' and 60'. We suppose that this thrombocytopenia is not due to thrombocyte destruction but to temporary sequestration.

The purpose of the present paper is to show the favorable effects of an aluminum phosphide fumigation over the germination process in soybean seeds (Glycine Max (L) Merr).

Samples of 100 seeds were taken from a commercial growth in Tucumán, R.Argentina, and were fumigated with Phostoxin Degesch in a 4 tablets/tons dosage during 4 days of time exposure. High significant difference were found, in the hipocotile and radicle extend between test and treatments. No significant differences were found in germinative energy and germinative power. The results therefore a treatment fumigation of aluminum phosphide, over soybean seeds, show a rapid establishment of the shoot plants in a minor time with repects a teste. We can conclude that the fumigation with Aluminum phosphide, produce a favorable effects in the germination of soybean seeds determining a rapid establishment of the shoots plants in a less time.
Quality parameters are altered when pasteurizing and liquefying honey, depending on crystallization, temperature and extent of treatment. Two tests comprising seven repetitions each were performed: T1 analyzed for: humidity, acidity, HMF, color and crystallization degree, before a 70°C thermal treatment and T2, same as T1 after the treatment. Total fluidification time was controlled. Statistical analysis to relate differences in parameters before and after tests respect of time followed Sperman’s Rank Correlation Test (p<0.05).

The difference between values before and after the thermal treatment is the new variable. Results show non significant differences and reverse relation in acidity (r = -0.25; p = 0.54), color and HMF (r = -0.71; p = 0.08). Humidity (r = 0.38; p = 0.34) and absorbance (r = -0.42; p = 0.29) showed non significant differences and direct relation respect of time. The pH-time rate shows negatively (r = -0.82; p = 0.044) and correlates close to significance. Conclusion: color and HMF show a high degree of inverse association between them and time. Although r is below significance, these parameters stop increasing as time is increased. Acidity, absorbance and humidity showed no significant variation. The time-pH relation is stronger, differences decrease as time is increased.

The Populus genus is widely spread in Argentina and the world, for its adaptability and uses. For sustainable systems in Argentina, the concentration of P, K, Ca and Mg was determined by dry digestion and colorimetric evaluation for P, flame photometry for K and complexometric for Ca and Mg. The average values obtained for bark and wood were for P (0.05 and 0.01%), Ca (1.30 and 0.92%), K (0.46 and 0.32%) and Mg (0.45 and 0.05%), respectively. The wood showed lower concentrations of nutrients than for bark and wood were for P (0.05 and 0.01%), Ca (1.30 and 0.92%), K (0.46 and 0.32%) and Mg (0.45 and 0.05%), respectively. The wood showed lower concentrations of nutrients than the bark in all the cases. Significant differences for almost all the elements were founded between clones, which would demonstrate genetic differences of its vegetal nutrition. This establishes a departure point to estimate extraction during the harvest; constituting this topic as a selection element of genetic materials and allowing to determine the restitutive fertilization dose, for the promotion of sustainable production systems.
225. EFFECTS OF SIMVASTATIN ON RAT CALVARIAL BONE. HISTOLOGY AND BIOCHEMISTRY
Territoriale E, Monaco M, Kozusko S, Pastorino N, Juárez J, Carino S, Sánchez S, Missana L.
Dental School & CONICET. Av. Aridez 800. "Human Anatomy, Biochem., Chem. and Pharmacy School. INSIBIO & CONICET. Tac University. Chacabuco 461. CP 4000 Tucuman. Argentina. E-mail: missli@arnet.com.ar

Statins are drugs with analogy to mevalonic acid, that produce a reversible competitive inhibition of HMG-CoA reductase. The aim of this work was to evaluate simvastatin effects on calvarial bone defects. Thirty female Sprague Dawley rats (150 ± 20g weight) were used. They received surgical circular bone defects (8 mm diameter) (CZD), at parietal bone. Simvastatin was orally administrated by 10 mg/Kg/days through six weeks. In order to evaluate bone activity: total alkaline phosphatase (TAP), tartrate-resistant acid phosphatase (TRAP), calcium (Ca) and phosphorus (P) were measured. The animals sacrificed at 7, 21 and 42 days after surgery were submitted to perfusion, decalcified and processed in routine manner. The histological results showed in both groups granulation and vascular fibroblastic tissue on CZD. Experimental group demonstrated dense fibrous tissue with or without calcification and bone formation. High levels of TAP and TRAP were observed on first week, showing an important bone turnover. Also, high levels of Ca and P in urine revealed an overcoming in renal threshold by these ions. From 21 days, TRAP, Ca and P in blood were decreasing to normal values, but TAP keep high values until 42 days. These results support that simvastatin could be a modulator of bone formation on CZD.

226. RELIEF OF THE ARGENTINIAN NORTHWEST PLANTS USED IN FOLK MEDICINE
Martínez Arriazu ME, Sgariglia MA, Soberón JR, Jaime GS, Quiroga EN, Vattuone MA.
Cátedra de Fitoterapia y Cátedra de Botánica, Instituto de Estudios Vegetales “Dr. A. R. Sampietro”. Facultad de Bioquímica, Química y Farmacia. Universidad Nacional de Tucumán. Ayacucho 471, (4000) S. M. de Tucumán, Argentina. E-mail: gsjaime@fbqf.unt.edu.ar

The use of native and exotic plants as medicinal is frequent in the argentinian northwest. People use and commercialize native and studied plants as herbal medicines, and this use has increased over the last years because the social and economic conditions. That is the reason why it is important to continue the research in this area to catalogue the information about the uses of the plants from those places where this knowledge is transmitted from one to another generation. This work shows an index of several vascular plants, ordered by their botanical family, folk and scientific names, and the other generation. This work shows an index of several vascular plants, ordered by their botanical family, folk and scientific names, and the main ethnobotanical uses of plants from the mentioned region.

We show the results of 30 plants studied species. Among them, there are 16 native and 14 cosmopolitan species. This relief contributes to the knowledge of the species used as medicinal in the argentinian northwest.

227. ANTIBACTERIAL ACTIVITY OF ROYAL JELLY AGAINST BACTERIA THAT CAUSE SUPERFICIAL INFECTIONS
Garcia M, Finola M, Marioli JM.
UNRC Ruta 36 Km 601 E-mail: cgarcia@exa.unrc.edu.ar

Introduction: Royal Jelly (RJ) is a secretion from the hypopharyngeal and mandibular glands of worker bees. RJ has several pharmacological activities. RJ exert antibacterial activity on microorganisms such as S. subtilis, S. aureus, E. coli, S. hemolyticus, etc. in vitro or in vitro. Objective: Determine RJ’s purity and its in vitro antibacterial activity on men and animals superficial infections causing bacteria. Materials and methods: RJ from southern Córdoba. Physicochemical analysis: moisture, pH, acidity, protein and lipid contents, ash, reducing sugars and sucrose. Gram negative bacillus: E. coli, P. aeruginosa and K. pneumoniae. Gram positive cocci: S. aureus, S. epidermidis and M. luteus. The antibacterial activity was analyzed by the agar well diffusion method. Results: moisture: 66%; pH: 4.2; acidity: 19 mg KOH/g; proteins: 11%; lipids: 5.6%; ash: 4.7%; reducing sugars: 16.3%; sucrose: 1.8%. Different concentrations of RJ inhibited bacterial growth: S. aureus, S. epidermidis and M. luteus, (0.75 g/mL); K. pneumoniae (1 g/mL), and E. coli and P. aeruginosa (undiluted RJ). Conclusions: Physicochemical parameters of RJ agreed with local regulations. RJ showed antibacterial activity against Gram negative bacteria, the former being more sensitive.

228. THE OVIDENTIAL HISTOLOGY OF THE NEOTRO-ICAL VIVIPAROUS COLUBER THAMNODYNASTES HYPOCONIA IN VITELOGENIC STAGE
Gallardo GA, Alcaide M, Scrocchi G.
Fundaction Miguel Lillo. Miguel Lillo 251, (4000) S.M de Tucumán, Argentina. E-mail: gabrielagall@gmail.com

The study of the oviduct morphology in reptiles, particular of the snakes from the South American temperate zo-ne, are few. The genus Thamnodynastes is characterized by viviparity (Gudynas, 1981). We extracted the left oviduct to perform anatomical and histological studies. For the histomorphological studies, we were used parafine methodologies and performed semiserial and serial cuts stained with hematoxilina eosina (H-E), and with PAS, alcian blue (pH 2.5 and pH 0.5) and with toludina blue (pH 5.6) for glycosaminoglycans identifications. Three regions were macroscopically distinguishable: the most anterior region of the oviduct slender and flaccid; the second region wich has an anterior convolute zone and a final straight, both with thick walls and the posterior region straight and with thin walls. The oviduct wall was formed mucosa, muscularis and serosa. In the convolute part we differenciated the first one because the massive gland development, with basoific and acidopolis cells wich demonstrated the presence of proteins and neutral and acid mucins. In the convolute portion the mucosa has espiralated glands. The great vascularization of the gland indicate placental interactions. We will study then placentation using gestant females.
The object of this work was to evaluate field and corporal condition effects on the macromineral metabolic profile: Ca, Mg, Na and K. Thirty pregnant cows were used from Pilar and Cuenca del Salado areas. The hematologic determinations in soil. Thirty pregnant cows were used from Pilar and Cuenca del Salado areas. The hematologic determinations performed in gold extracted from jugular vein. The concentration of Na and K were determined for flame photometry and Ca, P, Mg for UV-vis spectrophotometry. The statistic method ANOVA was applied for data treatment. The corporal condition were: CC1=2; CC2=3; CC3=4. The average concentrations were: Ca: 6.99 ± 0.28; 8.51 ± 0.30 mg%; Mg: 2.14 ± 0.10; 1.78 ± 0.11 mg%; P: 7.14 ± 0.17; 6.98 ± 0.18 mg%; Na: 140.3 ± 0.6 mmol/l; 140.5 ± 0.7 mmol/l; K: 4.62 ± 0.13 mmol/l; 7.78 ± 0.14 mmol/l, for Pilar and C del Salado respectively. The concentrations of Ca, Mg, P, Na and K were considered inside the range reported by literature. The macrominerals concentrations in blood were compatible with an adequate homeostatic situation for the cows of this study. However, the Mg show significant difference (p<0.05) for the bigger content of mineral in the leguminous which were predominant in Pilar field. The significant difference found in Ca concentration of CC respect to CC1 and CC2 could be justified by best CC of the animals.

In order to optimize the production in pasture systems it was necessary to look for alternative techniques able to improve the efficiency in fattening systems such as ovariectomy. On the other hand, ovariectomy induces another hormonal changes besides the ones observed on gonadal steroids, principally on metabolic hormones such as TRH, T3 and T4. The aim of this work was to analyze the changes induced by ovariectomy in young and old cows studying weight increase, canal rendering, conformation changes, cost-benefits relationship, T3 levels and the efficiency of castrating technique. Two different experiments were performed in different fields: A (young cows) and B (old cows). Each experimental group was divided into two: castrated group (ovx) and control group (t). The following parameters were measured in all groups: Tri-iodotironine in blood (by RIA), body weight and cost-benefits relationship of the treatment. In group B it was also measured the blood progesterone by RIA, canal rendering (per-cent of weight of the animal once it was sacrificed, blooded, eviscerated, head, legs, tail, kidneys, pelvic fat in kidney cortical tissue and skin removed) in relation to live weight previous to slaughter, meat-bone-fat relationship (performed by separating the three components, weighing each of them separately and relating them to live weight by measuring it in the rib eye of the eleventh rib) and infiltration of fat in muscular mass. An increase in the body weight gain of young castrated cows was observed (68.33 ± 3.16 kg. for ovx vs 56.40 ± 2.96 kg for t; p = 0.012) while no differences were observed for old cows. In experiment B there was a greater rendering of the canal in ovx respecting the control ones (53.51% ± 0.58 vs. 51.58% ± 0.55; p = 0.045); it was also observed a lesser fat infiltration in muscular mass in castrated cows respecting the control ones (12.71% ± 0.58 vs. 16.31% ± 1.23 in t; p = 0.032). In both cases it was observed an increase of plasmatic levels of tri-iodotironoine in castrated cows respecting the control ones (basal 87.70 ng/dl ± 2.08 vs. 127.32 ng/dl ± 10.25, p = 0.0025 and 127.49 ng/dl ± 13.08, p = 0.010 for days 60 y 120 respectively; and cost-benefit relationship was positive (11.93 k gain ovx less 6 k surgical cost = 3.93 k net gain). As conclusion it might be stated that ovariectomy increases tri-iodotironine values and has a favorable cost-benefit relationship in both groups: young and old animals. It also improves the body weight gain in young cows and the canal rendering in old cows, and decreases the fat infiltration in the muscular mass.
In our laboratory we have determined that the testis weight and testosterone (TES) level in male rats decrease with prenatal immobilization stress (IMO). Also, IMO produces Hypothalamic-Pituitary-Adrenal axis (HPA) hyperactivity of adult offspring male in basal conditions, and habituation under the same acute stress. It is known that early postnatal stimulations produce beneficial effect on long term emotional reactivity and HPA axis activity that can affect the offspring’s Hypothalamic-Pituitary-Gonadal (HHG) axis. The objective of this work was to investigate the effect of early postnatal stimulations in male offspring stressed prenatally on the gonad size, the luteinizing hormone (LH) and TES plasmatic levels and its relationship with the activity of the HPA axis. Males of three months of age were used, offspring of mothers IMO stressed (EP) and non stressed (CP) during pregnancy. Half of the EP animals were manipulated during the first week of life. Blood and testicles were extracted to all the groups of adult animals to obtain their respective parameters. Prenatal stress decreases testicles weight and TES level in male rats. TES level and the testis size increased under the stimulation without showing differences with the prenatal controls. LH levels showed the same tendency. In conclusion, postnatal stimulation reverts the effects of prenatal stress on some reproductive parameters.

This work researched into the acquired knowledge and developed abilities in relationship to the scientific method during the senior school year of the different modalities of Polimodal (Argentina’s secondary school), from which the students of the 2004 school year of the different modalities of Polimodal (Argentina’s secondary school), from which the students of the 2004 school year came. A transversal descriptive-comparative study was made. Data collection was done through a semi-structured survey; besides, an application exercise was performed to know whether the in-coming 1st year students were capable of distinguishing the steps of the scientific method in a simple text. 69% applied the scientific method mainly in subjects such as PRISCO (Socio-Community Institutional Project), Biology, Chemistry, and Physics. 81% had done research. 44% knows the elements that compose a written report of scientific style. 13% recognises in the scientific method keywords such as order, steps, research, generation of scientific knowledge. The application exercise showed that only 38% recognised the steps of the scientific method, observing a tendency to confuse problem with hypothesis. It is concluded that freshmen in Biology careers know the basics of the scientific method and that students coming from the modality of Natural Sciences are better prepared than the ones from other modalities, but they actually are positioned only at an intermediate level.

The objective of this work, it was our aim to analyse the relationships existing between the application of different methodological strategies, and the academic performance of the students, as well as their level of preferences, as regards the strategies mentioned before. In order to do that, the total number of the students attending the subject “History and Epistemology of Biology” in the years 2003 and 2004 were taken. These were confronted to three different methodologies (exposition, research-action and colloquium) in the various contents of the subject, using the same techniques and evaluation instruments in each case. Educational indicators in the survey were: academic performance and preference levels. The following results were obtained: with the research-action method, students increased their grade point average in 2.30 points in relation to the exposition method; while with the colloquial method said difference decreased in 1.40 points. Taking into account preference levels, 65% of the students chose the research-action method, 23% chose the colloquial method and 12%, exposition. It is concluded that the research-action method is the most adequate to be used in the issues taught in this subject. This situation can be caused by the students’ need to generate their own learning methodology.

Representatives of Diptera order, whose immature states are aquatics, occupy a great variety of habitats, among them, mountain stream waters, as “Los Pinos”; it begin in Concepción (Capayán-Catamarca) and crosses the most austral sector of Yungas of the Argentine Republic. The marginal vegetation is compound mainly of Podocarpus parlatorei. The objective of this work is to indicate the taxocenosis of the Diptera presents in “Los Pinos”. The sampling station were located at 1.020 m.s.n.m., 28º 37’ 15” SL and 66º 02’ 05” WL. and corresponds to the low water station. Six samples from center of the stream were taking with a “Surber” of 900 cm² of surface and 300 µm of mesh opening, fixed in situ with formal to 4%. In laboratory the organisms were determined until the lower taxa than it was possible and a systematic list was elaborated. The organisms were conserved in alcohol 70%. Total of 4,292 individuals of 8 Families and 6 Genera were determined: Hexatoma and Limonine (Tipulidae); Marutina (Psychodidae); Dixidae; Simulium (Simulidae); Bezzia (Ceratopogonidae); Chironomidae; Odontomyia (Stratiomyidae); Chelifer (Empididae). The more abundant taxonomic group was Chironomidae, followed of Ceratopogonidae and Tipulidae. Odontomyia sp. was the least abundant species and was represented in only one sample.
237.
EVALUATION OF A MIXTURE OF SOLUBLE PROTEINS OF LEISHMANIA BRASILENSIS USED AS ANTIGENS BY ELISA
Gil J, Cimino R, López Quiroga I, Zacca R, Nassar J.
Chemistry Biological Box, Faculty of Natural Science. National University of Salta. Bolivia Av. Nº 5150. (4400) Salta. Argentina. E-mail: jgil@unsa.edu.ar

The protozoan genus Leishmania spp. Cause the leishmaniasis disease. The objective of this article was determine the sensibility and specificity of a mixture of soluble proteins of Leishmania brasiliensis (Lh) using the technique of ELISA. It was analyzed 199 human serum with leishmaniasis infection confirmed by MIR and/or smear; 45 serums of people from no-endemic areas that is assumed that they do not suffer the disease. The technique of ELISA was performed using HPL 2 ug/poc; dilution of serum 1:20 anti-IgG of marked goat with peroxidase. 183 out of 199 Lh patients showed positive reaction and 8% were negative. In the case of people no-endemic area, 41 showed negative reaction while 8,8% presented positive reaction. The sensitivity obtained was 92% and the specificity was 91%. The obtained results for the sensibility suggest that this antigens is appropriated for the diagnosis of leishmaniasic infection. But the serological diagnosis must be followed by specific tests diagnosis for Chagas, avoiding wrong diagnoses as other study suggest.

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238.
ANTIMICROBIAL ACTIVITY OF HONEYS FROM SOUTHERN CORDOBA
Sgroy V, Basualdo C, Finola M, Marioli J.
UNRC Ruta 36 Km 601. E-mail: vsgroy@exa.unrc.edu.ar

Introduction: Honey has different nutritious, therapeutic and biological properties. Among them, the most important properties are healing and inhibitory effects on different bacterial species. Honey has been successfully used in wound and burn treatment, promoting healing without negative effects on tissues. Thus, it is important to study the biological properties of regional honeys. Objectives: Determination of antimicrobial activity of regional honeys on bacteria that cause superficial infection in man and animals. Materials and methods: Gram positive cocci: E. faecalis, M. luteus, S. aureus, S. epidermidis, S. uberis and Gram negative bacillus: E. coli, K. pneumoniae and P. aeruginosa. Honey samples from apiaries, named A to J, and commercial samples named K to P. The antimicrobial activity was analyzed by the agar well diffusion method. Results: S. aureus was the most sensitive specie to honey samples. Samples C and D showed the highest antimicrobial activity; whilst samples F, G, H and I inhibited the major number species. Honey samples from apiaries presented an enhanced antimicrobial activity as compared to commercial honeys. Conclusions: Honey samples presented antimicrobial activity on Gram positives and Gram negatives microorganism. Most of the honeys samples must be used undiluted to get inhibition of bacterial growth.

239.
CHEMICAL CHARACTERISTIC OF WORMCOMPOUND OBTAIN OF GOAT MANURE
Medina LF, Vivanco OA, Jaime MA, Martinez LA, Medina L.
Faculty of Agronomy and Zootechnia. U.N.T.
E-mail: lfmmedina@faz.unt.edu.ar

Between the organic fertilise use today the wormcompound obtained from the earthworm dejections occupy a place important for excellent property physi-chemical and bacteriology, has high organic material, the presence of macro and micro nutrient and lot of number of nitrogen fixing bacteria. The nutrition more employed is manure of cow, horse and not goat. The objective of this work was to determine the principal characteristic chemical of wormcompound obtain of manure goat. The work was make in Tucumán, October 2004-June 2005. For obtain of wormcompound use Eisenia foetida (californian red). The manure use for nutrition was before compost during two month, after was put in the soil in the area of 10 m. long for 1 m. wide and 10 cm. high, where distribute 2.000 earthworm for 1m², to cover with half shadow the 60%. The nutrition replace 20 day of initiate the work with cloak of 5 cm. high, repeat this operation 10 day the first four month and then to the end the work each 5 day. To the 9 month begin the work take a sample of worm compound and was perform technique different. The values find show important amount of organic material and nitrogen. P excellent registration, Ca half level. K, Mg adequate moderate. The value of pH and conductivity no present big limitation for use in great number of farming, the worm compound is important alternative of fertilise in the organic production.

240.
RESULT-IMPACTS IN A CERVICAL CANCER DETECTION PROGRAM
Programa de Detección Precoz de Cáncer Cervical Uterino. Tucuman. SIPROSA. Carrera de de Anatomía Patológica. UNT. Siprosa. Cat. Bioestadística. Fac. Bqca, Qca y Farmacia. UNT. E-mail: silviabolicondo@hotmail.com

Monitoring and evaluation of cervical cancer prevention Program operation and impact are essential to determining whether the program is meetings its objectives effectively and efficiently. The aim of our study was to compare the tendency in the relation between Intraepithelial Cervical Neoplasia Grade III (CIN III)-Carcinoma In Situ (CIS) and Invasive Carcinoma (I.Ca.) of the cervix -Pan American Health Organization’s indicator- in a population sample of the public subsector under Program, since 2001. an explorer descriptive longitudinal estadistical study of 1297 biopsies with diagnosis of precursors and invasive lesions (1984-2004) from the archives of Pathogy Institutes (Health Center Z. Santillán-Tucumán; Regional M. Belascuain –Concepción) was perform. in 3 years-periods. In the total biopsies I.Ca frequency was in: 1984-86:70%, 87-89: 76,8%, 90-92:55,2%; 93-95: 41,7%; 96-98: 45,2%; 99-01: 43,9%; 02-04: 35,9%. The frequency of CIN III in the total biopsies was, 1984-86: 7,1%, 87-89: 5,8%, 90-92: 8,6%, 93-95: 16,7 %; 96-98: 22,1%; 99-01: 23,7%; 02-04: 25,7%. The relation between CIN III/Ca.Inv in 4 years-periods was 85-89: 7%, 90-94: 16%; 95-99: 26%; 00-04:38%. The tendency to increment the presence of precursor lesions and to decrease invasive forms, shows an improvement from the quality of the Program.
Calyceraceae is a similar family to Asteraceae. Acicarpha genus has herbaceous, annual or perennial plants, widely distributed in Argentina, Brazil, Paraguay, Uruguay. Acicarpha tribuloides Juss. (cardo torito) is an annual weed, about 40 cm height, of fruit mounts, grazing fields, gardens and lawns, highly troublesome for animals and people because of its sharp fruits. In Argentina is in Tucumán, Salta, Corrientes, Entre Ríos Chaco, Santa Fe, Buenos Aires y Río Negro in different types of zones. It flowers in spring and spreads by seeds. The objective of this work was to realize chromosomal studies of mitosis and meiosis, and to determine its genetic potential through its chromosomal number and their behavior during meiosis. Studied material came from Finca El Manantial (FAZ-UNT). For mitosis, tip roots were pretreated in p-diclorobenceno (Paclosol), 2 hs. 20 min., fixed in 3:1, hydrolyzed in HCl 1N at 58-60°C, and colored in hematoxyline 2%. For meiosis young flowers were fixed in Newcomer and it was used the same technique. Acicarpha tribuloides Juss. has 2n=16. In meiosis there was regularity in all analyzed phases (Division I y Division II) with 8 bivalents in Metaphase I and normal tetrads in Telophase II, corresponding this with the normal grain pollen formation and with the subsequently production of fertile seeds.

Introduction: The auditory passages and the mechanical stimulus conversion in electrical signal have been under several studies. The aim of this work was to obtain an experimental model which allows us the microscopic study of the inner ear components, comparing it with the human ear. Methods and materials: The material was collected from 15 white rats (Institute variety) of three days development and several fixers were used according with the technique used to colour them. In the Cajal technique for nervous endings in block, the Castro formula to chloral hydrate and formol at 10% for H/E and Masson Tricromic were used. Horizontal cuts in serial way, of 5 microns thick were done. The silver impregnations were toned afterward with gold chloride. Results: The obtained samples allowed a splendid observation at cochlear maze level of the cochlear nerve faces and the distribution of their extensions in the Corti organ at vestibular maze level where the cilliad cells, the sacculus maculas and the utricullus are. Over the maculas it is the otocephalic membrane and over this one there are otofils. Conclusion: In our findings, a similarity between the experimental animal and the human structures was confirmed. Key words: inner ear, experimental model, microcopical.
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