

ROSARIO BIOLOGY SOCIETY

(Sociedad de Biología de Rosario)

Abstracts from the

XXI ANNUAL MEETING

November 26-27, 2001

Sede de Gobierno de la Universidad Nacional de Rosario
Rosario, ARGENTINA

1. FIRST APPROACH TO THE STUDY OF THE MORACEAE FAMILY IN SANTA FE PROVINCE (ARGENTINA)

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The species of *Moraceae* are distributed within the tropical and subtropical regions of the five continents. In our country it is represented by six genera and 17 species, 15 of which are autochthonous and two are exotic. Remarkably, none of these species has been cited for the province in the most recent revision of the Vascular Flora of the Argentina.

Based on specimens from Esperanza (SF) and Rosario (UNR) Herbaria and on the field experience of the authors, the presence of the following species can be confirmed in our province: *Morus alba* L., *Broussonetia papyrifera* (L.) Vent. y *Ficus luschnathiana* (Miq.) Miq.

They consist of unarmed trees with latex, sometimes strangling epiphytes, with alternate leaves. The presence of stipules that protect the whole leaf before its expansion is frequent. The flowers are small and arranged in inflorescences. The *Ficus* genus is represented by a monoecious tree, the female and male flowers are uniformly distributed on the inner surface of a concave receptacle called syconium with entomophilous pollination. The *Broussonetia* and *Morus* genera have female inflorescences in heads and in spikes respectively, while the male flowers are arranged in long and dense catkins in both genera with anemophilous pollination. This contribution provides keys based on morphological characters in order to distinguish genera and species, whereas a species distribution map is presented.

3. PRELIMINARY STUDY OF THE CACTACEAE IN SANTA FE PROVINCE (ARGENTINA). II: OPUNTIOIDEAE

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Within the Family *Cactaceae*, the Subfamily *Opuntioideae* is the biggest and more widely distributed, ranging from southern Canada to Argentina, except for Peru and Chile. Nowadays some species have spread to other continents constituting -in most cases- aggressive weeds. This Subfamily can be distinguished from the rest by the presence of glochids in the areoles. The number of genera included vary considerably according to the classification system. The most relevant genus, given its number of species (about 200) and its economic importance, is *Opuntia* Mill., with the Mexican *Opuntia ficus-indica* (L.) Mill. widely cultivated because of the edible fruits.

The aim of this communication is to contribute to the taxonomic study and the geographic and ecological distribution of the Family *Cactaceae*, Subfamily *Opuntioideae* in the province of Santa Fe. Most species were studied in nature and also collected and cultivated. Bibliographic revision and visits to Rosario (UNR), Esperanza (SF) and Darwinion (SI) Herbaria were also carried out. The *Opuntioideae* are represented by only one genus: *Opuntia* Mill., with ten species, eight of them native: *O. anacantha* Speg. var. *retrorsa* (Speg.) R. Kiesling, *O. chaquensis* Speg., *O. discolor* Britton & Rose, *O. paraguayensis* K. Schum., *O. prasina* Speg., *O. quimilo* K. Schum., *O. salmiana* Parm. y *O. sulphurea* Gillies ex Salm-Dyck var. *pampeana* (Speg.) Backeb. and two introduced: *O. ficus-indica* (L.) Mill. y *O. monacantha* Haw.

Distribution maps of the species and a key based on morphological characters are presented.

2. FLORA OF THE SANTA FE PROVINCE (ARGENTINA): PRELIMINARY REPORT ON APOCYNACEAE

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The Family *Apocynaceae* encompasses 175 genera and about 2000 mostly tropical species, though some of them occur in temperate regions. They are mainly climbing plants, while a few are trees, shrubs or standing herbs, all of them with latex tubes. Many species are toxic for animals and humans, while others have curative properties. Several drugs and gums can be obtained from some species and the wood of some trees are useful for charcoal production and furniture. Besides, many of them are beautiful ornamental plants.

In the Santa Fe Province eight species can be found in the wild: *Aspidosperma quebracho-blanco* Schlecht., *Aspidosperma triternatum* Rojas Acosta, *Forsteronia glabrescens* Müll Arg., *Macrosiphonia petraea* (A. St. Hil.) K. Schum., *Mandevilla pentlandiana* (A. DC.) Woods., *Mesechites sanctae-crucis* (S. Moore) Woods., *Rhabdadenia ragonesei* Woods., and *Tabernaemontana catharinensis* A. DC.

This is a preliminary taxonomic study based on a review of the specific literature, on observations of the species in nature and visits to the Esperanza (SF) and Rosario (UNR) Herbaria.

A key of genera and species based on morphological characters, a distribution map, brief species descriptions and illustrations are presented.

4. PRELIMINARY STUDY OF THE BUDDLEJACEAE FAMILY IN THE SANTA FE PROVINCE (ARGENTINA)

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This family include eight genera and about 125 species of tropical, subtropical and temperate regions, and they consist of trees, shrubs, subshrubs and rarely herbs. Leaves are simple, opposite decussate, with star and/or glandular trichomes specially in the hypophyll and in young branches. The leafy stipules join the leaf basis. Inflorescences in compound cymes accompanied by bracts. The flowers are generally tetramerous, actinomorphic, perfect or functionally dioecious. The calyx is tetralobed, tubular, while the corolla is hypocraterimorphous. The androecium presents four sessile, introrse stamens. The bilocular ovary, with a nectary zone in the base and tomentous in the upper part, has a bilobed or globose stigma. Fruit: septicidal or loculicidal capsule, with small, generally winged seeds. *Buddleja* L. is the only genus cited for Argentina with 15 species distributed from the north up to Chubut. Until present there exist no taxonomic revision for the Santa Fe province.

Some species were observed in nature but the work was done mainly on specimens from the UNR (Rosario), SF (Esperanza) and SI (Darwinion, San Isidro) Herbaria.

Three shrub species were found in Gral. Obligado, San Cristóbal, Las Colonias, Garay, La Capital y Rosario departments: *Buddleja brasiliensis* Jacq. ex Spreng., *Buddleja tubiflora* Benth. and *Buddleja grandiflora* Cham. et Schlecht.

A dichotomic key based on morphological characters, photographs and a distribution map are presented here.

5. PRELIMINARY STUDY OF THE *PAPAVERACEAE* AND *FUMARIACEAE* SPECIES OF THE SANTA FE PROVINCE

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The closely related Families *Papaveraceae* and *Fumariaceae* have given rise to certain controversy as regards their taxonomic position. The former criteria placed *Fumariaceae* together with *Papaveraceae* as Suborder *Fumariae*, or as Subfamily *Fumarioideae* in a wider *Papaveraceae*, however, modern morphological and anatomical studies suggest splitting *Fumariaceae* as a separate family. In Argentina the Family *Papaveraceae* is represented by five genera and 12 species while the Family *Fumariaceae* only by a single genus and six species.

The methodology consisted in a deep bibliographic revision, visits to herbaria (SF, UNR, MFA), and field observation on some species in nature.

The only *Fumariaceae* in Santa Fe is the adventitious *Fumaria officinalis* L., commonly found in crop fields and road sideways. Meanwhile, there exist two herbaceous species of *Papaveraceae*: *Argemone subfusiformis* G.B. Ownbey and *Papaver rhoeas* L., both occurring in north-central departments of the province.

It is here provided taxonomical information, illustrations and distribution maps. A key based on morphological characters was performed as well in order to circumscribe the different taxa.

7. EFFECT OF DIFFERENT CULTURE MEDIA ON THE OCCURRENCE OF HYPERHYDRIC STRUCTURES IN SUNFLOWER (*Helianthus annuus* L.)

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In order to reduce the occurrence of hyperhydric structures, the response of a sunflower inbred line with high regeneration potential (HA 300B) was evaluated in fourteen different culture media. The culture media were formulated on MS saline base with the addition of indol-3-acetic acid (IAA), 2 levels of kinetin (KIN) and 3 levels of silver nitrate, casein hydrolysate, calcium nitrate and cobalt nitrate, respectively. Cotyledons were used as explants. A completely randomised design with 2 replications of 20 explants each per treatment was utilized. Cultures were grown at 25°C ± 2°C with a 12-hr photoperiod for 37 days. The traits analysed were: percentage of regeneration (RP), percentage of hypertrophy (HP), percentage of hyperhydric shoots (HS), percentage of hyperhydric primordia (HPr), shoots productivity rate (SPR), primordia productivity rate (PPR) and shoots proliferation rate (SFR). Among all media, the inbred line differed for SPR, PPR, HPr ($p < 0.01$), HP and SH ($p < 0.05$). The orthogonal polynomials analysis performed showed a linear effect ($p < 0.01$) of KIN for RP, HP, SPR and PPR. The silver nitrate effect was linear ($p < 0.01$) for HPr and PPR. Casein hydrolysate presented a linear effect ($p < 0.01$) for SPR and PPR. The calcium nitrate effect was quadratic ($p < 0.01$) for PPR. It is concluded that the addition of silver nitrate to the culture media reduces the percentage of hyperhydric shoots and primordia.

6. CHARACTERIZATION OF THE *IN VITRO* RESPONSE IN WILD GERmplasm OF *HELIANTHUS* GENUS

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The aim of this work was to evaluate the *in vitro* response of sunflower wild germplasm. The species *H. tuberosus*, two accessions de *H. rigidus* (1 and 2) and the interspecific hybrid *H. x laetiflorus* were cultivated on solid culture media (MS salts (Murashige and Skoog, 1962), 1 mg l⁻¹ IAA, 2 mg l⁻¹ KIN, pH 6.00, 9 mg l⁻¹ agar). Leaf and internodal stem pieces were used as explants. Stem segments were cut longitudinally in two halves. Leaves were cut into 0.5 cm wide sections. Half of the leaf pieces were placed with the adaxial surface down on the medium and the rest with the abaxial surface in contact with the culture medium. Stem explants were tested with epidermis or interior side down on the culture medium. Cultures were grown at 25°C ± 2°C with an 12-hr fotoperiod for 30 days. Percentage of callus (C), percentage of hypertrophy (H), and percentage of roots (R) were the traits measured. Data (N=497) were analysed through the non-parametric *Chi-square* test (χ^2). Significant differences among germplasm and type of explant were observed for C. Genotypic differences were observed for H. All material developed roots from stem explants except *H. rigidus* (2). *H. tuberosus* highlighted in root production (R=53%). Genetic variability was observed for the *in vitro* response of the species of this genus.

8. *IN VITRO* REGENERATION OF ELITE TOMATO LINES

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In vitro plant tissue culture techniques offer the possibility of micropropagating elite genotypes. Seventeen recombinant inbred lines derived from an interspecific cross between accession LA722 of *Lycopersicon pimpinellifolium* (Pi) and the cultivar Caimanta (Cai) of *L. esculentum* were characterized for the *in vitro* culture response. Explants were taken from the third leaf below the apical meristem. Culture media consisted of Murashige and Skoog (1962) vitamin-saline base supplemented with 0.175 mg/l indol-acetic acid and 2.25 mg/l 6-benzyl-amino-purine. Cultures (N = 702) were incubated at 25 ± 2 °C and 16 hours of photoperiod. The callus percentage (C, number of cultures that only produced callus x 100 / total number of cultures) and the regeneration percentage (R, number of cultures that differentiated shoots or primordia x 100 / total number of cultures) were evaluated in the lines and their parents. Data were taken at 30 and 45 days after the initiation of cultures. Comparisons among genotypes were made by the χ^2 test. Highly significant differences between the parents were found for C and R at 30 days ($\chi^2 = 9.3$ and $\chi^2 = 8.9$; $p < 0.01$) while significant differences between them were found for the variables at 45 days ($\chi^2 = 5.3$ and $\chi^2 = 5.4$; $p < 0.05$). Cai had the lowest callus production and the highest regeneration capacity. Highly significant differences among lines were found for C and R at 30 days ($\chi^2 = 118.6$ and $\chi^2 = 132.4$; $p < 0.01$) as well as at 45 days ($\chi^2 = 98.1$ and $\chi^2 = 116.6$; $p < 0.001$). Two lines had higher R values than Cai, while other two had lower R values than Pi. It is concluded that an important genetic variability among lines for the *in vitro* regeneration capacity was detected through this research.

9. EFFECT OF THE MOTHER WEIGHT UPON MAGRARIO FEMALE LAMB WEIGHT FROM BIRTH TO PUBERTY

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Magrario lambs belong to a new ecotype that was obtained through several backcrosses to the Texel Breed. The founder breed was the Ideal breed (I). No information are about the effect of the maternal component (measure as live weight) upon the weight at different stages of the span life of Magrario genotype (M). During five years several measurements were recorded in the ewes (lamb season weight, LSW) and in the female lambs (Birth Weight, BW; First Month Weight, FMW; Weaning Weight, WW; Puberty Weight, PW). The GLM procedure was applied to compare mean differences between the M and I lambs. The last one genotype was the tester.

Lamb	LSW	BW	FMW	WW	PW
M (n=63)	46.8±0.7	3.8 ± 0.1	11.7± 0.3	21.8± 0.4	27.0± 0.4
I (n=26)	42.3±1.4 **	3.7 ± 0.1	12.4± 0.5	20.9± 0.5 *	25.6± 0.4

* P<0.05 ** p<0.01

In the Ideal breed the correlation coefficient was significant between LSW and WW and also between LSW and PW (r=0.59, R²=0.35; p<0.001 and r=0.56, R²=0.31; p<0.002). No correlation between these variables was found in M genotype. Nevertheless, both genetic groups showed a significant coefficient correlation between the FMW and the WW (in M lambs was r= 0.60, R²=0.36; p<0.0001 and in the I lambs was r=0.71, R²=0.50; p<0.0001). Only in the M lambs the association between the FMW and the PW was significant (r=0.37, R²=0.14; p<0.003). These results suggest that in the Ideal breed the mother weight has an important influence of on the weaning lamb weight. This mother effect is even present at the lamb puberty. However, these relationships were not found in the lambs of the Magrario genotype.

11. SOYBEAN RESPONSE TO TILLAGE SYSTEMS AND TO RESIDUAL EFFECT OF N AND S FERTILIZATION TO THE PREVIOUS CROP

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The objective of this work was to characterize Tillage Systems (TS) in order to get the highest soybean seed yield increments to Fertilizer Residual Effects (FRE). A field trial was carried out in Zavalla, Argentina (33° 01' S, 60° 53' W) in the 2000 crop growing season on a Vertic Argiudoll soil in a corn-soybean-wheat/late soybean rotation. In the second year of rotation, cv. A 5634 RG (MG V) was seeded on 30 December. Previous crop was corn fertilized with 0 and 120 kg N.ha⁻¹ and 0 and 20 kg S.ha⁻¹ in a factorial array under two TS: No-Till (NT) and Moldboard Plow (MP) practice. Experimental design was a randomized complete block with a split plot arrangement: TS were the main plots and FRE were the subplots, with 4 replications. At maturity, 2 samples of 1 m² per plot were harvested and Plant Height (PH), main stem Node Number (NN), aboveground Dry Matter (DM), Seed Number.m⁻² (SN), Seed Weight (SW), Seed Yield (SY) and Harvest Index (HI) were determined. Data were evaluated by analysis of variance and means were compared by Tukey's test (P<0.05). There were no differences between any treatment in PH, NN and SW. Effects of FRE and TSxFRE interaction were not significant for DM, SN, SY and HI. Instead, MP had higher SY than NT practice. Higher SN caused higher SY in MP. Higher DM in early reproductive stages produced more SN. In spite of the fact that NT had higher HI, this higher DM partitioning did not lead to higher SY because of lower DM accumulation. This research has shown that the benefits from NT and FRE practices are not apparent during the first few years.

10. PREVENTIVE TREATMENTS TO BACTERIAL BLIGHT OF WALNUT

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Walnut nurseries and orchards in Zavalla (Santa Fe Province) show "Bacterial Blight of Walnut", produced by *Xanthomona campestris* pv.juglandis. This bacteria attack growing organs, and in winters, it lives in infected buds and cankers. Symptoms are damaged leaves with irregular green yellow spots, finally brown, in the late Spring. Nuts show black depressed spots, generally located in lateral sides of fruits, so that commercial quality and quantity are reduced. If damage is produced between past flowering and fruits with size of an olive, the ovary is affected, causing dropping fruits. If infection occurs during the polinization, the pathogen enters the stigma and it appears black and the kernel is also damaged. The purpose of the work was to evaluate the efficacy of different control products and to determine the varietal susceptibility of different materials. Varieties used were Chandler, Davis, Tulare and Franquette, grafted on stocks of *Juglans nigra*. Two treatments were evaluated: Kasugamicina (Kasumin) and pentahydrated copper sulfate (Phyton), in dosis of 250 cm³ and 100 cm³ of p.c. to each 100 l. of water, respectively, and a blank. The products were applied in blowing bud (28/09/00), ament elongation and 10% of pistiled flower (12/10/00) and filled up fruit (16/11/00). The experimental was conducted like a complete randomized with factorial design. The variable was severity (affected foliar area/ total foliar area x 100). The analysis of the variance showed high significant differences between varieties. Davis and Tulare were the best ones, as the obtained results during 1999. Phyton and Kasumin showed high significant differences towards the blank. Both products were efficient in the control of the disease.

12. ALFALFA QUALITY ESTIMATION IN STANDING CROP

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Alfalfa (*Medicago sativa* L.) is an essential basement of the agricultural systems development in the pampean region and the knowledge of its fiber content and quality in the field can help producers to decide strategies of harvesting, storing and animal feeding. At production systems level, the use of forage laboratory conventional analysis is complex, time consuming and expensive. The equation based on stem length and maturity is currently used to predict alfalfa FDN in a rapid and simple way (Sulc et al, 1999). The objectives of this assay were 1) to verify if alfalfa FDN prediction equations proposed for a wide range of varieties and environmental conditions in USA can be used for local crops; 2) to explore the predictive value of variables of easy sampling in a standing crop. Twenty three representative 0.2 m² samples were harvested from a second growth cycle crop using the most mature stem to determine stages: vegetative (V), bud (B) and flower (F). The length of the tallest stem (TSL) was measured from the soil surface to the tip of the stem. The stem was straightened for an accurate measurement of its length. Plants/m² (PLT), %DM and %FDN were determined. DM yield was 1920kg/ha ± 605 and the stage V was observed for all samples. Observed FDN (30.12 ± 0.51) and calculated FDN (29.97 ± 0.36) were not significantly different (p>0.05). Significant correlations were found between FDN with TSL (r = 0.89, p<0.001) and PLT (r = -0.44, p<0.05). The selected model was FDN = 14.4 + 0.34 TSL (R²_{adj} = 0.79, p<0.001). In vegetative stage the length of the tallest stem can estimate NDF content and can be used as an easy, rapid and low cost management tool.

13. CHARACTERIZATION OF CALLUSES OBTAINED FROM ROOTS OF SOYBEAN (*Glycine max* L. Merr.) OF THE CVS. ASGROW AND WILLIAMS

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The object was to characterize the callus obtained from soybean roots of the cvs. Asgrow and Williams for a later evaluation the response when inoculated with pathogens. Radical apexes (1 mm) of soybean seeds of the cvs. Asgrow and Williams were sown in culture medium of Murashige and Skoog (1962) (MS) with 3 mg/l of bencil adenin (BA), 0,04 mg/l of naftalen acetic acid (NAA) and 0,7 % of agar. The design was completely randomized with 25 repetitions by treatment. The cultures were maintained in darkness for 15 days. The calluses obtained were transferred in a month to the same medium with 4 concentrations of BA: 2, 4, 8 and 10 mg/l (MS 2, MS 4, MS 8, MS 10). They were incubated at 23±2°C, with photoperiod of 16 hs and light intensity of 60 µmol.m⁻².s⁻¹. The calluses were characterized by visual observations, in type A: aqueous, necrotics; type B: compact, dark green and of low growing rate and type C: disgregables, globular, translucent, light green with high growing rate. A 100% of the explants produced callus. There were highly significant differences (p < 0,0001) in the behavior of the calluses according to the culture media. Asgrow presented a 63% of the calluses type B and Williams a 61% of type A. The best embryogenic response was obtained in MS4 (callus type C) for Asgrow (38%) and in MS 2 for Williams (20%). The response of the calluses differed depending on the cultivar and the medium employed. With lower concentrations of BA, there was the greater proportion of calluses with possibilities of regeneration (type C), to be employed in tests with pathogens.

15. DETERMINACIÓN DE FUNGICOS PATÓGENOS EN SEMBRAS DE MAÍZ [ZEA MAYS (L.)]

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The object of this work was characterized the performance of some commercial corn hybrids for seed pathogens in two localities of the Argentina corn zone. Samples of 9 and 12 commercial hybrids of two comparative yield trials in the year 2000/01 were obtained in Zavalla and Oliveros. The incubation method in 2% potato dextrosa agar was used to determine the seeds pathology. A complete block randomized design with 4 repetitions was used. Two hundred seeds by hybrid were analyzed. The percentage of seeds infected by each of pathogen, the germination of each sample and the total porcentaje of infeccion were established. The variables considered were infection by *Fusarium* spp, *Penicillium* spp, *Aspergillus* spp and by germination. Differences between hybrids for the infection by *Fusarium* spp and by *Penicillium* spp in Zavalla were observed. Differences between hybrid in the infection by *Fusarium* spp., by *Penicillium* spp., germination and the total de percentage of infection in Oliveros were observed. The most prevailing pathogens in both localities were *Fusarium* spp and *Penicillium* spp. Germination average was greater in Zavalla (100%) that in Oliveros (97%). The infection by *Fusarium* spp was 40,5% in Zavalla y 39,5% in Oliveros and by *Penicillium* spp was 87% in Zavalla y 84% in Oliveros.

14. NITROGEN AND SULFUR FERTILIZATION EFFECTS ON YIELD, YIELD COMPONENTS AND HEALTHY QUALITY SEED OF MAIZE

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The objective of this study was to evaluate the effects of nitrogen (N) and sulfur (S) fertilization under two tillage systems (T): no till (NT) and chisel plow (CP), on grain yield (GY), grain weight (GW), test weight (TW) and percent of seeds with *Fusarium sp.* (PSF) in maize in a typic argiudol soil. The research was conducted at Zavalla (lat 33°01' S, long 60°53' W) Experimental design was a factorial (two S levels: 0 and 18 kg ha⁻¹ * three N levels: 0, 60 y 120 kg ha⁻¹), in a randomized complete block design with four replications at each tillage system. For the quality evaluation of the present fungi were identified settling down percent of seeds with *Fusarium* using optical microscope. Data were analyzed using ANOVA method and Pearson correlation analysis. The means were tested using Duncan's Test. The tillage system was highly significant (p<0.01). The T*S, T*N and T*S*N interactions were no significant; then the two tillage systems were analyzed pooled together. The N*S interaction was significant (p<0.05) for PSF. The N effect was significant for GY and GW (p<0.01) and TW (p<0.10). Positiv correleation were observed between GY, GW and TW (p<0.01) and between TW and PSF (p<0.05). The data shows that the *Fusarium* incidence decreases with the N fertilization (N₆₀) and N₆₀ S₁₈ combination. Nitrogen was the nutrient responsible of GY and GW increases.

16. IRON METABOLISM IN RATS WITH PARTIAL HEPATECTOMY: INFLUENCE OF SEX AND OF ALUMINUM
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The purpose of the study was to investigate the influence of the Al on the metabolism of the iron in males and females rats with partial hepatectomy. The males and females adult Wistar rats, were divided in four groups (n=5 each one): Sham (Sh) (simulated surgery) and partial hepatectomy (PH) (resected 60% of liver) were treated with physiological solution (Controls); Sh and PH were treated with 80 mg/kg weight (ip) of Al (OH)₃, 3 times a week during 3 months. We worked to the 48 hours post- surgery. For the study of the intestinal absorption of ⁵⁹Fe the technique of intestinal sacs " in situ " was used, with 500 uM of ferric citrate in the mucous solution (incubation: 2 h) in rats Sh and PH. The influence of aluminum in the absorption was studied adding Al in the medium in concentrations of 2 and 100uM. Significant diminutions (p<0.05) were observed in: Hematocrit (24%), Percentage (%) of saturation of Transferrin (37%), Mean Corpuscular Volume (20%), and seric Fe (57%) in the animals (Sh and Hp) Al-treated versus Controls. No differences between sex was observed. The intestinal absorption (nmoles of ⁵⁹ Fe absorbed / cm small gut) did not show significant differences in any of the studied groups. In conclusion the metabolism of the iron is not affected by partial hepatectomy. The treatment with Al produces a significant diminution of the seric Fe and % of saturation of Transferrin due to that the Al can compete with the Fe by the sites of binding to the protein. On the contrary, in enterocyte uptake no competition between Al and Fe was observed for the concentrations of Al studied. In addition, no difference respect to the sex of the animals was observed.

17. EFFECTS OF ALUMINIUM ON THE FUNCTION OF REGENERATED LIVERS

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The effects produced by the subchronic administration of Aluminium have studied on the hepatic anion organic transport (Bromosulfoftalein) in regenerative livers of male adults Wistar rats. We worked to 24, 48 hours and 7 days of the surgery. Experimental groups (n= 5); A: controls; B: controls with aluminum (ip. injection of Al the elementary one of 27 mg/ Kg of weight, 3 times a week during 3 months); C: Hepatectomy (HP) 24hs; D: 48 HP hs; E: HP 7 days; F: 24 HP hs + Al; G: 48 HP hs + Al; H: 7 HP días+ Al. The partial hepatectomy of 60% were made according to the technique deciphers by Higgins and Anderson The hepatic transport of BSF was determined by means of the compartamental analysis of Richards The percentage of the dose excreted in bile was determined (yield). The speed of cellular proliferation was studied through the incorporation of Timidina tritiada to the DNA, obtaining the tip to 48 hs in controls groups as aluminized. P<0,05 was considered statistically significant. Significant diminution between the following groups was obtained: A with B: 53% in r₁₂, 47% in r₂₃ and 32% in yield; A with C: 50% in r₁₂ and 34% yield; A with D: 58% in r₁₂ and 42% in yield; C with F: 48% in r₁₂ and 56% yield; D with G: 58% in r₁₂ and 34% yield; E with H: 65% in r₁₂ and 30% yield. From the data arises that the reduction of the constant of up take and the yield caused by the Al would be related to an hepatocelullary insufficiency, probably by inhibition from the synthesis and/or translocation from the transporters towards the sinusoidal membrane. During hepatic regeneration a diminution of the biliary flow what could be tie to a diminution in the expression of biliary acid transporters in the sinusoidal membrane of the hepatocyte, as well as to a diminution in the hepatic organic anion up take. Al would even diminish more this effect, making a joint operation.

19. METABOLISM OF PHOSPHATE IN RATS CHRONICALLY POISONED WITH ALUMINUM

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In previous works we demonstrated an increase in tubular phosphate reabsorption renal in rats chronically poisoned with aluminum. Our objective was to evaluate if this phenomenon were tie to modifications in the phosphate metabolism or depended exclusively on changes in the renal reponse to hormonal variations. We worked with male rats intoxicated with aluminum lactate (T) n=7 from weaning and up three months (0.5 mg/100 g b.w., ip 3 times per week) and with equal number of animals controls (C). Weekly body weight variations and phosphate balance were controlled on 1°, 2° and 3° months. At the end of the period of poisoning the phosphate absorption studied using the technique of intestinal sacs "in situ" and the deposit of the same one in bone with the help of ³²P. Treated rats showed a significant diminution of the corporal weight from 1° month of processing. The animals (T) diminished the phosphate ingestion significantly 14,5% and 11% respectively in 1° and 2° month of processing with respect to control; as well as the absolute, relative absorption and the balance in the controlled months. This was accompanied with a reduction in the urinary excreción of phosphates (mg/mg creatinine): (C) 2.59± 0.24; (t) 1,66 ± 0.08. The studies with ³²P showed a significant reduction of the phosphate absorption in the treated animals (imoles P absorbed by 10 cm of intestine): (C) 17,67 ± 0,02 versus (t) 16,90 ± 0,05 (p< 0,003) and increase in the deposit in both fémures (p<0.001). In treated rats the trabecular mineralized surface in femur was covered with Al. The found data would indicate that: a) the smaller absorption of P could be depending on the intestinal weave aluminum presence. b) the smaller urinary excreción of phosphate could be induced by the adaptation tubular renal to the reduced intestinal absorption; c) the greater uptake of ³²P by the bone in the treated rats could be associate to the bone deposits of Al.

18. EFFECTS OF ALUMINUM (AL) ON THE CONCENTRATION OF THE URINA IN RATS

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The present study was undertaken to examine the effect of the Al on the renal concentration and dilution ability. Male rats Wistar were treated with Al (OH)₃ from weaning and up 4 months (80 mg / kg bw, ip 3 times per week): n=8 (T) and equal number of animals controls (C) received saline. We examined the balance of water and sodium, and the maximum concentrating ability by measuring of urine osmolality. Reabsorption of free water (Tc) and the solute-free water formation (C H₂O) was studied using clearance techniques. Rats (T) showed a significant reduction of water and Na balance. In dehydration state the relation [U/P]_{osm.} was significantly inferior in (T) 7.56 ± 0,28 to (C) 10,65 ± 0.31. No differences were observed in the glomerular filtration rate (GFR), nor in Tc/GFR obtained with hypertonic saline solution and AVP Nevertheless there were significant increase in EF% H₂O in all the studied infusion rates in (T): (C) 15,79 ± 0,40 versus (T) 18,83 ± 0,68 (29 ml/h) and FE%Na were significantly lower in treated rats, without changes in plasma aldosterone, but with diminution of urinary excretion of nephrogenic cAMP (pmol/min): (C) 302 ± 42, (T) 194 ± 8. Analysis of the slopes of regression lines (C H₂O/ GFR vs Vm/GFR) gave not a difference between groups. The determination of the expression of aquaporin (AQP2) in homogenados of renal medulla, showed a reduction in the microsomal fraction, without changes in the apical fraction in (T). The results would indicate a dissociation in the water and sodium excretion, with an alteration to the AVP response with reduction of cAMP, where the diminution of the microsomal fraction of AQP2 would be involved fundamentally.

20. HEMORHEOLOGY CHANGES INDUCED BY LIGARIA cuneifolia: TREATMENT BY TWO ADMINISTRATION WAYS

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The aim was to investigate the effect of *Lc* treatment on hemorheology parameters by two administration ways: intraperitoneal (ip) e intravenosa (iv). Adult male Wistar rats were divided in three groups, which were injected each 24 hr during 3 days by via ip (n=5 each one) with: saline solution (Control: **C ip**); 2.5 mg/100g bw of *Lc* (**T 2.5ip**) and 5.5 mg/100g bw of *Lc* (**T 5.5ip**). Other animals were divided in three groups, which were injected by via iv (n=5 each one) with: saline solution (Control: **C iv**); 2.5 mg/100g bw of *Lc* (**T 2.5iv**) and 5.5 mg/100g bw of *Lc* (**T 5.5iv**). Red cell suspension viscosity (η): **C**: 4.65 ± 0.43; **T2.5_{ip}**: 8.47 ± 0.75 **; **T2.5_{iv}**: 6.56 ± 0.29**; **T5.5_{ip}**: 7.27 ± 0.35 *; **T5.5_{iv}**: 7.07 ± 0.50**. Rigidity index (RI): **C**: 5.05 ± 0.17; **T2.5_{ip}**: 17.25 ± 2.39 **; **T2.5_{iv}**: 6.45 ± 0.30**; **T5.5_{ip}**: 13.00 ± 0.99**; **T5.5_{iv}**: 14.2 ± 2.60*. Decrease of plasma cholesterol: **T2.5_{ip}**: 17.25 ± 1.65 *; **T2.5_{iv}**: 5.0 ± 1.3; **T5.5_{ip}**: 18.60 ± 3.00 **; **T5.5_{iv}**: 5.5 ± 2.8. Mean cell hemoglobin concentration (MCHC): **C**: 31.6±0.4; **T2.5_{ip}**: 36.5 ± 0.8*; **T2.5_{iv}**: 33.4 ± 0.7*; **T5.5_{ip}**: 36.4 ± 0.8*; **T5.5_{iv}**: 36.2 ± 0.9** (*p<0.05; **p<0.01 vs. C). *Lc*-treatment by via ip produces a diminution of plasma cholesterol level, which produces RI augmentation, inducing increase of η. By via iv produces both RI and η augmentation without inducing plasma cholesterol diminution which shown an direct *Lc*-action on internal η of erythrocyte (MCHC).

21. EXPERIMENTAL EVALUATION OF *CAIMAN LATIROSTRIS* AS A SENTINEL OF ENVIRONMENTAL CONTAMINATION WITH XENOESTROGENS

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Environmental contamination with xenoestrogens produces adverse effects in wildlife and human inducing endocrine disruption. *Caiman latirostris* (yacaré overo) has characteristics that could make it suitable as a sentinel. Our objective was to characterize the response to 17 β -estradiol (E₂) in *Caiman latirostris* females target organs. Juvenil females were injected sc with E₂ (1 μ g/g) daily for 7 days and every other day until day 21 (D21). Controls received sesame oil. Plasma was collected on D0 and D23 of treatment. Gonads obtained on D23 were fixed in formol-buffer and paraffin embedded. Protein induction by E₂ was studied in one-dimension PAGE-SDS gels. Gels were stained with Coomassie Blue and Stains-All. Epithelium thickness of Müllerian duct was quantified by image analysis in 5 μ m H&E stained sections. E₂ treated group showed a protein band \approx 200kDa, which was identified as a phosphoprotein with Stains-All dye. This protein could be isolated from diluted plasma by addition of EDTA and Mg²⁺. Müllerian duct epithelium thickness was higher in E₂ treated group (57.0 μ m \pm 8.6) than in control (14.9 μ m \pm 0.6), showing hypertrophy and hyperplasia. E₂ treatment in *Caiman latirostris* induces changes in target organs that could be also sensitive to environmental xenoestrogens. A complete characterization of male and female response to xenoestrogen will permit the use of yacaré as a sentinel to assess contaminations by endocrine disruptors.

23. EVOLUTION OF SHORT TERM DIABETIC STATE AFTER ALLOXAN (A) OR STREPTOZOTOCIN (S) ADMINISTRATION TO RATS. COMPARISON BETWEEN BOTH DIABETOGENIC AGENTS

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Seven days after treatment A or S diabetic rats showed: decreased plasma insulin, increased plasma glucose and fructosamine. Lipid pattern, total proteins and hematocrite were normal; plasma urea, fractional excretion (FE) of water, Na and glucose increased; plasma creatinine and urinary proteins did not change. The aim was to study the evolution of this diabetic state after 15 days, comparing both agents. Six male Wistar rats were used in each group: control (C), A 150 mg/kg s.c., S 50 mg/kg i.v. 15 days after treatment, the animals were placed in metabolic cages during 16 Hs. Then, blood samples and the kidneys were extracted. Diabetic rats showed: increased plasma glucose, HbA_{1c} and fructosamine, lower body weight, polydipsia, polyuria, decreased plasma insulin, no differences in lipid pattern, increased plasma urea, creatinine (mg/l C: 4.3 \pm 0.2, A:5.7 \pm 0.2*, S:5.5 \pm 0.1*), and urinary albumin excretion (mg/mg Cr C:0.19 \pm 0.01, A:0.88 \pm 0.4*, S:0.40 \pm 0.09*). It was observed increased FE of water and glucose and augmented hematocrit. None of the parameters varied between A and S groups. The results were not dependent on the diabetogenic agent used. Although this diabetic state was similar to that observed at 7 days, it presented renal failure associated with probable glomerular alterations. (*p<0.05 compared to C).

22. SHORT TERM RENAL TISSUE EFFECTS AFTER ALLOXAN (A) OR STREPTOZOTOCIN (S) ADMINISTRATION TO RATS

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Previously we studied biochemical parameters and renal function parameters of A and S treated rats. Nephrotoxicity, mediated partly by free radicals, could affect the results and could vary according to the agent used. The aim was to study lipoperoxidation (LPO) level and morphological characteristics of kidneys in early stages of A or S diabetes. These studies would allow us to compare the results obtained with each agent and to evaluate the appearance of toxic tissue effects. The studies were carried out 7 and 15 days after treatment (A: 150 mg/kg, s.c., S: 50 mg/kg, i.v.). Six male Wistar rats were used in each group: control (C), A7, A15, S7 y S15 days. Kidney's portions were fixed in 10% formaldehyde. Paraffin sections were processed by two staining methods: hematoxilin-eosin and Masson's trichrome. To determine LPO the kidney was homogenized and a colorimetric method was used. At 7 days, histological studies revealed characteristics of interstitial edema in some cortical sections of C, A7 and S7 kidneys. There were no alterations in medulla. At 15 days the same characteristics described at 7 days were observed. There were no significant differences in LPO (nmol/g: 7 days: C:96.2 \pm 8.2, A7:93.3 \pm 9.3, S7:104.1 \pm 6.5; 15 days: C:90.3 \pm 9.8, A15:100.0 \pm 4.9, S15:97 \pm 10.6), suggesting oxidative stress would not affect these kidneys. These results are not dependent on the diabetogenic agent used. These results suggest the absence of toxic tissue effects in these diabetic kidneys.

24. INTERACTION OF MERCURY(II) WITH SULFANILAMIDE AND SULFATIAZOLE

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Synthesis of metal sulfanilamide compounds has received much attention. As part of a research program devoted to the study of interaction Hg-sulfatiazole, white precipitates were obtained mixing aqueous solutions of HgCl₂ and the ligand (sulfanilamide, SA or sodium sulfatiazole, NaST), with [ligand /metal] = 2. Its were separated, dried under vacuum and analysed. Mercury (by atomic absorption): complex sulfanilamide-mercury(II) (SA-Hg): 37,42% Hg; complex sulfatiazole-mercury(II) (ST-Hg): 26,33% Hg. Spectra UV -Vis (registered in a Jasco V-530, 200-800 nm, 25°C, solvents: H₂O; HCl 1M; ethanol 96°): in HCl 1 M, the peak at 259 nm in H₂O (SA-Hg and SA), shifted to 224 nm (SA-Hg), and to 217 nm (SA). This indicates a protonation of the amine group, suggesting no metal coordination with this group. In ethanol 96°: the peak at 261 nm (SA), shifted to 264 nm (SA-Hg). ¹H NMR spectra were carried out in a Bruker AC-200 E, in DMSO, at 22°C, for SA-Hg and SA. The signal assigned to the amidic protons (6.64 ppm in SA) disappears in SA-Hg, suggesting a metallic coordination. Spectrofluorometry, recording at 25°C in HCl 0.1M, excitation wl: 262 nm; emission range: 280-420 nm. There were no changes neither in shape nor position of the peak of SA (341 nm) for SA-Hg, which indicates that the coordination Hg(II)-SA does not affect directly the benzene ring. IR spectra of NaST and ST-Hg, (4000-500 cm⁻¹, KCl pellets): changes were not observed in the signals of SO₂ (1320; 1131; 570; 550 cm⁻¹), but in the thiazole ring (1446 in NaST, 1479 in ST-Hg). Results obtained suggest that N_{amidic} would coordinate with Hg(II) in SA-Hg, while in ST-Hg, the N_{thiazole} would probably act. Other analysis are necessary (X ray i.e.) to confirm this suppositions.

25.

SPERMVIGILANCE: MACROPHAGE ROLE

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The WHO categorizes semen studies as basic, specialized and experimental ones. Spermatic morphology (SM), when is abnormal, expresses spermatogenesis failure in ejaculation. Chromatin may be altered, and thus cause infertility, morphologically normal sperm may hide molecular alterations responsible for functional failure. Macrophages (M) have a central role in cellular immunity as cells presenting antigens, as cytotoxic cells they phagocytize abnormal sperm, thus contributing to a better seminal quality. Our objective was to study if increase in M concentration is related to the SM and denaturalization of DNA. 31 infertile men out of 56 couples in which the female factor was discarded. All samples were evaluated for standard semen parameters according to WHO criteria. Papanicolaou tinction was used for SM, considering 15% normal sperm as reference value (RV) (WHO 1999). DNA state was evaluated in fresh semen with Acridine Orange in fluorescence microscope (RV:>50% sperm with DNA native). The M concentration was determined with Neutral Red tinction (RV:<0.6x10⁶/ml). Out of the 31 selected semen samples increased M was observed in 19 of them (61.3%), 13 of which (41.9%) presented denatured DNA while 8 (25.8%) presented normal SM. There were 6 samples with increased M and native DNA, while 11 samples showed increased M and altered morphology. Chi Square Test was applied: there is association between increased M and denatured DNA ($\chi^2=5.55$ p<0.05), but there is no association between increase in M and normal SM ($\chi^2=0.579$ p<0.05). We conclude that there is strong evidence that the M present in semen take part in the phagocytic mechanism related with the presence of sperm with denatured DNA.

27.

INVESTIGATION OF *Trichinella* spp IN FOOD. THEIR TYPIFICATION

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Trichinella spiralis is a small nematode whose biological cycle mainly involves rats, pigs and men. It is transmitted by consumption of either raw or deficiently cooked pork. So far 10 species are known: 7 of them are well defined while the other three are still in an indefinite taxonomic level. The objective of this work was to investigate the presence of *Trichinella* spp. larvae in pork and its derivatives, to supply prevalence values in our environment and taxonomically classify the larvae found. The methodology used was acid digestion (1% pepsin in hydrochloric acid) and trichinoscopy. For the first technique, pork sausages and pork samples were used. They has been previously triturated, then digested for the liberation of larvae contained in cysts within the muscular tissue. The presence of larvae in digestion liquid was investigated by means of optical microscope with 100x and 400x augmentation. Trichinoscopy consisted in the observation, in a trichinoscope, of very thin slices of the material to be processed, with the aim of detecting *Trichinella* spp. in the piece of tissue examined. Out of 23 studied samples, three were positive, according to both techniques. Two positive samples were detected in pork and the other one in salami. The prevalence in our environment resulted to be 2,44%. With only one of three positive samples, rat biological cycle could be produced in order to obtain live larvae for their subsequent typification by means of polimerase chain reaction (PCR). The result of this study determined regions characterized by their capacity to develop in pigs and rats. The present study makes us insist on the importance of profilaxis; strict sanitary control and correct cooking of pork and the possibility of using cold pasteurization.

26.

EFFECT OF UNCONJUGATED BILIRUBIN (UB) ON THE ACTIVITY OF THE COMPONENT C1 OF COMPLEMENT

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In a previous work we demonstrated that UB inhibited the hemolytic activity of C1. This anti-complement effect of UB was attributed to its interference on the interaction of C1q with IgG or IgM antibody. The aim of this study was to evaluate the action of UB on C1 steric activity. C1 was obtained from human sera by low ionic strength precipitation and then autoactivated by incubation at 37°C for 15 min. The C1 enzymatic activity was evaluated by its capacity for hydrolysing the N-acetyl-L-tyrosine ethyl ester in the absence or presence of different amounts of UB. A 100% inhibition of the C1 hydrolytic capacity was found when concentrations of UB higher than 5 mg/dl were used. In addition, we analyzed the ability of UB to inhibit the enzymatic activity of C1 bound to antibodies-sensitized sheep erythrocytes (EA). EAC1 cells, obtained by incubation of EA with C4 depleted human serum, were incubated with different concentrations of UB for 15 min at 37°C. These cells were washed and then were treated with human serum depleted of C1, for 60 min at 37°C. The absorbance of the supernatants was measured spectrophotometrically at 410 nm and hemolysis (%) was calculated by comparison with the absorbance of EA that were completely lysed by distilled water. The % of hemolysis obtained for UB 1.0; 2.0; 5.0; 10.0 and 20.0 mg/dl (n=3) were respectively: 92±4; 88±2; 60±7*, 61±6* and 67±4*; (*) p<0.05 vs control (without UB). These results indicated that the pigment inhibited the C1 steric activity either soluble or fixed to membranes. We concluded that the inhibition of hemolytic activity of C1 by UB could be ascribed not only to its interaction with C1q but also to its inhibitory effect on C1r and C1s.

28.

FUNGAL FLORA AND PRESENCE OF MYCOTOXINS AS DECISIVE PARAMETERS FOR THE ACCEPTABILITY OF SORGHUM SILAGES

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The multiple hazardous effects of mycotoxins on the health and production on livestock cause negative effects in the food chain and produce very important economic losses. At Santa Fe state, sorghum grains are used in the production of storage foodstuffs. At the moment the quality of a silage has been evaluated by fermentative parameters. Only it has suggested that deoxynivalenol (DON) presence could be employed as marker of any other mycotoxin existence. Our objective was determine a proceeding to evaluate of a simple, rapid and economic way the final acceptability (FA) of a silage to use in animal feeding.

Fifty samples of sorghum foodstuffs, stored in bag or bridge silos, were analyzed. Pitt & Hocking method was used for enumeration and identification of fungal isolates. As fermentative parameters pH and ammoniacal / total nitrogen (%NH₃/TN), and as possible markers of mycotoxin contamination aflatoxin B₁ (AFB₁) and DON, were determined. Chemical acceptability (CA) has been defined as Very Good (pH < 4 and % NH₃/TN ≤ 5), Good (pH ≤ 4 and % NH₃/TN between 5-15), Regular (pH > 4 and % NH₃/TN < 15) and Bad (pH > 4 and % NH₃/TN > 15).

By discriminant analysis we could determined that FA coincides with CA when this is VG, G or B. If CA is R, determinations of the other parameters (AFB₁, DON, fungal enumeration and *Aspergillus fumigatus* presence) are necessary to decide the Final Acceptability of the foodstuff.

29. SEROPREVALENCE OF CHAGAS DISEASE IN THE CENTENNIAL PROVINCIAL HOSPITAL

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Chagas disease is one of the most important problems of Public Health in Latin America.

In this work we aim at: 1) determining Chagas seroprevalence in the population within the scope of the previously mentioned Hospital, 2) considering the distribution of that positivity according to the origin of samples, 3) evaluating the probable association between suffering from positive Chagas and the group from which serum comes.

9,806 sera extracted between 3/00 and 2/01 were retrospectively analysed. Serological Methods: HAI and ELISA. Statistical test: Square Chi with Yates correction. Decision rules were taken by means of ($p < 0.05$).

Out of the total number of samples 7.79% showed positive serology. From that percentage, the following distribution arose: 21.60% for donors, 18.32% in pregnant women, 36.91% belonged to external patients while 23.17% to interneers. Significant association was found between samples from clinical patients and those from donors and seroprevalence ($p < 0.00001$). The relation between interneer samples, those from external patients and positivity was also significant ($p < 0.00001$). In the pregnant women group, association was significant between sera of women in their pre-delivery hours with those who were still ambulant patients and prevalence ($p < 0.00256$). We conclude that seroprevalence is not independent of the origin of samples. The percentage of positive donors is very high since it is considered a very healthy group. Many women have their first serological control when they are already interneers.

31. MECANOBIOLOGICAL ANÁLISIS DE LA INTER-CELULAR ADHESIÓN ENERGÍA MEDIADA POR MONOCLONALES ANTICUEROS

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Biological activity of an antibody (Ab) can be evaluated by the strength of the interaction with the specific antigen (Ag), in terms of the affinity or equilibrium constant. This parameter is related to the adhesive energy exchanged during the agglutination reaction of erythrocytes. It depends on the strength of molecular bridges Ag-Ab. The adhesive energy can be estimated by the shear dissociation of agglutinates. A very simple technique to determine the specific energy (per unit area) exchanged during agglutination reaction of erythrocytes is presented here. The critical shear stress (τ_c) is the one required to break-up the Ag-Ab molecular bridges linking adjacent cells. A laser beam falls on the cell suspension submitted to a fluid shear stress in a Couette system. Backscattering intensity shows a linear correlation with the logarithm of the applied shear stress signaling a progressive dissociation of agglutinates into smaller ones. Complete dissociation of agglutinates is only approached asymptotically when only rotating doublets (two cell agglutinates) are remaining in the sheared suspension. Hence, τ_c is defined by extrapolating the linear section of the curves to the backscattered signal for complete dispersion of cells. It is easy to calculate the specific adhesive energy Γ applying the Derjaguin relation $\Gamma = (0.1 \times A_0 \times \tau_c) / (2\pi \times R_c)$. Obtained values of the specific surface adhesive energy Γ are similar to those obtained by other authors using different methods.

30. AGE EFFECT ON THE PHAGOCYTOSIS OF DESIALYZED RED BLOOD CELLS

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The physiological elimination of senescent red blood cells might be modified by individual's age.

The aim of this work is to investigate the interaction between monocytes and red blood cells (RBC) treated with neuraminidase (Ne) and trypsin (T) in young and old individuals.

Healthy individuals blood samples (20-40 years old, $n=25$ and 70 years old, $n=25$) were studied. RBC suspensions from each individual were treated with Ne and T. Senescent and Young RBC (SeRBC, YRBC) were obtained by differential centrifugation. The suspensions were subjected to the erythrophagocytosis assay and the % of monocytes with phagocytosed and adherent red cells (AMC) were determined. Non sensitized RBC (NRBC) were used as negative controls. Positive controls were performed with *ex vivo* sensitized RBC (SRBC). Values of AMC obtained with old individuals were: NeRBC: 11.9 ± 1.3 , TRBC: 3.2 ± 1.1 , SeRBC: 21.1 ± 1.0 , YRBC: 2.9 ± 1.1 and with young individuals: 11.0 ± 1.4 , 3.9 ± 1.0 , 17.3 ± 1.5 , 2.8 ± 0.9 . Values observed with controls were NRBC: 2.8 ± 1.5 and SRBC: 32.1 ± 1.7 .

The % of AMC with SeRBC obtained in old individuals were significantly higher ($p < 0.001$) than those observed in young donors. The trypsin activity is not enough to modify the % AMC. The data obtained with neuraminidase treated RBC were higher than those observed with YRBC ($p < 0.001$). However these values were similar between young and old individuals. Our observations suggest that the desialylation would not participate in the increased removal of erythrocytes observed in old donors.

32. REVEALING FRACTAL PATTERNS: APPLICATIONS TO RBC UNDER SHEAR STRESSES

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Dyslipidemia, is the result of an elevation in either the number or the composition of specific proteins, that are important determinant when selecting the appropriate drug therapy.

Cholesterol and triglycerides are associated with an increased concentration of specific proteins called lipoproteins (LDL), which levels can increase, placing the patient at risk for heart disease.

The aim of this work is to analyse the mechanobiologic properties of red blood cells of dyslipidemic patients as well as of healthy donors.

The photometric readings were obtained over several millions of cells under shear stress, and the data stored in 10x2 files of 256 points each.

Nonlinear dynamic temporal techniques were applied:

i) correlation coefficient, ii) correlation integral, not only in our photometrically recorded time series, but also in the pseudo aleatory surrogate data.

The results were very different, while for the first one (healthy donors), the slope became constant and it was uncorrelated random walk, for the second (dyslipidemic patients), the slope increased while the phase space increased and it was correlated random walk. Clearly, further studies addressing the nonlinear techniques and clinical relevance of the mechanorheology of the erythrocytes are necessary, and some of them are currently underway.

33. PRELIMINARY STUDY ON PATHOGENICITY FACTORS IN *Candida dubliniensis*

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Candida dubliniensis is a new species phenotypically related to *Candida albicans* due to the formation of chlamydoconidia and germinative tubes. It has been isolated from oropharyngeal infections in HIV(+) patients and resistance to fluconazol was observed in some strains. Yeast exert their virulence through their adherence capacity, hypha and pseudohypha formation, production of lytic enzymes, phenotypical variability, etc. The objective of this work was to compare adherence, lipase and proteinase production in *C. dubliniensis* strain with other *Candida* genus species. Seven strains of *Candida* genus studied: *C. dubliniensis* CD-36 (NCPF3949), *C. dubliniensis* (Malbrán Institute) and *C. albicans* Ca29 oral cavity HIV(+), 4 faecal matter strains: *C. albicans* Ca787, *C. parapsilosis* Cp345, *C. krusei* Ck615 and *C. glabrata* Cg751. Adherence was measured according to Kimura et al techniques, proteinase and lipase according to Togni and to Price techniques respectively. Adherence capacity is similar for *C. dubliniensis* and *C. albicans*. Both species presented more adherence than the other *C. parapsilosis*, *C. krusei* and *C. glabrata* studied. *C. dubliniensis* proteinase production was similar to the other species studied. *C. dubliniensis* lipase activity varied with respect to other species. According to our results, *C. dubliniensis* pathogenicity factors are similar to those of *C. albicans*. Even when *C. dubliniensis* pathogenicity is under study, the identification of this new species is important since it is an emerging opportunistic pathogen which may cause invasive disease in patient with a wide variety of clinical conditions such as cancer or HIV infection.

35. GIARDIA LAMBLIA AND ALTERATIONS IN GASTRO-INTESTINAL TRACT

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Giardia lamblia causes intestinal infection in human beings. It is endemic in various regions in the world, with 40% frequency, and presents great variability in clinical symptoms. Cysts are formed in the intestine and excreted in faeces in concentrations of 10⁷/gr. Because of the great number of cysts and its high infectivity, infections are more frequent when there is faecal contamination. The objective of this work was to study the presence of *Giardia lamblia* in physiopathological alterations caused by this protozoa in the gastrointestinal tract. The parasitological analysis of faeces from 10 patients was performed by direct examination with eosin to determine the viability of *Giardia lamblia* cysts. The analysis of faeces was performed with Saathof dye for fats, with Lugol for carbohydrates, proteins and leucocytes. Yamada indicator was used for pH. Van de Kamer Technique was used for fatty material in three samples. The material analyzed corresponded to diarrheic faeces: from liquid to soft, yellow, light brown or greenish in colour. Abundant mucus, neuter fats, soaps, a considerable quantity of digested and half digested muscular fibers were observed. Piocytes and leucocytes were found in two samples. The pH of the samples varied from 6 to 9. Blood was observed in two samples. Parameters are not altered in other diarrheic syndromes etiologically different from *Giardia lamblia* parasitosis. This is the most frequent cause of diarrhoea, with atrophy of intestinal hairiness. Therefore, a parasitological examination is important to detect *Giardia lamblia*, the treatment of which corrects mucosa abnormalities and contributes to the remission of alterations in the gastrointestinal tract.

34. ADHERENCE, COLONIZATION AND DISSEMINATION OF DIFFERENT SPECIES OF THE *Candida* GENUS

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The objective of our work was to study the in vitro adherence of different strain of *Candida* genus and their capacity to colonize and disseminate in experimentation animals.

For the adherence essay 13 strain were used: 2 of *C. albicans* (Ca), *C. glabrata* (Cg), *C. krusei* (Ck), *C. parapsilosis* (Cp) and *C. tropicalis* (Ct), and one of *C. colliculosa* (Cc), *C. kefyr* (Cke) and *C. lusitaniae* (Cl) (all of them isolated from faeces) and buccal epithelial cells (BEC) from different donors, according to Kimura et al technique. Capacity of colonization and dissemination of: *C. albicans*: Ca 333 and Ca 787, *C. glabrata* Cg 751, *C. krusei* Ck 615, *C. lusitaniae* Cl 670, *C. parapsilosis* Cp 345 and *C. tropicalis* Ct 508, which were orally inoculated in Rockland rats, 4-5 days old. their kidneys, spleen, liver, stomach and intestines were surgically removed. They were cultivated in Sb dextrose cloromicetina agar, incubated at 28°C for 72 hs and the number UFC of yeasts was counted.

Ca 333 strain was significantly a better adherent (p<0,001) than Cg 548; Cl 670, Ck 204 and Ck 615. Strains Ca 333 and 787 (>adherence) showed more colonization capacity (they remained 8 weeks in rats TGI); while *Candida non albicans* (<adherence) showed very weak colonization capacity: < 2 weeks (Ck 615 < 1 week). Strains Ca 333, 787 and Cp 345 showed dissemination capacity a little better than other *Candida non albicans* strains. Adherence is an essential factor in TGI colonization by yeasts while there might be other factors involved in yeast capacity to invade and disseminate in the host's tissues.

36. GIARDIA LAMBLIA AND OTHER PARASITES IN DIARRHEIC SYNDROMES

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Giardia lamblia may be found in completely asymptomatic people, but the most frequently affected are children, not adults. Anyhow, symptoms which range from diarrhea, flatulence, anorexy, abdominal pain, epigastric discomfort, steatorrhea and weak absorption syndrome may be found at all ages. The objective of this work was to find *Giardia lamblia* and other protozoa, as well as helminthes, in diarrheic faeces of interned patients between 2 months and 12 years of age. 137 samples of fresh diarrheic faeces-some with leucocytes and mucus- were processed. The parasitological analysis of faeces was performed by direct exam with eosin to determine the viability of *Giardia lamblia* cysts. Cysts were concentrated by means of the flotation method with 1 molar saccharose. The pool was conserved in physiologic solution to separate it from other parasites and cultivate it later. Humid and permanent specific colorations were performed for other protozoa: diluted Giemsa, acid-alcohol resistant colorations (saphranine, Ziel-Neelsen) and modified trichromic. The results of parasitological exams were: 73 negative samples (53,28%) and 64 positive ones (46,72%). *Giardia lamblia* was present in 26 samples (40,63%) in 12 of which it was isolated as the only protozoan while it was found associated to *Blastocystis hominis*, *Enterobius vermicularis*, *Entamoeba coli*, *Trichomonas hominis*, *Trichuris trichiuria*, *Ascaris lumbricoides*, *Endolimax nana*, *Dientamoeba fragilis* and *Cryptosporidium parvum*. *Giardia lamblia* was the most frequently isolated protozoan. The high parasitological charge in children with diarrheic syndrome, malnutrition and immunosuppression associated to parasitosis is to be remarked.

37. PLATELETS GEL IN DENTISTRY: ATTAINMENT AND QUALITY CONTROL

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In order to improve grafts consolidation it has been necessary to develop new techniques that allow better cicatrization and bone regeneration. With such purpose, some methods have been developed to obtain platelet rich gels in growth factors (present in platelets granules). These growth factors have beneficial effects in the bone reconstruction.

The purpose of this work was to modify the technique proposed by Venturelli in order to make it more simple and cheaper.

Gel was prepared with platelet rich plasma (PRP), thrombin and calcium chloride. The PRP was obtained by centrifugation at low speed. Thrombin was obtained from the patient's plasma or blood donor fresh frozen plasma (FFP). Platelets concentration and viability were tested immediately, five and twenty four hours later. Thrombin activity was evaluated accordingly to the time of gel consolidation.

High-speed centrifugation concentrates the platelets 3 or 4 times. Platelets viability and concentration was almost the same in the three measures made. Thrombin obtained from FFP decreases the time of gel formation and facilitates its preparation.

This technique allows obtain PRP with a great clinical potential and improves cicatrization and the bony regeneration. One strategy to follow might be the creation of accessible techniques to obtain higher platelets concentration with the consequent increase of the growth factors.

39. DEVELOPMENT OF A STABLE CONTROL FOR DIAGNOSIS OF RNA VIRUSES BY RT-PCR

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The application of RT-PCR for the detection of RNA viruses is an important tool in clinical and research laboratories. RNA lability makes necessary to have an adequate control to verify the efficiency of both, sample processing and amplification reaction. We present a strategy for the development of an internal control to be spiked into the specimen, in a way that both can be processed together and co-amplified with the same primers. In this sense, an RNA coliphage, Q β , was chosen as the candidate for such control. Q β genome was analysed for the introduction of heterologous primers into one of the capsid genes, which can be modified without altering phage replicative cycle. In this region, we found two unique sites for *Bst98 I* and *Nsi I*, which limit a 200 bp fragment. Q β genome was previously cloned as cDNA in an expression vector under the control of T7 promoter (pBRT7Q β); this system was used for the production of phage particules which infectivity and stability along time was checked on *E. Coli XLI Blue*. Heterologous primers to be inserted into Q β genome were oligonucleotides used in the detection of HCV (KY78/80) that flank a 244 bp HCV fragment. We designed 50 bp primers which sequences included KY78 or KY80, phage sequences and one of the restriction sites *Bst98 I* or *Nsi I*, respectively. PCR was performed in low astringency conditions and pBRT7Q β as template. The effective introduction of HCV primers into *Bst98 I-Nsi I* fragment was verified by KY78/80 HCV PCR; the proper amplicon was cloned into pBRT7Q β . Infection experiments with recombinant phages are in course to evaluate recombinant phage replication efficiency and suitability of the system proposed.

38. DEVELOPMENT OF A COLORIMETRIC PCR SYSTEM FOR THE DETECTION AND TYPIFICATION OF HUMAN PAPILOMAVIRUSES

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Human papillomaviruses (HPVs) are a group of DNA viruses associated with proliferative lesions of the epithelium, including more than 90 different HPV types. Types 16 and 18 are found in most carcinomas and their early detection is an important factor for prevention of neoplastic forms. Diagnosis of infection is complicated by the lack of an adequate cell culture system. In this work we report the development and optimization of a PCR-based amplification system for the detection and typification of HPVs. Assay characteristics are: i) amplification of L1 region with consensus primers MY11 and biotinylated MY09; ii) liquid hybridization of biotinylated amplicons with a generic fluorescein-containing probe which detects most HPVs; iii) hybrid capture into streptavidin-coated microplate wells; iv) colorimetric detection with antfluorescein conjugated with peroxidase; v) color measurement on a microplate reader; vi) typification of positive-HPV samples with HPV-16 and HPV-18 specific probes. PCR was optimized for the amplification of a 450 bp fragment from most HPVs types, using as positive controls DNA from chronically infected cells lines with each viral types. Hybridization temperatures for generic and specific probes were determined practically, choosing those in which positive controls gave maximal optical density (OD), with minimal OD in the negative controls. Experiments with different types of specimens are in course. These results will allow to evaluate the clinical utility of this assay for its application in the diagnosis and identification of patients at risk to develop mucosal neoplasias.

40. USE OF FLUORESCENCE METHODS TO MONITOR CHEMICAL UNFOLDING IN β -LACTOGLOBULIN

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The degree of exposure of tryptophanyl residues (Trp) in beta-lactoglobulin (β -LG) molecules can be evaluated by following the external quenching of the intrinsic protein fluorescence by added acrylamide. Based in this technique, we proposed a method to monitor β -LG equilibrium denaturation profile by urea. The results were analyzed by the dissociation coupled unfolding (DCU) model. This model take into account the impact of dimerization on β -LG stability. The values of free energy change for denaturing β -LG (ΔG_{DCU}°) obtained in this work were 63.3 (± 0.5) kJ mol $^{-1}$ at pH 6.8 and 73.4 (± 2.3) kJ mol $^{-1}$ at pH 2.5. These results are in good agreement with previous results reported by other authors, monitoring the denaturation process by ultraviolet difference spectrophotometry. In addition, the protein dependence of denaturation equilibrium profiles by urea followed by fluorescence polarization measurements suggests that β -LG denatures by 3-state DCU process at both pH 6.8 and pH 2.5, with the dissociation of dimers preceding the unfolding of the monomers.

41. EFFECTS OF SACAROSE AND LACTOSE ON THE STERIC STABILIZATION OF BOVINE CASEIN MICELLES (CM)

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CM are stabilized as colloidal suspension in milk by electrostatic and steric effects. Chymosin destabilizes such suspension catalizing the partial hydrolysis of β -casein. Partially hydrolyzed CM (pCM) aggregate and coagulate, process which is the base of cheese production. Different factors can modify CM surface properties, altering in that way CM stability for enzymic coagulation. Among these factors, the action of lactose (L) and sacarose (S) were considered in this work. pCM aggregation rate was evaluated in absence and presence of either L or S at different concentrations (0,1 and 0,7% p/v) and at several temperatures. MC samples were prepared by diluting non-fat reconstituted milk to adequate concentration. Coagulation was performed working in enzyme excess, conditions in which aggregation rate can be estimated by the initial turbidity (τ) relative increment ($1/\tau_0 (\delta\tau/\delta t)_0$). Viscosity (η) of the media containing L or S were measured with a Cannon-Fenske viscometer. Non-linear Arrhenius plot were obtained in the presence of either L or S. In the experimental conditions used, pCM aggregation can be considered, according von Smoluchowski, as a diffusion limited process, with rate constant $k_2 = (8K_B T/3\eta W)$, where K_B is the Boltzman's constant and W the stability factor. Plot of aggregation rate vs. T/η showed a lineal behaviour up to 33°C for S and 38°C for L showing constant W values in these temperatures ranges. A clear slope decrease has been detected in both cases, at higher temperatures, suggesting a sharp W increase, probably due to a conformational change provoked by the disaccharides action on the surface polypeptide chains of pCM.

43. MATHEMATICAL MODEL FOR PCR: DETERMINATION OF KINETIC PARAMETERS

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We have recently developed a mathematical model for polymerase chain reaction (PCR); a non-linear system of two differential equations that simulates the amplification process. Let n be the number of reaction cycles, N the growing population of DNA molecules from an initial value N_0 , K the environment initial capacity (initial amount of primers), and P the probability of primer-target annealing. The system is $\{N' = uNP; K' = P - vN\}$, where $P=1$ (N/K)^a, and $0 < a < 1$, $0 < u < \ln(2)$ and $v > 0$ are parameters which control the process. a measures the goodness of primer design, $u/\ln(2)$ equals the target-sequence duplication efficiency, and the inhibitory effect of essential reagents consumption is accounted by v . Numerical analysis of the curve n versus N , obtained by optical PCR devices, allows calculation of the curve inflection point ($n_i; N_i$), its slope at inflection N'_i , and the plateau value N_{max} . In addition to K_0 , these data suffice to determine parameters a , u and v . A geometric analysis allows obtaining the position and slope of K at its inflection, ($n_i; K_i$) and K'_i . A tangent to N at ($n_i; N_i$) passes by points ($n_1; N_{max}$) and ($n_2; 0$), where $n_1 = n_i - N_i/N'_i$ and $n_2 = n_i + (N_{max} - N_i)/N'_i$. A straight line that passes by ($n_1; N_{max}$) and ($n_2; 0$) is a good approximation of the tangent to K at ($n_i; K_i$). Thus, $K'_i \approx N'_i (1 - K_0/N_{max})$ and $K_i \approx N_{max} + K'_i (N_i - N_{max})/N'_i$. While u is the initial slope of $\ln(N)$, the other parameters are determined by $v \approx -N'_i/(uN_i^2) - K'_i/N_i$ and $a \approx \ln[1 - N'_i/(uN_i)]/\ln(N_i/K_i)$. The model permits a qualitative and quantitative characterization of PCR reactions, as well as simulation of responses to certain changes.

42. HSP70 CONTAMINATION DURING FUSION PROTEIN PURIFICATION: STRATEGIES TO AVOID IT

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Expression of recombinant proteins is widely exploited for research and for commercial purposes. *Escherichia coli* recombinant protein expression has proven to be a useful tool for production of proteins. On that context, the use of fusion proteins has become popular because the carrier increases protein solubility, standardizes expression levels and facilitates purification of the fusion product. We have observed that the peptide regions that fuse the carrier to the protein of interest bind *Escherichia coli* Hsp70 molecular chaperones (DnaK) depending on their amino acid composition, resulting in an unwanted contamination during protein purification. In this work, we describe a simple strategy that combines different approaches to circumvent this problem. First, by choosing the appropriate amino acids comprising and surrounding the cloning site the affinity for DnaK can be decreased to a minimum. Second, by washing the fusion protein bound to the affinity resin with MgATP or MgATP plus soluble denatured proteins before elution, contamination with Hsp70 is significantly reduced. These washes can also be applied to fusion proteins with partially folded polypeptides, where the protein of interest itself binds DnaK. Moreover, this strategy could help to free fusion proteins from contaminations with other molecular chaperones.

44. ERYTHROCYTE AGGLUTINATES STUDIED BY DIGITAL TREATMENT OF IMAGES

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In blood group serology the interaction between the antibody (Ab) and the specific antigen (Ag) distributed on the cell membrane is normally detected by the agglutination of the cells concerned. The aim of this work was to analyze the agglutination of red blood cells of group A reacting against a specific antibody by using digital treatment of images. Washed red blood cells carrying different antigens ($A_1, A_{int}, A_2, A_{cord\ blood}$) resuspended at 1% concentration in saline solution 0,15 M were used. A solution (final titer: 32) of an anti-A,B monoclonal antibody (Mab) was used. Agglutination: 50 μ l of RBC suspension and 50 μ l of Mab dilution were mixed, incubated for 2 min at room temperature poured into an excavated glass slide and placed on the stage of a microscope. The image was recorded by a CCD camera and digitized to be processed and analyzed using an adequate software. The projected area and perimeter of each agglutinate were evaluated. Differences between these parameters were found when each reaction was analyzed. Such differences were related to different Ag expressions.

45. STUDY OF THE VASCULAR OSTIUMS OF THE PATELLA'S ANTERIOR FACE

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Like other bones, the Patella, may represent an adequate zone to take osseous grafts. Due to the limited knowns about distribution and approaching of the vessels that irrigates, we make a relevation of the vascular ostiums of the bone's anterior face, trying to evaluate in a future, the possibility of segmentary mobilize in condition of the free flap.

There were used 15 right Patellas (RP) and 15 left Patellas (LP), from adults male corpses, without specific pathology. There were studied vascular ostiums directly and by using a magnifying glass stereoscopic from 6.4 to 40 X.

There were delimited each sector of approaching (Superior-Lateral Quadrant - SLQ -; Superior-Medial Quadrant - SMQ -; Inferior-Lateral Quadrant - ILQ - and Inferior-Medial Quadrant - IMQ -); there were realized morphometry and were classified by the sizes (Small: < 2,5 mm² - SO -; Medium: ≥ 2,5 mm² y < 5 mm² - MO -; and Big: ≥ 5 mm²).

Results: 1) RP: Total ostiums: 197; A) SLQ: 85 SO, 10 MO and 10 BO; B) SMQ: 32 SO, 20 MO and 22 BO; C) ILQ: 11 SO, 3 MO and 4 BO; D) IMQ: without ostium; 2) LP: Total ostiums: 165; A) SLQ: 62 SO, 26 MO and 3 BO; B) SMQ: 36 SO, 21 MO and 10 BO; C) ILQ: 6 SO; D) IMQ: 1 SO.

Conclusion: the anterior face of the RP has more number of ostiums, and the small ostiums are predominant in all the quadrants of both Patellas. The SLQ have more number of vascular ostiums respect to the remainings and about the totality of the IMQ we only find 1 SO, that's why we propose to call this sector "Pars Rotuliana Hipovascular".

47. EFFECT OF STRUCTURAL CHARACTERISTICS OF ERYTHROCYTE SUSPENSIONS UPON VISCOSITY IN TWO ANIMAL SPECIES

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In a flowing disperse system, such as blood, its properties change and the modifications can be detected as structure variations. In the present study the influence of structural parameters (particle deformation and physicochemical properties of suspension fluid) on flow behavior is studied. The analysis is performed by means of a structural parameter (ϕ) estimated by equation: $\eta_s/\eta_0 = (1 - \text{Htc}/\phi)^{-2}$ where η_s and η_0 are: suspension viscosity (η) and medium, respectively, and hematocrit (Htc). The study was carried on with normal bovine and human red blood cells suspensions (RBCs) (Htc range 5-60%), in autologous plasma and saline solution, and treated with glutaraldehyde. Bovine serum RBCs suspensions were used also. Viscosity was measured in a cone-plate viscometer at 37°C and 230 s⁻¹ shear rate. ϕ values were estimated applying the above equation. According our results ϕ decreases in function of medium protein concentration through the whole Htc range studied. This is observed comparing plasma, serum and saline curves in bovines, and in plasma and saline in human beings. Decrease of ϕ parameter comparing human RBCs regarding bovine RBCs in plasma might be related with a lower fibrinogen concentration of one species regarding the other. For both species ϕ values diminish when the particles become rigid due to glutaraldehyde, demonstrating dependence on structural characteristics of the suspension regarding the deformation capacity of cells in suspension.

46. IN VITRO EFFECT OF INSULIN ON BLOOD VISCOSITY IN HYPERTRIGLYCERIDEMIC OBESE AND DIABETIC RATS

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Studies in non-diabetic human beings suggest that insulin might influence red blood cell (RBC) behavior in the aggregation process and blood viscosity, thus, controlling the pathogenesis of arterial diseases. On the other hand, line- β rats (hypertriglyceridemic obesity and diabetes model) present hemorheological alterations similar to those observed in obese and diabetic patients, and with metabolic and hemorheological alterations greater in aging animals. In the present work the in vitro effect of 2 physiological insulin concentrations (120 and 480 pmol/l) upon viscosity (η) of RBC suspensions of β -line rats aged 200 and 300 days were studied. Eighteen animals in each age interval were used. Blood was obtained by cardiac puncture, and RBCs were separated by centrifugation, washed in saline, divided in three aliquots and incubated: Aliquot A: PBS containing 100 mg/ml glucose without insulin (control); B: PBS plus 120 pmol/l insulin; C: PBS plus 480 pmol/l insulin, during 15 minutes. The supernatant was removed and RBCs were suspended in saline at 40 % hematocrit. Viscosity was determined in a cone-in-plate viscometer at 46, 115 and 230 s⁻¹ shear rate (γ). Statistical analysis: Student's t test for paired data. A significant η decrease (regarding control) of A and B aliquot in 200 days rats at $\gamma=115$ and 230 s⁻¹ was observed, and none in 300 days rats. These results suggest that insulin interacting with RBCs increases erythrocyte deformability, that is evidenced in η decrease at high γ . On the contrary, RBCs from 300 days rats, characterized by a lower erythrocyte deformability, do not interact with insulin, hence, its presence in the incubation medium does not produce changes in erythrocyte suspensions viscosity.

48. FIBRINOGEN EFFECT ON ERYTHROCYTE AGGREGATION IN HORSES

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Erythrocyte (E) aggregation at physiological hematocrit (Htc) (38-45%) is higher in horses than in other domestic species or in human beings, and spontaneously produced in microcirculation due to lower rate flow. Its different components, i.e., E's membrane: glycoproteins and sialic acid; plasma macromolecules and surface charge. Objective: to study E's aggregation dynamic in whole and defibrinated plasma in uncoagulated blood (EDTA) samples, in 8 healthy and resting race thoroughbred horses. Plasma obtained by centrifugation provided 2 fractions: whole plasma (WP) and defibrinated plasma (DP) by means of recalcification with Cl₂Ca, and clot removal. Assays: plasma fibrinogen (Fb) by gravimetry; globulins (Gf), by colorimetry (autoanalyzer Hitachi 902); RBC aggregation registering variation of transmitted light through a blood sample automatically shaken every 2 min. The mathematical analysis yielded 2 parameters estimating: average size of aggregate (S), and aggregation rate (R), at constant Htc (40%), with Es suspended in WP and DP. Absence of Fb in DP was confirmed by high-resolution agarose gel electrophoresis. Results ($x \pm SD$), R modifications (Δ) WP vs DP [$d=29.14 \pm 13.54, p < .001$] but not in S [$\Delta=0.048 \pm 0.15, p < .05$]. Fb range: 141.25-401 mg/dl (297.02 ± 81.78). Gf modification range: 1.50-3.24 g/dl (2.25 ± 0.41). R correlations with Fb and Gf respectively, were non significant [$r_{K,Fb} = -0.21, p > 0.05; r_{K,Gf} = 0.35, p > 0.05$]. 56-70% R decrease in DP regarding WP. Conclusions: Fibrinogen absence diminishes aggregation rate but not size aggregation. Differences in Fb and Gf concentration for different species are not reflected on aggregation dynamics.

49.

THE DISTRIBUTION'S STUDY OF THE TRIBUTE'S VESSELS

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The Kiembock's disease it's the deterioration of the affluents vessels to the lunate bone.

The authors, in the prior's estudy, to have grounds in the numbers and calculation of his section parcial and total, they hierarchy the orifice osseous vasculars.

The reason of this present work, it's reveise the affluent to the bone in consequence of the hierarchy and quantify the vessell that can be lesion and cause the osteonecrosis.

They studied, 10 hands and wrist (H&W) of grown-ups cadavers, formolize and conserve by technic MAR II. They proceeded to the dissection masrocopic and microscopoc and to the description and the quantification to the affluents vessels discrimination according to how dorsal and palmar's poles.

Result: DORSAL POLES: a) 5H&W they shoved anastomosis that to put into port 2vessells. b) 3 H&W shoved 2 vessells of direct collision. c) 2 H&W one only vessells. PALMAR POLES: a) 4 H&W they shoved anastomosis that to into port one only vessells. b) 2 H&W to present 2 vessells of direct collision. c) 2 H&W one only vessells. In 2 H&W don't watch to arrive of vessell.

On the optain's result we stand out the variability to the patroness of the distribution to the affluenty to the arterials vessels in the dorsal and the palmar's poles, it's more important to stress. The importance of the most arrivals of the vessels in the dorsal pole on the palmar pole.

51.

GROWTH EFFICIENCY IN CALORIC RESTRICTED OBESE RATS

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β is an inbred line of rats with spontaneous mild obesity syndrome of pubertal onset.

From 22 to 50 days old, 6 β male rats were fed ad libitum (T) and 6 were fed 30% less than controls (R).

Growth efficiencies were calculated weekly as body weigh increase (g) and tail length increase (cm) related to food intake (g)

Mean \pm standard error and "Student t test" results:

Growth Efficiency (g/g):

First week: T: 0.426 ± 0.013 vs R: 0.113 ± 0.005 (***)

Second week: T: 0.354 ± 0.013 vs R: 0.435 ± 0.015 (**)

Third week: T: 0.229 ± 0.015 vs R: 0.289 ± 0.013 (*)

Fourth week: T: 0.165 ± 0.028 vs R: 0.246 ± 0.016 (*)

Growth Efficiency (cm/g):

First week: T: 0.022 ± 0.001 vs R: 0.026 ± 0.001 (ns)

Second week: T: 0.018 ± 0.0006 vs R: 0.021 ± 0.0003 (**)

Third week: T: 0.011 ± 0.0005 vs R: 0.014 ± 0.0008 (*)

Fourth week: T: 0.008 ± 0.0011 vs R: 0.012 ± 0.0012 (*)

During the first week, R obtained such a low efficiency as (g/g) that if it had been maintained in time, survival would not have been allowed, but afterwards this efficiency increased to values higher than T.

Growth efficiency values as (cm/g) in R were always higher than in T, bringing evidence that skeletal growth was preserved in every moment.

50.

CHRONIC ADMINISTRATION OF CYCLOPHOSPHAMIDE IN LOW DOSE INHIBITS THE GROWTH OF A RAT LYMPHOMA

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Cyclophosphamide (Cy), an antitumoral agent usually administered in high doses and repeated cycles, shows, along with the reduction of tumor mass, an important bone marrow, renal or cardiac toxicity. We have previously demonstrated that a single low-dose Cy, devoid of toxicity, inhibits metastasis development of a rat B-cell lymphoma (L-TACB), without affecting primary tumor growth. Our aim was to investigate the antitumor effect of chronic administration of low-dose Cy and to carry out a preliminary study of toxicity of such treatment. Twelve inbred *e* rats were challenged s.c. on day 0 with L-TACB and distributed in 2 groups: I) Treated: from day 10 with Cy (10mg/kg) i.p., 3 times a week till tumor disappearance; II) Control: idem I, but injected with saline. Tumors were measured and animals were weighed 3 times a week. In a second experiment with the same groups (n=6) ECG and blood samples, to determine urea, creatinine, GOT, LDH, and CPK serum concentrations and hematologic parameters, were taken on days 0, 10, 20, 40 and 60. Tumor size on day 21 for group I (mean \pm S.E: 6.1 ± 2.7 cm³) was significantly lower than that of group II (46.8 ± 4.6) (p<0.001). Controls were sacrificed on day 21 due to tumor size, while treated tumors disappeared on day 35-53 and the rats continued with no evidence of disease till day 130. Tumors weights did not differed between groups. The treatment did not show signs of cardiac, renal or bone marrow toxicity. This antitumoral therapeutic schedule with non-toxic effect could be of importance in the treatment of human B-cell lymphomas.

52.

EFFECT OF DIET CHANGE TOWARDS AFFLUENCE ON SOME PARAMETERS RELATED TO OBESITY AND DIABETES IN BETA RATS

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Rats of β line fed with commercial chow develop obesity and hypertriglyceridemia around puberty and become diabetic at adult age. To study the effects of a diet change towards affluence upon some parameters related to their patologies, a change from an analytic diet to the usual commercial one was performed at the age of usual starting of overweight. Male β rates were fed ad lib from weaning until 42 days on two diets: analytic (S) or commercial (C), which percents of protein calories were S,10 and C,29. Net protein ratios between diets were: S,3.14 \pm 0.55 vs C,2.65 \pm 0.37(ns). From day 42 onwards the S group received the same diet as C, which meant an increase in protein intake by S group. Live body weight(BW), triglyceridemia(TG) and glycemia(G=) were determined at different ages. At 190 days the rats were slaughtered and their fat pads(FP) weighed. Results were analyzed with Student's t test and expressed as mean \pm SE. Within S group a compensatory growth took place after diet changed. BW(g) at 100 days: S,392 \pm 22 vs C,320 \pm 9 (p<0.01); BW at 130 days: S,441 \pm 29 vs C,370 \pm 17 (p<0.05). At 190 days both groups matched their BW and TG. Accordingly, there was no significant difference between FP (g): S,21 \pm 2.9 vs C,29 \pm 2.0. Group C maintained significant lower G0 values until the end of the experiment(g/l): S,1.6 \pm 0.1 vs C,1.3 \pm 0.1(p<0.05). On these particular diets, the initial intake of a nourishment lower in protein calories would have stimulated the thrifty genotype of β rats raising their metabolic efficiency and producing the aforesaid values on the parameters studied.

53. VALIDATION OF A MATHEMATICAL MODEL FOR THE METABOLISM OF α -2-MACROGLOBULIN (α 2M)

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α 2M is a serum antiprotease. Its serum concentration control is unknown. Monofluorophosphate (MFP) binds and inactivates α 2M producing α 2M-MFP complex. Since this phenomenon imitate the binding to proteases, it was used to investigate the control of the serum levels of α 2M. The aim of this work was to evaluate the inactivation of α 2M in human beings and rats, with de aid of a mathematical model. α 2M-MFP levels were measured in plasma of rats and volunteers (Proyect evaluated by the Ethics Committee). The rate constants of inactivation of α 2M (ki), intestinal absorption of MFP (ka) and uptake of α 2M-MFP (kc), were calculated with equations derived from the model. The experiment had four groups: A) oral dose of 80 umoles MFP, B) oral dose of 80 umoles of MFP and 5 mg of polyinosinic acid, inhibitor of receptors. C) oral dose of 80 umoles of MFP and 50 umoles CaCl_2 enhancer of MFP absorption. D) intravenous dose of 1 umole of MFP. In addition, 2 volunteers took an oral dose of 0,75 mole of MFP (Ki: $0.015 \pm 0.012 \text{ min}^{-1}$). Data are media \pm SD.

Group	Ki: min^{-1}	Ka: min^{-1}	Kc: min^{-1}
A. n=4	0.047 ± 0.011	0.026 ± 0.009 a	0.034 ± 0.018 b
B. n=4	0.046 ± 0.015		0.00003 ± 0.00003 b
C. n=4	0.032 ± 0.004	0.052 ± 0.008 a	
D. n=4	0.035 ± 0.012		

Significant differences are indicated by **a** ($p < 0,05$), **b** ($p < 0,01$); the same letter indicate the groups that were compared. There were no differences between ki in the different groups, ANOVA $p > 0,05$. Conclusions: ki in rats is independent of ka and kc. Ki in human beings is different from that of the rat ($P < 0,05$).

55. EFFECTS OF KETAMINE VS REMIFENTANIL INTRAVENOUS ANESTHESIA ON DIFFERENT ANESTHETIC-SURGICAL MOMENTS

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The effects of ketamine-fentanil -droperidol and a continuous remifentanil benzodiazepine infusion were compared in 47 surgical patients. We evaluated the inflammatory response and the clinical performance, characterizing the complexity of endotracheal intubation (IDS), the cardiovascular system effects and criteria for predicting successful extubation.

Blood samples were collected before induction, at the end of intubation (EI), and at the end of the procedure (EP) for hematological studies and cortisol, prolactin, interleukin-6 levels. There were no significant differences between groups in demographic data, procedure length, ASA class, IDS, criteria for predicting successful extubation, red blood cell, lymphocyte and monocyte counts. At EI groups were significantly different in heart rate and blood pressure ($K > R$). At EP the K group showed higher leukocyte number and neutrophil number than R group. In both groups leukocyte and neutrophil number increased by EP. Cortisol, prolactin and IL-6 levels increased along the study, but groups only differed in cortisol level by the end of the procedure ($K > R$). This study suggests that the conditions for intubation and extubation are similar for both techniques. Also, there was difference in the immunological response to surgery. Remifentanil provided superior hemodynamic and neuroendocrine stability.

54. CONTAMINATION WITH *TOXOCARA SPP.* EGGS OF SANDPITS IN SQUARES AND PUBLIC PARKS IN THE CITY OF ROSARIO

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Toxocariasis is a zoonosis of global distribution caused by *Toxocara spp.*, whose presence in man is associated with the ingestion of infective eggs present in the ground. It causes a broad spectrum of diseases, from asymptomatic and masked forms to serious ones, such as visceral larva migrans syndrome (VLM) and ocular larva migrans syndrome (OLM).

Dog feces in public areas is one of the main ways of transmission among dogs and from dog to man. This constitutes a serious problem in public health, mainly for children under the age of five, especially those with a history of pica.

The purpose of this paper is to evaluate the presence of *Toxocara spp.* eggs in samples taken from sandpits in public parks and squares in the city of Rosario.

A total of 17 squares and public parks were studied, 5 samples were randomly taken from each sandpit during the months of June, July and August 2001. The upper layer was removed and samples were taken from a depth of 5 cm. The samples were transported in plastic bags and were processed following the modified techniques of Dada and Lindquist (1979) and Kozacos (1983).

Of the 17 public parks and squares studied, 6 (35.3%) were contaminated with *Toxocara spp.* eggs. A total of 85 samples were examined. Of these samples 7 (8.2%) were positive. These results suggest that there would be a potential risk of transmission of this parasitic zoonosis in the sandpits of our city.

56. INFLUENCE OF Mg^{+2} ION CONCENTRATION IN THE CONSTITUTION OF NATURAL LATEX MICELLES

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Natural latex is composed of cis 1,4- polyisoprene, a fraction of soluble proteins and a fraction of proteins associated with the micelles which increases the rubber biosynthesis. The micelles are negatively charged particles in the outside and positively charged in the inner because of proteins and Mg^{+2} and Ca^{+2} ions. In this work the influence of Mg^{+2} ion in the micelles constitution is analyzed. Samples of latex were collected by incision in the fig tree stem (*Ficus carica*). These samples were suspended in ammoniac for avoiding bacterial contamination. EDTA was utilized for extracting Mg^{+2} ions. The micelles behavior was follow by turbidimetric measures to 620 nm and different concentrations of EDTA from 0 to 100 mM in 10 μl of latex. As EDTA concentration was increased, the turbidity decreased except for a concentration of about 80 mM at which a notable increased in the turbidity was registered. This peak would be associated to a major activity in the rubber transferase enzyme which catalyzes the isoprene polymerization and as it is known, is Mg^{+2} dependent. The increase in the turbidity would show in principle an increase in the size of the particles more than an increase in the number of them, because latex has been extracted from the medium were it is generated. We can arrive to the conclusion that there is a determinate concentration of EDTA for which the enzymatic activity is optimum.

57. GASTRIC CYTOPROTECTION INDUCED BY ORAL NADROPARIN

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To evaluate the Nadroparin (NA) in gastric protection or cytoprotection, when the mucosa is attacked by ethanol 96% and its possible mechanism of action, randomized groups of Wistar rats (n=7 per group) were submitted to the following experiments: 1. Physiological solution 1 ml by orogastric gavage in bolus (OG) waiting 60 min; 2. Ethanol 96% (ETOH) 1 ml OG 20 min (control); 3. NA 80 ug/kg-100-500-1000 UI/Kg OG, 60 min; 4. NA 80 ug/kg 100-500-1000 UI/Kg subcutaneous (SC) 60 min; 5. NA 80 ug/kg 100-500-1000 UI/Kg OG 60 min then ETOH; 6. NA 80 ug/kg 100-500-1000 UI/Kg SC 60min then ETOH; 7. Indomethacin 10 mg/Kg SC 60min NA 500 UI/Kg OG then ETOH; 8. IN 10 mg/Kg OG 60min, NA 500 UI/kg OG then ETOH 9. Mercury Bichloride (sulfhydryls selective depletor) SC 30min, then NA 500 UI/kg OG then ETOH. Rats were sacrificed by ether overdose. Laparotomy was performed to remove stomach and to assess the percentage of gastric lesional area by planimetry and histological examinations. Statistics: Student's t and ANOVA. Percentage of gastric macroscopic lesional area: 1. 0%; 2. 35,5±5,5%; 3. 80 ug/kg 100-500-1000 UI/Kg 0% (p<0,001); 4. 80 ug/kg 100-500-1000 UI/Kg 0% (p<0,001); 5. 80 ug/kg 15±2% (p<0,03); 100 UI/kg 25±5% (p<0,05); 500 UI/kg 7±2% (p<0,001); 1000 UI/kg 29±6% (ns); 6. 80 ug/kg 40±6% (ns); 100 UI/kg 32±4% (ns); 500 UI/kg 29±7% (ns); 1000 UI/kg 38±7% (ns); 7. 30±4% (ns) 8. 30±5%(ns); 9. 27±6%(ns). It was concluded that NA in not an anticoagulant dose 80ug/kg OG showed gastric protection and its mechanism would be halfway through endogenous sulfhydryls and prostaglandins.

59. EVALUATION OF A PHYSICAL TRAINING PLAN FOR GENETICALLY OBESE RATS

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Obesity emerges as a consequence of chronic positive energetic balance between the intake and the caloric dissipation. The physical activity is one of the resources that can have most influence on the energetic using up. We are trying to evaluate whether a moderate physical training is enough to decrease the degree of obesity in adults animals of the beta line. Rats ranging from 160 to 220 days old had been trained and fed ad libitum. The training took place three times a week for ten minutes a day to an approximated speed of 30 ± 1 m/min. An ECO 3/6 rodent threading machine with manual speed control was used to exercise only the rear part. At the end of the experiment, sacrificed the animals, the perirenal and perigonadal fatty panicles were extracted. The obtained results were the following (Mean ± Standard Error) Initial weight(g) Non trained 458.4 ± 16.34 vs. Trained 473.4 ± 10.56 (ns). Final weight(g) Non trained 486.8 ± 9.769 vs. Trained 501.2 ± 10.25 (ns). Final intake(g/day) Non trained 29.37 ± 1.777 vs. Trained 31.77 ± 0.99 (ns). Perirenal fatty panicle weight(g) Non trained 16.65 ± 1.54 vs. Trained 15.76 ± 1.21 (ns). Perigonadal fatty panicle weight(g) Non trained 12.89 ± 0.2688 vs. Trained 12.91 ± 0.73 (ns).

We observed that the physical training in the given conditions did not make modifications in the weight or amount of body fat. There were not significative differences in the daily intake or along the experiment. We got to the conclusion that the physical training plan did not achieve its aim. The adults animals may require a different training plan or combined with a feeding restriction. It would be of interest to implement it at an earlier period.

58. NADROPARIN AND GASTRIC STRESS

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Nadroparin (NA) is a heparin of low molecular weight, that enlarges the viscosity of the gastric mucus, as well as the mucosal proliferation, regeneration and angiogenesis and would be able to increase the gastric blood flow. The objective of this job was to evaluate in the gastric mucosa the action of the NA in rats submitted to stress. Randomized groups of Wistar rats (n=7 in each group) of 200g, 24h fasting, except water ad-lib, and avoiding the coprophagy, were submitted to the following experiments: 1. Physiological solution, 1 ml by orogastric gavage in bolus (OG) waiting 60 min, then gastric stress (S) by immobilization and immersion in 18 degrees C water during 6 h. (control); 2. NA 80ug/kg-100-500-1000 UI/Kg OG, 60 min 3. NA 80ug/kg -100-500-1000 UI/Kg, subcutaneous (SC), 60 min 4. NA OG, 80ug/kg - 500 UI/Kg 60 min and then S; 5. NA SC, 80ug/kg - 500 UI/Kg 60 min and then S. All the rats were sacrificed with ether overdose. Laparotomy, gastrectomy, opening of stomach by the greater curvature were performed. The percentage of gastric macroscopic lesional area was tabulated by computerized planimetry and samples for histological studies were obtained. The findings were evaluated with Student's t and ANOVA. The percentage of gastric macroscopic lesional area gave: 1. 75 ± 7%; 2. 0%; 3. 0%; 4. 80 ug/kg 15 ± 3% (p <0,01) - 500 UI/Kg 70 ± 8% (ns); 5. 80 ± 5% (ns). It was concluded that the NA in not an anticoagulant dose (80 ug/kg) OG, showed gastric protection, and in an anticoagulant dose (500 UI/Kg) did not have protective effect in the stress.

60. ANTIINFLAMMATORY EFFECT OF COX-2 vs. COX-1 INHIBITOR NSAIs IN FOOTPAD EDEMA BY CARRAGEENIN AND GASTRIC INJURY IN RATS

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Objective: To study the anti-inflammatory effect of selective cyclooxygenase-1(COX-1) non-steroid anti-inflammatory inhibitors (NEAI) in comparison with selective cyclooxygenase-2 (COX-2), Nays, selective NSAIs inhibitors for both COX, in a model of footpad edema by carrageen (Ca), as well as gastric injury. Randomized Wistar rats groups (n=7each/group), 200 g, 24hr fasting, water ad libitum, were submitted to the following experiments: 1. 0.1ml saline injection in the footpad (P), under hind foot aponeurosis; 2. 0.1ml 1% Ca in P, 3 hr; 3. 30 mg/kg Indomethacine (COX-1-COX-2 inhibitor) by orogastric gavage (OG) in bolus, 60 min, then Ca in P; 4. 15 mg/kg Rofecoxib (COX-2 inhibitor) OG 60min, then Ca in P; 5. 3mg/kg Ketorolac (COX-1 inhibitor) OG 60 min, then Ca IP; 6. 3 mg/kg Dexketoprofen (COX-1 inhibitor) OG 60 min, then Ca in P; 7. 3 mg/kg Loxoprofen (preferential COX-1 inhibitor) OG 60 min, then Ca in; 8. 25 mg/kg Dexketoprofen (COX-1-COX-2 inhibitor) OG 60 min, then Ca in P. Footpad edema plantar was measured every 30min until 3hr by pletismography. The rats were sacrificed at 24 hr by ether over dose. Laparotomy, gastrectomy, percentage tabulation of macroscopic lesion area (%) was assessed by planimetry and computerized, obtaining histological samples (H-E). Statistics: Student's t test and ANOVA. Results: P edema at h 3(%): 1. 0; 2. 130±20; 3. 60±5 (p<0.01); 4. 50±10 (p<0.01); 5. 135±15 (n.s.); 6. 125±25 (n.s.); 7. 95±15 (p<0.05); 8. 45±5 (p<0.01). Microscopy: gastric glandular necrosis in 3 and 8. Conclusion: NSAIs, COX-1 selective inhibitors do not have anti-inflammatory effect, whereas COX-2 inhibitors provided anti-inflammatory effect. Besides NSAIs inhibiting both COX yield gastric injury, whereas NSAIs COX-1 or COX-2 selective inhibitors have no effect.

61. INCIDENCE OF THE POTASSIUM IONES PRESENCE IN THE FIXATION PARAMETERS OF CHROME TO THE HUMAN SERICEOUS ALBUMIN

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In the present report; it is investigated the chrome fixation to the Human Sericeous Albumin (HSA); which is the most important blood carrier.

The aim of this project is to analyze the incidence of potassium ion in the chrome fixation to the HSA; seeing that the source of chrome used to determinate its affinity to the HSA is $\text{Cr}_2(\text{SO}_4)_3 \cdot \text{K}_2 \text{SO}_4 \cdot 12\text{H}_2\text{O}$. This source of chrome was chosen because it has been the least used in references for chrome assimilation in the Human organism. Besides, it is easier to prepare its solution.

To reach that aim we worked with HSA and ANS. The source of chrome was $\text{Cr}_2(\text{SO}_4)_3 \cdot \text{K}_2 \text{SO}_4 \cdot 12\text{H}_2\text{O}$ of analytical grade, and $\text{K}_2 \text{SO}_4$ to modify the potassium concentration with constant chrome concentrations.

The ANS fixation to the HSA was followed by measuring the increase in fluorescence emission when the ANS fixes to the protein. The HSA was measured with ANS (0-100 μM) in chrome presence and at different concentrations of potassium.

The HSA solution concentration was 20 μM at PH 7,4; the chrome concentration was 10,5 mM, and in the case of potassium, the concentration was 5,1 mM.

The affinity constants, the number of fixation places, and the characteristic of the interaction, were determined from the fixing isotherms.

63. HAEMORRHEOLOGIC STUDY IN PATIENTS WITH SYSTEMIC SCLEROSIS

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Systemic sclerosis (Ss) is an autoimmune disease characterized by damage in capillary vessels and an incremented collagen deposition in skin and internal organs. Vascular damage affects microcirculation where erythrocyte capacity to deform is an essential condition for blood flow. The objective of this work was to observe haemorrheological variations and some biochemical parameters in patients with Ss. Fifty two patients and ten normal controls of same age were studied for that purpose. Blood (η_b) and plasmatic (η_p) viscosity were determined with a cono-plate viscosimetre (230s⁻¹), blood viscosity in relation to plasma viscosity ($\eta_{sr} = \eta_b / \eta_p$), erythrocytic rigidity index (IR) using 5 μm of pore polycarbonate membranes, fibrinogen plasmatic concentration (f_p) by gravimetric method and immunoglobulins G, A and M concentration by radial immunodiffusion. In patients, the parameters significantly increased respect to control values were: η_b ($p < 0,05$), η_p ($p < 0,01$), η_{sr} ($p < 0,01$), IR ($p < 0,01$), IgG ($p < 0,01$), IgA ($p < 0,005$), IgM ($p < 0,05$) and f_p ($p = 0,05$). Within patients' values, a positive correlation, statistically significant, was found between η_{sr} and IR ($r = 0,34, p < 0,05$); η_p and IgG concentration ($r = 0,50, p < 0,01$), IgA ($r = 0,39, p < 0,05$), IgM ($r = 0,30, p < 0,05$) and f_p ($r = 0,51, p < 0,001$). The patients hyperglobulinemia produces an increase in η_p and η_b but, since this increase is not proportionate, as can be shown in increased η_{sr} , the participation of another haemorrheological factor is evident. The increase in IR and its correlation with increased η_{sr} shows that cellular factors might also contribute to haemorrheological alterations of Ss.

62. CELLULAR HEMORHEOLOGICAL FACTORS AND HORMONE REPLACEMENT THERAPY (HRT)

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HRT could diminish risk of cardiovascular diseases, though its mechanisms are not clear. In previous works we analyzed plasma viscosity, plasma fibrinogen, erythrocyte (E) aggregation rate and lipid pattern variations with HRT. We hereby present two hemorrheological cell factors: 1) E deformability, through its inverse i.e., rigidity index (RI), and 2) blood viscosity / plasma viscosity ratio, corrected at a 45% hematocrit (Htc) (η_{rc}), that sets free blood viscosity from plasma effects and Htc. Variation. Methodology: 32 menopausal women receiving HRT (percutaneous estrogen and progestagen) were studied in basal conditions, at 6 and at 12 months treatment. Assays: blood viscosity (η_b), plasma viscosity (η_p) utilizing a cone-in-plate viscometer at 230 s⁻¹. η_{rc} calculated as: $(\eta_b / \eta_p)^{45/\text{hct}}$. RI relates E filtration time through polycarbonate membrane with 5 μm pore diameter with suspension medium filtration time. Statistics: data as mean \pm SD. Normality test, ANOVA and Newman-Keuls test for comparison between groups. Correlation coefficient. η_{rc} decreased at 6 months HRT ($F = 16,97$; $p < 0,01$), and the latter values were maintained at 12 months. Similar behavior showed IR ($F = 7,187$; $p < 0,01$). Parameters studied correlated positively and significantly in basal conditions ($r = 0,54$; $p < 0,01$), at 6 months ($r = 0,49$; $p < 0,01$), and at 12 months treatment ($r = 0,36$; $p < 0,05$), emphasizing a cause-effect relation. Our results demonstrate that HRT improve erythrocyte deformability and relative blood viscosity, both factors determinant of erythrocyte passage through capillaries, hence suggesting a mechanism that might enable HRT to diminish cardiovascular risk in menopausal women.

64. GROWTH IN eSS MALE DIABETIC RATS FED WITH DIETS OF DIFFERENT COMPOSITION

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Environmental factors, such as nutrition, have an important influence on the expression of type 2 diabetes. The eSS line of diabetic rats is a model of non insulin dependent diabetes, susceptible to variations of the nutritional environment. It was interesting to investigate the growth and modelization in eSS males in three different nutritional environments. After weaning, the animals were fed ad libitum, receiving one of three diets chosen by chance: L: rich in lipids, G: rich in glucids and P: rich in proteins. To investigate differences between diets in post-weaning growth, weights were registered weekly from 21 to 70 days of age. Growth curves were calculated, adjusting values according to von Bertalanffy model: asymptotic weight (A), rate of growth (k), weight and age at inflection point (P_i and T_i), age reached at 99% of A ($T_{99\%A}$), weight at 21 (P_{21}) and 70 (P_{70}) days. Through ANOVA and multiple comparisons, we proved that diet G retards maturity due to lower k ($p < 0,001$) and higher T_i ($p < 0,001$) and $T_{99\%A}$ ($p < 0,001$); P instead produced higher A ($p < 0,001$) and k equivalent to L ($p > 0,05$), probably due to a lower P_{21} ($p < 0,01$). These results confirm the susceptibility of the eSS line to environmental changes, a fact already proved in other experimental circumstances and variables.

65.

GROWTH PATTERN AND GLUCIDIC METABOLISM IN eSS MALES IN TWO DISTANT MOMENTS OF THEIR BREED

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The analysis of weight in different ages has shown genetic variability as well as genotype-ambient interaction in mammals. A relationship between growth in early periods of life and the later development of the diabetes has been assessed in rats. With this work we attempt to evaluate the growth pattern and the glucid metabolism in males of the diabetic line eSS in two distant moments of their breed. The work has been carried out with two samples with a 30 generations gap (I: n=15; II n=14). The weight has been analyzed weekly since their 21st day until the 70th day. The data were analyzed with three models of sigmoid growth: von Bertalanffy, logistic and Gompertz. We estimated the parameters vector: α (asymptotic weight), β (scale parameter) and γ (maturity index). Body weight (W), fasting glycemia (GO) and after 30 (G30), 60 (G60) and 120 (G120) oral glucose overload were measured (mg/dl) at four months of age. The hypothesis of invariance - α , β and γ - was rejected in the three models. The invariance of α was also rejected, even though maturity index did not reflect significant changes. In generation II W, GO and G30 were higher (average \pm SE) (W: 323 ± 5 vs 375 ± 7 , $p=0$; G0: 83 ± 2 vs 168 ± 21 , $p=0.009$; G30: 265 ± 6 vs 405 ± 36 , $p=0.011$). No differences could be found between G60 (340 ± 9 vs 380 ± 34 , $p=0.122$) and G 120 (222 ± 8 vs 199 ± 23 , $p=0.249$). The eSS rats showed phenotypic stability in regard to the way they reached the maximum theoretical growth, while the larger biomass of the last generation showed concordance with higher fasting and post-prandial glycemias.

67.

FISH CONSUMPTION AS A PROTECTIVE FACTOR IN LUNG CANCER

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A case-control study involving interviews with 65 histologically confirmed lung cancer male patients, and 85 controls, admitted to three medical institutions of Rosario, was done. Controls were selected from patients admitted for a non- smoking related disease. A standardized questionnaire including age, smoking characteristics, lifetime occupations, and dietary habits was applied. Cases and controls were classified as follows: 1) Occupation: a) workers non-exposed to occupational contaminants (e.g.: lawyers, teachers), b) workers in metallurgic industries, c) workers exposed to other contaminants (e.g.: farming, drivers); 2) Smoking intensity: a) ≤ 20 cigarettes/day, b) >20 cigarettes/day; 3) Fish consumption: a) none, b) less than the median, c) more than the median. The odds ratios (OR), crude and adjusted by age, medical institution, smoking intensity and occupation, were calculated using exact logistic regression analysis. CP risk was lower in subjects consuming fish more than four times a month (OR=0.41; CI=0.17- 0.97). When considering fish origin, a protective effect was found in subjects eating more than two monthly portions of river fish (OR=0.34; CI=0.12- 0.94). In conclusion, while smoking and occupational contaminant exposures are the most important CP risk factors, fish consumption could be protective.

66.

ARTERIAL PRESSURE AND GLYCEMIA: AN EXPLORATORY STUDY

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In our country diabetes prevalence reaches 6% in subjects between 20 and 74 years of age. In 1999, cardiovascular diseases, with arterial hypertension as one of its main risk factors, were responsible for 44.3% of deaths. In 1998, a Program to prevent diabetes and arterial hypertension was carried out in Villada, Santa Fe, where 28.5% of the total population, with ages ranging from 10 to 87 years, was recruited as volunteers. Glycemia was determined by an enzyme photolorimetric method whilst the systolic and diastolic arterial pressures were measured through esphigmo-manometry. Values higher than 140-90 mm Hg and 110 mg/dl were considered abnormal for arterial pressures (APA) and glycemia (AGLI), respectively. 5,85% of the sample revealed both abnormalities. Total APA rate was of 23.24% and a gender difference was noticed in this respect. Conversely, the prevalence of AGLI (5.24%) did not evidence sex variation. The mean age in people who suffered APA did not show also sexual differences as occurred with AGLI. The values of AGLI did not differ from that reported in our country. Consequently, knowledge on the regional reality may represent an important goal not only to keep population informed but to optimise people health care.

We outline the remarkable collaboration of O Aguirre, G Bessone, I Marasca, R Rodriguez, A Pace, A Dulcich and E Rosconi.

68.

GALLBLADDER DISEASE AND SERUM LIPIDS

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The association between gallbladder disease (GD) and serum lipids and lipoproteins is controversial. A random sample of 937 participants, 385 males and 552 females, 20 years and older, in Rosario, was studied to assess GD prevalence. Each subject underwent an abdominal ultrasound examination, a blood test and a standardized questionnaire. Height and weight were measured and body mass index (BMI) was computed. Blood specimens were analyzed, with the subjects fasting for 12 hours, to determine total cholesterol, HDL-cholesterol, LDL-cholesterol, and triglycerides. Their quartiles were calculated by sex, and GD risks were estimated taking the first quartile as reference group. For men, age-BMI weighted odds ratio (OR) of GD for the upper quartiles were computed, and 95% confidence limits (CL) were calculated. For women, OR were also adjusted by pregnancy. Total GD prevalence was 20.5% (CL: 18.1-22.8), being 23.8%, (CL: 20.7-26.9) for women, and 15.5% (CL: 12.2-18.8) for men ($p=0.0005$). An increased GD risk was found as regards triglycerides (e.g. men: 113-148 mg/dl: OR=3.49, IC= 1.19-10.22; ≥ 149 mg/dl: OR=3.23, CL=1.09-9.57; women 106-133 mg/dl: OR=1.97, IC= 0.95-3.46; ≥ 134 mg/dl: OR=2.10, CL=1.03-4.96). A decreased risk was found for women in the higher HDL-cholesterol quartiles (51-58 mg/dl: OR=0.48, CL= 0.25-0.95; ≥ 59 mg/dl: OR=0.54, CL=0.28-0.99). In conclusion, an association was found between serum lipids and lipoproteins, and GD risk.

69. ENTEROENDOCRINE CELLS IN RECTUM FROM SENSITIZED AND LOCALLY CHALLENGED RABBITS

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Rectal mucosa constitutes a protective barrier. Enteroendocrine cells (EEC) are found in the epithelium. They produce peptides that act on receptor of membrane in T lymphocytes and macrophages. Previous works showed that EEC vary according to the immune status. The aim of the present study was to evaluate modifications in number of rectal EEC from ovalbumin (OVA) sensitized and sensitized plus locally challenged rabbits. Thirty New Zealand rabbits were divided four groups (G). G1 n=10: control. G2 n=10: sensitized. G3 n=10: sensitized, locally challenged and sampled 4 hours after challenge. Sensitization was performed subcutaneously with OVA. Rabbits from G3 were challenged by an intrarectal canula. Specific anti-OVA IgE levels were evaluated by positive passive cutaneous anaphylaxis (PCA). Samples from rectum were fixed in formaldehyde, paraffin embedded and stained according to Pascual. Ten high microscopic power fields (HPF- 400X) were counted in each animal. Results were expressed as the arithmetic mean of EEC/HPF. Statistical analysis was made using Student t test. PCA was positive at 160 fold dilutions. In G1 were found $4,8 \pm 1,5$ EEC in deep crypts and none in surface epithelium. In G2 there were $8,7 \pm 2$ and $0,28 \pm 0,2$ EEC and in G3 $4,1 \pm 0,6$ and $0,01 \pm 0,04$ EEC, respectively ($p < 0,05$). The EEC increase in G2 may be due either to more intracytoplasmatic granules or to a differentiation of stem cells to the endocrine line. The decrease found in G3 probably is due to degranulation. Quantitative modifications of rectal EEC indicates a participation of these cells in the local anaphylactic immune response.

71. DIFFERENCES BETWEEN SPLEEN HISTOMORPHOMETRY OF EUMETABOLIC (α) RATS AND DYSMETABOLIC (β) RATS AT 12 MONTHS OF AGE

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Spleen histomorphometry of (α) line rats (eumetabolic) were compared from (β) line rats (obese, hypertriglyceridemic, lately diabetic). 6 α line rats and 5 β line rats were autopsied at 12 months old. Spleen were dissected out, weighed and immersed in Bouin's liquid, postfixed in 10% formalin in P.B.S. Specimens were semiseriably cut a 6 μ , (1 slice among forty), stained with Giemsa and Masson's trichrome. Slices were observed in a Ziess's microscope attached with a lineal device in the ocular. Accordingly Doi et al. we measured: PALS (periarteriolar lymphocyte sheath), MZ (marginal zone) width, and follicular diameter. 1.- α PALS (T lymphocyte) = $281.82 \mu \pm 10.79$, were larger than β = $218.36 \mu \pm 5.98$ ($P < 0.001$). 2.- α M.Z. (B lymphocyte) = $94.87 \mu \pm 5.14$ were wider than β M.Z = $57.04 \mu \pm 5.14$ ($P < 0.003$). 3.- follicular diameter: α = $474.30 \mu \pm 18.03$ were larger than β = $333.16 \mu \pm 6.90$ ($P < 0.001$).

Spleen histomorphometry of α rats line were larger than β rats. Data recorded in β rats are similar to other diabetic line of rats suggesting that metabolic factors (i.e. hyperglycemia) could affect immunological functions in the spleen.

70. RECTAL MAST CELLS MODIFICATIONS IN THE ANAPHYLACTIC IMMUNE RESPONSE IN RABBITS

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Sensitization induces IgE synthesis that link to mast cells. The second reaction of antigen to IgE provokes degranulation with liberation of vasoactive factors. Besides T cells liberates lymphokines that stimulate mast cells proliferation. The aim of the study was to evaluate the Alcian Blue positive mucosal mast cells recruitment in rectum from rabbit sensitized with ovalbumin (OVA), subcutaneously and sensitized plus orally challenged. Forty New Zealand rabbits were divided in four groups (G). G1 n=10: normal control. G2 n=10: sensitized. G3 n=10: sensitized and challenged and sampled 4 hs after challenge. G4 n=10: sensitized and challenge and sampled 24 hs. Specific anti-OVA IgE levels were evaluated by positive passive cutaneous anaphylaxis (PCA). Samples from rectum were fixed in Carnoy and stained with Alcian Blue pH<1. Twenty high microscopic power fields (HPF) were counted in each animal. Results were expressed as the arithmetic mean. Statistical analysis was made using Student t test. PCA was positive at 160 fold dilutions. In G3 and G4 were found edema, lymphangiectasis and eosinophilic infiltration. In G1: $2,9 \pm 0,6$ mast cells / HPF; in G2: $8 \pm 2,8$; in G3: $6,5 \pm 1,7$ and in G4: $5,2 \pm 1,4$ ($p < 0,05$). In G2, G3 and G4 were a significant increase of mast cells, indicating the exocytosis of proliferation and recruitment factors. Besides mast cells factors determine edema. The degranulation is responsible for the mast cell decrease observed in G3 and G4. These changes confirm OVA passage through the mucosal barrier and its interaction with IgE found in mast cell membrane.

72. EPIDIDYMUS FROM OBESE RATS (β) FED WITH DIFFERENT DIETS

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Nutritional factors modify the functions of male genital system. We studied the epididymis of (β) rats (obese, late diabetic), which were fed with different diets after weaning: 1.- standard commercial food (Cargill) ad libitum (C). 2.- standard food **restricted** to the 70% of the control (R). 3. - **Hyperglycemic diet**: control + saccharose (HG). 4. - **Hyperlipidic diet**: control + bovine fat (S.C.A.). At 250 days of age the animals were sacrificed with ether overdose and weighed. The dissected epididymis was weighed, finely minced with delicate scissors and suspended in 10% formalin. Sperm count were performed with Neubauer's hemacytometer. The findings about **body weight** (g), **testicular weight** (g), absolute **epididymal weight** (mg), **epididymus weight** (mg/100g B.W.), **spermatozoa/mg epididymus**, are expressed as average \pm S.E.M. 1.- **Control** (n=10) $384.90 \text{ g} \pm 1.89$, $3.09 \text{ g} \pm 0.12$, $1355.10 \text{ mg} \pm 53.70$, $353.76 \text{ mg} \pm 14.84$, $133826(83697-219588)$; 2.- **restricted** (n=11) $239.15 \text{ g} \pm 10.86$, $3.23 \text{ g} \pm 0.08$, $1187.67 \text{ mg} \pm 28.71$, $501.11 \text{ mg} \pm 12.11$, $267840(158839-334422)$; Diet restriction resulted in lower body weight ($P < 0.05$) compared to C rats, heavier body weight ($P < 0.05$) in both HG and HL diets. Accordingly Kruskal-Wallis test sperm concentration in restricted diet rats (267840/mg of epididymis) were more than in control group (133826/mg epididymis). No differences were founded between other dietary groups. As sperm count is a good marker of spermatogenesis, our results suggested that testicles in animals with dietary restriction produced a greater quantity of spermatozoa, probably stimulated by a major availability of testosterone due to decreased fat reservoirs.

73.

TRYPANOSOMA CRUZI(Tc) INFECTED RATS: RESPONSE TO CHRONIC STRESSOR EXPOSURE*Navarrete Signorile, Marcelo; Dávila, Héctor.**Instituto de Inmunología. Facultad de Ciencias Médicas. UNR.*

BACKGROUND: Chagas' disease results from infection with the protozoan (*Tc*). About 30% of infected people develop a chronic myocarditis after a prolonged period of silent infection. There are strong evidences for the participation of the immune system on pathogenesis. The auto-immune theory is supported by the lack of correlation between parasitism and chronic myocarditis. Chronic stressors exposure can have profound effects on the immune system, and could change the development of myocardial lesions. An experimental approach for studying this problem depends on the identification of a suitable model.

METHODS: The effect of chronic stressors exposure was evaluated through the adrenal glands (AG) weight (grams/100gms rat weight), on infected and uninfected "I" strain rats.

RESULTS: The AG weight was: 1- Infected males: stressed 7,8 g%, non stressed 7,1g%; 2- Uninfected males: stressed 9,3g%, non stressed 6,7g% ($p<0.001$); 3- Infected females: stressed 20,3 g%, non stressed 12,9g% ($p<0.001$); 4- Uninfected females: stressed 20,5g%, non stressed 12,3g% ($p<0.001$). The *Tc* infection does not induce change on AG weight in either sex. An increased AG weight was found in uninfected stressed rats of both sexes. This change wasn't found in infected males.

CONCLUSION: Our findings suggests that *Tc* infection modifies the chronic stressors response capacity.

75.

EFFECT OF PATERNAL GENOTYPE ON PRODUCTIVE TRAITS AT SEXUAL MATURITY IN EXPERIMENTAL HYBRIDS OF LAYERS*Dottavio, A.M.; Cámpora, L.; Di Masso, R.J.; Font, M.T.**Cátedra de Genética y Biometría, Fac. Cs. Veterinarias. Inst. Genética Experimental, Fac. Cs. Médicas. CIUNR. UNR.*

The reduction of adult hen weight is one of the several strategies proposed for diminishing individual feed intake, a trait obviously related to total costs in egg production systems. Using a light genotype as one parent for producing hybrid layers other characters of economic relevance could be affected. Among these it could be mentioned productive traits at sexual maturity like age at first egg (AFE), body weight at first egg (BW), weight of the first (FEW) and of the thirty first eggs (W30) and number of days required for laying the first thirty eggs (N30). The aim of the present work was to evaluate the aforementioned traits registered at the beginning of the laying cycle in the progeny of Barred Plymouth Rock hens crossed with cocks belonging to breeds with different adult weights [(Fayoumi (F) < Leghorn (L) < Rhode Island Red (R))]. Hybrids with Fayoumi paternal genotype became to lay earlier than L and R. They did not differ in BW if compared with L, but both experimental hybrids were lighter than R. The weight of the first egg showed the same response that body weight ($F=L<R$) while for W30 a significant difference was evident between F and L ($F<L<R$). Birds with Leghorn genes showed the most regular pattern of oviposition as they need fewer days than F and R for laying the first thirty eggs. Comparatively, the overall behaviour of L hens, with intermediate values for body and egg weight, seems to be the best one because R hens were heavier and older at the beginning of the productive cycle while F birds laid too light eggs.

74.

GROWTH PATTERN OF THREE EXPERIMENTAL HYBRIDS OF LAYING HENS WITH DIFFERENT PATERNAL GENOTYPE*Di Masso, R.J.; Peralta, L.; Dottavio, A.M.; Font, M.T.**Cátedra de Genética y Biometría, Fac. Cs. Veterinarias. Inst. Genética Experimental, Fac. Cs. Médicas. CIUNR. UNR.*

From a dimensional point of view body growth can be described by fitting body size-age data with a mathematical model. Curve-fitting procedures provide reliable estimates of growth parameters as asymptotic weight and maturation rate which can be used as metric traits for comparative purposes. In layers a desirable growth pattern must combine a low asymptotic weight with a high maturing rate. A possible strategy for diminishing costs by reducing feed intake, could be the use of light genotypes as one parent in a hybrid cross. The impact of this practice on other traits could be of economic relevance. With the aim to characterize the effect of paternal genotype on the growth pattern of hybrid hens, longitudinal body weight-age data of birds with Barred Plymouth Rock (P) mothers and either Fayoumi (F), Leghorn (L) or Rhode Island Red (R) fathers were fitted with the Gompertz equation. Differences in mean adult weight of ultralight (F: 1180 g) and light (L: 1750) paternal breeds were not evident in the respective hybrid combinations (FxP: 1772±28; LxP: 1937±55g), being both lighter than RxP hens (2508±62g). In spite of this effect on asymptotic weight the expected response on maturing rate was not seen because the three experimental combinations did not differ in the latter trait (FxP: 0.130±0.004; LxP: 0.134±0.003; RxP: 0.122±0.04). These results suggest an independent genetic determination of both growth curve parameters. So, the implementation of a practice directed to reduce feed intake by means of diminishing body weight showed a desirable response in mature size but not in maturing rate..

76.

LEAN PERCENTAGE IN RESTRICTED PIGS REARED SEPARATELY BY SEX DURING THE FINISHING PERIOD*Maiztegui, L.; Silva, P.; Campagna, D.; Somenzini, D.; Di Masso, R.J.; Font, M.T.**Cát. Anatomía y Fisiología y Sistemas de Producción Animal, Fac. Cs. Agrarias; Inst. Genética Experimental, Fac. Cs. Médicas. CIUNR. UNR.*

The practice of rearing growing and finishing pigs separated by sex is supported by differences in protein deposition rates, essential aminoacids requirements and ingestion capacity between males and females. With the aim of studying the effect of this practice on body composition traits, backfat thickness (BF), muscle depth and lean percentage (LP) were measured ultrasonically *in vivo* at slaughter weight (105 kg) in gilts and barrows reared jointly or separated by sex, on an outdoor system and under a restricted feeding regime. Although the main effects of sex and management system were statistically non significant for all traits, a significant interaction between them was evident for BF ($p<0.05$) and LP ($p<0.01$). The results suggest the convenience of rearing both sexes separately in the case of gilts and jointly for barrows because, under these circumstances, the critical threshold of 44% of body lean content required for market bonification was overcome. This different response could be explained in terms of a competitive behaviour that favors males when reared with females and females when reared with other females. Under restricted feeding, competence for food among individuals would increase the level of restriction beyond a critical level and trigger an adaptative change established during natural selection prior to domestication by which animals anticipate periods of low availability of food and store nutrients as a strategy to preserve physiological homeostasis.

77. LOXOPROFEN vs. OTHER NEAIs IN GASTROINTESTINAL; MUCOSA INJURY

Bedini, O.; Laudanno, O.M.; Cesolari, J.A.; San Miguel, P.; Esnarriaga, J.M.; Miassi, F. Gastroenter. Exp., Histol. Embriol. Patol. Médica III. F.C. Médicas. UNR.

Objective: to study the new non-steroid anti-inflammatory (NEAI) loxoprofen, (Pre-drug), with inhibitory activity on cyclooxygenase 2 (COX-2), and light cyclooxygenase 1 (COX-1) inhibition, in the gastrointestinal mucosa injury due to a systemic effect, in comparison with different NEAIs. Wistar rats (n=7 each group), 200g, 24 hr fasting, water ad lib., avoiding coprophagy, were submitted to the following experiments: 1) Control: 1ml 1% vehicle=Carboxy-methyl cellulose. 2) 3 mg/kg (preferential COX-2 inhibitor). 3) 30 mg/kg Loxoprofen (COX-2 and COX-1 inhibitor). 4) 25 mg/kg Rofecoxib. (COX-2 inhibitor). 5) 200 mg / kg Celecoxib. (COX-2 inhibitor). 6) 20 mg / kg Ketorolac (COX-1 and COX-2 inhibitors). 7) 50 mg/kg Diclofenac (COX-2 and COX-1 inhibitor). 8) 400 mg/kg Ibuprofen. (COX-2 and COX-1 inhibitor). 9) 220mg/kg Na Naproxen (COX-2 and COX-1 inhibitor). 10) 20mg / kg (COX-1 and COX-2 inhibitor). 11) 20 mg/kg pyroxicam β cyclo-dextrine (molecular microencapsulation of pyroxicam in β cyclo-dextrine). 12) 75 mg/kg diclofenac (COX-2 and COX-1 inhibitor). Drugs were administered by OG gavage, followed by a 24hr wait period. Rats were sacrificed by ether overdose. Laparotomy, gastrectomy, and tabulation (%) of macroscopical gastric area were performed, the latter by computerized planimetry. Samples for histology (HE). Statistics: Student's t test. Results: 1: 0 %, 2: 0 %, 3: 0 %, 4: 2.0 \pm 0.5, 5: 1.5 \pm 0.5, 6: 9.5 \pm 1.5, 7: 12.5 \pm 0.5, 8: 18.5 \pm 2.5, 9: 23 \pm 2.0, 10: 25.5 \pm 3.5, 11: 5.5 \pm 1.5, 12: 15.5 \pm 0.5. Conclusion: loxoprofen did not yield macroscopical or microscopical GI lesions in comparison with conventional NEAIs. After absorption as pro-drug a balanced inhibitory effect of cyclooxygenase was observed, with preferential inhibition on COX-2 vs. COX-1, GI mucosa injury.

79. SUPRA-CONDYLAR FRACTURE OF THE ULNA

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Various osseous synthesis techniques are used depending on the type and displacement of the fracture. Nowadays one of the most commonly used techniques is the percutaneous placement by means of Kirschner's nail. In previous studies we discussed the biomechanical cross-placement of needles from within or on the outside or parallel on the outside, concluding that cross-placement was the most effective one. However, on drawback did arise: the likelihood of nerve lesions when introducing the nail through the condylar area. In order to prevent this, we have considered cross placing only the needles from the outside. We studied the anatomy of the area in order to conduct an upper insertion and the necessary morphometry and angularity to carry out this procedure. Thirty (30) pieces dry-stored (MAR II) upper limbs were used. The anatomical study of the area, the morphometry and the needle insertion trial were conducted. Through morphometry it was noticed that the insertion length from the skin ranged between 6 and 7 cm. The inclination planes ranged from 40° to 50°. By fully inserting from the outside we managed to keep the nails crossed, capitalize on their advantages and reduce the possibility of damage being done to the ulnar nerve, as well as other elements in the internal area of the lower end of the humerus.

78. COX-1 AND COX-2 SELECTIVE NEAIs INHIBITORS OF GASTROINTESTINAL INJURY IN RATS

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Objective: to study the effect of non-steroid anti-inflammatory (NEAI), selective inhibitors of cyclooxygenase 1(COX-1) and cyclooxygenase 2 (COX-2), and of both COX simultaneously, in gastric injury. Randomized groups of Wistar rats (n=7 each group), 200g, 24 hr fasting, water ad lib., and avoiding coprophagy, were submitted to the following experiments: 1. 1% carboxymethyl cellulose (vehicle) by OG gavage, wait 24hr. 2. 3mg/kg Ketorolac(Ke) OG (selective COX-1 inhibitor), 24 hr. 3. 15 mg/kg Celecoxib (Ce) OG (COX-2 inhibitor), 24 hr. 4. 3 mg/kg Loxoprofene (Lx) OG, 24 hr. 5. Ke + Lx, OG, 24 hr. 6. Ce + Lx, OG, 24 hr. 7. Lx 25 mg /kg, OG, 24h. After 24 hr the rats were sacrificed by ether overdose. Laparotomy and gastrectomy were performed. Percentage of macroscopic gastric lesion area and intestinal erosion (mm²) was tabulated by computerized planimetry. Samples for histological examination were collected (H.E.) Statistics: Student's t Test and ANOVA. Results: 1: gastric necrosis (GN) (%) 1.0 \pm 0.1; Intestinal erosive area (IE) 1.0 \pm 0.1. 2: GN: 1.0 \pm 0.1 ns, IE 1.0 \pm 0.1 ns 3: GN 1.0 \pm 0.1 ns IE 1.0 \pm 0.1 ns. 4: GN 1.0 \pm 0.1 ns IE: 1.0 \pm 0.1 ns 5. GN: 1.0 \pm 0.1 ns, IE: 1.0 \pm 0.1, ns. 6: GN: 15 \pm 4 p<0.01 IE: 230 \pm 30 p<0.001. 7: GN: 18 \pm 5 p <0.01, IE: 185 \pm 25 p <0.001. Conclusion: COX-1 and COX-2 selective NIAEs do not damage the gastrointestinal mucosa. Simultaneous inhibitory effect of both COX is associated with injury.

80. EOSINOPHIL QUANTIFICATION IN LOCAL ANAPHYLACTIC REACTION IN RECTAL MUCOSA FROM OVALBUMIN (OVA) SENSITIZED AND CHALLENGED RABBITS

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The importance of rabbit as model in allergic reaction from digestive tract has been demonstrated. Rectum is organized in four stratum: mucosa formed by a columnar epithelium and glands surrounded by connective tissue with fibroblasts, lymphocytes, mast cells, eosinophils etc. The aim of the present work is to quantify variations in number of eosinophils in rectal mucosa from OVA sensitized and locally rectal challenged rabbits. Thirty adult New Zealand rabbits were divided in 5 groups: G1: normal control; G2 subcutaneously sensitized with OVA; G3 OVA sensitized and oral challenged; G4 OVA sensitized and rectal challenged. Samples of mucosa were obtained two hours after challenged were fixed and process for paraffin embedded. Slides were stained with Cromotrope II R which showed eosinophilic granules and countersaturated with Hematoxylin. We count 10 samples in 400 HPF and data were express as mean \pm SD, student t test were used as comparison statistical method. We observed that eosinophils were located around vessel in mucosa and withspread among glands. Quantification express: G1:0.04; G2:0.13; G3:0.22; G4:0.14; G5:1.36. Eosinophil number increased in sensitized and challenged groups: G2vsG1(p<0.03); G2vsG3(p<0.01); G1vsG3(p<0.001); G3vsG4(p<0.01); G3vsG5(p<0.02). The increase in sensitized and challenged group could indicate its early role in local anaphylaxis inflammation.

81. GRAPHICS ON THE POSTSTENOTIC FLOW IN HUMAN ADULT FEMORAL ARTERIES

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Arterial stenoses alters blood flow producing distal turbulences. As a consequence, blood cells destruction may facilitate its aggregation and subsequent endothelial obstructions. In this context, that flow was studied using an original software based on the method of the finite elements and adapted to the physical and chemical characteristics of blood. This software was applied to a real model represented by portions of human adult femoral arteries with varied degrees of obstruction obtained from amputations or necropsies, morphologically processed and made geometrically discrete to allow the application of the computational program. Different values were found in the continuum allowing not only the visualization and interpretation of the flow problem but the formation of turbulences and the length they reached. Taking into account the reported relation between this length and the grade of arterial stenosis, graphics related with the requested distance to normalize the poststenotic flow after distinct grades of obstruction were designed. Thus, the limit curve of each one the 17 measurements, performed from the normal lumen diameter till a 10 mm lumen diameter was obtained. Summarizing, the length of flow normalization reached an approximately value of 15 times the inner diameter of the affected vessel for stenotic percentages between 30 and 50%. These results, combined with usual diagnostic methods used at present, may enrich them and may also optimize the corresponding therapeutic behaviors.

83. INFLUENCE OF A SOYBEAN FLOURED DIET ON THE HISTOMETRY OF THE RAT SMALL INTESTINE

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Considering the nutritive value of soybean and its derivates, this report analyzes especially the influence of two diets: A (14.20 % casein flour) and B (14.90% soy flour with inactivated anti-nutritional factors) on the small intestine of 15 post weanling male α rats. Animals, which underwent standard conditions of breeding, were weighed and then sacrificed at 52 days of age. Their small intestines were washed, measured (cm), weighed (g), fixed in Carnoy's liquid and stained with hematoxylin - eosin after a routine histological procedure. Intestinal histometry was performed in a light microscope with a linear eyepiece. Registered data, expressed as $x \pm SEM$ (ie: wall thickness (μm): B < A ($667.62 \pm 50.26 < 831.41 \pm 36.61$, $p < 0.05$); mucosal thickness (μm): B < A ($577.37 \pm 42.52 < 718.86 \pm 32.16$, $p < 0.05$); villous length (μm): B < A ($410.26 \pm 33.27 < 498.74 \pm 24.36$, $p < 0.05$); crypt depth (μm): B < A ($167.11 \pm 11.64 < 220.11 \pm 12.16$, $p < 0.05$), may indicate persistence of antinutritional effects in soy flour and consequently suggest the convenience of performing biological tests to evaluate the nutritional quality of soybean-based products.

82. SMALL INTESTINE MORPHOMETRY IN MALE RATS eSMT WITH DIFFERENT DIETETIC OFFERAT ONE YEAR OF AGE

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In accordance with bibliography, dietetic modification may evoke morphofunctional impact in the digestive tube of rats. Consequently, small intestines of 16 male eSMT rats (with overweight and type 2 diabetes) were exposed, from weaning till one year of age, to distinct diets: *ad libitum* commercial diet (Cargill) (diet A = 7) and restricted commercial diet (Cargill) (24 hs fast each 48 hs) (diet B = 9). Then, rats were sacrificed with ether overdose and the small intestines removed, washed, measured (cm), weighed (g), fixed in Carnoy's liquid, embedded in paraffin, cut at $6 \mu m$ in semiserial way (1 section each 30) and stained with Giemsa, Periodic Acid Schiff and Alcian Blue pH 2.50. Sections were observed in a light microscope with a linear eyepiece device to perform histometrical analysis (wall and mucous width, villous length and width (μm), enterocytes and mucous cells / villous). Data were recorded accordingly Tamura y Suzuki, 1988 (10 / structure / rat and then averaged). Results are expressed as $X \pm SEM$ and statistical differences calculated through the Student's "t" test. No significant differences were registered in small intestinal length and weight as well as in histometric measures with the exception of enterocytes / villous (Diet B vs Diet A: 160.26 ± 5.33 vs 192.05 ± 4.73 , $p < 0.005$). This diminution resulted congruent with other authors' reports which put into evidence a decrease of the absorbent surface in eumetabolic rats submitted to protein restriction. Likewise, the eventual influence of eSMT dysmetabolism has not been discarded and is being studied at present.

84. HISTOLOGICAL AND HISTOCHEMICAL STUDY OF THE METANEPHROS DURING ITS EARLY FETAL DEVELOPMENT

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In the framework of previous embryological investigations, this study performs a histological and histochemical study on some aspects related with the early fetal development of metanephros. Thus, abdominal and pelvic zones of 9 and 10 months-old human fetuses (n=6), obtained from spontaneous abortions, were serially cut in $7 \mu m$ thick sections and exposed to distinct histological and histochemical procedures. Those sections were planimetrically processed and superposed for subsequent spatial reconstruction. During this period, the early metanephros were located in the lumbar region cephalically to gonads and dorsally to the future peritoneal cavity. Its transversal section showed: (1) a central zone, with loose mesenchyme, reticular fibers, blood vessels and renal structures (pelvis and calices) and (2) a peripheral zone with an inner portion with corpuscles similar to the mature ones and an outer portion with terminal ramifications of the ureteral bud linked to nephric structures in distinct stages of differentiation. Likewise, no differentiation in Henle's thin loop was evidenced. These results allowed to predict the sequence initially followed by the corpuscles and its associated structures as well as to infer that the first nephrons to be differentiated were the inner located ones. A probable filtration function possibly related with the already known continuous increase in amniotic liquid in this period may be propose starting from the aforesaid data.

85. EFFECT OF FIRST PREGNANCY AND LACTATION ON THE FEMORAL MINERAL CONTENT, IN TWO MICE STRAINS DIFFERING IN PEAK BONE MASS

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Pregnancy and lactation are characterized by a great demand in calcium. Pregnancy is associated with altered calcium homeostasis, but not usually accompanied by important bone resorption. At variance, calcium requirements during lactation lead to a noticeable bone loss in the rat. Since investigations on how the maternal genotype responds to demands of a complete reproductive cycle seem to be lacking, we studied the femoral mineral content at weaning in dams of the CBI stock differing in peak bone mass and body conformation. CBI/L and CBI+ females (n=6 per line) were mated at 70±5 days of age; mother and litter (standardized to 8 pups) were weighed at parturition and on days 7, 14 and 21 (weaning) of lactation. At weaning, each dam was sacrificed and its femur excised; dry weight (**FW**), length (**FL**), calcium (**Ca**) and phosphorus (**P**) content were measured. The same variables were determined in aged-matched controls (n=8 per genotype). Differences between groups were analyzed with ANOVA and were deemed significant if p<0.05. At weaning L dams had lost 6.6% of body weight and + females 3.5%; litter weight per g mother weight was higher in L than in + (p=0.03). **FW** was lower in dams than in controls (p<0.001) and there was no difference in **FL**. **Ca**% was also lower in dams than in controls (p<0.01) while **P**% was lower only in + mice (p<0.01). In the conditions of this research, L lost 11% of femoral mass and 21% of its relative **Ca** content while + lost, respectively, 19% and 35%. These results suggest the L genotype has a better regulation in its response to the stress of a reproductive cycle.

87. EFFECTS OF ACUTE ADMINISTRATION OF FLUORIDE (F) ON THE PARATHYROID FUNCTION OF THE RAT

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Fluoride has mitogenic effects on bone cells and modifies calcium and phosphate metabolism. We have assessed the acute effects of a single oral dose of 20 umoles of NaF/100 g of body weight in normal (N, n=6) and parathyroidectomized (TPTX, n=8) male rats. Renal hemodynamics (clearances of inulin and p-amino-hippurate) were unaffected by fluoride. The kinetics of plasma phosphate was investigated during four hours following the oral dose of F. Plasma phosphate increased in N and TPTX rats with a peak two hours after F (N: 7.0±0.4, TPTX: 7.6±1.3 mg/dL). Two hours later, plasma phosphate of N rats returned to basal levels (6.4±0.2), remaining elevated in TPTX (10.2±0.6). A positive relationship was observed between plasma phosphate and urinary phosphate excretion (r=0.68, p<0.05). No significant correlation was observed in TPTX animals (r=-0.42, p>0.05). In N rats, significant increases were observed in plasma AMPc (Basal: 15.2±1.2, post-F: 36.1±7.0 nM, p<0.01) and urinary AMPc excretion (Basal: 57±5.1, post-F: 82±7 pmol/hour, p<0.05). We conclude that a single oral dose of F stimulates transiently the parathyroid function. This effect may be produced by the increase in plasma phosphate.

86. INFLIXIMAB AND GASTROINTESTINAL PROTECTION, IN DIFFERENT EXPERIMENTAL MODEL IN RATS

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The objective was to determine if the blocking of TNF- α could provide gastrointestinal mucosa protection. Randomized groups of Wistar rats, 200 g, n=7 each group, 24hr fasting, water ad libitum were submitted to the following experiments: *I.-Experimental Colitis:* 1. 0.6ml saline(S) intrarrectal(IR) 2hr.; 2. 0.6 ml, 15% acetic acid (AA), IR 2hr; 3. 50mg/kg thalidomide(TA) intraperitoneal(IP) 30min, AA 2hr; 4. 5mg/kg Infliximab(IN) IP 30min, AA 2hr. *II.-Gastric cytoprotection:* 1. SF 1 ml S, intragastric(IG) 1hr; 2. 96° Ethanol (ETOH) IG 20min; 3. 50mg/kg TA IP 30min then ETOH; 4. 5mg/kg IN IP 30min, ETOH. *III.-Gastrointestinal protection against AINEs:* 1. 1ml S IG 8hr; 2. 20 mg/kg Ketorolac(KE) IG 8hr; 3. 50mg/kg TA IP 30min, 20mg/kg KET IG 8 hr; 4. 5 mg/kg IN IP 30 min, 20mg/kg KE IG 8 hr. *IV.-Gastric stress immobilization and water immersion at 18°C, 6 hr (S):* 1. 1ml S IP 30 min, then S; 2. mg/kg TA 50 IP, S; 3. 5 mg/kg IN IP 30 min, E. The rats were sacrificed with ether overdose, gastroenterectomy, tabulation of the macroscopic gastric lesion area (%) and intestinal erosion (mm²). Histological sections were studied (HE). Statistics: Student's t test and ANOVA. Results:*I.-*1-0 mm²; 2-80%±7; 3-83±5(ns); 4-81±7(ns). *II.-*1-0%; 2-35±5; 3-15±5(p<0.03); 4- 35±6(ns). *III.-*1-gastric 0%, intestinal 0mm²; 2-gastric 41.5±5, intestinal 162±19; 3-gastric 1.0±0.1, intestinal 15±2 (p<0.01); 4-gastric 1.0±0.1, intestinal 5±2(p<0.01). *IV.-*1-75%±7; 2-3±1(p<0.001); 3-35±5(p<0.05). We can conclude that Anti-TNF- α INF could be recommended in intestinal disorders such as acute Crohn disease and fistulas, TA in intractable CD, and INF mainly in inflammatory disorders due to AINEs.

88. STUDIES ON THE OXIDATIVE METABOLISM OF POLYMORPHONUCLEAR NEUTROPHILS (PMN) AND SERUM LEVELS OF TGF- β AND TNF- α IN TUBERCULOSIS (TB) PATIENTS OF DIFFERENT SEVERITY

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The aim of this study was to evaluate the PMN function of TB patients with different degree of pulmonary affectation and its eventual relationship with the serum levels of TGF- β and TNF- α . The sample comprised 18 TB patients presenting mild to moderate -M- (n=10) or advanced -A- (n=8) disease (mean age 39.2 ± 18.2 years) and 8 healthy controls (Hco) aged 51 ± 14 years (sd). PMN were stimulated with phorbol myristate acetate and the respiratory burst was studied by flow cytometry to estimate the oxidative index (OI) and number of stimulated cells (SC). Serum levels of TNF- α and TGF- β were quantified by ELISA (R&D). Results: *OI*, Hco 47.6±15.2, M 56±41, A 9.9±5.9 (Hco vs patients p<0.001); *SC*: Hco 93±3, M 82.5±10.9, A 85.2±9.1; *TNF- α* (pg/ml) Hco 17.6±7.6, M 27.9±9.8, A 38.6±23.1 (Hco vs patients p<0.01); *TGF- β* (ng/ml): Hco 35.7±5.7, M 43.3±15.2, A 53.6±18.4. (Hco vs patients p<0.01). There was a correlation between OI and TNF- α and TGF- β levels (r=0.4 and r=0.42, respectively, p<0.01), with both cytokines being positively correlated, as well (r=0.44, p<0.01). TB patients evidenced an important dysfunction of PMN oxidative metabolism more profound in stimulated cells of advanced forms.. The fact that impaired RB was accompanied by increased serum levels of both cytokines suggests that the oxidative capacity would be induced by several factors.

89. CINITAPRIDE AND MOSAPRIDE GASTRIC CYTOPROTECTION

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Identification and localization of 5-HT₄ receptors in the digestive tract enabled the manufacturing of selective agonists [Mosapride (MO), Cinitapride (CIN), Cisapride (CIS)], used as prokinetic agents. Objective: to verify if 5-HT₄ agonists produce lesions on the gastric mucosa, aggravating ethanol injury, and mechanism identification. Wistar rats (n=7, each/group) 200-230g, 24hr fasting, water ad lib, avoiding coprophagy were submitted to the following experiments I: Group 1) 1ml saline (S) IG, 60min wait (control). 2) 0.5-1-2mg/kg MO, (IP) 60min. 3) 0.5-1-2mg/kg CIS, IP, 60min. 4) 0.5-1-2mg/kg CIN IP 60min. II: 1) 1ml 50% Ethanol (ETOH), 20min (control). 2) 0.5-1-2mg/kg MO, IP 60 min, then 1ml ETOH 20 min. 3) 0.5-1-2mg/kg CIS IP 60 min then 1ml ETOH IG 20 min. 4) 0.5-1-2mg/kg CIN IP 60 min then 1ml ETOH IG 20 min. III: 1) 30mg/kg Indomethacine (INDO), (1and 2 cyclooxygenase, COX-1 and COX-2) SC 30min then 0.5-1-2mg/kg MO IP 60min, then 1ml ETOH, IG 20 min. 2) 3 mg/kg INDO SC 30min, then 0.5-1-2mg/kg CIS IP 60min, then 1ml ETOH, IG 20min. 3) 30mg/kg INDO SC 30min then 0.5-1-2mg/kg CIN IP 60min, then 1ml ETOH, IG 20min. Rats were sacrificed by ether overdose. Laparotomy, gastrectomy. Macroscopy (%), computerized planimetry. Histology (H-E). Student's t test. Macroscopy. I: groups 1-4 neither macroscopical no microscopical lesions. II: 1) 35±5.5, 2) 1.0±0.1, p<0.001, 3) 1.0± 0.1, p<0.001, 4) 1.0±0.1, p<0.001. III: 1) 20±3.7, p< 0.02, 2) 25± 5.7, p<0.02, 3) 27±5.0, p<0.02. Conclusion: 5-HT₄ agonists do not produce gastric lesions in healthy mucosa, diminishing ETOH necrotic lesions. Hence they are gastric cytoprotectors with an endogenous prostaglandin mediated mechanism.

91. TRIFLUSAL AND GASTRIC CYTOPROTECTON

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Triflusal (TRI), is a platelet antiaggregative agent, increasing endothelial nitric oxide (NO) and probably prostaglandins (PGs), thus increasing gastric blood flow and providing gastric cytoprotection. Wistar rats groups (n=7 each/group), 200g, 24hr fasting, water ad lib., avoiding coprophagy were submitted to the following experiments: Group 1) 1ml saline by OG gavage in bolus, 60min wait (control). 2) 1-10mg/kg TRI OG, 2hr. 3) 1ml 50% Ethanol (ETOH) OG, 20 min. 4) 10mg/kg TRI OG, 2hr, then ETOH, 20min. 5) 250 mg/kg aminoguanidine (synthetase inducible NO inhibitor) IP, 30 min, then 10 mg/kg TRI, OG, 2hr and then ETOH, 20min. 6) 15 mg/kg LNMMA (constitutive synthetase NO inhibitor) IP 15 min, then 10mg/kg TRI, OG, 2hr, then ETOH, 20min. 7) 25mg/kg Ketorolac (both cyclooxygenases inhibitor) SC, 30min, then 10mg/kg TRI OG, 2hr, then ETOH, 20 min. Rats were sacrificed by ether overdose. Laparotomy, gastrectomy and great curvature aperture were performed. Gastric macroscopical lesional area (%) was tabulated by computerized planimetry. Histological examination (H-E). Statistics: Student's t test. Gastric macroscopy (%): 1) 1.00.1, 2) 1.00.1(n.s), 3) 25.54.6(p<0.001). 4) 1.00.1 (p<0.001), 5) 1.00.1 (p<0.001), 6) 26.44.1 (n.s), 7)25.13.6(n.s.). Microscopy: normal gastric mucosa groups 1, 2, 4 and 5; gastric glandular necrosis in 3, 6 and 7. Conclusion: TRI is a gastric cytoprotector and its mechanism could be mediated by NO and endogenous prostaglandins.

90. TELMISARTAN AND ACUTE GASTRIC LESIONS IN RATS

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Telmisartan (TEL) is a selective angiotensin-II AT1 receptor antagonist used in hypertension. Objective: to study TEL effect on the healthy gastric mucosa, against ethanol injury in gastric stress. Wistar rats (n=7 each/group), 200-230gr, 24hr fasting, water ad lib., avoiding coprophagy, were submitted to the following experiments, I: Group 1) 1ml saline, OG gavage in bolus, 60min wait (control). 2) 1-5mg/kg TEL (dose-dependent), OG, 60min wait. 3) 50% Ethanol (ETOH), 60 min (control). 4) 1-5mg/kg TEL, OG, 60 min then ETOH. II. 1). Gastric stress by immobilization and 18° C water immersion during 6 hr (control). 2) 1-5mg/kg TEL OG, 60 min and then stress. Rats were sacrificed by ether overdose. Laparotomy, gastrectomy, and great curvature aperture were performed. Gastric macroscopical lesional area tabulated by computerized planimetry (%). Samples for histological examination (H-E) were obtained. Statistics: Student's t test and ANOVA. Results: % of gastric macroscopic lesional area, I: 1) 1.0 0.1, 2). 1.0 0.1 (n.s.), 3) 35 5.5, 4). 40.5 7.5 (n.s.). II: 1) 65 5.7, 2) 80 7.2 (n.s). I: microscopically lesions of the superficial epithelium and glandular epithelium in groups 3 and 4. II: microscopical lesions in groups 1 and 2. Conclusion: TEL is a direct gastric non-aggressive agent, nevertheless it aggravated lesions induced by ETOH and gastric stress.

92. SEMEN QUALITY IN RELATION WITH PLASMA CHOLESTEROL IN ROOSTERS

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Semen quality and plasma cholesterol levels were analyzed in order to determine rooster reproductive capacity and its relation with testosterone hormone substrate. Their relationship is a controversial issue. We have earlier studied this correlation at 24 and 42 weeks of age. Methodology: to deepening this analysis we selected 21 roosters from three pure lines [Leghorn (L), Rhode Island Red (R), and Fayoumi (F)], 40 weeks aged, individually caged, food ad lib. interrupted 12hr prior to sampling, which were submitted to a semen evaluation protocol utilized in production quality control. Semen samples were obtained by the same operator every 24hr during 5 days by means of Burrow and Quinn's technique. Blood samples were obtained every 48hr (total 3). Semen assays: Volume -ml- (V), Motility -1-5- (M), Morphology -% of normal spermatozoa- (Mph), sperm concentration -10⁶ sperms/ml- (C), Total sperms ejaculated -10⁶- (TS), and pH. Blood plasma assays: Cholesterol -mg/dl- (Ch), (Autoanalyzer, Hitachi 902). Normality test, one-way ANOVA plus Student-Newman-Keuls' test for groups comparison, and multiple regression analysis, were performed. There was neither semen quality modification of values nor of total cholesterol. Multiple regression taking total Ch as dependent variable, and independent all semen variables was not significant. Conclusion: considering this particular schedule sampling total cholesterol does not appeared as a semen quality indicator in the different lines selected for the study.

93. PHENOTYPIC CHARACTERIZATION OF PORCINE MONONUCLEAR PHAGOCYTES (MNP) NATURALLY INFECTED WITH *BRUCELLA suis*

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MNP are the primary host cells for *Brucella spp.* The receptors of MNP are important for phagocytosis and cellular interactions, and endocellular parasites utilize them for cell invasion. We have previously demonstrated that MNP of brucellosis seropositive and seronegative pigs show functional and phenotypic differences after *in vitro* infection with *B.suis*. With the aim of characterizing the phenotype of MNP of pigs belonging to a naturally infected farm, before the *in vitro* infection, ten adult porcine females [5 (+) and 5 (-)] to brucellosis diagnosis were used. Mononuclear cells were obtained by ficoll-hypaque gradient and the characterization was done by Double Indirect Immunofluorescence. Monoclonal antibodies (moAb) tagged with RAM-FITC against: 2A10, SLAI, CD11b, CD11a, CD3, CD45RA and SLAI were utilized. MNP were selected with moAb SCW3-phycoerythrin and, CD3 and CD45RA discarded any lymphocyte contamination. The % of positive cells in (+) and (-) pigs were: 2A10[median (range):24.7 (0-53.6); 3.3 (0-31.5) respectively], CD25 [9.7 (0-13.8); 3.8 (1.6-20.2)], SLAI [47.2 (30.2-75.4); 41.6 (18.9-59.2)], CD11b [44.9 (22.6-70.3); 35.4 (21.2-66.1)], CD11a [70.1 (59.4-84.8); 43 (20.8-74)]. The expression of surface MNP markers did not differ between (+) and (-) pigs, while the contrary had happened after *in vitro* *B.suis* infection. The early interaction of MNP and *B.suis* would modulate the receptor expression which could be responsible for the already demonstrated functional differences.

95. ARTERIAL SUPPLY OF BOVINE HAND FINGERS *Bos taurus*

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It is important to know the arterial system of the bovine finger to understand the normal physiology and the pathologic processes affecting the hoof. Several authors have demonstrated how the blood supply is related to hoof lameness, mainly in soil ulcer and laminitis. With this description we pretend to give more details of the irrigation of this region with the aim of contributing with related basic knowledges. Fifty hands from 25 male and female, 18-24 months old, with no hoof lesions, Aberdeen Angus and Hereford bovine breeds and crossbred bovines from slaughtering were used. Median artery was isolated and was canalized with a rigid cannula, latex with barium sulfate 30% was injected after a saline solution flushing, using a mean of 50 ml per hand, a ligature was used to prevent reflux to other vessels. The operation was repeated on the opposite hand with metacrylic resine for vascular modeling. After that the specimens were identified and frozen for their conservation. Acrylic injected specimens were submerged in NaOH warm saturated solution which was daily changed (4 or 5 days) to remove soft tissues and after weekly during 5 to 7 weeks to remove bone tissue, the resulting acrylic model was flushed during one hour, after that it was submerged in alcohol for 5 minutes and after it was air dried. The model is described and schematized according to the terminology used by the V.A.N. The latex injected specimens were dissected and radiographs were taken, photographs and schemes were used to register the observations. The resulting description is coincident with that made by DeVos and Nickel in as to the source of proper dorsal digital arteries in contraposition to the description made by Goshal, Schwarze and Sisson-Grossman.

94. CRANIAL MESENTERIC ARTERY IN CAT (*Felis domesticus*)

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Bibliographic descriptions of this artery mostly refer to canines, making only compared references to felines. Schwarze, Veterinary Anatomy, T III, page 69-72, 1972. Getty R. Anatomy of domestic animals Sisson and Grossman. T II, page 1791-92, 1982. Dyce K.M., Veterinary Anatomy, page 461-467, 1999.

Increase on demand of veterinary services to felines causes a greater frequency of surgical practices on this species. Answering to this demand, the Surgery Service of our Faculty is surveying on the possibility of applying new techniques to solve pathologies affecting the irrigated area by this artery and thus is required a detailed knowledge of it.

Fifteen adult felines, 9 males and 6 females from clinic hospital and whose deaths were due to different causes with no compromises of the abdominal cavity were used. Abdominal cavity opening was performing by incision by medium line from sternum to pubis and by two parallel and caudal incisions to rib arch. The cranial mesenteric artery is located moving the intestinal mass to the right hemi abdomen, the artery is canalized and flushed with saline solution and it is injected with colored latex, the specimen is left in a refrigerator for 48 to 72 hours, the duodenum is proximally ligated and distally the rectum, the intestinal mass is removed and macrodissection, observation and registration are performed by photographs and schematic drawings. The most frequent model description is made and observed variations are analyzed. From them, the existence of a constant model with showy variations in the duodenal pancreatic artery source is seen.

96. EFFECTIVENESS IVERMECTIN OF LONG ACTION AGAINST NEMATODES GASTROINTESTINALES IN BOVINES

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The effectiveness of Ivermectina to 1% of slow liberation (IvLA) was evaluated according to the protocol for antiparasitic product registry of Veterinary use of the Mercosur and of the WAAMP in 26 Holando bull calves of 120 kg. Two animals, in each group, acted as control and two did not receive IvLA nor defied themselves with larvae (sentries). To the effects to evaluate the duration of the effectiveness, the day 0° six animals of each group were dosed with IvLA injectable at the rate of 200 mcgr by kg. The animals of 2 groups (6 treaties and 2 control), were infected with 15,000, 500, 500, 5,000 larvae of *Cooperia punctata*, *Haemonchus placei*, *Ostertagia ostertagi* and *Nematodirus helvetianus* to 18 days (GROUP 1 or G1) and 25 days (GROUP 2 or G2). The necropsy should be 47 and 68 days post treatment of one group (G1) and two-group (G2) respectively. The effectiveness of formulation in group infected to the 18 days post treatment (G1) was of 97,65, 100, 97,76 and 95,75 % against *Haemonchus placei*, *Ostertagia ostertagi*, *Cooperia punctata* and *Nematodirus helvetianus* respectively. The effectiveness of the formulation in the group infected to the 25 days post processing (G2) was of the 87,83, 100, 93,54 and 65,71 % against *Haemonchus placei*, *Ostertagia ostertagi*, *Cooperia punctata* and *Nematodirus helvetianus* respectively. The IvLA was effective in more of a 95% against *Haemonchus placei*, *Ostertagia ostertagi*, *Cooperia punctata* and *Nematodirus helvetianus* with challenge to the 18 days post-cure, whereas single such protected in levels against *Ostertagia ostertagi*.

97. CHARACTERIZATION OF *Staphylococcus aureus* FROM BOVINE MASTITIS BY GENOTYPIC AND PHENOTYPIC METHODS

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Staphylococcus aureus (*S. aureus*) is the most frequently bacterial pathogen associated to bovine mastitis. We report here the characterization of *S. aureus* isolates from mastitic milk by phenotypic and PCR-based (RAPD) techniques, as an attempt to analyze genomic diversity and study strain spreading among cows of a same herd as well between herds. From 300 milk samples analyzed, 41 isolates were obtained and identified as *S. aureus* by biochemical tests. From them, 24 strains were genotypically characterized, 2 strains from human source and one from a feeding source. RAPD was made as Limansky *et al*, J. Inf. Dis. 177: 1308-13 (1998). This methodology distinguished 3 separate clones among the 24 bovine isolates studied. One of them, named clone A (indistinguishable from one of the clones isolated from humans), was recovered from 22 samples obtained from both the same or different herds; another clone (B) was present in coexistence with A in one of the herds; and the third clone (C) was isolated from a mammary quarter of a cow from which the major strain (A) was present in other two quarters. RAPD differentiated both human source strain, and feeding source one from the other isolates, being found 5 different clones among the 27 isolates studied. Thus, this RAPD methodology represents a highly valuable tool for the epidemiologic analysis of bovine mastitis caused by *S. aureus*.

99. RELATION BETWEEN OXIDIZABLE-C OF FORAGES AND ASSOCIATED VARIABLES OF RUMINAL POPULATION ACTIVITY

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The aim of this study was to relate forage Oxidizable-C with variables associated to the activity of ruminal microbial population (Ruminal degradability of dried matter (RDDM), *in vitro* gas production, CO₂ and CH₄ concentrations, pH and redox potential (ORP)). The forages used were oat (*Avena sativa*), bromus (*Bromus catharticus*), alfalfa hay (*Medicago sativa*), moha hay (*Setaria italica*), and corn silage (*Zea mays*). Oxidizable-C was determined through oxidation with 1N potassium dichromate. Gas production was sampled at 0.5, 2, 6, 9, 24 and 28 h. CO₂ and CH₄ concentrations, pH and ORP were measured at 28 h of incubation time. The most important significant correlations were: Oxidizable-C with RDDM: -0.574 (P ≤ 0.03). RDDM with gas production at 24 h: 0.66 (P ≤ 0.01) and pH: -0.56 (P ≤ 0.03). pH with gas production at 9 h: -0.66 (P ≤ 0.01); CO₂ CH₄: -0.473 (P ≤ 0.09), and RDDM: -0.564 (P ≤ 0.03). ORP with gas production at 24 h: -0.57 (P ≤ 0.03) and CO₂ CH₄: -0.71 (P ≤ 0.004). The CO₂ concentration explains the 95% variability of CH₄. The coefficient values were 2.01 ± 1.2 for the constant, 0.54 ± 0.03 (P ≤ 0.01) for CO₂, and 0.01 ± 0.003 (P ≤ 0.01) for ORP. The determination of Oxidizable-C was not enough to describe the forage carbonated fractions that are transformed during ruminal degradation.

98. QUANTITY AND SIZE OF OVARIAN FOLLICLES IN PREPUBERAL FEMALE MICE SELECTED BY BODY WEIGHT

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From a nonselected CF1 mouse population (*t*), two pairs of lines of divergent selection for 49 days old weight, *s* and *h*: negative; *s'* and *h'*: positive, were founded. These phenotypes made possible studies that showed significant differences of fertility among lines, being fertility evaluated by fertility coefficient: CF = 7xTC/(D+21), where TC is litter size and D is the quantity of days from breeding to parturition. With the aim of studying in depth these differences, the ovarian structure of prepuberal females was compared. Follicle quantity (N) and follicular diameter (T) medians per female were estimated. The nonselect line (*t*) did not show significant differences according to those selected and it maintains intermediate values for N, T, CF and P. Weight selection differentiated positive from negative in fertility (p<0,05) and in N and T (p<0,01). The heaviest line (*s'*) showed a higher follicle quantity and size, being also the higher CF line, probably due to a high ovulation rate. Significant differences between *s'* and *h'* for N and T (p<0,01) were found. Selected lines for low weight only differed in N and CF (p<0,01). It was shown that directional selection for body weight modified the studied reproductive variables.

100. EFFECT OF INCREASING CALCIUM SOAP CONCENTRATIONS IN *IN VITRO* RUMEN OF HOLSTEIN COWS

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The aim of this study was to study the effect of calcium soap (CS) on the rumen of grazing dairy cows. Two rumen-fistulated Holstein cows grazing alfalfa and supplemented with concentrate (2.5 Kg; at 4 and 16 h) were employed. Ruminal fluid (RF), filtered with a 2 mm mesh was incubated in *in vitro* systems consisting of a 50 ml glass bottle connected to 20 ml glass syringes during 24 hours at 39°C in water bath. The CS concentrations were 0 (control), 0.5, 1 and 2%. pH, redox potential (ORP, mV) and N-NH₄⁺ (mg/dl) in RF were determined at 0 and 24 h; gas production (ml) at 1, 3, 6 and 24 h and CO₂ and CH₄ concentrations (mmol/l) at 24 h through gas chromatography.

Parameters	Hour	Concentrations				SE
		0	0.5	1	2	
PH	0	6.70	6.75	6.78	6.76	0.04
	24	6.74	6.76	6.76	6.70	0.02
ORP	0	-445c	-435b	-425a	-420a	5.2
	24	-422B	-405A	-400A	-400A	2.6
N-NH ₄ ⁺	0	7.0	8.4	8.4	7.5	5.3
	24	44.2	49.4	50.2	44.5	2.6
CO ₂	24	6.07	6.09	6.06	6.01	0.038
CH ₄	24	3.79	3.69	3.68	3.73	0.047

Gas production was not different between CS concentrations. The calcium soaps studied here, in the concentrations employed, did not modify the parameters determined, with the exception of ORP, suggesting that they may be used as energetic supplements for grazing dairy cows.

101. SPATIAL, TEMPORAL AND INDIVIDUAL VARIATIONS OF RUMEN pH AND REDOX POTENTIAL

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The aim of this study was to determine the spatial, temporal (daily and periodically) and individual variations of rumen pH and redox potential (ORP) of animals fed on different carbonated substrates. 4 Pt microelectrodes were introduced in *in situ* rumen and ORP was determined during 75 minutes at regular intervals. Ruminal fluid was obtained from rumen fistulated animals every two hours starting at 8 and finishing at 20 h. The diets studied were: (i) dairy cows fed on alfalfa pasture and supplemented with concentrate (at 6 and 16 h), (ii) oat grazing sheep, (iii) sheep fed alfalfa hay (1 kg) once daily (9h), and (iv) sheep fed alfalfa hay (0.5 kg) twice daily (at 9 and 15 h). The *in situ* rumen ORP showed spatial and temporal heterogeneity with variations of 100 mV. ORP and pH were different between diets ($P \leq 0.01$), periods ($P \leq 0.01$) and sampling time ($P \leq 0.05$). pH ($P \leq 0.01$) was different between animals while ORP ($P > 0.01$) was not. pH fluctuated from 6.08 to 7.6 and ORP from -370 to -130 mV. The variation observed shows the importance in determining the range of pH and ORP fluctuations in each ruminal environment for which sampling at different moments of the day, on several days and animals, is necessary. The pH and ORP fluctuation range in *in vivo* rumen can be used as reference for conditions in *in vitro* systems employed in studies on methane ruminal production. Although the rumen is considered a homogeneous system -compared to other biological environments-, it is important to know the system fluctuation and variation sources to investigate the role of physicochemical factors on microbial functions.

103. EFFECTS OF THE PSEUDOMONAS FLUORESCENS INOCULATION ON THE STRUCTURE OF THE FUNCTIONAL MICROBIAL POPULATION OF THE SOIL

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Soil inoculation with plant growth promotion rhizobacteria (PGPR) belongs to the many biotechnological practices that allow to lead the agrosystems sustentability. *P. fluorescens* is a PGPR that has a chemoheterotrophic metabolism, and produces secondary metabolites: siderophores, antibiotics and phyto- hormones. These features allow to improve the crops and would allow at the same time to modify the soil microbial expression related with the soil fertility. In previous works, we demonstrated the survival of the C7R12, UG61, P190 strains in an Argiudol soil. Our aim in this work was to determine the modifications that the inoculation of these strains produces on the expression of the microbial populations of the soil. The functions that were selected as indicators were the CO₂ productions, the N₂ free biological fixation, the dehydrogenase, the denitrifying and the urease activities. These strains were individually inoculated in micro-cosmos of soil and tomato seedlings. The selected parameters were measured at days 4, 13 and 24 after the inoculation. The effect of the strains was different. Two of them, C7R12 and UG61, increased most of the studied functions. On the other hand, we found significant differences just in some of the sampling dates. The results indicate clearly that the aptitude of the *P. fluorescens* as a tool for operate on the sustentability of soil systems can be valued in two complementary scenes: one of them located in the biochemical scale and the other one in the scale of populations dynamics.

102. VARIATIONS IN THE MORPHOLOGIC PARAMETERS IN BOARS' SPERMATOZOA DURING HIGH TEMPERATURE MONTHS

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The analysis of spermatid morphology provides valuable information about development and maturity of spermatozoa. The type/s of abnormalities usually show a particular situation, i.e. air temperature rise. Objective: determine morphological alterations in spermatozoa according to the local temperature and characterize its real time influence on the semen quality. 111 samples (only those with a matility over 75%) from 18-36-month-old breeders in open-air breeder grounds from Oct. to May. Assays: head alterations (C), proximal cytoplasmic gout (GP), distal (GD), whipped tails (CL) and the total of alterations (T). In all cases the value was every 100 cells. Kruscal Wallis' Test used to compare (T) modifications with months and Wilcoxon's Test for Matching Samples to analyze the influence among months. In 1 case, there were highly significant differences (Ht=67.87; $p \leq 0.000$). In 2 case, the differences were highly significant: Oct-Feb (U=-4.09; $p \leq 0.000$), Nov-May (U=-2.88; $p \leq 0.004$), Feb-Apr (U=4.71; $p \leq 0.000$); significant: Oct-Dec (U=-1.93; $p \leq 0.054$), Oct-May (U=1.89; $p \leq 0.06$), Feb-May (U=2.42; $p \leq 0.02$) and no significant Oct-Nov and Dec-Jan. Conclusions: temperature modifies the percentage of alterations mainly during Feb and March and the difference between months shows the time between the temperature action and the appearance of abnormalities, since the spermatogenesis time in boars is about 7 weeks.

104. FLUORESCENTS PSEUDOMONAS SPP. AND SOIL REDOX STATUS RELATION

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In this work, we studied the redox status of soils where the fluorescent *Pseudomonas spp.* population was detected. These bacteria may improve the crop through of their physiological capabilities. The following parameters contribute to define the soil redox status: (i) the redox intensity (tendency to electrons transfer in the system) (ii) the redox capacity (the amount of compounds that may cede or accept electrons). The redox intensity was evaluated through the redox potential (Eh) and the redox potential at pH 7 (Eh₇). The redox capacity was determined in terms of the amount of available carbon, the CO₂ aerobic production, the reduction of tetrazolium to formazan salt. The pseudomonas population was determined for the serial soil dilutions and plate technique on King B⁺ agar medium. Studied soils were Argiudols from Casilda (Santa Fe Province), and Balcarce (Buenos Aires Province), and Torrifluents from Cipolletti (Río Negro Province). The obtained Eh and Eh₇ values indicated that studied soils had high aerobic conditions. Furthermore, a high relation was observed between the cell number with the CO₂ production and between the cell number and available carbon. On the other hand, the relations between the cell number with Eh, with Eh₇, and with the formazan production were not significant. These results suggest that in the soils where prevail aerobic conditions, an important factor that limits the number of these micro-organisms is the availability of reduced carbon substrate.

105.
PSEUDOMONAS FLUORESCENS BEHAVIOUR IN A SALINE SOIL

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In this work, the survival of *P. fluorescens* strains C7R12, UP61 and P190, and their effects on (i) electrolyte concentration in soil solution (soil conductivity), (ii) the tendency to electrons transference of the system (soil redox potential, Eh), and (iii) the acid-base conditions (soil pH), were studied. The strains were inoculated in individual form, in microcosmos of a Torrifluents soil from Cipolletti (Río Negro Province). The survival of the strains was different, at the 3rd day after inoculation, the following descend order in bacterial number was observed: UP61>P190>C7R12 was observed. At the 10th day only the UP61 strain had an relatively important concentration (10⁴ cfu g⁻¹ soil d.w.). During the experiment the inoculated soils showed a tendency to increase the Eh. At the 10th day, the Eh of inoculated soils was higher than the control soils. During the experiment, both inoculated soils and control soils diminished slightly. The inoculation of P190 and UP61 strains produced a decrease in the soil conductance. The inoculated soil with C7R12 strain did not showed an important difference in the soil conductance with regard the control soil. The results suggest that the cells of P190 and UP61 strain would have a higher capacity than the C7R12 to introduce ions from soil solution. This capacity may be important to improve the bacteria survival in the saline soils. In this way, the observed bacteria number evolution may be explained.

107.
EFFECT OF THE HEPATECTOMY ON THE CELL PROLIFERATION IN MICE

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The present work studies the cellular proliferation combining the presence of a tumor (ES12a hepatocellular carcinoma) and hepatectomy. The cell populations analyzed were the duodenal enterocytes and the tongue keratinocytes. Five groups of C3HS adult, male mice were used: A) not bearing, not operated; B) bearing, not operated; C) not bearing, hepatectomized; D) bearing, hepatectomized and E) bearing sham operated. The tumor was, grafted in the subcutaneous tissues. Mice were sacrificed every four hours, in the course of three days after surgery. Portions of tongue and duodenum were fixed and processed for HE staining. In both tongue face and in duodenal crypts the mitotic index was calculated. The signification of the differences was determined using the Student test. In the duodenal crypts, a significative decrease of mitotic index, the first day after the surgery, a significative decrease of the mitotic activity was found in the hepatectomized animals, but not in the sham operated. A similar result was observed in the epithelium of the dorsal face in not bearing tumor mice.

106.
CHANGES IN THE EFFECT OF THE HEPATECTOMY ON THE DNA SYNTHESIS OF COLONIC ENTEROCYTES, IN BEARING TUMOR MICE

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The subtotal hepatectomy (Hc) generate variations in the plasmatic and tisular concentration of growth factors, modifying the intensity of the proliferation of different cellular populations. In a previous work we demonstrate that the intensity of the DNA synthesis (DNAs) in the large intestine, is smaller 26 h after a Hc, 50 hours after the same returns to the not operated valors. The present work analyzes the DNAs in the colonic enterocytes of hepatectomized mice bearing ES12a hepatocellular carcinoma. C3HS adult, male mice, standardized for periodicity analysis, were used. The animals were divided into two groups. Group I animals was grafted with the tumor, while group II was controls. All animals were hepatectomized at 10:00 h. Mice of both groups were sacrificed animal 26 and 50 h poshepatectomy, all the animals were injected with a dose of 5-Bromodeoxiuridina (50mg/Kg), 1 h before the sacrifice. Colon portions were processed for embedded in paraffin. The samples, were marked with the Bu 20a antibody (1/100). Envision System (Dako), was used for detection. In each section the ADNs index $c / 1000$ nuclei was determined. The mean arithmetic of each batch was calculated, and the results were analyzed through the "t" test. It is observed that the DNAs in the controls is smaller 26 h after Hc, this is not observed in the bearers. The presence of the tumor changes the enterocytes response to Hc.

108.
DETERMINATION OF GLYCOCONJUGATES IN THE FEMALE PROSTATE OR PARAURTHERAL GLAND OF *Lagostomus maximus maximus*

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The existence of a well developed feminine prostate, in the females of some species of rodents, was described by diverse authors. In a previous work we have demonstrated the constant presence and described the histological structure of this gland in the female of the plain viscacha (*Lagostomus maximus maximus*). In the present work we characterize the lectin-binding pattern of the glandular epithelium of this gland. Eight adult, 4.5 to 5 Kg body weight, female viscachas were sacrificed and their prostatic gland extracted. The organ was fixed with buffered formaldehyde and embedded in paraffin. Three μ m sections were incubated either with Con A (*Canavalia ensiformes*), SBA (*Glycine maximus*), DBA (*Dolichus biflorus*), PNA (*Arachis hypogaea*) or UEA-1 (*Ulex europaeus*) lectins. A semi-quantitative method was used to express the results, classifying them from none [-] to highly positive [+++] reaction. DBA and PNA showed a high binding pattern [+++] in all the samples while SBA exhibits little or scarce [+] reactivity. The lectin-binding pattern for DBA and PNA was negative. These results suggest the existence of different glycoconjugates in the glandular cells since the ConA identifies glucose/manose, UEA1 binds fucose and SBA has the N-acetilglucosmine as substrate.

109. EATING HABITS EFFECT ON MOLARS OCLUSAL WEAR OF EXTINCT POPULATIONS

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The analysis and interpretation of the various wear patterns and their documentary value are essential for the osteobiographic reconstruction of extinct populations. The studied material comes from cranium collections of different Argentine archaeological sites like Jüella in the NW and populations inhabiting what is now the territory of Santa Cruz and Buenos Aires provinces. This material belongs to the Museo Nacional de Ciencias Naturales de La Plata. The sample is formed by 92 permanent molars, 13 Jüella molars (9 first molars and 4 second molars), 31 Santa Cruz first molars and 48 Araucanian first molars (Buenos Aires). The pieces were observed with stereoscopic microscope to evaluate the type of wear and to determine its degree the Scott scale (1979) was used which values each occlusal face quadrant in a 1 to 10 scale according to the remaining enamel; the final value corresponds to the addition of the four quadrants. Each population Mode is obtained using these values, thus in Jüella is 12 and the extremes 11 and 27, for the Araucanians is 16 and 17 and the extremes 4 and 34 and the mode in Santa Cruz is 40 and the extremes 7 y 40. We consider Mode as the most representative measure of population dispersion. The biggest wear degree occurs in Santa Cruz and with particular morphological characteristics, these being observed in only one Araucanian molar while the rest is comparable to the wear degree in Jüella. The smallest population value dispersion observed in Jüella may be due to the fact that it is an only one site with homogeneous population and agricultural habits (their diet mainly maize-based), while the other analysed nomadic populations being hunters-collectors and, for this reason, consuming abrasive substances, had different possibilities in the obtaining and ways of food processing, this explains the differences between type and degree of wear.

111. ULTRASTRUCTURE OF THE HEPATOPANCREAS OF THE PRAWN *PALAEEMONETES ARGENTINUS* (CRUSTACEA, CARIDEA) IN INTERMOULT

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The hepatopancreas of decapod crustaceans is responsible of synthesis and secretion of digestive enzymes, digestion and storage of nutrients. This work describes the ultrastructure of the hepatopancreas of *P. argentinus* to establish functional relationships. The hepatopancreas of adult prawns of both sexes were fixed in glutaraldehyde 2,5% and embedded in Spurr. Ultrathin sections were stained with uranyl acetate and lead citrate. E-cells have high nucleus/cytoplasm ratio and scarce organelles, which characterize embryonic cells. F, R and B-cells have brush border. F-cells have a big nucleus and RER dominates the cytoplasm. Golgi bodies have dilated cisternae and mitochondria surround the nucleus. R-cells possess a polar distribution of organelles: the apical zone, with plenty mitochondria, endocytotic channels and small vacuoles and the medial zone, with the nucleus and RER. At the infranuclear zone, there are big mitochondria and a branched system of sER-like tubules. Glycogen was not found but lipid droplets were present. Autophagosomes and residual bodies appeared in some R-cells. B-cells were observed at different phases of maturation. Differentiating B-cells have an apical complex formed by endocytotic channels and vesicles. RER surrounds the nucleus. Extension of the apical complex and formation of a big central vacuole characterize maturation. The present observations suggest that F-cells synthesised proteins, R-cells storage nutrients and B-cells have a secretory or excretory function.

110. EFFECTS OF THE SUDDEN SALINITY CHANGES OVER THE HEPATOPANCREAS STRUCTURE OF *ARTEMESIA LONGINARIS* (CRUSTACEA PENAEIDAE)

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It was evaluated the response of *A. longinaris* hepatopáncreas to sudden salinity changes, analyzing the structure of this organ. For this experiment 160 adult shrimps were kept in 400 l acuaría under salinities of 16, 25, 29 y 33 psu. After 24, 48, 96 and 144 hours the hepatopáncreas of 10 shrimps was fixed using routine histological techniques and the height of the main four cell types was measured. The animals kept under 16 psu treatment only survived for 4 hours nevertheless no evidence of structural hepatopancreatic damage was observed. Only those animals that were maintained more than 144 hours under 29 psu showed a height decrease in F, R and B cells. 196 hours latter the epithelium recovered a height similar to the 33 psu treatment. This indicate that an acclimatation had occur.

Only the animals kept at 25 psu for 48 hours showed small necrotic focuses and hemocytic infiltration areas. We concluded that under this experimental condition the hepatopancreatic function was not altered. According to other studies (unpublished), the results indicate that this is an organ with a high plasticity that reacts in a slower way to environmental changes and then can adjust to the new conditions of the media.

112. COMPARATIVE ANALYSIS OF MUSCLE ACTIVITY IN CNIDARIANS

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Benthic cnidarians, specially sea anemones (Actiniaria) possess a muscular system very developed. Abiotic factors (T°, salinity, dashing of waves and type of substratum) determines the adjustment of the organisms to the surrounding environment. The biological activity of the system can be measured by the contractile force developed by the marginal sphincter. As a part of a main project, the aim of this work is analyze the muscular behaviour in three populations sea anemones from intertidal ecosystem of Mar del Plata. In this first stage the species *Oulactis mucosa*, *Aulactinia marplatensis* and *A. reynaudi* were studied. The isolated sphincters were placed in a chamber containing aerated sea-water (pH 7.3 ± 0.05 and T° 18-20°C), then were stimulated at increasing concentrations of KCl. The developed were analyzed in the form of dose-response curves (DRC) expressed in tension in grams vs. concentration. Statistical analysis was performed using the Student's test. P values < 0.05 were considered statistically different. The results showed in the Table were non significant in the three species.

Species	KCl	20	40	60	80	100	120	140	160	180	200
<i>O. mucosa</i> N=10	Tg \bar{x}	0.1	0.3	0.8	1.0	1.1	1.2	1.4	1.3	1.4	1.5
	Es	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
<i>A. marplatensis</i> N=10	Tg \bar{x}	0.2	0.6	0.7	0.7	0.8	0.9	0.9	1.3	1.2	1.0
	Es	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1
<i>A. reynaudi</i> N=10	Tg \bar{x}	0.2	0.3	0.6	0.7	0.9	1.0	1.2	1.2	1.0	0.9
	Es	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Tg \bar{x} : Tensión en gramos promedio; Es: error estándar.

The studies throughout the muscular system will contribute to the behaviour's knowledge of different actiniarian populations in relation with the environment in different season of the year.

113. HISTOCHEMICAL DIFFERENTIATION OF GLYCOCONJUGATES OCCURRING IN THE *Micropogonias furnieri* ESOPHAGUS

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The glycoconjugates (GCs) are the greatest components of the mucous substances of the digestive tract. Physiologically, mucous secretion has been mainly related to lubrication, protection against pathogen micro-organisms and osmotic regulation. The purpose of this study is to examine the histochemical characteristics of the mucous cells located in the mucosa of the esophagus of the white croaker, *Micropogonias furnieri* Desmarest 1823; Roux 1973 (Pisces, Perciformes, Scianidae), a demersal coastal fish with a wide distribution from the Peninsula de Yucatán (México) to 41°S in Argentina. The material was processed according to the classical methodology. Histological techniques, general methods for locating mucins and histochemical reactions to locate and differentiate epithelial glycoconjugates (GCs) were used. The histochemical procedures to identify GCs were: 1) PAS, 2) PA*S, 3) PA/Bh/K(OH)/PAS, 4) K(OH)/PA*S, 5) K(OH)/PA*/Bh/PAS. The mucosa of the esophagus of *Micropogonias furnieri* is lined by a stratified epithelium with abundant mucous cells. The mucous cells show: a) GCs with oxidizable vicinal diols -PAS-; b) sialic acid residues with or without substitution at C7, C8 and C7 or C9 -PA*S and PA/Bh/K(OH)/PAS-, c) neutral GCs -K(OH)/PAS-, d) total sialic acids -K(OH)/PAS. The GCs elaborated and secreted by the mucous cells from the esophagus of *Micropogonias furnieri* are heterogeneous. Accordingly this fact should indicate the achievement of different functional roles.

115. GLYCOPROTEINS IN THE ESOPHAGEAL MUCOUS CELLS OF *Odontesthes bonariensis* (PISCES, ATHENOPSIDAE)

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In the animal tissues glycoproteins (GPs) are heterogeneous molecular structures and one of the chief components of the mucous secretion in fish digestive tract. Given that the mucous substances are closely related to the physical and chemical characteristics of the environment, it is important to pay attention to the epithelial cells involved in glycoproteins secretion. *Odontesthes bonariensis* is the most popular and commercially important Argentinean freshwater fish species.

The objective of this study was the histochemical characterization of the GPs from the mucosecretory cells (CM) in the esophagus of *Odontesthes bonariensis* taken from Lake Los Padres, (Gral Pueyrredon, Buenos Aires). Samples were routinely processed, sections were stained with hematoxylin and eosin (H/E) and trichromes and were then subjected to histochemical techniques for the identification and visualization of GPs. The CM show a weak positive reaction (PAS) in their content. The reactions for the differential analysis of sialic acids from GPs are feeble for PA*S and KOH/PA*S and strong for PA/BH/KOH/PAS and KOH/PA*/Bh/PAS, revealing the scarce presence of C7 or C9 substituted and non-substituted sialic acids and the abundance of C7, C8 substituted sialic acids, O-acyl sugars and neutral sugars, respectively. The histochemical results suggest, as it has been found in other freshwater fish, that the esophagus is mainly involved in the physical transport of the food bolus to the stomach with the aid of abundant secretion of mucus.

114. VASCULARISATION OF THE MIOTOMAL MUSCULATURE OF *Micropogonias furnieri*

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Blood supply is of vital importance to the transport of substances to and from the cell. In teleost the different types of fibres are not mixed and there by present a unique opportunity to study the vascularisation from the pure population of fibres. *Micropogonias furnieri*, a demersal coastal fish with a wide distribution from the Peninsula the Yucatán (México) to 41° S in Argentina, is a popular and commercially important marine fish species. The objective of this work was to determine the vascularisation of red, pink and white muscles in *M. furnieri*. Muscle tissue was removed at three sampling sites along the length (L) of the body, corresponding to 0,30L (anterior zone), 0,50L (medium zone) and 0,70L (posterior zone) of the total body length. The distribution of capillaries were visualized directly using the method of modified myosin ATPase for capillaries. The mean number of peripheral capillaries for muscular fibres were 2,16; 1,26 and 1,06 for red, pink and white fibres, respectively. The area per peripheral capillary increased from red to white fibres being intermediate in the pink ones. Differences were observed in the vascularisation of fibres red and pink in anterior and posterior zones. The results obtained about the vascularisation in this fish, reflects the functional roles of the red, pink and white fibres linked to a slow, intermedium and fast contraction, respectively.

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