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A1
USE OF A VIRTUAL EDUCATIONAL PLATFORM AS A MODIFIER OF THE ACADEMIC PERFORMANCE ON THE BIOCHEMICAL SUBJECT IN STUDENTS OF 2 YEAR OF MEDICINE

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A virtual educational platform is a tool that allows students a collaborative workspace. This work aimed to analyze if the use of a virtual educational platform improves the academic performance in the Biochemical subject of the students of the 2nd year of Medicine 2019 and their assessment, compared to 2017 and 2018 that the platform was not used. Informed consent was self-administered of 54 students in 2017, 56 in 2018, and 72 in 2019. Academic performance: an average of weekly and first partial grades. Software used Minitab 17.1.0 (2013). Student's *t*-test was applied for independent samples; academic performance expressed as mean $\pm$ SD. Ratings: a voluntary and anonymous survey was used; composed of proposals that addressed whether the platform facilitated *access to study material, *communication between peers and teachers, *organization of the subject, *ease of use, *improvement of academic performance, *use in other subjects, and *assessment of the experience. Proposals were assessed using a Likert scale: strongly disagree, disagree, agree, strongly agree. Results: *2017, 3.96 $\pm$ 2.17; *2018, 4.52 $\pm$ 2.57; *2019, 5.39 $\pm$ 2.18. Based on the sample evidence and with a significance level of 5% ($P < 0.05$) the data were statistically significant. Valuations of agreement and strongly agree: *access to the study material, 89%; *peer communication, 44%; *teachers, 81%; *organization of the subject, 85%; *ease of use, 89%; *improvement of academic performance, 77%; *use in other subjects, 83%; and *experience appreciation, 93%. According to the results obtained, the use of a virtual platform improved in 2019, with a statistically significant difference, as compared to the academic performance in the years 2017 and 2018. The assessments of the 2019 students in all the proposals were satisfactory. It can be inferred from the high degree of conformity in the use of the platform in the subject Biochemistry, the importance and usefulness of its application, and the positive relationship with the improvement of academic performance.

A2
BIRD DISTRIBUTION IN DIFFERENT ENVIRONMENTS OF AN AGROECOLOGICAL ESTABLISHMENT SOUTH OF SANTA FE

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The present project identified the use that birds do in different environments of a productive farm, under the agroecological paradigm management. The study area consists of an agroecological transitioning farm located in the city of Casilda, Caseros Department (33 ΄06 01.04 ΄S 61 ΄07 08.28 ΄O), Santa Fe Province. During 2018 and 2019, land birds were surveyed in three of the sub-environments of the farm (vegetable garden/fruit trees; animal production and natural grasslands; seasonal planting agriculture). In each subsystem, 3 fixed radio count points, with 50 m radius and 20 m high, were established. The counting was carried out every two weeks, for a period of 15 min per sampling point, within the four hours after sunrise, and the last three hours before sunset. From the data collected, an asset of 47 species could be described, within the bounds of the three environments. The data analysis by type of environment allowed us to conclude that 51% of the species made use of the three environments, 26% of two, while 23% are exclusive to one. Concerning the latter, we can state that 15% occurs only in grasslands and animal production, 6% in orchards and fruit trees, and 2% in croplands. An example of this is *Nothura maculosa*, which was registered as an exclusive cropland species, while *Serpophaga subcristata* and *Serpophaga griseicapilla* were observed only in orchards and fruit trees. Within the exclusive grassland and animal production species, *Columba livia*, *Tyto alba*, *Xolmis coronatus*, *Colaptes campestroides*, *Sturnus vulgaris*, *Geothlypisa equinoctialis*, and *Turdus amaurochalinus* can be reported. This article demonstrates the importance of mixed production systems for local birds in a highly modified area such as the Pampas region. Diverse productive areas, even though at a reduced scale, seem to directly or indirectly provide a variety of resources and niches that do not exist in the dominant landscape matrix.

A3
ACIDIFIERS IN THE DIET OF LAYING HENS, THEIR EFFECT ON CALORIC STRESS INDICATORS

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Heat stress in laying hens negatively impacts their zootechnical performance, affecting intestinal health and electrolytic balance. The use of acidifiers in their diet would improve the intestinal absorption of nutrients, causing a reduction in the effect of caloric stress that would influence an improvement in the quality of the egg taking as an indicator its shell thickness (ST), whose main constituent is Calcium (Ca) as Ca carbonate in 94%, absorbed in the duodenum and favored by the acidification of the intestinal environment. The aim of this study was to evaluate the effect of the addition of acidifiers in the diet on the serum concentration of ionized calcium (Cal), considered as an indicator of the alteration of the mineral balance of the bird induced by heat stress, and its relationship with the ST. The study was carried out at the FVC-UNR in a hen house with 500 laying hens randomly and equally assigned to two groups: Control Group (CG) and Treated Group (TG). The sanitary, handling, and feeding conditions were identical for both groups, except for the addition of acidifiers: 20% ammonium formate, 10% formic acid, 10% ammonium propionate, and 5% propionic acid at a rate of 2 kg per ton in the diet of the GT. The CG was not fed this addition. Blood samples (2 mL) of 10 hens chosen at random from each group were monthly obtained from the brachial vein of the wing and submitted to Cal analysis in mmol/L with the electrolyte analyzer (Right-handed). A Two-Factor Factorial Design was used: Seasons of the year and Groups. The mean difference test for independent

samples was used in order to evaluate, among the sample averages of each group, if their difference was significant at a probability level of 5%. During the same period, the ST of 30 eggs randomly selected from each group was measured in mm at the height of the equator with a Digimess mechanical micrometer. For the Cal variable, the seasonal effect was significant ($P < 0.05$), between the groups in the summer months (January and February) corresponding to temperature (T) higher than 30 ℃. The average Cal of TG was estimated between 0.88 mmol/L and 1.04 mmol/L, (0.96 ± 0.08 mmol/L); in the CG it was estimated between 0.73 mmol/L and 0.88 mmol/L, (0.81 ± 0.08 mmol/L). In the remaining months of the year, no difference was detected between the TG and the CG, noting that the GT's average Cal remained above the GC's. For the ST variable, in the summer months, there was a significant difference between the average values of both groups ($P < 0.05$). The ST of the TG was estimated between 0.44 and 0.47 mm (0.46 ± 0.016 mm) and of the CG between 0.41 and 0.44 mm (0.43 ± 0.013 mm). For the rest of the period, the ST remained between 0.43 and 0.45 mm. From the results obtained, it is inferred that the addition of acidifiers to the diet of laying hens during the summer months would have a favorable effect on the serum concentration of Cal and improve the thickness of the eggshell.

A4
FACTORS ASSOCIATED WITH KNOWLEDGE AND COLORECTAL CANCER SCREENING PRACTICES ON THE CARCARAÑÁ PRIMARY SCHOOL TEACHERS, SANTA FE

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Colorectal cancer (CRC) is one of the malignant tumors with the highest mortality rate in our country. Screening tests allow the detection of precursor lesions or the disease itself at an early stage. In Argentina, the recommended CRC screening tests are Fecal Occult Blood Immunochemical Test and Colonoscopy. The objective of this study was to investigate factors that could be associated with the knowledge and practices of CRC screening in primary school teachers of Carcara ñá An observational descriptive cross-sectional study was carried out by conducting a survey of all teachers 50 years of age and older in the primary schools of the city (n = 57). All teachers signed an informed consent form prior to their participation in the study. The mean and standard deviation were calculated for the statistical analysis of the quantitative variables. For the categorical variables, absolute and relative frequencies (proportions) were computed. Comparisons between means were analyzed by Student's *t*-tests, and comparisons between proportions by Fisher tests, setting a significance level of 5%. The average age of the study population, all female teachers, was 53.4 ± 2.7 years. CRC screening was known for 66.7% of the teachers. In this group, the main sources of information referred to were doctors (43.9%), the media (28.1%) and friends and/or family (21.1%). 28.1% of the teachers had performed some of the screening tests and 66.7% had not. The average age of each of these last two groups was 52.9 ± 1.8 and 53.7 ± 1.2 years respectively, with no significant difference between the two groups ($P = 0.681$). Of those who reported a family history of CRC (n = 9; 15.7%), the entirety knew about the existence of screening and 87.5% had undergone some of these tests. These figures fall to 61.0% and 15.4% respectively, in those who reported no family history of CRC (100% vs. 61.0%: $P = 0.021$; 87.5 vs. 15.4: $P = 0.046$). Regarding the perceptions associated with CRC screening, of those teachers who had undergone some test, the majority agrees that there is a better likelihood for a cure if it is detected early (93.8%), that it is possible to have the disease without symptoms (93. 8%), that it can be cured (81%) and that it is a frequent disease (62%). The most important factor associated with the knowledge and practices of CRC screening was to have a family history of this pathology. In those teachers who had no such family history, adherence to this method was low. It is necessary to deepen the study of other factors that could be related to the low adhesion found.

A5
PHYSIOLOGICAL QUALITY EVOLUTION OF SOYBEAN SEEDS STORAGE IN DIFFERENT PACKAGING CONDITIONS

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The physiological quality of seeds is greatly important both for breeding and for the seed production sector. It is also critical for soybean seeds (*Glycine max*, L. Merr), which possess low longevity that requires careful controls both in its production and during the storage to reduce its natural deterioration rate. After harvesting, storage conditions that evoke a reduced stable metabolic activity in seeds minimize potential risks of fast loosing for seed quality. Thus, temperature (T), humidity (H) and oxygen availability (O_2) in the space surrounding seeds constitute key factors. The vacuum-packaging of seeds would allow control of both H and O_2, becoming it an accessible, nonexpensive, and easily implementable way that could contribute to keep the physiological quality of soybean seeds and increase its use for sowing. The aim of this work was to evaluate the physiological quality evolution of soybean seeds in different packaging conditions. Soybean seeds, cv. DM 40R16 STS were harvested and stored for 8 months in a warehouse (Acopio Arequito SA) in usual conditions until starting packaging treatments in 2 kg packages: open (O) or vacuum-packaging (V, INSUTER SRL) for the 10 following months. The physiological quality of seeds was evaluated at the beginning and every 30 days until the end of the experiment. The measured parameters were: Viability Tetrazolium test (VT), Germination Power (GP), Cold test (CT), and Ageing test (AT). The results were expressed as the mean value (x) during the storage time. Standard deviations (δ) and variation coefficients (VC) were utilized as a measurement of the stability for each parameter relative to mean. For the treatment V, the x values were the highest for all analyzed parameters whereas δ and VC values diminished almost at a half regarding the O condition. H values lightly and stably varied during storage, still for the O condition. Therefore, the low available O_2 levels for the V condition would be responsible for the higher quality parameters in soybean seed during storage and a possible benefit for an H control keep to be demonstrated. It is the purpose of vacuum-packaging as a successful strategy to maintain the physiological quality of soybean seeds.

A6
DIFFERENCES IN FOOD AND NUTRIENT CONSUMPTION IN PATIENS WITH AND WITHOUT CHAGASIC CARDIOMYOPATHY

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In order to compare food groups intake, as well as macro and micronutrient consumption in patients with and without Chagasic cardiomyopathy (CCM), a descriptive retrospective cross-sectional study is taking place. This work is part of a project that seeks to establish the patterns of food consumption of patients when they resided in endemic areas and the corresponding ones in the urban area where they currently live, and to assess whether these differences have any effect on the risk of developing CCM. Participants are patients between 20 and 65 years old with positive serology for Chagas Disease who attend the Cardiology Service at the Hospital Provincial del Centenario de Rosario. All interviewed participants signed informed consent. Data from clinical records were also reviewed. To assess the quantity and quality of food consumption, a semi-quantitative food frequency questionnaire was applied. In addition, a Photographic Atlas of standardized portions was used to determine the food portions size. The daily consumption of ach food group, the amount of each macro and micronutrients contained in the consumed food, as well as total energy intake (kilocalories), were computed. Unpaired Student's *t*-test was used to assess consumption differences between patients with or without CCM. Data from 132 women and 50 men are reported. The mean ages were 53.3 and 50.5 years, respectively. Seventy-three patients (41.3%) had a positive diagnosis of CCM. When analyzing foods, a statistically significant difference was obtained for chicken consumption, which was higher in patients with CCM ($P = 0.027$). Mean daily consumption of proteins, carbohydrates, total fat, cholesterol, saturated fatty acids, and mono and polyunsaturated fats, as well as mean kilocalories intake, did not show statistically significant differences between patients with and without MCC. The differences in iron, calcium, and phosphorus consumption between both groups were statistically significant ($P = 0.028$, $P = 0.022$, and $P = 0.048$, respectively), being higher in those patients with MCC. As regarding to food vitamin intake, it was higher in patients with CCM, with statistically significant differences for vitamin B1 ($P = 0.048$), vitamin B2 ($P = 0.046$), vitamin B5 ($P = 0.034$), vitamin B6 ($P = 0.001$), and vitamin K ($P = 0.044$). The statistical differences in the consumption of some minerals and vitamins in patients with and without CCM encourage us to continue working on the subject. If such differences remain, it would open a question about the regulatory role of diet in the mechanisms of tissue damage in the CCM.

A7
LANCEOLATE SOYBEAN ISOLINES PRESENT HIGHER PHOTOSYNTETIC RATE THAN ITS OVATE COUNTERPART

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Soybean, *Glycine max* L. Merr., lanceolate (L) canopies tend to reduce leaf area index (LAI) about 20–30% compare to ovate (O) canopies, without affecting seed yield. In previous works, we informed that despite the differences in LAI both leaflet shapes showed similar crop growth rate (CGR) during the vegetative period. This behavior was related to a higher net assimilation rate (NAR) of L compare to O canopies. Higher NAR in L than in O canopies could be the result of a better distribution of photosynthetic active radiation (PAR) into the canopy, to a higher photosynthetic efficiency per unit leaf area or to both factors. The objective of this study was to evaluate, in different phenological stages, photosynthetic parameters, and crop growth indexes of L and O canopies. A field experiment was performed during the 2018/2019 growing season using two pairs of L and O isolines (FV9-L/FV9-O and FV15-L/FV15-O, respectively). The experimental design was a randomized complete block with three replications. The crop population density was 14 plants/m^2. Phenological stages were defined according to Fehr and Caviness (1977). CGR, LAI, NAR, intercepted PAR (IPAR), and IPAR efficiency (IPARE) were estimated for the vegetative (V4-R2) and early reproductive (R2-R5) periods. Also, the photosynthetic rate (PR), chlorophyll content (CC), and stomatal conductance (SC) were evaluated at different phenological stages. LAI was, on average, 22% lower in L than in O canopies in both periods ($P < 0.05$). Despite the differences in LAI, no differences in IPAR were detected between L and O isolines, causing an average increase of 13% in the IPARE in the former. Besides, CGR was similar for both leaflet shapes because the reduction in LAI was compensated with an increase of 29% in NAR in L compare to O isolines, being significant this difference in the R2-R5 period ($P < 0.001$). The increase in NAR of L isolines could be related to its higher IPARE and/or its higher PR (14.9 and 10.9 μmoles.m^{-2}.s^{-1}, for L and O, respectively, $P < 0.10$). The greater values of PR in L isolines could be partially explained by the fact that L isolines showed greater SC and CC than O isolines. These results proved that L isolines increase the IPARE and NAR compare to its O counterpart. Results also indicate that the increase in NAR of L canopies could be related to improved efficiency in CO$_2$ diffusion and fixation in L than in O isolines.

A8
SELF-MEDICATION VERSUS MEDICAL PRESCRIPTION OF ANTIMICROBIALS IN SENIOR MEDICINE STUDENTS OF THE LAST YEAR OF THE MEDICINE CAREER

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Antimicrobials (AMB) are drugs used to treat infectious diseases. Even though its indication has allowed the reduction of mortality, improper and irrational use can cause adverse drug reactions (ADR) and increase antimicrobial resistance through the selection of resistant strains. Self-medication (SM) is defined as the use of non-prescription medications on people's own initiative. With the aim of

identifying the SM, or medical prescription of AMB, in the students of the Final Practice of the Medical School of the National University of Rosario during the last year, a prospective, descriptive and observational study was designed through surveys. It was carried out from June 1, 2019, to July 1 of the current year. A total of 119 students were included. The female gender predominated 87 (73.10%). Presented chronic diseases 10 (8.40%), with hypothyroidism being the most frequent in 5 (50%). Of the total respondents, 53 (44.53%) attended the doctor in the last year, and AMB were identified as prescription. The most frequent clinical presentation was upper respiratory tract infection 28 (44.44%) followed by a urinary tract infection 10 (15.87%) and skin and soft tissue infection 6 (9.52%). The most frequent AMB was Amoxicillin / Clavulanic acid in 21 (30.88%) followed by Amoxicillin 10 (14.71%) and Quinolones 9 (13.24%). Microbiological studies were requested in 17 (32.08%) being the most frequent urine culture 8 (42.11%), followed by pharyngeal exudate 6 (31.58%). 28 (22.69%) presented SM with AMB. The most frequent AMB was Amoxicillin 9 (29.03%), followed by Antifungal 5 (16.13%). The reasons why they did not consult the doctor were: 23 (85.19%) for considering having the necessary knowledge to treat the condition, 4 (14.81%) due to lack of time for the consultation, and 1 (3.70 %) for feeling well. In this group, 4 (14.81%) presented possible ADR, highlighting diarrhea 2 (50%) and abdominal pain 1 (25%). None required medical consultation for the ADR. They reported being influenced by advertising in AMB choice in 2 (7.41%) and by the pharmaceutical in 2 (7.41%). We conclude that it is essential to have, from the undergraduate training, simple but essential recommendations on the rational use of AMB. It is important, in the teaching process, to warn about the implications and complications of SM of AMB, and drugs in general, in the population as well as to convey the importance of the responsible prescription of drugs. We emphasize, in a negative way, the low proportion in the request for microbiological studies to carry out a treatment directed according to antimicrobial sensitivity. We consider relevant the lower proportion of students who SM with AMB, choosing to consult the doctor. The way we use antimicrobials today directly impacts their future effectiveness.

A9
PREVALENCE OF *Staphylococcus aureus* IN NASAL AND ANOVAGINAL SAMPLES IN A WOMEN'S POPULATION DURING THE THIRD TRIMESTER OF PREGNANCY

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Staphylococcus aureus (SA) is a pathogenic microorganism that colonizes the skin and mucous membranes in approximately 25% of healthy people (carrier status) and from these sites can invade others, producing infectious pathologies of varying severity. The transmission from the carrier to another individual by direct contact has also been reported. The passage through the birth canal and the immediate skin-to-skin contact between the newborn and his mother are the main sources of skin and mucous colonization, with a great impact on the immune system programming. Both ano-vaginal and nasal colonization by SA are a risk factor for puerperal and neonatal infections. Our objective was to know the prevalence of ano-vaginal and nasal colonization by SA in pregnant women between weeks 35–37 of pregnancy. 160 anovaginal samples and 80 nasal samples were obtained, after signing informed consent. These were seeded in Mannitol Salt Agar (Britania®) and incubated at 35 °C for 48 h. Suspicious colonies of SA were identified by conventional biochemical tests and antibacterial sensitivity was evaluated by the Kirby-Bauer diffusion method, according to the Clinical and Laboratory Standards Institute (CLSI). Of the 80 pregnant women studied by nasal swab, 19 (23.75%) were colonized with AS. Of the 19 isolates, 15 (78.9%) were found to be sensitive to methicillin (SAMS), and 4 (21.1%) were resistant (SAMR) without presenting accompanying resistance, so they were interpreted as SAMR acquired in the community (SAMR-AC). Of the 160 anovaginal samples, 11 (6.9%) were colonized by SA. Of the latter, 9 (81.8%) were considered as SAMS and 2 (18.2%) as SAMR-AC according to the same criteria mentioned above. Both samples were obtained from 80 women, and anovaginal and nasal co-carrying was found in 2 (2.5%) of them. One of them was colonized by a SAMR-AC strain at the anovaginal level and a SAMS strain at the nasal level while the second had both SAMS strains. Although the results are preliminary of an ongoing research project, the high percentage of SA isolates in pregnant women encourages us to continue with this research project.

A10
EVALUATION OF *Scenedesmus obliquus* MICROALGAE GROWTH IN DIFFERENT CULTURE CONDITIONS

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Microalgae are photosynthetic microorganisms that have the ability to fix carbon dioxide (CO_2), grow and photosynthesize using diverse sources of nutrients. They adapt to different ecosystems, generating biomass that can be used with distinct biotechnological purposes. The objective of this work was to study the effect of incorporating additional sources of nitrogen and carbon on the biomass productivity of the *Scenedesmus obliquus* microalgae. The microalga *S. obliquus*, native to Entre Ríos province, was isolated in the LAMAS laboratory and grown in Allen & Arnon (A&A) culture medium. The experiments were carried out in photobioreactors placed in a culture chamber at 25 ± 1 °C, 65% RH, 12 h/12 h light/dark photoperiod, and 0.2 v/v/min agitation for 30 days. Four treatments, with three repetitions each, were evaluated. T_1: with nitrate (NO_3^-) and CO_2, T_2: with NO_3^- and without CO_2, T_3: without NO_3^- and with CO_2 and T_4: without NO_3^- and without CO_2. For the nitrate treatment, the A&A culture medium was supplemented, incorporating 0.21 g/L of $NaNO_3$ and 0.25 g/L of KNO_3. The carbon source was incorporated as CO_2, supplied on demand to maintain the pH of the medium controlled at 7.9 ± 0.1. To evaluate the growth of the algae culture, optical density (OD, measuring absorbance

at 680 nm), maximum specific growth rate (μmax, obtained as the tangent at the inflection point of the growth curve when the microalgae exhibited exponential growth was determined), doubling time ($DT = Ln(2)/\mu$max) and biomass productivity ($P = (Pf-Pi)/Pi \times 100$, where Pf: weight of dehydrated biomass at the end of treatment, Pi: weight of dehydrated biomass at the beginning of the treatment). Experimental data were subject to one-way analysis of variance (ANOVA) and Fisher's least significant difference (LSD) test ($P = 0.05$), using STATGRAPHICS Centurion software. The initial OD was 0.02 ± 0.00 and after 30 days of culture the results for T_1 were: OD = 10.17 ± 0.72; μmax = 1.19 ± 0.09 (cells/mL)/day; DT = 0.58 ± 0.04 days; P = 1228.04 ± 86.72 %. In T_2: OD = 1.41 ± 0.09; μmax = 0.83 ± 0.06 (cells/mL)/day; DT = 0.83 ± 0.07 days; P = 187.20 ± 14.13 %. For T_3: OD = 0.16 ± 0.02; μmax = 0.38 ± 0.04 (cells/mL)/day; DT = 1.82 ± 0.17 days; P = 51.21 ± 4.63%. While in T_4: OD = 0.10 ± 0.01; μmax = 0.16 ± 0.01 (cells/mL)/day; DT = 4.33 ± 0.35 days; P = 21.35 ± 1.17 %. For all the variables analyzed, significant statistical differences were observed between the means of the different treatments. The results indicated that *S. obliquus* microalgae are capable of growing in all the conditions tested, although their growth was substantially higher in T_1 treatment, compared to the rest of the treatments. We therefore conclude that the additional nitrogen and carbon sources incorporated into the A&A culture medium favored biomass productivity so that *S. obliquus* microalgae have the potential to be a source of biomass for use with diverse biotechnological purposes

A11
EVALUATION OF ANGIOGENESIS AND IMMUNE RESPONSE RELATED CELLS IN PEDIATRIC PATIENTS WITH EWING'S SARCOMA TREATED WITH METRONOMIC CHEMOTHERAPY

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Metronomic chemotherapy (MCT) is a novel approach for treating cancer; it consists of the chronic administration of low doses of conventional chemotherapy drugs, without prolonged drug-free periods. It was originally conceived to overcome drug resistance, targeting the tumor blood vessels rather than the tumor cells. Clinical studies have demonstrated that MCT can control disease without severe toxicities and improve life quality in children with advanced cancer that do not have other therapeutic options available. Ewing's Sarcoma is the second most frequent bone tumor, it represents 1.8% of the entire malignant tumors diagnosed in Argentina (from 5 to 14 years old), with a 5-year survival rate of 47% (95%IC: 38.9–54.7) (ROHA2016). Our objective was to analyze the modifications induced by MCT on the main target cells of the blood, in pediatric patients with Ewing's Sarcoma after complete remission with chemotherapy, radiotherapy and/or surgery, according to the GALOP 2011 treatment protocol. Ten patients from 6 to 18 years old (12 ± 1.29 years, mean $\pm$ SEM), 7 boys, 3 girls, were treated with a combination of cyclophosphamide (25 mg/m^2/day, PO) and vinblastine (3 mg/m^2/week, IV) for 12 months. Blood samples were taken immediately before treatment and after every 8 weeks. Circulating Endothelial Cells (CEC), Endothelial Progenitor Cells (EPC), used as markers of tumor angiogenesis, and CD4$^+$, CD8$^+$, and regulatory T lymphocytes (TRegs), as markers of the immune response, were quantified by flow cytometry. In 7 out of 10 patients with favorable outcome (no relapse or progression), with 6 to 12 months of treatment, CEC and EPC significantly decreased in the course of MCT, $P = 0.0001$ ($r = 0.9709$) and $P = 0.0202$ ($r = 0.6924$), respectively (Wilcoxon's linear regression). No significant modifications were observed for CD4$^+$, CD8$^+$, and TRegs cells. Patients who had a negative outcome (3/10) did not show significant variations in any of the quantified markers. No severe hematologic toxicities (Grades 3 & 4, CTCAE 4.0) were observed during MCT, while all patients had Grade 1 or 2 toxicities that were quickly resolved with the transient suspension of treatment. We conclude that MCT administered to Ewing´s Sarcoma patients showed an antiangiogenic effect. The data obtained from CEC and EPC cells suggest them as putative biomarkers of response to therapy, a fact that needs confirmation with a higher number of patients. Also, the absence of severe hematological toxicity was demonstrated.

A12
STUDY OF ERYTHROCYTE AGGREGATION, PLASMA FIBRINOGEN CONCENTRATION AND LIPID PROFILE COMPOSITION IN YOUNG OVERWEIGHT OR OBESE MEDICAL STUDENTS

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Decreased physical activity with the facilitating certain sedentary habit and the progressive increase of hypercaloric diets – unhealthy – lead to the sustained increase in the prevalence of nutritional states of overweight and obesity, estimated from the calculation of body mass index (BMI). Both nutritional states, mainly obesity are linked in the literature to modifications of hemorheological parameters. In this work, we set out to study erythrocyte aggregation (EA) in relation to lipid profile and plasma fibrinogen (Fg) in young people with normoweight (G1), overweight (G2) or obesity (G3). 49 young people of both sexes, aged between 18 and 24 years old, were studied without known metabolic pathologies, without pharmacological treatment, classified according to their body mass index (BMI) in: G1 (BMI ≥ 20 and <25; n=29), G2 (≥ 25 and <30; n=12), G3 (≥ 30; n=8). EA was measured by an optical method in plasma red blood cell suspensions and in Dextran 500 to 2% in saline (HCT: 40%) and 2 parameters were determined: T (estimates aggregate size) and V (estimates initial process speed). The concentration of Fg was measured with Col1 Coagulometer (Wiener Lab). Total Cholesterol (T-Col), Triglycerides (TG), and High-Density Lipoproteins (HDL-c) were measured by colorimetry, while low-density lipoproteins (LDL-c) were calculated from the Friedewald formula. The results were analyzed with one-way ANOVA tests and are expressed as an average SD considering significant $P < 0.05$. We used superscripts a and b to indicate statistical differences. Results were Fg: [mg/dL] G1=374.14 ± 88.65^a, G2=335.50 ± 48.91^a, G3=326.40 ± 26.25^a; T-Col: [mg/dL] G1=158.69 ± 23.12^a, G2=158.71 ± 24.78^a, G3=159.14 ± 31.81^a; HDL-c: [mg/dL] G1=57.70 ± 16.80^a, G2=51.75 ± 13.42^a, G3=41.63 ± 10.42^b; LDL-c: [mg/dL]

G1=93.16±30.65^a, G2=94.13±16.87^a, G3=98.50±35.68 ^{a}; TG: [mg/dL] G1=92.29 ± 30.65^a, G2=95.10 ± 23.91^a, G3=103.14 ± 46.81^a; EA in plasma T: G1=1.43 ± 0.25^a, G2=1.47 ± 0.20^a, G3=1.40 ± 0.20^a; V: G1=0.24 ± 0.09^a, G2=0.20 ± 0.06^a, G3=0,19 ± 0,07^b; EA in Dextran T: G1=1.76 ± 0.08^a, G2=1.75 ± 0.09^a, G3=1.79 ± 0.08^b; V: G1=0.58± 0.23^a, G2=0.55± 0.29^a, G3=0.69± 0.37^b . We can conclude that the phenomenon of greater aggregation observed in obese youth it should mainly lead to changes in erythrocyte cellular factors. Support this conjecture the absence of significant differences between groups when assessing Fg concentration (main plasma determinant of the EA), lipid profile variables (except for HDL-c) as well as aggregate size when plasma AE was studied. Changes in cellular behavior may be due to increased membrane cholesterol content, possibly linked to decreased HDL-c, observed in previous work.

A13
STUDY OF MEMBRANE CHOLESTEROL CONTENT, CELL FORM AND OSMOTIC FRAGILITY OF ERYTHROCYTES IN YOUNG OVERWEIGHT OR OBESE MEDICAL STUDENTS

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The erythrocyte membrane and cytoskeleton provide the red blood cell with its flexibility, deformability, and morphology. Alterations in the structure and fluidity of the membrane of erythrocytes influence cell form (CF) and resistance to cell volume variations evidenced by changes in osmotic fragility (OF). Membrane fluidity is determined by extrinsic and intrinsic factors. Among the latter are the membrane cholesterol content (ChoCEM), the composition of fatty acids, the degree of saturation of fatty acids and phospholipids, and the protein matrix. ChoCEM depends on the continuous exchange with the plasmatic cholesterol, so it is expected to be affected by changes in the lipid profile (LP). Since sedentary lifestyle and inadequate feeding are associated with changes in LP, nutritional states of overweight and obesity could show alterations in ChoCEM and its possible impact on blood rheology. The objective of this work is to analyze the relationship between ChoCEM, CF, and OF in young people with normoweight (G1), overweight (G2), or obesity (G3). 49 young people of both sexes, aged between 18 and 24 years old, were studied without known metabolic pathologies, without pharmacological treatment, classified according to their body mass index (BMI) in: G1 (BMI ≥20 and <25 n=29), G2 (≥25 and <30 n=12), G3 (≥30 n=8). ChoCEM was determined by extracting lipids from the erythrocyte membrane with solvents (2-propanol and chloroform) and then by colorimetry its content was measured; OF was determined by photometry at 540 nm, reported by X_{50} (mM concentration of NaCl for 50% hemolysis); and CF was determined by microscopy, reported by morphological index (MI). The results were analyzed with one-way ANOVA tests and are expressed as an average SD considering significant p<0.05. We used superscripts a and b to indicate statistical differences. Results were ChoCEM: [g/L] G1=0.59±0.17^a, G2=0.74±0.17^a, G3=0.87±0.36^b; OF: [mM] G1=67.90±4.51^a, G2=62.11±7.42^b, G3=60.94±6.69^b; CF: G1=0.47±0.45^a, G2=0.53±0.39^a, G3=0.62±0.30^a. In the results, we can see a significant increase in the ChoCEM of G3 and a decrease in OF in G2 and G3 compared to G1. No statistically significant differences were found in CF between the study groups, however, a tendency to the stomatocytic form is observed as MI becomes more negative in the overweight and obesity groups. These results lead us to propose that the observed increase in ChoCEM in obese individuals could cause modifications in the lipid bilayer of the red blood cell membrane, which in turn would induce changes in its response to osmotic stress and a tendency to stomatocytes. Further studies will be carried out in the future to complement the results obtained, as well as to expand the number of young people studied.

A14
DETERMINATION OF HYDROXIMETHYLFURFURAL AND MICROBIOLOGICAL HONEY ANALYSIS OF THREE DIFFERENT PROCEDURES

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Honey, according to article 782 of the Argentine Food Code (CAA), "With the denomination of honey, it is understood that this sweet product is made by worker bees, from the nectar of flowers or exudations of other living parts of the plants or present in them, which said bees collect, transform and combine with their own specific substances; storing them in honeycombs, where they ripen until they complete their formation". Among the physicochemical parameters that must be analyzed in honey, is hydroxymethylfurfural (HMF), a compound indicating its quality and must be maintained at levels below 40 mg of HMF/kg of honey, according to our legislation. With regards to microbiological parameters, this product is very stable with respect to microorganisms, due to its special low water activity and acidic pH (~4), since these values prevent the growth of almost any microorganism with the exception of Gunas yeasts and osmophilic bacteria and in turn represents an important antimicrobial factor. However, although in sanitary terms honey can be considered as safe food, it can be altered due to poor hygienic handling during extraction, processing, packaging, and/or preservation. The objective of this work was to measure the amount of HMF and microbiological analysis of three kinds of honey from different areas with different botanical origins in the province of Santa Fe (Oliveros, Roldán and Bombal), in this case being determined according to the producer three provenances (forest, mountain and meadow) and thus evaluating the acceptability of these kinds of honey. In the determination of the HMF a dilution of the honey was made and potassium ferrocyanide trihydrate ($K_4Fe(CN)_6.3H_2O$), zinc acetate dihydrate ($Zn(AcO)_2.2H_2O$) and sodium sulfite acid ($NaHSO_3$) were added. These samples were determined absorbance at 284 nm and at 336 nm in quartz cuvettes. For the microbiological analysis, a dilution of honey in 0.1% peptone water was started, it was seeded in a chloramphenicol glucose agar medium (YGC) to determine molds and yeasts, in bile-red-violet agar (VRB) to determine coliforms and CHROMagar *Salmonella* for the detection of *Salmonella spp*. All plates were seeded in duplicate and,

unseeded plates were incubated as sterility control. The results obtained from the HMF were for honey from the forest 3.13 mg/1000 g, the mountain 16 mg/1000 g, and from the meadow 2 mg/1000 g. According to the CAA, the maximum allowance is 40 mg/kg. Therefore, the three kinds of honey are within the limit allowed by our legislation. The microbiological analysis showed that no growth was obtained in any of the three samples for coliforms and *Salmonella* spp. For the detection of moulds and yeasts, 4 CFU/mL was observed in forest honey and 8 CFU/mL in bush honey and no growth in prairie honey. According to the CAA, in order for honey to be acceptable for consumption and distribution, there should be no growth of coliforms or *Salmonella*, and in terms of fungi and yeast, the acceptable limit is between 10 CFU/mL. Therefore, it can be concluded that our values correspond to ACCEPTABLE honey in relation to the quality, safety, and hygiene of the product.

A15
PREVALENCE OF *STAPHYLOCOCCUS AUREUS* IN NASAL AND RECTOVAGINAL MUCOSA OF PREGNANT WOMEN: RISK FACTORS AND CO-COLONIZATION WITH EGB

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Staphylococcus aureus (SA) is considered one of the main pathogens for humans. The impact of this microorganism is produced by the recent appearance of methicillin-resistant SA (MRSA) in the community (CA-MRSA), which were traditionally limited to hospital settings. Its treatment has become difficult owing to the fact that it colonizes nasal, rectal, and vaginal mucosa. Moreover, what makes this research relevant is that CA-MRSA's colonization is a significant cause of morbidity and mortality in pregnant and puerperal women and neonates. This work aimed to determine the prevalence of nasal and rectovaginal colonization of methicillin-sensitive *Staphylococcus aureus* (MSSA) and MRSA in a pregnant population; check if there is a connection between clinical and/or epidemiological factors of colonization and co-colonization of group β-hemolytic *Streptococcus* (GBS). This is a descriptive, cross-sectional, prospective, and observational study. Previous consent was given, and an epidemiological survey was carried out. Furthermore, samples of nasal and rectovaginal mucosa were taken from 111 patients, 31 of them at Sanatorio de la Mujer (Rosario), and 80 at Hospital Dr. Alejando Gutiérrez (Venado Tuerto, Santa Fe), from November 2018 to May 2019. All of them were sown in Mannitol Salt Agar (BioMerieux®) and incubated at 35 °C for 48 h. Of the 111 samples (100%) analyzed it was possible to determine that the prevalence of nasal bearing was 8.11% for MSSA (100% were from the private sector) and 3.60% for MRSA (50% were from the hospital and 50% from the private institution). What is more, 0.90% of the women examined were found to be rectovaginal carriers of MSSA (all of them were from the private sector) and 1.80% of MRSA (from the hospital). 10.81% of the patients were GBS carriers (75% were from Sanatorio de la Mujer and 25% from the hospital), and they were not co-colonized with SA. In conclusion, patients treated in the private sector of 36 years or less, with an age of onset of sexual intercourse of 20 years, higher education, and a history of asthma are a risk group for nasal colonization of MSSA. On the other hand, the colonization of nasal MRSA constitutes an important risk factor for rectovaginal bearing, and vice versa. The patients of the private sector patients who are not colonized with MRSA could be considered susceptible to GBS's co-colonization. It would be of vital importance to carry out a follow-up of pregnant women with positive MRSA in order to identify possible complications in the newborn. The latter would permit the continuation of this novel study in different health institutions and geographic areas of the country, as well as in other population groups, in order to get to know the real situation of this pathogen's colonization.

A16
INTERLEUKIN-6 (IL-6) AND ULTRA SENSITIVE C REACTIVE PROTEIN (us-CRP) AS MARKERS OF JOINT DAMAGE IN HEMOPHILIA

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Hemophilia (H) is an inherited bleeding disorder caused by mutations in clotting factors VIII (HA) or IX (HB) genes. Acquired hemophilia (AH) is a disorder due to the production of autoantibodies against factor VIII or IX procoagulant function. Acquired hemophilia is less frequent than the inherited form of the disease. Clinical manifestations of the inherited hemophilia are spontaneous or post-traumatic hemorrhage in muscles and joints. While the typical clinical manifestations of the acquired hemophilia are: extensive cutaneous purpura and internal hemorrhages. Hemophilia is classified according to the level of the coagulation factors as severe (<1%), moderate (1–5%), and mild (5–45%). The clinical complications are arthropathy and bleeding diatheses, with the hemarthroses as a hallmark. The aim of this study was to analyze the usefulness of IL-6 and us-CRP as markers of active inflammation in patients with severe hemophilia A (HAs) in prophylactic treatment. We studied 20 patients with HAs, all of them under prophylactic treatment with intravenous factor VIII three times a week, six of them with no joint damage (G1), and fourteen patients with hemarthroses (G2). The study showed the following results: G1 IL-6 (median: 1.0 μg/mL), us-CRP (median: 0.96 mg/L) and in G2, IL-6 (median: 69.7 μg/mL), us-CRP (median: 1.98 mg/L). Analyzing the difference between the data (Mann–Whitney U-test) we saw that the IL-6 differs in both groups (P <0.05). We only found an association between increased serum IL-6 and hemophilic arthropathy in the HAs patients who have had hemarthrosis. We can also conclude that IL-6 may be an earlier inflammation predictor than us-CRP in our group of patients.

A17

PSYCHOACTIVE DRUGS USE IN HIGH SCHOOL STUDENTS IN ROSARIO-ARGENTINA (2016 & 2018)

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Adolescence is characterized by anxiety, peer-pressure, identity search, etc. All these features contribute to experimenting with Psychoactive Drugs (PD). PD use and abuse is a global health problem that affects adolescents in particular. Between 2013 and 2018, our group carried out a university extension program with high schools in Rosario. Within this framework, talks on the biology of addictions, workshops for discussion, and critical thoughts of the sociocultural aspects of addiction were held. After all this work, a validated self-administered, anonymous voluntary questionnaire was implemented to evaluate the PD use in the adolescents who participated in the program. The main goal of this work was to compare the results obtained during 2016, to those from 2018. In order to do that, a total of 598 students were surveyed, 256 during 2016 and 342 in 2018. In 2016, the majority of students were in the 2nd and 3rd year; while in 2018 they were mostly 3rd year. In our province, the high school system consists of 5 or 6 years, where students start at the age of 12 or 13 years old. The results were statistically evaluated, then to compare quantitative variables the Student's *t*-test or the Mann–Whitney *U*-test were used; and, for categorical variables, the Chi-squared or the Fisher's tests were applied (level of significance = $P < 0.05$). The analysis of the questionnaires revealed that the average ages of the students surveyed differed between 2016 (15.2 ± 1.3) and 2018 (15.4 ± 0.9 years) ($P < 0.005$); while no significant difference was observed when comparing the students who said they had consumed PD at least once between 2016 (83.6%) and 2018 (88.4%). Nor when the average age at which a PD of first used was compared. However, significant differences were observed in the distribution of the type of PD used at least once, in 2018 an increase for cocaine ($P < 0.05$) and energy drinks ($P < 0.05$) use was found. There was also a significant difference in the distribution by age group of students who declared that they had used tobacco ($P < 0.05$), alcohol ($P < 0.0005$), and energy drinks ($P < 0.0005$). As for marijuana, the distribution of students was modified according to age at which it was first consumed ($P < 0.005$). In conclusion, both years alcohol is the PD consumed most frequently and is followed by energy drinks, tobacco, and marijuana. Moreover, in 2018, (1) the use of cocaine and energy drinks increased; (2) the distribution of students who used at least once in their lifetime alcohol, tobacco, and energy drinks was modified; and (3) the distribution of the age at which they first used marijuana also changed.

A18
GENETIC ACTIONS IN THE RESPONSE TO INFECTION WITH *Trichinella spiralis*. STUDY OF TWO CBi-IGE MOUSE LINES DIFFERING IN SUSCEPTIBILITY TO THE PARASITE, AND THEIR RECIPROCAL HYBRIDS

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The study of the interactions between host and parasite is key to understanding the persistence of parasitic infections. The host genotype has undoubtedly a central role in the control of a parasitic infection and the conditions of resistance or susceptibility for its establishment. It constitutes an important aspect of the knowledge on host-parasite interrelations and allows determining which characteristics of the host influence the development of a parasitosis. In previous experiments, it was demonstrated, in male mice, that two lines from the CBi-IGE colony (CBi and CBi−) differed in the degree of infection after challenge with increasing doses of *Trichinella spiralis*. This study aimed to corroborate the differences between CBi and CBi− as well as to inquire about the possible gene actions involved in resistance/susceptibility in these genotypes, based on the characterization of the behavior of the F1 reciprocal crosses. Adult male and female mice of the CBi and CBi− lines and their reciprocal F1 crosses (CBi x CBi−) and (CBi− x CBi) (n = 10 per line, sex, and genetic group) were orally infected with 2 L1 infective *T. spiralis* larvae/g of body weight. Mice were sacrificed at 32 ± 2 days post-infection, and the total number of muscle larvae present in the tongue was measured by microscopic observation. Relative parasite load (*rPL*, number of parasites/g of fresh tissue) and relative reproductive capacity index (*rRCI* = rPL/infective dose) were calculated; these variables are associated with resistance/susceptibility in the chronic stage of the infection. *rPL* and *rRCI* showed a similar behavior, so only *rPL* results are presented (*rPL*, males − CBi: 627±115.7, F1(CBi *x* CBi−): 414±60.9, F1(CBi− *x* CBi): 648±100.0, CBi−: 152±48.2; females − CBi: 605±87.2, F1(CBi *x* CBi−): 606±85.1, F1(CBi− *x* CBi): 428±74.1, CBi−: 581±126.1). A sex effect was observed in the variables analyzed only in the parental line CBi−; males showed a significantly lower rPL significantly than females ($P = 0.0060$). Therefore, comparisons between parental lines and hybrids were performed in each sex separately. Male mice of the CBi− genotype were more resistant than CBi ($P = 0.0008$). The type of gene action involved in the genetic determination of the character was analyzed in each sex, comparing the mean value of the variables in F1 mice with the mean value of the parental lines, using the Student's t-test for independent data. The differences observed in the comparisons made were statistically non-significant (*rPL* - males: t = 1.10, $P = 0.279$; females: t = 0.61, $P = 0.542$. The results suggest that the resistance/susceptibility genes fixed in the genotypes studied have an additive behavior with partial dominance of the susceptible genotype -the host's hormonal environment determines the expression of this trait.

A19

VALIDATION OF THE RESPONSE TO THE RESISTANCE OF THE ROOTS ROT IN TEN PEA MATERIALS (*Pisum sativum* L.)

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Pea is an important crop in the North Pampeana Region. The incidence of diseases decreases yields and raises production costs. Therefore, it is necessary to generate new national materials with good disease behavior, thus favoring the economic growth of the region. Genetic improvement is an important tool to achieve it. The evaluation of materials in naturally infested substrates allows knowing their behavior against soil pathogens in a preliminary way. The objective of this research was to validate a previous exploratory study on the behavior and presence of potential sources of resistance to *Fusarium sp*. in materials from the working collection of germplasm of the Fac. Cs. Agrarias-UNR. In a plot with serious losses due to a repeated history of pea root rot, samples were taken from the first 10 cm of soil and homogenized to obtain a substrate with a uniform natural infestation. In the greenhouse of the EEA INTA Oliveros, 10 cultivars of pea were sown, in two substrates (naturally infested and sterile), with 4 seeds/pot and 4 repetitions. The emergency percentage was assessed by pot (%E) and the proportion of affected nodes per plant for each material (PNAP) in the infested (i) and sterile (e) substrates, establishing a PNAPe/PNAPi index. ANOVA was applied for (%E) and the association between the materials and the PNAP was analyzed through the Irwin-Fisher test, establishing two groups with PNAP > or < 50%. In DARK SKINNED P., METEOR, ERVILHA and VIR2524, the proportion of plants with PNAP greater than 50%, increased when going from treatment (e) to (i): 44 vs. 81%, 75 vs. 100%, 38 vs. 75% and 38 vs. 75%, respectively. VIR 2125; CHINEESE P. and B232 exhibited a high PNAPe / PNAPi and % E index, which would indicate good behavior, while VIPER was very susceptible, with low index and % E. The indexes calculated for each material were compared with those of the previous analysis, finding coincidence for CHINEESE P., METEOR, MULTIFREEZER, VIR2521, VIR2524, FACON and VIPER. The materials that showed better behavior for the second consecutive year were considered for inclusion as candidates in future trials with an artificial inoculum of fungal pathogens. This validation represents an advance in crop improvement, allowing the characterization of materials and, consequently, the planning of future crossings in order to generate variability for resistance to soil pathogens.

A20

PERFORMANCE STABILITY OF FIVE CULTIVARS OF FIELD PEA (*Pisum sativum* L.) BASED ON THE CHARACTERISTICS OF THE GGE BIPLOT ANALYSIS

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Argentine pea production is concentrated in the southern and central regions of Santa Fe, and northern and southeast of Buenos Aires. In Argentina, green field peas are usually produced and exported, however, the largest volume in the world market consists of yellow varieties. In breeding programs is common to evaluate the response of genotypes in various environments in order to assess the magnitude of the genotype by environment interaction (IGE), as well as the stability of the cultivars, considering the evaluation years as environments in some cases. The understanding of the IGE observed in these tests, allows identifying high yield cultivars. The objective of this research was to evaluate the productive behavior and the genotype *x* year interaction (IGE) in five cultivars (two green and three yellow) planted in four consecutive campaigns in the EEA INTA Oliveros, with a randomized complete block design with 3 repetitions, in the framework of the National Network of Evaluation of Pea Cultivars. Yield in kg/ha was measured in each campaign and a combined analysis of variance was carried out detecting significant differences (1%) between years (F = 263.07), genotypes (F = 8.34), and IGE (F = 4). The analysis of mean comparisons showed that the yellow varieties MEADOW, YAMS, and REUSSITE had the highest yields, while the green varieties SHAMROCK and FACON were the least productive. In a GGE analysis (Genotype + Genotype *x* Year) biplot the Main Component 1 (CP1) explained 56.22% of the total variability and CP2 explained 40.68%. Analyzing the different years, it was found that year 1 was the most representative of the trial, but with low discriminant power, while year 2 turned out to be the test environment with greater discriminating power. Studying varieties in relation to the coordinate of the Average years it was found that MEADOW was the highest yielding but least stable, while SHAMROCK and FACÓN were cultivars with yields below the mean but with high stability, a situation that is repeated if genotypes are analyzed in relation to year 1. In the year with the greatest discriminating power, the same performance of the cultivars in terms of stability was found but the variety with the highest yield is, in this case, REUSSITE. The GGEbiplot analysis proved to be an adequate tool to visualize the most stable and yielding cultivars throughout all the years evaluated, and thus allows them to be recommended for sowing in our legume region. This is a preliminary analysis of the behavior of five pea cultivars in four years in a single locality. It would be very useful to expand this analysis including more cultivars and more locations in order to establish the interactions between cultivars and localities, between cultivars and years and between cultivars, years, and localities for a deeper study of the behavior of network materials.

CONSTRUCTION OF A CLASSIFICATION TREE FOR THE STUDY OF THE VARIABILITY PRESENT IN A WORKING COLLECTION OF *Pisum sativum* L.

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In breeding programs is necessary to have characterized and evaluated the working collections of germplasm to allow choosing parents with desirable characteristics to form, by crosses, segregating generations. Classification trees present a non-parametric statistic tool with high robustness in the presence of outliers and easy interpretation in the analysis of the variability present in these collections, allowing assigning accessions to homogeneous groups with defined characteristics, and are useful for the initial exploration of a large number of data. In order to systematize the available variability, ninety accessions of the working collection of peas (*Pisum sativum* L.), were evaluated during 2017 and 2018 in the Campo Experimental Villarino, FCA-UNR in Zavalla. A randomized complete block design was used with two repetitions, with experimental plots of 20 plants each. The analyzed characters were: days up to 50% of flowering plants (DF), first knot with pod (PNV), days to harvest (DC), plant height (Alt), pod length (LV), pod width (AV), grain caliber (C), number of pods (NV) and grains (NG) per plot and plot yield (RE). Highly significant differences ($P < 0.001$) were found between accessions for all variables and a classification tree was constructed to form groups of accessions with homogeneous characteristics using the software InfoStat. From the root node, a tree with a depth of 8 and 19 end nodes (leaves) was formed. The first variable that allowed dividing the collection into two groups was LV, with a threshold value of 6.6 cm The group with shorter pods continued to be divided according to the variables AV, NV, NG and C forming 6 leaves integrated by the accessions: h1: Vir 3115, VirK 2376 and VirK 4871; h2: Alaska, B88 and CIS; h3: Moshong, Pleven 2, Romack, Shandill, Turf and Viper; h4: B54-757, Explorer, Ilca 573, Pai Wan Tow and ZAV 1; h5: Aa38, Yellow Peas, Green Peas, B1448, B1-826 and B338 [22]; h6: B1897, B2001, B4476, C2001, Hohenhaimer Pink flowered, Ilca5115 and Patani21c. The group with longer pods was divided based on Alt, NG, PNV, C, and DC, forming 13 leaves with h7: Keoma. Marine, Myflower, NGB, NN16 and Piscello Picollo; h8: Accord, Dante, DDR11 and Gypsy; h9: AMA, APA and CanB; h10: 30Days, Early Sweet, Granada, Green Sugar, and Superscout; h11: DDR14, Facon, G2001, Inca and ZAV 1; h12: Ilca 5041, VaCo, Vir 2524, ZAV 2, ZAV 20 and ZAV 4; h13: S. PEA; h14: ZAV 16, ZAV 18 and ZAV 19; h15: ZAV 17, ZAV 21, ZAV 22, ZAV 24, ZAV 25, ZAV 26, ZAV 5 and ZAV 9; h16: Wonder Marrowfat and ZAV 14; h17; CanA, Come, Erik II, Ilca 5075, King Tut Purple Pod, Leo, Matar, Miranda, Sugar Snap and ZAV 11; h18: ZAV 12 and ZAV 15 and h19: B22718, Chinese purple, Cuarentina, and Ervilha Torta Flor Roxa. With this methodology, a classification system was built based on a set of decision rules that is useful for assigning newly incorporated accessions to established groups into the working collection, thus facilitating the selection of parents in plant breeding programs.

A22
DEGRADABILITY AND CHEMICAL COMPOSITION OF TREE SPECIES WITH FORAGE POTENTIAL OF THE UPPER DELTA OF THE PARANÁ RIVER

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The Paraná River Delta presents a great biological diversity with respect to adjacent areas and the available information of its native flora with forage potential is insufficient regarding its, chemical composition, degradation pattern, etc. The objective was to describe the in sacco ruminal degradation of dry matter and the chemical composition of tree species with forage potential, from islands of the upper Delta of the Paraná River. The plant species used were: (AC) *Acacia caven*, (GT) *Gleditsia triacanthos*, (SH) *Salix humboldtiana*, and (TI) *Tessaria integrifolia*. The samples were collected in the islands located at the height of km 430 of the Paraná River, in front of Rosario city, Province of Santa Fe, Argentina in the period of summer spring growth, once a month, in the pre-flowering state, by cutting with scissors, dried at 60 ℃, ground and sieved at 2 mm. With the samples of each tree, a composite sample was made. For each sample, the Dry Matter Ruminal Degradation (DMRD) was determined at 0, 3, 6, 12, 24 and 48 h of incubation in the rumen *in sacco*, in two Pampinta female sheep provided with rumen cannula, for three periods (Mehrez and Orskov, 1977) and concentration of Dry Matter (DM), Crude Protein (CP), Acid Detergent Fiber (ADF), Neutral Detergent Fiber (NDF), Cellulose, Lignin, Non-Structural Carbohydrates (NESC). The data in DMRD were fit to Orskov and McDonald model (1979): $\%DMRD = a + b (1^{-e-ct})$, where a is the soluble, b the slowly degradable fraction, c the rate of degradation and $a + b$ the potentially degradable fraction. The DM was in TI 25.5 (1.5), in SH 36.8 (1.9), GT 38.7 (6.2), and in AC 42.3 (2.8) %. The soluble fraction was in AC 15 (0.5), in TI 19.2 (0.5), in SH 22.5 (0.8) and in GT 24.4 (2.9) %. The slowly degradable fraction was 34.6 (3.6); 42.3 (5.1); 55.3 (7.1) and 79.6 (13.4) %; in AC, GT, SH and TI, respectively. The degradation rate was in TI 0.024 (0.01), in GT 0.062 (0.03), in SH 0.053 (0.02) and in AC 0.048 (0.02) % / h. The potentially degradable fraction was higher in TI 98.9 (13.5), followed by GT 66.7 (7.8) and SH 77.8 (6.7) and lower in AC 49.8 (3.5) % ($P < 0.01$). The CP was 29; 23.6; 22.2 and 18.5% in AC, GT, SH, and TI, respectively. ADF were 26; 26.5; 28.7 and 32.7% and of NDF were 44.8; 40.9; 35.4 and 52.8 % in AC, GT, SH, and TI, respectively. Cellulose levels were 29.1; 19.9; 19.5 and 26.4; and of Lignin were 8; 5.9; 9 and 12.2% in AC, GT, SH, and TI, respectively, and those of NESC in AC 4; in GT 6.6; in SH 9.8 and in IT 7.4%. The DM was lower in IT compared to the other species. The degradation kinetics were different among the species, with maximum potential degradability in IT (99 %), high in GT and SH, and intermediate in AC. The measured protein concentrations are sufficient to meet the food requirements. The levels of degradability and chemical composition found in these tree plant species can meet the nutrient needs of the ruminants that inhabit the islands.

A23

RELATIONSHIP BETWEEN CARBON FRACTIONS OF NATURAL FORAGES AND GAS PRODUCTION IN VITRO

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The greenhouse gases that eliminate ruminants are originated in ruminal fermentation, which is part of the digestion of food. In the islands of the Paraná Delta, the natural food of cattle are native or naturalized species, whose chemical composition and gas production by ruminants is little known. The gas production of ruminal fermentation from in vitro food is described by the Exponential Model defined by the equation $y = a + b (1-e-ct)$ of Orskov and McDonald (1979); where y is the gas produced, a is the gas production by the soluble or rapidly fermentable fraction, b the gas production by the slowly fermentable fraction, c the gas production rate of fraction b at time t. In this work, the relationship between the chemical composition of natural fodder plants in the upper Delta islands of the Paraná River and the components of the gas production equation was evaluated. The following plant species were worked on: *Panicum pernambucense, Panicum elephantipes, Echinochloa polystachya, Eichhornia azurea, Eichhornia crassipes, Polygonum acuminatum, Vigna luteola, Acacia caven, Baccharis salicifolia, Gleditsia triacanthos, Lippia alba, Salix humboldolia, Tessaria integrifolia*. Samples of the plant species were obtained by cutting with mechanical scissors, in a pre-flowering state, dried at 60 °C, ground and sieved at 2 mm. Each sample was determined the percentages of: Organic Matter (OM, by the heating technique at 600 °C), Crude Protein (CP, by the content of N), Non-Structural Carbohydrates (CNES, reducing sugars), Oxidizable Carbon (CO, by the oxidation technique with potassium dichromate; Harris et al, 1978), and the Cellulose, Lignin, Acid Detergent Fiber (ADF), Neutral Detergent Fiber (NDF). The gas production of each species was obtained in *in vitro* incubations with sheep rumen liquid. The data obtained in ml of gas were fit to the model of Orskov and McDonald. Correlation coefficients (r) were made between the chemical components and the gas producion of the plants. Statistically significant relationships ($P <0.05$) were: between the term a vs OM = 0.89; a vs CP = 0.57; a vs CP/NESC = 0.58; a vs CP/CO = 0.56; a vs NDF = −0.62; a vs ADF = −0.61. As for the terms b and c, they were not correlated ($P >0.05$) with any of the fractions studied. The results presented indicate that the gas production by the soluble fraction is mainly defined by the OM. The observed relationships between a and the CP/CNES and CP/CO ratios suggest that this term is defined in a significant proportion by the N/C ratio, with C being mostly associated with reducing sugars and the amount of available electrons (CO) it contains the forage. The negative relationship between a and the fiber content coincides with the data in the literature.

A24
RISK FACTORS ASSOCIATED WITH NASAL PORTATION OF *Staphylococcus aureus* IN A PREGNANT POPULATION IN THE THIRD QUARTER OF PREGNANCY

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Staphylococcus aureus (SA) colonizes the skin and nostrils of healthy people and produces a wide range of infections of varying severity. People colonized by SA may suffer infections or transmit it to another. Maternal nasal colonization plays an important role in the transmission of SA to the newborn. The purpose of this research was to determine the nasal carrier of SA in pregnant women between weeks 35–37 of pregnancy and to study the possible associated risk factors. Eighty pregnant women were studied, after signing informed consent and conducting a survey in search of possible risk factors (active/passive smoking, asthma, sinusitis, rhinitis, skin infections, immunosuppressants, systemic antibiotics, previous surgeries, diabetes, use of nasal sprays as decongestants or local corticosteroids). Samples were obtained by swabs of both nostrils which were seeded in Mannitol Salt Agar (BioMerieux®) and incubated at 35 °C for 48 h. Suspicious colonies of SA were identified by conventional biochemical tests. Nineteen (23.7%) of the 80 pregnant women studied were colonized with SA. The risk factors analyzed did not show significant differences with respect to colonization by SA in the group of pregnant women studied ($P >0.05$). The detection of this microorganism in the nostrils of pregnant women is very useful to avoid vertical or horizontal transmission and prevent possible dissemination in the carrier. Decolonization with mupirocin for local use is a therapeutic possibility for carriers, although there is always the possibility of recolonization.

A25
ISOLATION OF *Leptospira interrogans* Icterohaemorrhagiae FROM A RAT IN THE SUBURBAN AREA OF CASILDA, SANTA FE

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Leptospirosis is an infectious, zoonotic disease, of global importance, produced by serovars of pathogenic *Leptospira s*pecies. It is endemic in Argentina. Its clinical presentation varies from subclinical to severe forms. Infected domestic or wild animals eliminate leptospires in the urine for varying periods of time. The species of *Rattus rattus* and *Rattus norvegicus* are reservoirs of the Icterohaemorrhagiae and Copenhageni serovars, of the serogroup Icterohaemorrhagiae of *Leptospira interrogans* (*L. interrogans*). They are characterized by being highly virulent and affecting any animal species including man. The aim of this work was to isolate *Leptospira* spp. from the organs of a male specimen of *Rattus rattus* caught in the farm of the dairy barn of the Faculty of Veterinary

Sciences, UNR (FCV-UNR). An adult male *Rattus rattus* specimen was captured by using cage traps placed in the milking barn site, located in a suburban area of Casilda, near the FCV-UNR. It was observed that the rat showed no clinical signs of disease and was euthanized. Necropsy was performed and the kidneys and liver were removed and sent to the FCV-UNR Leptospirosis Laboratory, in order to perform the isolation. Both organs were cultured in Fletcher's semi-solid medium with 10% rabbit serum in screw-capped test tubes and incubated in a bacteriological culture oven at 30 °C. Cultures were monitored macro and microscopically with dark-field microscopy at 200*X*. Development compatible with Leptospira spp. in the tube with the liver was observed. The isolation obtained was sent for genotypic typing by sequencing the 16S rRNA and multilocus sequence (MLST), to the National Leptospirosis Reference Laboratory of the National Institute of Respiratory Diseases "Dr. E. Coni" in the city of Santa Fe. It was identified as a strain belonging to the serogroup Icterohaemorrhagiae of *L. interrogans*. Up to now, no cases of human leptospirosis have been recorded in the FCV-UNR milking barn but there are records of positive serologies for *Leptospira* spp. in the cows that suffered reproductive problems and in a cat that lives in the place. The isolation, which is the first carried out at the site, allowed us to observe the existence of rats carrying strains of one of the most virulent serogroups of *L. interrogans*. This constitutes a very important antecedent that calls for the adoption of adequate sanitary and biosecurity measures for the protection of the personnel in charge of the management tasks and the animals in the site.

A26
SELECTION OF PARENTALS IN THE IMPROVEMENT OF GARDEN PEA (*Pisum sativum* L.)

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In order to analyze the present variability and design different selection strategies of parental lines to be used in a plant breeding program, 24 garden pea varieties were cultivated and analyzed in the Experimental Field of the Faculty of Agrarian Science UNR in Zavalla (33 °S and 60 °53 O) in a completely randomized design with two repetitions under drip irrigation system and two repetitions in dry land during the years 2015 and 2016. The experimental plots were sown in loins spaced 70 cm, 2 m long, and 50 plants per plot. Traits analyzed were: total number (NV) and total weight (PV) of pods per plot, pod length and width (LV and AV), number of grains (NG), yield (RE), percentage of yield in the first harvest (%REPC), number of grains per pod (NG/V), harvest index (ICOS), days at first harvest (DPC), days between first and second harvest (DPSC), harvest index (ICOS) and average plant height (ALT). In harvested grains: pH, titratable acidity (AcT), vitamin C content (VitC), chlorophyll content (Ca, Cb and Cc), color parameters a, b, L, CHROMA, HUE and the colorimetric index (CI). The ANOVA determined the presence of highly significant differences ($P < 0.01$) between varieties for all the analyzed traits. The coefficients of genotypic variability (CVG) that varied between 0.9 and 49.9, phenotypic variability (CVF) that varied between 1.5 and 67.7, and environmental variability (CVE) that varied between 0.9 and 50.6 were calculated as percentages of the mean value. As well as the ratio between the CVG and the CVE. It was found that the traits %REPC, NG/V, VitC, DPSC, Cc, NV, PV, and RE have a low CVG/CVE ratio; NG, pH, AcT, AV and ICOS have an intermediate ratio, while the rest of the variables have a ratio near or higher than one, being the highest for C (2.25) and ALT (2.27) indicating this high ratio that a large portion of the genetic variance contributes to phenotypic variation compared to environmental variance and therefore progress can be achieved through genetic improvement. The estimated heritability (%) calculated were very high (0.8) for C and ALT; high (between 0.6 and 0.79) for HUE, a, LV, DPC, CROMA and b, moderate (between 0.4 and 0.59) for L, Cb, Ca and IC and low (<0.4) for the rest of the traits. A cluster analysis was performed using Ward's hierarchical method (standardized Euclidean distances) using DARwin software (version 6) to identify groups of similar accession, differentiating 9 groups consisting of: G1: Panga, Leo, Gypsy, Withan Wonder, and Green Sugar; G2: Multiviral resistant; G3: Granada, Filigreen afila and Trianon; G4: Bolero, Eaton, Super Scout, Dante, and Avon; G5: Rois des conserves; G6: Suttons and Duke of Albany; G7: Early Perfection, Accord, American Wonder, Telephone and Cuarentona; G8: Rapid and G9: Early Sweet. It was concluded that for a strategy to generate a segregant generation with as much variability as possible, very distant parents should be crossed such as those of the G8 or G9 groups with G1 materials; while to produce second cycle lines is convenient to cross parents within the same group, for example, G4, which is integrated by the most used commercial variety (Bolero) next to other similar varieties.

A27
INTERPRETATION OF CASE PROBLEMS AS A TEACHING STRATEGY IN STUDENTS OF THE 2nd YEAR OF MEDICINE CAREER

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The didactic strategy is the set of actions performed by the teacher with clear and explicit pedagogical intent. The way of presenting learning contents in the context of the discipline must be related to the objectives and educational intentionality, this means with the criteria with which the evaluation is carried out. Biochemistry is an annual course for the second year of medicine. The Mc Nemar test was applied, with a significance level of 5%, for the analysis of descriptive statistical techniques (proportion, which was multiplied by the multiplication factor 10). The intervention performed was the use of problem cases for the teaching of the diagnostic interpretation of the urine test. Different clinical situations were provided to students with the purpose of encouraging learning and induce them in similar situations which they would go through in their professional practices. The objective was to assess whether the students achieved significant learning regarding the interpretation of the urine laboratory test through problem cases after the pedagogical intervention. A class was developed using them. Informed consent was requested from students. A questionnaire was administered to 55 students, before and after the pedagogical intervention, which had 10 disciplinary slogans in relation to the topic "urine analysis". The results obtained were that: Before the intervention: 50% had at most 6 correct answers with an interquartile range of 2 correct

answers. After: 50% of the students had at least 8 correct answers with an interquartile range of 2 correct answers. Based on sample evidence with a *P* <0.05 according to the statistical results, the pedagogical intervention used improved student learning, resulting in a useful teaching strategy to achieve the significance of the contents in their professional medical future.

A 28
SENSITIVITY PATTERN OF *STAPHYLOCOCCUS AUREUS* IN PREGNANT WOMEN

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Staphylococcus aureus (SA) colonizes the skin, nostrils, and mucous surfaces of healthy people and produces a wide range of infections of varying severity. People colonized by SA may suffer infections or transmit it to another. Maternal colonization plays an important role in the transmission of SA to the newborn. The purpose of this research was to determine the nasal and anovaginal port of SA in pregnant women between weeks 35–37 of pregnancy and to determine its antimicrobial sensitivity profile (AMB). A total of 160 pregnant women were studied, after signing informed consent. Eighty samples were obtained from both nostrils and 160 anovaginal samples, which were seeded in Mannitol Salt Agar (Britania®) and incubated at 35 °C for 48 h. Suspicious colonies of SA were identified by conventional biochemical tests and sensitivity to AMB was evaluated by the Kirby-Bauer diffusion method, according to the Clinical and Laboratory Standards Institute (CLSI). Of the 160 pregnant women studied, 19 (23.75%) were colonized with AS in nostrils. Of the 19 SAs isolated from nostrils, 15 (78.9%) were found to be sensitive to methicillin (SAMS), and 4 (21.1%) were resistant (SAMR) without presenting accompanying resistance, so they were interpreted as SAMR acquired in the community (SAMR-AC). Of the other AMBs tested, the following resistance profile was observed: levofloxacin 0.0%, cotrimoxazole 5.3%, gentamicin 10.5%, clindamycin 15.8%, and erythromycin 31.6%. Of the 160 pregnant women studied, 11 (6.9%) were colonized with SA in anovaginal mucosa. Of the 11 SAs isolated, 9 (81.8%) were found to be sensitive to methicillin (SAMS), and 2 (18.2%) were found to be resistant (SAMR) without presenting accompanying resistance, so they were interpreted as SAMR-AC. Of the other AMBs tested, the following resistance profile was observed: levofloxacin 0.0%, cotrimoxazole 0.0%, gentamicin 63.6%, clindamycin 45.5%, and erythromycin 66.6%. A high percentage of isolates with resistance to erythromycin and clindamycin was observed, so its empirical use is not recommended. Levofloxacin and cotrimoxazole maintain activity against SA. The detection of this microorganism in pregnant women is very useful to avoid horizontal transmission and prevent possible spread in the carrier, causing infections with different levels of severity.

A29
HASHIMOTO'S THYROIDITIS: HORMONAL PROFILE, AUTOANTIBODIES AND ULTRASOUND IMAGES IN A GROUP OF WOMEN FROM SAN NICOLÁS

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Hashimoto's thyroiditis (HT) is considered the most common autoimmune disease. Most HT forms evolve to glandular hypofunction; however, it can be presented as euthyroid or hyperthyroidism. There is little evidence about its epidemiology. To describe thyroid hormonal levels, autoantibodies presence, and ultrasound images, a group of 83 women over 18 years old with HT from San Nicolás, Argentina, was studied. For this descriptive and cross-sectional study, participants were recruited from an endocrinology outpatient clinic: "Consultorios Alem". The diagnosis of HT was based on the semiology, the hormonal levels: free thyroxine (T4L) and thyrotrophin (TSH), and circulating antibodies: thyroperoxidase (anti-TPO) and thyroglobulin (anti-Tg). Techniques used for the information survey: physical examination, review of medical records, and surveys. Quantitative variables were expressed as the mean and standard deviation. Absolute and relative frequencies were determined for the assessment of the categorical variables. A Chi-squared test was used to compare the proportions. Altered levels of TSH were found in 82.6% and normal levels of T4L in 89.8% of women. The antibody anti-TPO was present in 83.6% and the anti-Tg in 39.8% of women. The most common ultrasound findings (n=64) were: heterogeneous gland (50%), heterogeneous goiter (32.2%), and nodular goiter (8.4%). At least one first-degree relative with thyroid pathology was found in 55.4% of the participants. From those patients, 81.6% had anti-TPO and 64.3% anti-Tg. The frequency of the detection of the antibody anti-Tg was significantly different between the groups of patients with normal (70.7%) vs altered T4L levels (0%) (*P* <0.012). Regarding women with normal TSH: 75% had anti-TPO and 81.8% anti-Tg. The presence of two autoimmune pathologies frequently associated with HT was also observed: rheumatoid arthritis in 3.7% and celiac disease in 2.5%. A high percentage of the participants presented high TSH, normal T4L, anti-TPO, and heterogeneous gland images. Due to the lack of local data, the present study allows us to better understand the thyroid hormonal profile, the presence of autoimmunity markers, and the ultrasound images present in female patients, providing valuable data of this pathology in our region.

INCIDENCE OF PATHOGENS IN CORN EARS (*Zea mays* L.) IN LOTS WITH DIFFERENT LEVELS OF NITROGEN AND PREVIOUS CROPS

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Fungal pathogens cause serious damage to the corn crop due to the reduction in yields and/or quality. Some authors indicate that the dose of nitrogen (N) available to the plant would vary the severity of symptoms. The objective was to evaluate the presence of fungal pathogens in corn ears from plots with different levels of N and ancestor cultures. The trials were conducted at the Fac Cs Agrarias of the UNR, Zavalla, during seasons 16/17 (C16/17) and 17/18 (C17/18). The ACA 470 VT3 Pro hybrid was sown on 11/01 and 12/26/17 on lots from soybeans and wheat, respectively. Each trial was the combination of campaign and ancestor cultivation. A design in CRD (completely randomized design) with 3 repetitions was used. The treatments (T) evaluated were: control (unfertilized), 75 kg N/ha (N75) and 150 kg N/ha (N150). To determine the incidence (%I) of the pathogens, the grains were incubated in 2% dextrose potato agar with alternation of 8/16 h light/dark cycle, ISTA rules. A total of 200 grains from each experimental unit were analyzed and identified by magnifying glass and microscope. *Penicillium* (P), *Fusarium* (F), *Stenocarpella maydis* (St), and *Aspergillus* (A) were evaluated. Data were analyzed by Friedman's test. Weather conditions differed in both seasons In C16/17, they were scarce, in the 30 days around flowering (critical period), was lower than normal (80 mm), while in C17/18 they were scarce (32 mm) extending the drought until the month of April. The mean temperatures were higher than normal in post-flowering in both seasons, more especially in C17/18. The environment has the greatest impact on the %I of the pathogens. Regardless of N, the C16/17 presented the highest %I of P and F. The high %I of St was associated with the high environmental humidity of around flowering and afterward. A presented high %I in both seasons, although the effect on N and predecessor crop was variable. As A is considered a post-harvest pathogen, its %I was higher, possibly caused by the environmental conditions of the planting dates and crop development.

INFECTIVE CAPACITY OF *Trichinella patagoniensis* IN CBi-IGE MICE CHALLENGED WITH INCREASING DOSES OF THE NEMATODE L1 LARVAE

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Trichinellosis is a cosmopolitan parasitic zoonosis, produced by parasites of the genus *Trichinella*. Humans and a wide variety of animals become infected by eating raw or undercooked meat carrying the nematode larvae. The species with the highest global prevalence is *Trichinella spiralis*. In 2008, a new species of this genus, *Trichinella patagoniensis*, was identified in our country associated with the consumption of puma meat. A parasitic infection involves host-parasite interactions that define the characteristics of its inception, progression, and, in some cases, its conclusion. In these interactions, the host's genetic make-up is an important determinant of susceptibility to infection. The CBi-IGE mouse colony is formed by genetically defined lines that, when challenged with increasing doses of *T. spiralis*, showed differences in the degree of infection attributable to the host genotype. The objective of this work was to examine the behavior of these lines after infection with increasing doses of *T. patagoniensis*, studying variables associated with resistance/susceptibility in the chronic stage of the parasitosis. Adult male and female animals of lines CBi+, CBi−, CBi, and CBi/L (n=8 per sex and line) were infected orally with 1 (GI), 2 (GII), or 4 (GIII) infective L1 larvae/g of body weight. In the chronic period (42 ± 2 days post-infection), artificial digestion of the tongue was performed, and the total number of larvae was counted. With these data, relative parasite load (*rPL*, number of parasites/g of fresh tissue) and relative reproductive capacity index (*rRCI* = rPL/infective dose) were calculated. Neither *rPL* nor *rRCI* showed a significant effect of sex in the dose range analyzed. The increase of the infective dose significantly increased *rPL* in CBi +, CBi− and CBi (females, P =0.007; males, P =0.005); CBi/L had lower *rPL*s than the rest of the genotypes and showed no significant modifications (females, P =0.98; males, P =0.08) in the dose range used. This increase was observed in all the lines from dose I to dose III and was of different magnitude in each genotype. CBi/L mice had the lowest *rPL*s compared with the rest of the genotypes (P <0.05). CBi+ animals showed a degree of infection similar to that of resistant CBi/L mice at the lowest dose (GI). *rRCI* was not modified by increasing the dose when compared in each line and sex. Significant differences between genotypes within doses were observed in this variable (P <0.05); *rRCI* values were always lower in CBi/L. The genus *Trichinella* is composed of species that adapt to a wide range of different hosts; however, the resulting parasitosis depends on both the host and parasite genotypes. The host genotype determined the result of the infection in this experimental model, corroborating its importance on the degree of resistance/susceptibility to the infection. The study of the characteristics of each species in genetically different hosts will allow analyzing in-depth those points on which to implement control measures to prevent infection in humans and to minimize the dispersion of the parasite in the environment.

ASSOCIATION BETWEEN THE REGULATION OF GLYCEMIA AND PLASMA LEVELS OF VITAMIN D IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Type 2 diabetes mellitus (T2DM) is a metabolic disease originated by a resistance to the action of insulin together with a deficiency in insulin secretion. Worldwide, the prevalence of T2DM has reached levels of pandemic according to the increase in obesity. After the discovery of vitamin D receptors in pancreatic and immune cells, the effects of vitamin D on different body functions have been investigated. It has been observed that individuals with insufficient levels of vitamin D are prone to develop T2DM and that patients with vitamin D deficiency and glucose intolerance improve their metabolic status after vitamin supplementation. The aim of our work was to analyze the possible association between plasma levels of vitamin D and glycosylated hemoglobin (HbA1c) in subjects with T2DM. Having signed the informed consent, 19 patients with T2DM, 13 females and 6 males, with ages ranging from 55 to 87 years old, were recruited. All patients were under treatment with oral antidiabetic drugs or insulin or a combination of both. Plasma levels of fasting glycemia (G, mg/dL), HbA1c (%), total cholesterol (C, mg/dL), HDL-cholesterol (HDL-C, mg/dL), and triglycerides (TG, mg/dL) were assessed by means of Cobas c311 autoanalyzer (Roche). Plasma levels of 25-hydroxy-vitamin D (25-OH-D, ng/mL) were quantified by an electrochemiluminescence immunoassay. Patients were divided into 2 groups, based on the grade of metabolic control of his/her glycemia: fine control (FC, n=10) when HbA1c levels were <7%, and poor control (PC, n=9) when HbA1c levels were $\geq$ 7%. Results for G, C, HDL-C, TG, and 25-OH-D were as follows (mean$\pm$SD), for FC and PC groups, respectively: 119$\pm$33 vs. 150$\pm$33; 195$\pm$55 vs. 180$\pm$43; 54$\pm$11 vs. 53$\pm$11; 145$\pm$80 vs. 121$\pm$51 and 9.5$\pm$9.4 vs. 12$\pm$8. The TG/HDL-C index was also calculated as an indicator of insulin resistance and the obtained values were as follows (mean$\pm$SD): 8.9$\pm$0.7 for FC and 9.0$\pm$0.6 for PC. No significant differences were found for any of the parameters studied between both groups (P >0.05) except for G (P <0.05), as expected. No correlation was found between the levels of HbA1c and those of 25-OH-D for the FC group (r =0.3; P =0.4); conversely, a significant negative correlation was found between these same parameters for the PC group (r =−0.9; P =0.015). We can conclude that, in the analyzed sample, the negative correlation between the levels of 25-OH-D and HbA1c was found only in those patients with poor control of his/her glycemia, thus suggesting that vitamin D could represent a biomarker of the mean levels of glycemia in T2DM, beyond its action on calcium and bone metabolism.

A33
OSSEOINTEGRATION OF SEPTIC METALLIC MATERIAL IN THE LOWER JAW. X-RAYS FINDING

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Osteogenesis is the physiological process by means of which bone tissue formation takes place, through the organic bone matrix synthesis and secretion and its subsequent mineralization. Initially, there are two bone formation mechanisms: intramembrane ossification and endochondral ossification. Instead, remodeling and replacement bone tissue grows by apposition, and it is dependent on osteoblast differentiation from osteoprogenitor cells derived from the regional mesenchyme, which expresses the CBFA1 transcription factor indispensable for osteoblastic differentiation. Calcified matrix and cell spatial distribution in compact bone build-up structures called osteons, which comprise Havers systems (Havers ducts with their concentric lamellae plus the mineralized matrix), totally organized and arranged according to their intra- and extra- bone nutritional contribution. In therapeutic events, oral surgical implantology aims at the restitution of the missing root with an inert metallic material (titanium) for our organism to enable osseointegration in order to attain its later prosthetic restoration. It is of utmost importance to guarantee such materials ´(implants) sterilization in order to stimulate osseointegration preventing biological contamination. With this X-ray finding, we would like to show that osseointegration can be achieved with non-sterilized and contaminated metallic materials made evident by normal bone formation as seen in the X-rays and observed in the surgical technique used to remove them. Clinical Case: A 40-year-old female patient presents at the surgery room of the Faculty of Odontology (UNR) referred by her dentist who in an X-ray finding had observed a radiopaque material fragment integrated into the lower maxillary in piece 46 area (1 ‰MID). After writing the corresponding clinical history, the exodontics of piece 46 is certified to be carried out three years before. In addition, the patient shows a periapical X-ray previous to such exodontics in which piece 47 shows a metallic restoration by means of a partial crown which had not been seen at the patient´s admission time. Afterward, the treatment is planned and then withdrawn. The surgical technique is performed including the vestibular external alveolectomy with rotary material following the material withdrawal, and the saline lavage and curettage followed by the closure with non-resorbable nylon suture. What was observed has been analyzed and since no cases have been found in the literature, we understand oral cavity through its initial relation to the digestive system, taking it as a wet and septic cavity; the osseointegration of metallic materials in the maxillary bones would not always depend on their certified sterility, thus being able to find such integration even with septic and contaminated materials and to achieve a completely normal and healthy bone.

EVALUATION OF SOMATIC GROWTH IN *IIMe/Fm* RATS

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Growth can be assessed through morphometric measurements. The somatic variables, body mass and lengths, are suitable for studying the growth of laboratory animals in longitudinal studies. Recent information on the behavior of these variables in the *IIMe / Fm* rats, with more than 50 years of production, is lacking. The aim of this work was to quantify morphometric variables to know the evolution of somatic growth in female and male *IIMe/Fm* rats. The variables: body weight (BW, g), total length (TL, cm), noseanal length (NAL, cm), tail length (TaL, cm), were measured in duplicate with anesthetized animals, females (n=6) and males (n=5), from 21 day-old, every 7 days, for 15 weeks, registering the average of both measurements. The coefficient of variation of the measurements, in each week, for the variables was less than 0.06. The results were compared using ANOVA for repeated measurements and are expressed as arithmetic mean ± standard deviation. Diachronic differences were evaluated with the multiple comparisons test corrected by Bonferroni technique. The level of statistical significance was $P < 0.05$. At 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98, 105, 112, 119 day-old respectively, females: BW: 31.0±2.0, 51.3±4.0, 83.9±7.1, 103.0±7.2, 129.5±8.2, 147.9±9.1, 160.4±12.1, 175.4±13.3, 184.6±11.6, 193.5±10.5, 202.3±11.3, 208.8±11.7, 216.4±15.2, 225.9±17.1, 224.7±13.5; TL: 18.4±0.3, 22.6±0.5, 27.2±0.7 , 29.9±0.5 , 32.3±0.6, 33.8±0.4, 34.9±0.4, 35.4±0.6, 36.3±0.6, 36.8±0.5, 37.0±0.4, 37.1±0.5, 37.5±0.5, 37.6±0.5, 37.7±0.5; NAL: 10.6±0.3, 12.8±0.3, 14.7±0.2, 16.3±0.2, 17.4±0.3, 17.9±0.2, 18.7±0.3, 18.9±0.4, 19.6±0.3, 19.9±0.4, 19.8±0.1, 20.0±0.2, 20.2±0.3, 20.3±0.3, 20.3±0.3; TaL: 7.7±0.1, 9.7±0.2, 12.5±0.5, 13.7±0.4, 15.0±0.4, 16.0±0.3, 16.2±0.2, 16.5±0.3, 16.7±0.3, 16.9±0.2, 17.1±0.4, 17.2±0.3, 17.2±0.3, 17.3±0.3, 17.3±0.3; males: BW: 36.5±2.1, 53.7±2.4, 91.3±2.5, 137.5±4.8, 161.9±4.5, 203.6±7.2, 239.1±8.3, 262.4±9.4, 296.1±11.1, 315.1±14.5, 326.6±15.0, 332.8±16.8, 339.5±16.8, 346.2±15.9, 357.8±17.9; TL: 18.4±0.2, 22.5±0.7, 27.3±0.3, 31.6±0.3, 34.4±0.3, 36.5±0.1, 38.2±0.1, 39.2±0.1, 40.2±0.1, 41.0±0.1, 41.4±0.2, 41.8±0.2, 42.0±0.2, 42.5±0.2, 42.7±0.3; NAL: 11.0±0.2, 12.8±0.3, 15.1±0.1, 16.9±0.2, 18.5±0.3, 19.5±0.2, 20.4±0.1, 21.4±0.1, 21.8±0.3, 22.3±0.3, 22.4±0.3, 22.5±0.3, 22.6±0.3, 23.1±0.1, 23.2±0.1; TaL: 7.2±0.3, 9.7±0.4, 12.2±0.2, 14.8±0.1, 15.9±0.3, 17.1±0.2, 17.7±0.1, 17.9±0.1, 18.3±0.2, 18.6±0.2, 19.0±0.2, 19.2±0.2, 19.4±0.2, 19.4±0.2, 19.5±0.1. Considering the weekly increase in weight, the males presented the highest significant average increases at 42 and 56 days, being 46.1 g and 41.7 g respectively, while for females, they were 32.5 g at 35 days and 26.4 g at 49 days ($P < 0.001$). At 49 days, males have reached 80% of their total length, while females 85%. In males and females, the ratio between the NAL and the TaL remains constant in the period studied, the body represents 55% of the TL and the tail 45%. Most of the somatic growth in both sexes has been reached at puberty, keeping the ratio between NAL and TaL constant.

A35

LONGITUDINAL STUDY OF MORPHOMETRIC VARIABLES THAT EVALUATE BODY CONFORMATION IN *IIMe / Fm* RATS

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Body mass and thoracic and abdominal circumferences are useful for determining body conformation. The *IIMe/Fm* rats constitutes a closed population that has been in production for decades. The objective of this work was to determine external dimensions that estimate abdominal fat mass and corpulence to evaluate the body conformation of female and male *IIMe/Fm* rats. The morphometric variables measured in duplicate with anesthetized animals, females (n=6) and males (n=5), from 21 day-old, every 7 days, for 15 weeks, were: body weight (BW, g), toracic cincumference (TC, cm), abdominal circumference (AC, cm). The coefficient of variation of the measurements, in each week, for the variables was less than 0.06. The results were compared using ANOVA for repeated measurements and are expressed as arithmetic mean ± standard deviation. Diachronic differences were evaluated with the multiple comparisons test corrected by Bonferroni technique. The level of statistical significance was $p < 0.05$. At 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98, 105, 112, 119 day-old respectively, females: BW: 31.0±2.0, 51.3±4.0, 83.9±7.1, 103.0±7.2, 129.5±8.2, 147.9±9.1, 160.4±12.1, 175.4±13.3, 184.6±11.6, 193.5±10.5, 202.3±11.3, 208.8±11.7, 216.4±15.2, 225.9±17.1, 224.7±13.5; TC: 6.8±0.1, 7.9±0.1, 8.8±0.3, 10.0±0.2, 10.5±0.2, 10.9±0.2, 11.2±0.1, 11.3±0.1, 11.4±0.1, 11.8±0.2, 12.0±0.2, 12.1±0.2, 12.2±0.2, 12.2±0.1, 12.3±0.1; AC: 7.4±0.1, 8.5±0.2, 9.7±0.3, 10.3±0.2, 11.1±0.2, 11.5±0.2, 12.1±0.3, 12.3±0.2, 12.7±0.2, 12.9±0.3, 13.3±0.2, 13.7±0.3, 13.8±0.3, 14.0±0.4, 14.1±0.4, males: BW: 36.5±2.1, 53.7±2.4, 91.3±2.5, 137.5±4.8, 161.9±4.5, 203.6±7.2, 239.1±8.3, 262.4±9.4, 296.1±11.1, 315.1±14.5, 326.6±15.0, 332.8±16.8, 339.5±16.8, 346.2±15.9, 357.8±17.9; TC: 7.3±0.2, 7.5±0.1, 9.0±0.1, 10.8±0.5, 11.4±0.1, 12.0±0.4, 12.8±0.1, 13.2±0.1, 13.3±0.1, 13.4±0.1, 13.6±0.1, 14.2±0.3, 14.4±0.1, 14.5±0.1, 14.5±0.2; AC: 7.8±0.1, 8.5±0.1, 9.9±0.1, 11.8±0.2, 12.0±0.1, 13.1±0.2, 13.8±0.1, 14.7±0.1, 15.2±0.1, 15.3±0.1, 15.5±0.1, 16.0±0.3, 16.3±0.2, 16.5±0.3, 16.7±0.3. Between 21 and 42 days old, males have accumulated 3.5 cm of increase in CT reaching 74.4% of the final value and females accumulated 3.1 cm, that is 81.4%. The greatest significant increases in CA were at 35, 42 and 56 day-old for males. The cumulative increase of these 3 moments was 4.4 cm. On the other hand, females show the greatest increase in CA at 28 and 35 day-old. Females and males reach their greatest increase in corpulence before puberty. In this same stage, the increase in abdominal fat mass in the moments of greatest growth, in males corresponds to 50% of the total accumulated, while in females it represents 35%.

A36

RHEOLOGICAL EVALUATION OF EMULSIONS WITH LIQUID CRYSTALS AND *MICONAZOLE* FOR TOPICAL APPLICATION

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The viscosity and texture of semi-solid pharmaceutical forms of topical applications are of paramount importance to ensure a good distribution of the product on the skin. Liquid crystals, being formed by a fat-soluble and a water-soluble fraction, allow both fat-soluble and water-soluble drugs to be incorporated into their structures. The objective of this work was to evaluate the rheological profiles that had two emulsifying systems with liquid crystals, one of them without active substance (a) and the other with active substance (b), and to determine whether the properties of the latter were within values to be used as a topical application medicine. The pharmaceutical active ingredient that was incorporated was *Miconazole*, a fat-soluble substance with antifungal activity. The samples were prepared in triplicate. The rheological characterization was performed with a Brookfield viscometer at 25 ℃. Determinations were made after 48 h of preparation of the emulsions and repeated at 6 months. All samples had profiles of similar characteristics being plastic bodies with thixotropy. For the 2.5 s^{-1} velocity gradient, the viscosity values obtained were for the sample (a) of one-way 830 cp and lap 670 cp, while the sample (b) present of one-way 720 cp and lap 600 cp. The yield, viscosity, and thixotropy values of the sample (a) were slightly higher than the values presented by the sample (b). This decrease in rheological values in the sample (b) could be related to the active substance *Miconazole* being incorporated into the hydrocarbon chains of the crystalline structures that form a multilayer that surrounds both the emulsion drops and the secondary drops, causing defects that would contribute to lowering those values. However, the sample (b) maintains a suitable viscosity and stability for being applied to the skin.

A37
IN VITRO STUDY OF THE ANTHELMINTIC ACTIVITY OF LEVAMISOLE ON *Trichinella spiralis* ADULT PARASITES

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Levamisole (LEV) is a water-soluble synthetic imidazothiazole derivative, used as an anthelmintic agent, which has immunomodulatory properties. The mechanism by which it exerts its action on the immune system is not fully known: it would restore a depressed immune function instead of stimulating the response to levels above normal. It can boost the formation of antibodies to various antigens, improve T cell responses by inducing their activation and proliferation, and enhance the functions of monocytes and macrophages. These characteristics support its use in combination with other drugs such as benzimidazoles since it would allow to broaden the action spectrum or counteract the risk of resistance during the treatment of a parasitosis. The objective of this work was to study the anthelmintic activity of increasing doses of LEV *in vitro* against *Trichinella spiralis* female parasites to establish the optimal effective dose for our trichinellosis model. LEV solutions (0.1, 1, 10, and 100 μg/mL) were prepared in RPMI 1640, a range based on bibliographic data. The antiparasitic activity test was performed in a 24-well plate: 10 to 12 *T. spiralis* females/well were incubated with each concentration in a humid atmosphere of 5% CO_2, at 37 ℃, for 48 h and were observed at 2, 4, 6, 24, 30 and 48 h with an inverted microscope to determine its viability. The motility and morphology of each *T. spiralis* female were analyzed, allowing us to describe them as "alive" or "dead." The effect of the different LEV concentrations on the viability of the parasite as a function of time was evaluated with survival curves calculated with the Kaplan-Meier method. A comparison of the survival curves was performed with the log-rank test. The increase in drug concentration improved its parasiticidal activity, estimated by the proportion of live larvae at the end of the experiment. The LEV1, 10, and 100 systems showed significantly higher anthelmintic activity than LEV0.1 (median survival, LEV0.1: greater than 48 h, LEV1: 4 h; LEV10: 2 h, LEV100: 4 h; $P < 0, 0001$). As expected, the increase in the concentration of the drug improved its parasiticidal activity: at 24 h, the proportion of live larvae was 59.4% for LEV0.1, 27.3% for LEV1, 13.0% for LEV10 and 8.0% for LEV100. Since the *in vitro* anthelmintic efficacy of LEV at a concentration of 10 μg/mL was similar to that at 100 μg/mL, 10 μg/mL is the dose of choice to test LEV *in vivo* effectiveness to treat trichinellosis in a low dose therapy schedule.

A38
OBESITY INDICATORS IN ADULT BETA LINE RATS AFTER A HABITAT CHANGE

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Murinometric indicators are used to evaluate body composition, can be obtained without sacrificing the animal and are usually chosen for economy and simplicity. Since 1980, the IIMb / Beta line of rats was bred in the bioterium belonging to Cátedra de Biología-Facultad de Ciencias Médicas. Beta rats show a moderate spontaneous obesity defined by overweight, adipose panicles weight and murinometric indicators. In 2015, a group of these rats was moved for its breeding at Centro de Investigación y Producción de Reactivos Biológicos (CIPReB), Facultad de Ciencias Médicas (CIPReB). Environmental changes may modify phenotipical expression, so we decided to compare murinometric indicators of obesity in 120 days old male Beta rats raised in Cátedra de Biología (group T; n=5) with those of same line, sex and age rats from CIPReB (group E; n=4). Biomass (B), Tail Length (LC), Naso-Anal Length (LNA), Thoracic Circumference (CT) and Abdominal Circumference (CA) were measured. Lee`s Index (IL): 3√ Weight/Naso-Anal Length (obesity ≥30), Body Mass Index (BMI): Weight/Naso-Anal Length^2, Waist Size Index (ICT): Abdominal Circumference/Length Naso-Anal were calculated. Retroperitoneal and Perigonadal Adipose Panicles (PAR and PAG) were removed and weighed once animals were sacrificed. Results are expressed as mean ± standard deviation. Student's *t*-test was applied, considering a significant difference when $P < 0.05$. B: T: 376.3 ±21.97 E: 401.9 ±04.64 (P=0.3182); LC: T: 18.46±0.51 E: 18.93±0.18

(P=0.4598); LNA: T: 22.70±0.49 E: 25.90±0.21 (P=0.0009); CT: T: 15.60±0.75 E: 14.25±0.32 (P=0.1750); CA: T: 19.20±0.37 E: 16.13±0.43 (P=0.0010); IL: T: 0.317±0.005 E: 0.285±0.002 (P=0.0009); IMC: T: 0.73±0.03 E: 0.62±0.02 (P=0.018); ICT: T: 0.85±0.02 E: 0.62±0.02 (P <0.0001); CA/CT: T: 1.25±0.08 E: 1.13±0.03 (P=0.2516); PAR: T: 2.63±0.38 E: 2.29±0.17 (P=0.4708); PAG: T: 1.60±0.20 E: 1.55±0.11 (P=0.8443). Direct indicators of obesity such as PAR and PAG did not differ between groups. Longer LNA in group E maked the indirect indexes smaller. Double indirect Lee's Index, that resulted < 30 in both groups, would not be useful for defining the obesity of these rats.

A39
SEMINAL TRANSFERRIN IN OLIGOZOOSPERMIC PATIENTS

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According to Griswold's (1984) model, ferric ions are incorporated from the basal to the adluminal compartment through transferrin (Tf) secreted by Sertoli cells. WHO defined the concept of lower reference limit (LRL), sperm parameters over this limit do not guarantee successful fertilization, or an on-going pregnancy, but increase its possibility. A patient is considered oligozoospermic when the sperm concentration is less than 15 million/mL (LRL). Semen samples from 41 patients were studied. Semen analysis was performed according to WHO 2010 standards. In all samples, seminal Tf (STf) was quantified, by Radial Immunodiffusion (IDR) adapted to low concentrations. Patients were divided into two groups taking into consideration the LRL for sperm concentration. Levels of STf were compared and statistically evaluated to some variables of the basic analysis. The STf values found were: 5.19±3.18 mg/dL (CV: 72.8). Our results showed that in the group that did not reach the LRL value, STf levels were below average (5.19 mg/dL). Based on the results, it can be concluded that STf is related to the number of sperm cells, ergo, to spermatogenesis. On the other side, it is not related to other variables, such as mobility, vitality, and morphology. It would be necessary to increase the number of patients under study and compare other parameters in order to consider STf as a reliable biomarker of the Sertoli cells function in spermatogenesis, and thus create a systematic and organized protocol for a better approach of the infertile couple.

A 40
PHISIOLOGY OF GERMINATION OF *ELEUSINE TRISTACHYA*

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Crop infestation by weeds mainly originates from the plant emergency for seeds lying in the soil bank. Weed seeds usually possess dormancy, which is defined as the incapability of seeds to germinate despite having the adequate weather conditions to the species and it is an adaptive trait to optimize time and space to germination (G). Learning how the environment modulates rupture of weed seed dormancy allows predicting patterns of G and plant emergencies that are the initial key events to the plant establishment in the field. *Eleusine tristachya*. Lamarck is a perennial Gramineae species with increasing importance as a weed and scarce studies. Its dispersal units are 2 mm large, wide, ovoid, and dark utricular achenia. Nevertheless, it is commonly described as a seed, whose seed coats are the external lemma and palea, the pericarp, and a tegument surrounding the embryo. The aims of the present work were: (i) to evaluate the role of the different seed coats on *E. tristachya* seeds G, and (ii) to evaluate *E. tristachya* seed G on different temperature-light conditions. *E. tristachya* seeds harvested in January 2018 in Zavalla were dissected to obtain different structures: completed sedes (C); seeds without lemma and palea with pericarp (P); seeds with broken pericarp (BP); seeds without pericarp with tegument (T) and seeds with broken tegument (BT). Three replicates of 10 structures each were incubated in Petri dishes with sterile distilled water during 30 days on different temperature-light conditions: light-30 ℃ (L30); dark-30 ℃ (D30); dark-30 ℃ (12 h)/20 ℃ (12 h) (D30/20) and ligth-30 ℃ (12 h)/dark-20 ℃ (12 h) (LD30/20). In the absence of G, the viability of seeds was confirmed by the Tetrazolium test. There was no G in C during the experiment. P only germinated at 30 ℃, reaching a maximum of 10 and 3% G for L30 and D30, respectively. BP presented a maximum of 7, 23, 20 y 27 % G for L30; D30; LD30/20 and D30/20; respectively. The maximum %G in T was 20 for L30 and D30; 7% for LD30/20 and 10% for D30/20. In BT, the maximum %G was 40, 43, 47, and 50 % for L30; O30; LO30/20 and O30/20, respectively. The results showed that temperature-light conditions did not present a decisive effect on G in none of the evaluated structures. On the other hand, the external seed coats would affect G, completely blocking G in C and, the more naked the seeds (BT), the higher the %G was. Moreover, still, BT did not reach more than 50% G for none of the evaluated treatment during the experiment. We concluded that different dormancy mechanisms on seed coats and/or the embryo would be involved in G of *E. tristachya* seeds. More studies are required to characterize and understand *E. tristachya* seeds G for a better contribution to developing sustainable management of weeds in the field.

A41

EVALUATION OF THE EFFICIENCY OF TREATMENTS FOR VENOUS ULCERS BY GENERALIZED LINEAR MODELS FOR CENSORED DATA

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Venous ulcer is a recurrent severe condition on the distal part of the legs due to chronic venous insufficiency that mainly affects the adult population. First-line treatment for lower limbs' venous insufficiency is a compression bandage, which exerts pressure on the affected leg facilitating the reduction of venous hypertension. Broadly, four different compression therapies can be identified: elastic bandage, inelastic bandage, triple bandage, and Unna boot. The ideal treatment should achieve the healing of the ulcer in the shortest possible time as this affection decreases patients' quality of life. A study to measure compression bandage treatment efficiency was carried out. Seventy-eight participants with venous ulcers were recruited and received treatment between the years 2015 and 2017. After the initial consultation when the ulcer extension was documented, participants were assessed on a monthly basis up to when the healing was achieved. Treatment duration was recorded as the number of months. Evaluation of treatment efficiency was done by Generalized Linear Models appropriate for this type of data such as Poisson and Negative Binomial models. A participant died from unrelated causes while receiving treatment; thus, his healing time was censored. The presence of censored data imposed the need to apply a modification of the estimation method, adapting the corresponding likelihood function. Then, the Negative Binomial censored model was chosen to analyze these data. Although the treatment effect was not significant ($P = 0.5828$), there are signs that inelastic bandage would be the most efficient and Unna boot the least efficient. Participants treated with inelastic bandage had estimated means of healing time from one to five months, whereas those treated with Unna boot had estimated means between three and eight months. Regardless of assigned treatment, estimated means of healing time for large ulcers were significantly larger than for small, regular, or medium ulcers ($P < 0.0001$). Additional variables such as age, sex, and recurrent ulcer pathology should be recorded in future studies. Further information may contribute to a better understanding of treatment efficiency.

A42
PROTEOME PROFILE OF SOYBEAN EMBRYONIC AXES GERMINATION

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Seed germination is strictly regulated to guarantee the success of the plant establishment and it is defined as the restart of growing of the embryonic axes. Isolated soybean [*Glycine max* (L. Merr)] embryonic axes are capable of germinating after 12 h of water incubating. Recently it was described the transcriptional metabolic activation of soybean embryonic axes during germination. Regarding the proteome profile, 764 proteins were identified on completed soybean seeds, most of which were involved in the mobilization of stored reserves. It is considered a post-germinative event that preferentially occurs in the cotyledons of that seeds, which have a secondary role in germination. The present work aimed to describe the proteome profile of germinated soybean embryonic axes, which is the main responsible organ to define germination. After 12 h of incubation germinated embryonic axes were weighted to obtain 1 g of fresh tissue. Samples were powder in liquid N_2, homogenized in 5 mM NaAc pH 4.6 buffers containing sucrose gradients (0.4–1) M; cell wall proteins were extracted in 0.2 M $CaCl_2$ and precipitated in 100% TCA. Protein identification (CEQUIBIEM) was realized by Masa Spectrophotometry (MS and MS–MS) using databases available in Uniprot and Phytozome to assign the obtained peptides. 2677 unique soybean proteins with, at least two high confidence peptides, were identified from different subcellular fractions and compared with the orthologues in *A. thaliana*. The 2147 unique identified genes of *A. thaliana* were classified by Gene Ontology (AgriGO) were enrichment in proteins from biological process related to structures development (453), cell cycle (134), genetic expression regulation (94), biosynthesis (742) and catabolism (286), primary and secondary metabolism (1150 and 144), transport (429), communication (85) and responses to different types of stimuli (715), among others. Moreover, these proteins were related to molecular functions such as transport (198), binding (1087), kinase (183), motion (19), and receptor (23) activity, and it showed enriched in nuclear location (756). The proteome profile of soybean embryonic axes germination showed multiple processes of activity, showing important metabolic activation and signalization, communication, and signal transduction, which would be affecting gene expression and triggering the development and structures establishment. These results evidence a great cell activity responsible for the soybean embryonic axes growth during germination, thus confirmed the importance of this target organ to carry out a deeper and clearer analysis.

A43
CONSISTENCY OF TOOLS THAT PREDICT THE IMPACT OF A SNPS ON GENE FUNCTIONALITY: STUDY ON *CHIKUNGUNYA* VIRUS

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Many bioinformatics tools have been developed to predict the effect of single nucleotide polymorphisms (SNPs) on gene functionality in an effort to reduce the need for in-vivo assays. The use of these tools in scientific research and even in precision medicine for disease treatment and prevention is very frequent. This situation points out the importance of understanding the semantics of their outputs and the quantification of their possible limitations. However, the large number of tools available and the heterogeneity of their output make their selection, understanding, and comparison a non-trivial task. Most of the works in the literature that compare the

tools simplify the problem through the conversion of their output to a binary scale, which reduces the information they provide. In this work, the output consistency of the tools that predict the effect of a mutation in the functionality of a gene is analyzed. A methodology based on ranking indices is proposed. The next step considers the integration of the prediction to improve performance. Six tools frequently used in the literature and available online were selected. Two indices, called K-All and K-Strong, that systematically quantify the differences between outputs are proposed. All possible mutations at the amino acid level on the E2 gene of *Chikungunya* were evaluated. The indices correctly characterize the tools, yielding similar values for tools with related sources of information. For the inner consistency, K-All varied between 0.39 to 0.63, while K-Strong varied between 0.03 to 0.15. These results reflect the importance of the study of the tools, especially when they are used in genetic tests. Finally, the low levels of consistency should not be necessarily interpreted as a bad result. The diversity between tools is useful to integrate the prediction in a more robust performance.

A44
STUDY OF THE BLOOD FLUIDITY AT LOW FLOW SPEEDS, ESTIMATED BY THE KINETICS OF ERYTHROCYTE AGGREGATION IN HFD RATS COMPARED TO RATS FED WITH STANDARD DIET

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In folk medicine, *Ligaria cuneifolia* (Lc) is used to increase blood fluidity by lowering plasma (Cho) cholesterol. We obtained a fraction enriched with proanthocyanidin (P*Lc*) that led to a decrease in Cho and Triglycerides (TG). To analyze the effect of PLc, we worked with rats which were fed by a diet abundant in fat (HFD). So far, the effect of the treatment with PLc on blood fluidity at low flow rates estimated by the kinetics of erythrocyte aggregation in rats fed with HFD, has not been studied. The first stage consists of analyzing the blood fluidity at low flow rates, estimated by the kinetics of erythrocyte aggregation (EA) in HFD rats compared to rats fed with standard diet. Male *Wistar* rats (n = 24), 70 days old, were separated into groups and fed with: 1. Normolipemic standard diet (SD; n=6); 2. "standard diet" with an additional 40% of bovine juice (every 100 g: 1.2 g of Cho; 1.06 g of total fat and 6.8 g of protein) (diet with additional fat HFD; n=6), during 28 days. On the day of the experiment, the rats were anesthetized, the blood obtained through cardiac puncture, and we determined: in plasma Cho (total, HDL and LDL) and TG by enzymatic methods, total protein (Pt, by colorimetric methods), fibrinogen (Fb, by coagulometry method), and in whole blood the AE kinetics was determined by an optical method that detects changes in the transmission of light through the sample in the aggregation process, obtaining two parameters that estimate: size of the aggregates (T) and aggregation speed (V). Plasma: : Co (%mg): SD: 89.10 ±16.40, HFD: 204.50 ±14.44 *; CoHDL (%mg): SD: 71.80 ±21.11, HFD: 39.17 ±1.01; CoLDL (%mg): SD: 19.40 ±1.75, HFD: 19.17 ±0.749; TG (%mg): SD: 138.8 ±19.3, HFD: 415.0 ± 94.5 *; Fb (mg/dL): SD: 274.60 ±17.23, HFD: 271.40 ±16.64; Pt (g/dL): SD: 6.89 ±0.34, HFD: 7.43 ±0.31; AE: T: SD: 0.91 ±0.48, HFD: 0.77 ±0.37; V: SD: 0.63 ±0.53, HFD: 0.33 ±0.23; (mean ±SE; *P <0.05 vs. SD; Student's *t*-test for unpaired data). Among the plasma factors that affect AE, a significant increase in Cho and TG was found in animals fed with HFD diet for 28 days, but without changes in Fb or Pt, showing no changes in AE kinetics with respect to animals fed with SD. The HFD diet maintained for 28 days turns out to be hyperlipemic, and does not lead to modifications in the kinetics of AE.

A 45
EPIGENETIC MUTATIONS IN PRIMARY MYELOFIBROSIS (PMF)

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Somatic mutations in *ASXL1* are the most frequent mutations in epigenetic regulators after TET2 in MPN; they are mainly found in PMF and are associated with poor prognosis. The aim of the study was to detect mutations in ASXL1 and determine its correlation with the mutational status of *JAK2*, *CALR*, and *MPL* in our population of patients with PMF. We studied 50 patients with PMF, of which 34 were JAK2V617F positive, 8 CALR positive and 8 triple-negative (TN), that is, patients negative for JAK2, CALR, and MPL. To detect mutations in Exon 12 of the ASXL1 was amplified from genomic DNA by PCR and analyzed by direct sequencing. We could identify 7 different mutations in 10 (20%) patients, 7 with mutations in *JAK2*, 2 with mutations in *CALR*, and 1 TN. The most frequent mutation was a 23 bp deletion found in 40% of positive cases. Of the 6 remaining mutations is only one case of each. We observed a frequency of 20% of ASXL1 mutations in our patients, being within the reported range for MPN (20–35 %). Since these mutations have an adverse predicted significance, the study of them could be useful in clinical practice for therapeutic decision making.

A46

STUDY OF CONDUCTUAL PARAMETERS IN SPONTANEOUS DIABETIC RATS (eSS) AT DIFFERENT AGES AND THEIR POSSIBLE RELATIONSHIP WITH MORPHOLOGICAL ALTERATIONS OF THE HIPPOCAMPUS

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Type 2 Diabetes Mellitus (DM2) produces metabolic disorders that can induce cognitive and motor disturbances. DM has been recognized in many mammals, which provide useful experimental models. A line of spontaneous diabetic rats called eSS is produced at CIPReB. In previous work, we observed disorders in the explicit memory of eSS rats. We studied the progressive effect of DM2 on behavior, as well as to evaluate the presence of possible morphological alterations in the hippocampus of eSS rats. 12eSS and 12Wistar rats (W, non-diabetic controls) were studied, between postnatal day 80 (DPN80) and 270. Once a month, we evaluated: spontaneous motor activity (open field), anxiety levels (open field and light-dark test), and motor coordination (rotating roller). To measure the total motor activity and the time spent in the central area of the open field (measure of anxiety) square acrylic boxes were used. In the light-dark test, acrylic boxes had one-half black and the other half white, divided by a wall with an opening in the base that allowed the animal to pass from one side to the other. To assess motor coordination, the animals were placed on a rotating roller and the time they could stay on it was measured. After the tests, the rats were anesthetized and subjected to intracardiac perfusion with paraformaldehyde. The brains were extracted and coronal cuts (40 μm) were obtained, which were stained with Congo Red to identify the presence of amyloid substance (SA) in the hippocampus area. The variables ambulation (A), stereotypy (E) and time of permanence (TP) in the central area of the box for 60' (open field); number of entries (NE) (times the rat passed from the white zone to the black zone), TP in the white zone at 15' (light-dark test); and TP on the rotating roller (TPRG) were statistically studied with a mixed model for longitudinal data (significant: $P < 0.05$). eSS had significantly lower values of A, NE, and TPRG ($P < 0.0001$). The TP in the central zone was significantly lower for eSS than for W ($P = 0.0013$). The TP on the white side decreases with age ($P = 0.0306$) for both lines equally ($P = 0.8607$). There were no significant differences in E between rat lines ($P = 0.37$). Only SA deposits were observed in the hippocampus of eSS rats and not in controls. eSS showed lower A, NE and TP in the central area that would indicate less spontaneous motor activity and greater anxiety than W. The TPRG shows that eSS has less motor coordination than W. As a conclusion, eSS had alterations in behavior, motor coordination and histology of the brain with the presence of SA, which could be related to the progression of DM2 and the development of Diabetic Syndrome due to the age of the animals.

A47

TREATMENT FOR 3 DAYS WITH THE EXTRACT ENRICHED IN PROANTOCIANIDINS FROM *LIGARIA CUNEIFOLIA* ON THE CELLULAR FACTORS THAT INTERACT WITH THE KINETICS OF ERYTHROCITARY AGGREGATION IN BLOOD OF HIGH FAT DIET WISTAR RATS

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In folk medicine, *Ligaria cuneifolia* (*Lc*) is used to increase blood fluidity by lowering plasma (Cho) cholesterol. A fraction enriched in proanthocyanidin (P*Lc*) was obtained that led to a decrease in Cho and Triglycerides in rats fed a high fat diet (HFD). So far, the effect of treatment with P*Lc* on blood fluidity at low flow rates, estimated by the kinetics of erythrocyte aggregation (EA), has not been studied. We evaluate the effect of treatment with P*Lc* on blood fluidity at low flow rates, estimated by the kinetics of erythrocyte aggregation (EA) in HFD rats, characterizing cellular factors. Wistar rats fed a standard diet added with 40% of first bovine juice for 28 days, then were injected via i.p. every 24 h for 3 days with: physiological solution (HFD; n=6) or with P*Lc* 3mg/100g body weight (T3; n=6). The fourth day, the rats were anesthetized with Ketamine/Xylazine (100 mg/kg/3 mg/kg, i.p.), obtaining blood by cardiac puncture. In Plasma Cho and triglycerides (TG) were determined by enzymatic methods. In whole blood, the kinetics of EA by an optical method was assessed obtaining two parameters that estimate: size of aggregates (T) and aggregation speed (V). Distinction of forms by optic microscopy, and the morphological index (MI) was calculated. Plasma: Co (%mg): HFD: 204.50 ± 14.44; T3: 105.4 ± 9.97 *; TG (%mg): HFD: 415.00 ± 94.50; T3: 112.9 ± 9.4 *; IM: HFD: -1.45 ± 0.57; T3: -1.11 ± 0.17; Blood: T: HFD: 5.39 ± 0.10, T3: 5.41 ± 0.49; V: HFD 0.5985 ± 0.1930, T3: 0.6150 ± 0.1464 (mean $\pm$ EE; *$P < 0.05$ vs. HFD; Student's *t*-test for unpaired data). P*Lc*-treatment show a lipid-lowering effect, without changes in the cellular factors estimated by EA, and had not changes in MI. We have obtained a fraction of *Lc*, which decreases total Cho and TG in plasma without causing alteration on blood fluidity at low flow rates.

A48
PHENOTYPIC DETECTION OF EXTENDED SPECTRUM BETALACTAMASE IN *Escherichia coli* STRAINS ISOLATED FROM PIGS WITH DIARRHEA

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Escherichia coli produces diarrhea in pigs. Most important beta-lactamase antimicrobial resistance mechanism in *E. coli* and other Gram-negative microorganisms is the production of beta-lactamase (BL) enzymes; an important group of BL is that of extended-spectrum BL (ESBL), that grants resistance to penicillins, oximino-cephalosporins (cefotaxime, ceftriaxone, ceftazidime, cefepime) and monobactamics (aztreonam), but not to cephamycines (cefoxitin) or carbapenems (imipenem, meropenem y ertapenem), and is inhibited by clavulanic acid (CA). There are different families of BL with different sensitivities to CA. The aim of this investigation was to detect ESBL in *E. coli* strains isolated from pigs with diarrhea. Seventeen *E. coli* strains were recovered from ill pig organs and feces. Kirby-Bauer method and double disk synergy tests were used: a central paper disk with amoxicillin (20 μg) and clavulanic acid (10 μg) was separated by a distance of 2.5–3cm from two other lateral disks with cefotaxime (CTX 30 μg) and ceftazidime (CAZ 30 μg). AC powered CTX and CAZ halo in *E. coli* strains with ESBL. Eighty-eight percent of the strains were resistant to CTX, also 88% were resistant to AMC and 65% were resistant to CAZ. Forty-seven percent of the strains showed ESBL. This important number of *E. coli* strains with ESBL can affect veterinary therapy results and endanger public health.

A49
SEROLOGICAL INVESTIGATION OF INFECTION BY *LEPTOSPIRA SSP*. IN DOMESTIC AND WILD FELINES

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Leptospirosis is an infectious disease caused by serovars of pathogenic *Leptospira* species. Felines can acquire it through the intake of infected rodents or contaminated water. The aim of this work was to determine the seropositivity rate of *Leptospira spp*. and the frequency of detection of different serovars using the Microscopic Agglutination (MAT) technique in a population of domestic felines and in one of wild cats in captivity, using a cut-off point of 1:25. Blood sera from 179 healthy cats (*Felis silvestris catus*), of both sexes, of different ages and breeds, with the habit of hunting rodents were analyzed. Sera from 17 healthy wild cats, both sexes, 10 from pumas (*Puma concolor*) and 7 from lions (*Panthera leo*) with hunting habits from the Mendoza Zoo were also studied. Blood samples were obtained by venipuncture and the serum was maintained at −20 ℃. In the MAT technique, reference strains of the serovars of *Leptospira interrogans*: Pomona Pomona, Icterohaemorrhagiae Copenhageni M 20, Canicola Canicola Hond Utrech IV, Australis Bratislava Jez bratislava, Pyrogenes Salinem, Sejroe Hardjo type Prajitno Hardoprajitno, Autumnalis Autumnalis Akiyami A, Bataviae Bataviae Swart; *L. kirschneri* Grippotyphosa Moskva V, Cynopteri Cynopteri 3522 C and *L. borgpetersenii* Ballum Castellonis Castellón 3. The dilution of the sera used as the cut-off point was 1:25. Of the total cat sera, 71 reagents to the MAT were found, obtaining a seropositivity rate for *Leptospira spp*. of 39.66%. In 45 of these sera (63.38%), cross reactions were observed between serovars and in 26 (36.61%) the following serovars were detected individually: Bratislava 7 suera (26.92%), Autumnalis 6 (23.07%), Castellonis 4 (15.38%), Icterohaemorrhagiae 3 (11.53%), Grippotyphosa and Pomona in both 1 (3.84%). The highest titer was 1:200 and was found for Pomona. The serovars in the cross reactions were: Castellonis, Autumnalis, Pomona, Icterohaemorrhagiae, Bratislava and Grippotyphosa. Simultaneous agglutination between Castellonis and Autumnalis was detected in 35 of these sera (77.77%), with a titer of 1:25. Among the wild cats, 14 reactive sera were obtained with a seropositivity rate of 82.35%, including 7 from lions and 7 from pumas. In these latter species, a single serum reacted against a single serovar, one of a lion to Icterohaemorrhagiae with 1:200 and one of a puma to Castellonis with 1:50. The remaining sera had cross reactions between Castellonis and Autumnalis with titers ranging from 1:25 to 1:100. The results obtained from the analysis of both populations allowed us to observe that, using a cut-off point of 1:25 for the MAT, high seropositivity rates were found to *Leptospira* spp. Feline infection by *L. borgpetersenii* Ballum Castellonis and *L. interrogans* Autumnalis Autumnalis seems to be a biological process of frequent occurrence in these populations, which is probably related to the habit of hunting rodents or other wild animals that are natural reservoirs of those serovars.

A50
ALTERATION OF THE ERYTHROCYTE ANIONIC CHARGE PRODUCED BY *TRICHINELLA SPIRALIS* AND *TRICHINELLA PATAGONIENSIS* APPLYING SPECTROPHOTOMETRIC METHOD

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It is currently recognized that sialic acids are involved in multiple biological functions and that they have an important role in parasite-host interaction. The objective of the work was to study the alteration of the erythrocyte anionic charge due to the effect of muscular larvae (ML) of *Trichinella spiralis* and *Trichinella patagoniensis n.sp.* applying the Alcian Blue method. We worked with 14 muscle larvae concentrates of *T. spiralis* and 14 of *T. patagoniensis* (total: 28) and with suspensions of fresh human erythrocytes. The treatment was performed by incubating the globular sediment with an equal volume of larval concentrate (37 °C) for 60 and 120 min. The Controls were incubated in the same way with saline solution. The Alcian Blue method was applied and %CAE (percentage of erythrocyte anionic charge) was determined in the Control and the Treated globules. The experimental Erythrocyte Anionic Charge Coefficient (CexpCAE), defined as the ratio between final %CAE and initial %CAE, was determined. The results showed that the globular charge was lower at 2 hours of incubation than at the first hour, for the treatment of erythrocytes with both species of *Trichinella*. All the treatments with *T. spiralis* modified the globular charge, being the mean and the CexpCAE standard deviation of the 7 suspensions incubated during 1 hour 0.65 ±0.123 and of the 7 incubated for 2 h 0.47 ±0.19. In treatments with *T. patagoniensis* a decrease in erythrocyte charge was observed in 6/7 suspensions incubated 1 h (mean and standard deviation of CexpCAE 0.77 ± 0.089) and in the 7 that were in contact with the muscle larvae for 2 h (mean and standard deviation of CexpCAE 0.59 ±0.149). The results show that the erythrocyte desialization produced by *T. spiralis* is greater than that caused by *T. patagoniensis* under the same experimental conditions. It is concluded that the desialization produced by both species is not the same, suggesting that the parasite–host relationship is different and possibly *T. spiralis* has greater adaptation to man than *T. patagoniensis*.

A51
KNOWLEDGE AND PRACTICES TO EARLY DETECTION OF COLORECTAL CANCER (CRC) IN WOMEN FROM WHEELWRIGHT, SANTA FE

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CRC is one of the most frequent malignant neoplasms and represents a public health issue worldwide. In Argentina, the Ministry of Health reports that more than 13000 new cases are diagnosed each year. The screening program, by video colonoscopy (VC) and fecal occult blood test (FOBT), allows the early detection of some precancerous injuries and modifies the course of the disease. The aims of this study were to investigate the knowledge about CRC and the practices for early detection. To achieve these objectives, a descriptive, cross-sectional study was carried out by conducting interviews with a sample of women from Wheelwright. To calculate the sample size, an initial pilot study was performed. Once the sample size was obtained, a stratified and multistage probabilistic design was applied. Means and standard deviations (mean ±SD) were computed for quantitative variables, and absolute and relative frequencies (proportions) were used for categorical variables. A total of 59 women between 50 and 74 years old were interviewed (59.9 ±7.9 years). 42.2% of women were aware of CRC screening (6.8% about FOBT and 54.2% about VC), but only 28.8% of them have done some of these tests. From 21 participants who positively answered to the question: "Do you know about VC frequency?" 19 subjects (90.5%) answered a lower frequency than that recommended. Of the 23 subjects who said they were aware of the initial age of detection, only 60.7% cited the correct age. 93.3% of the interviewed women referenced that persons with CRC family background must start the screening earlier. However, only 39.3% of women from this group have done some of these tests. 52.2% of the studied sample knows that CRC is the second cause of death worldwide, but only 29.9% have done some screening tests. On the other hand, 54 participants (91.5%) referenced that CRC has a cure if it is early detected; but only 29.6% have done some of the mentioned screening tests. In conclusion, it was observed that despite the fact that women know about CRC and are aware of screening tests, the compliance to them is low. New investigations are necessary in order to identify the reasons that limit the screening test compliance.

A52
RELATIVE ABUNDANCE OF COMMENSAL RODENTS (RODENTIA: MURIDAE) IN THE FCV-UNR TERRITORY, CASILDA, SANTA FE

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Rodentia Order includes approximately 2200 species, which represents 40% of known mammals. Some of the most important characteristics of several of the rodent species are the adaptability and flexibility of individual behavior. The best example of this are rodents that are closely related to men (commensal rodents). This contribution shows the relative abundance (AB%) of these rodents on the FCV-UNR site, based on the analysis of the American Barn Owl's diet (*Tyto furcate* Temminck, 1827). The egagropiles were collected between January and December 2018, thus covering 12 months of a year. The dams' identification was performed by the comparison with identified samples in osteological collections and specialized literature. A total of 603 vertebrate dams were registered from the study of the egagropiles of *T. furcata* (274 samples), from which 94% corresponded to micromamifers. Only 20 prey items corresponded to rodents of the Muridae family originated in the Old World, which represents an AB of 3.5%. This family contributed with the registration of three species *Rattus rattus* (n = 9), *Rattus norvergicus* (n = 5), and *Mus musculus* (n = 6). These results allow us to infer that although the FCV-UNR site is located in the city sorroundings, the characteristics of the place provide favorable conditions for the development of rodents of the Cricetidae family, which is greatly evident. The Muridae family, although present, the low proportions reflect the limited availability of resources that man potentially provides.

A53
STUDY ABOUT THE PERCEPTION ON THE ROLE OF PHYSICIANS REGARDING THE COLORECTAL CANCER SCREENING IN A POPULATION OF CARCARAÑA SECONDARY SCHOOL TEACHERS

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In Argentina, colorectal cancer (CRC) represented the second leading cause of death in men and the third in women in the period 2011–2015. The role of physicians is essential to achieve CRC screening adherence. This study aimed to investigate teachers' knowledge about CRC screening, to assess the proportion of teachers who underwent a screening test, and to know the perceptions of this population regarding the role of physicians in adhering to these screening practices. A descriptive, cross-sectional study was carried out, by conducting a self-administered survey, of all secondary school teachers 50 years of age and older in Carcarañá Data were analyzed applying mean $\pm$ standard deviation, ANOVA, and Chi-squared tests. The results showed that 39 teachers were surveyed, 76.9% were women (n = 30) and 23.1% men (n = 9). The mean age was 52.9 $\pm$ 2.2 years. Thirty-eight teachers had consulted with a physician in the last 12 months. Of these, 26 (68.4%) knew about the existence of screening, and 15 out of 26 mentioned physicians as the source of such information. Eleven teachers had performed some of the screening tests. Of the teachers who knew about their existence, 10 had done some of the screening tests (38.5%) and 16 had not. In contrast, of those who did not know, only one (7.7%) had done it ($P = 0.04$). Of all the teachers who had performed any of the screening tests, physicians stand out as the main source of information (63.6%). With regard to teachers' perceptions about physicians: 92.1% perceive that they "treat them with respect", 68.4% "consider them trained", 76.3% and 60.5%, respectively, "trust that they do their best for them" and "consider that they act in a selfless way when requesting additional studies". Conclusion: It was evidenced that, despite the fact that most of the teachers surveyed had a positive perception about physicians and a good predisposition to perform CRC screening at their recommendation, a low percentage had done it. New studies would be necessary to help identify the causes of low adherence in order to generate specific actions that would encourage participation in these screening tests in people at average risk.

A54
CHARACTERISTICS AND REPRODUCTIVE PARAMETERS OF THE ENGLISH BULLDOG BREED

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In the city of Rosario between January 1, 2017, and March 1, 2019, the study of 87 labors of English Bulldog dogs was carried out, with the aim of determining: average puppies per litter, percentage of dystocia on all births, percentage of males and females born and causes of dystocia, as well as the incidence of clinically detectable congenital pathologies. Female dogs between 2 and 6 years old were included in the study, all with a complete health plan (antiparasitic and external and internal vaccination treatments) and in perfect health. On a total of 87 labors, there were 9 (11%) normal births and 78 (89%) dystocic births, establishing that primary atony was the most prevalent cause of dystocia with 71.7%, followed by dystocia due to fetal alterations 24%, and secondary atony 4.3%. The total number of puppies born was 429, thus obtaining an average of 4.6 pups per litter. When comparing normal and dystrophic births, it was observed that the average of those born in normal deliveries was 4.55 puppies per litter, while the average number of those born in dystrophic deliveries was 4.56 pups per litter this difference is not statistically significant. Therefore, there is no evidence to state that the average of those born in dystrophic births differs from those born in eutopic births. The percentage of male born puppies was 52% while the percentage of females was 48%. The evaluation of the viability and vitality of the pups born in normal delivery resulted in 12% of perinatal deaths, while in those born in dystrophic birth this percentage of perinatal mortality amounts to 20.5%, being, in this case, the statistically significant difference what makes it possible to assert that dystocia has a higher percentage of perinatal mortality. Among the clinically verifiable congenital alterations, lethal congenital edema or anasarca was the most frequent following low weight at birth, hydrocephalus, and cleft palate. From the results obtained, it can be concluded that this is a breed with a lot of difficulty in labor, so careful and thorough monitoring of pregnancy and birth is necessary to optimize the results.

A55
IDENTIFICATION OF THE NUMBER OF LOCULES IN TOMATO FRUITS (SOLANUM LYCOPERSICUM L.) USING COMPUTER VISION

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The locules are the internal cavities of the fruits that contain the seeds. In tomato (Solanum lycopersicum L.), the number of locules (NL) varies from two to fifteen or more. This character affects the final shape and size of the fruits, which are attributes of great biological, historical, and economic importance for the crop. Consequently, the determination of this trait presents agronomic importance and is relevant for breeding programs. Traditionally, the determination of the NL has been determined by visual counting from cross-sections of fruit. However, this method is time-consuming. On the other hand, sometimes the locules may be rudimentary

or not fully developed, and it depends on the expert's criteria whether or not they are considered in the count. This subjectivity generates noise in the data and makes it difficult to understand the mechanisms underlying these characteristics. In this work, an automatic method based on computer vision is presented for the identification and counting of NL in tomato fruits. Two data sets were used: the first includes 735 cross-sectional images of tomato fruits taken in the Villarino Experimental Field of the FCA-UNR and another available in the Sol Genomics Network repository consisting of 143 cross-sectional images. Both sets of images were taken following the same considerations. Edge detection was made using the automatic Otsu method and after the fruit was sectorized. An equalization histogram technique was then applied to homogenize the image and detect the internal edges. In the next step, the segmentation of the image based on an adaptive threshold was performed. Afterward, internal rings were generated in the image and within each ring, the number of locules was determined. Finally, a consensus value was obtained between the rings, making a mode. Promising experimental results were achieved in terms of accuracy in real tomato data sets, suggesting the possible usefulness of the proposed method in the development of cost-effective tools for automatic measurement of internal tomato attributes. A web interface for the automatic calculation of the NL from images of cross-sections of fruits was implemented.

A56

MORPHO-HISTOLOGICAL CHARACTERISTICS OF FOSITAS OF HUMAN PREMOLARS

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The enamel of these teeth is developed by the union of three vestibular lobes and one palatine or lingual. From their lack of union, there are fositas, true ecological niches that would allow the bacterial invasion, its toxins, and acids produced as a result of your metabolism. In addition, enamel and dentin are related by an amelo-dentinal limit, which is crossed by dentinal structures called penetrating canaliculi, husos, and Linderer plumes, that represent a possible communication between both tissues and an anatomical risk factor in the development of caries. This work aimed to analyze the conformation of dental groups of our study, length and shape of fositas, histological aspect of the enamel and its relation with dentinal structures in the deep part of them, in order to detect possible anomalies and communications between both tissues. Z test analysis, comparison of proportions for independent samples with a significance level of 5%. Upper (PMS) and lower premolars (PMI), healthy, already extracted prior consent, at the Italian University Institute of Rosario (IUNIR), public and private centers, by orthodontic or periodontal treatment, were included. Their roots were immobilized leaving the emerging crowns and their fositas were was injected with fuchsin for subsequent identification by them and allowed to dry. The crowns were cut by their vestibular and palatal or lingual faces in a mesiodistal direction respecting the fositas. The remnant was treated by the wear technique that allowed to obtain transparent sheets to be examined at smaller magnification and greater with an optical microscope. These were classified by its location in the dental arches in first and seconds premolars. Total 30 teeth: 15 PMS with 27% firsts and 73% of seconds premolar (P=0.1167), and 15 PMI with 60% first and 40% of seconds respectively (P=0.4328). Length of fositas in PMS: Not visible: 33%, shorts 41% and 26% visible up at limit; in PMI values were 13%, 67% and 20% for each characteristic. Was found a predominance of the form broad tube over the strait (P=0.0255). The cracked enamel attached to some type of dentinal structure was the most frequent (P=0.0068). There was no difference in the conformation of the dental groups where we found a predominance short fositas in both. But there was found fositas with wide tube-shaped whose deep part it was contact with cracked enamel. In addition, we found that this zone was attached to some of the dentinal structures that cross the amelo-dentinal limit. These findings were could be considered an anatomic risk factor for the development of caries.

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