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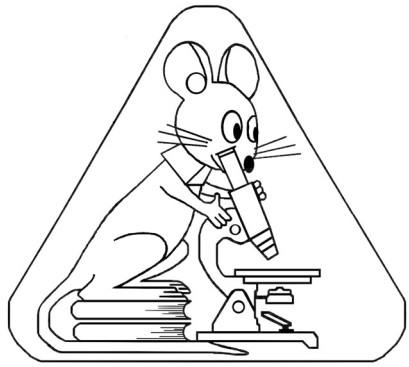

TUCUMAN BIOLOGY ASSOCIATION

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137.
PROTEIN MALNUTRITION AFFECTS THE DEVELOPMENT OF B LYMPHOCYTES IN BONE MARROW AND SPLEEN

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Protein malnutrition decreases resistance to infection due to the alteration of various physiological processes, including hematopoiesis. This work evaluated the effect of protein malnutrition on the ontogeny and function of spleen and bone marrow (BM) B lymphocytes (BL). Weaning mice were malnourished by protein deficiency for 21d (M). Control mice (C) received a balanced conventional diet. In the M and C groups the following were evaluated: expression of B220, HSA and IgM in BM and spleen cells by flow cytometry, total IgM and IgG levels in culture supernatants of spleen BL, stimulated with LPS or CpG, and proliferative capacity of spleen BL. Malnutrition significantly decreased the total cell number in BM and spleen, mainly affecting the BL population (B220+). In BM, the M group showed a marked decrease in immature BL population ($B220^{low}HSA^{high}IgM^{+/-}$) ($p<0.01$), whereas the spleen showed a decrease in mature LB ($B220^{high}$ $HSA^{low}IgM^{+}$) ($p<0.05$) with respect to the C group. Levels of total IgM and IgG in the M group were not different from the C mice. BL proliferative capacity in response to LPS and CpG was similar in both groups. Malnutrition affects B lymphopoiesis in spleen and BM, decreasing production and number of BL without affecting the functionality of these cells. According to these results, the increased susceptibility to infections in malnourished mice would be due, at least partly, to quantitative rather than qualitative alterations in BL.

138.
NASAL ADMINISTRATION OF *Lactobacillus rhamnosus* CRL1505 IMPROVES HUMORAL IMMUNITY IN MALNOURISHED MICE

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We evaluated the effect of *Lactobacillus rhamnosus* CRL1505 (Lr05) nasal treatment on the recovery of humoral immune response in malnourished immunocompromised mice. Weaning mice were malnourished with a protein free diet for 21d. Malnourished mice were fed a balanced conventional diet (BD) for 7 days or BD for 7 days with Lr05 nasal treatment on days 6 and 7 (BD+Lr05). On day 8 we studied B lymphocytes population in blood, spleen and bone marrow. Expression of B220 and HSA were determined by flow cytometry. Total lymphocytes counts and $B220^{+}HSA^{+}$ cells in BD+Lr05 mice were significantly higher than those in the BD group. To assess whether changes induced by BD+Lr05 treatment modified the resistance to infection and the humoral immune response, we performed an intranasal challenge with *Streptococcus pneumoniae* (Sp). BD mice showed lung and blood positive cultures throughout the studied period. Treatment with BD+Lr05 increased resistance to infection, prevented the dissemination of Sp into blood and improved lung clearance. Levels of specific IgG in the serum of BD+Lr05 mice were higher than in the BD group. In addition, mice treated with BD+Lr05 showed higher levels of specific respiratory IgA. Nasal administration of Lr05 improved humoral immunity and increased resistance against Sp infection. Nasal treatments with lactic acid bacteria would be an interesting alternative to improve defenses in immunocompromised hosts.

139.
POSSIBLE SOURCES OF MICROBIOLOGICAL CONTAMINATION IN A CITRUS PROCESSING PLANT

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Securing food innocuity is of fundamental importance for the satisfaction of clients and consumers. The objectives of this work were: 1) to analyze the possible points of contamination of final products in a citrus processing plant; 2) to evaluate the effectiveness of the juice pasteurization process.
Official techniques (FDA, AOAC) were used. Soil and lemon samples from Tucuman city farms were analyzed as well as water and lemon juice samples collected at different stages of the industrial process. Samples were analyzed before the thermal effect and after it. In the soil and fruits samples, the growth of TAB (termophilic acidophilic bacteria) was detected, but not of *Alicyclobacillus* strains, which can modify the organoleptic quality of the juice. In the packing sector, the general microorganisms counts decreased as the fruits passed through the different stages of the washing process. In condensate water samples and concentrated citrus juices, TAB were not isolated. The presence of yeasts and coliform bacteria was detected in single strength juices but not in the juice obtained after the thermal process.
We can conclude that: 1) the microbiological control of raw materials which cause alteration of the product quality and/or innocuity of foods should be taken into consideration; 2) the thermal conditions used are adequate to obtain the proper pasteurization of citrus juices.

140.
ADHERENCE STUDY BETWEEN DIFERENT STRAINS OF *E. coli* AND PORCINE ENTEROCYTES *IN VITRO*

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Escherichia coli is one of the most important ethiological agents of porcine neonatal diarrhea. This pathology is mainly caused by enterotoxigenic *E. coli* (ETEC) with adhesins F4 (K88) or F18 and enteropathogenic *E. coli* (EPEC), which possess the eae gene. The aim of this study was to evaluate the adhesion of three strains of *E. coli* with different virulence genes on primary porcine enterocyte cultures. The cells obtained from primary porcine enterocyte cultures from duodenum and jejunum were grown at 37ºC under 5% CO2. When the cultures reached semiconfluent growth, F18 (ETEC), F4-F18 (ETEC) and eae (EPEC) strains were added ($1x10^{8}$ CFUs) for 2 hours. The monolayers were lysed in 1% Triton X-100 for 20 min in order to release the bacteria. The suspensions were serially diluted and 100 µl of each dilution was plated on Mac Conkey agar. The percentages of attached bacteria were calculated based on numerical CFU values. A Kruskal-Wallis test was used. $p<0.05$ was considered significant. There were no significant differences between the three strains analyzed for adherence degree to porcine intestinal epithelial cells. Perhaps the strains used were attenuated due to successive picks. Other factors that could have an influence on the degree of pathogenicity should be analyzed.