BIOCELL
2011, 35(2): A93-A151

ISSN 0327 - 9545
PRINTED IN ARGENTINA

TUCUMAN BIOLOGY ASSOCIATION

(Asociación de Biología de Tucumán)

Abstracts from the

XXVII ANNUAL SCIENTIFIC MEETING

October 13 – 15, 2010

Tafí del Valle, Tucumán, Argentina

The abstracts have been revised and evaluated by the Scientific Committee of the Tucumán Biology Association

37.

COPPER AND ZINC: TRACE ELEMENTS OF IMPORTANCE IN THE NUTRITION OF MILK COWS

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Trace elements are enzymatic cofactors that participate in oxygen transport, regulate ruminal microbial enzymatic reactions and maintain fetal development, reproductive function and immune activity. We decided to evaluate the blood levels of the trace elements copper (Cu mg/L) and zinc (Zn mg/L) during the periparturition period in the autumm and spring of 2009 in the center region of Santa Fe. We worked with 143 Holstein cows (five fields) and took blood samples from the jugular vein. Flame atomic absorption spectrometry was used. Data were analyzed by ANOVA. The average values and standard deviations of concentrations were: Cu 0.68±0.18; 0.56±0.12 and Zn 0.64±0.14; 0.65±0.19, for autumn and spring, respectively. Copper and zinc were within the range reported by INTA Balcarce as reference values for Holstein cows. There were significant difference (p <0.05) in Cu values between two seasons studied. During lactogenesis, important metabolic changes take place. For instance, there is an increase in the use of nutrients by the mammary gland, in this case of the micronutrient zinc. In view of the above, the study of the composition of microminerals throughout gestation is important because of the impact it has on production and the economic losses it may cause.

38.

INFLUENCE OF INTEGRATED MANAGMENT OF HIVES OF HONEYBEE (*APIS MELLIFERA* L.) ON THE CONTROL OF THE SPORULATION OF *NOSEMA* SPP.

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Nosemosis is the most widespread disease of adult honey beess. The aetiological agent is *Nosema* spp., a unicellular Microsporidia, now classified as fungi. The objective of the present work was to determine the influence of the Integrated Managment of Hives (IMH) of honeybee (*Apis mellifera* L.) on the control of the sporulation of *Nosema* spp. Integrated management of the apiary consists of control of spaces, breeding, genetics and health of the colony together with hygiene and prophylaxis of inert material. The field study was carried out in Delta, Buenos Aires, Argentina, from May 2008 to May 2009. Every month 35 adult honey bees of 5 different hives were preserved in 4% formaldehyde until processing. The results were interpreted with a scale (1 to 5) proposed by Cornejo Rossi (1974) according to the severity of the infestation. At the beginning of the study, infestation levels were between 3 and 5. These levels indicated pharmacological treatment in spring but, as it was winter, we implemented IMH as an alternative to reduce the spore charge in the hives under study. Spore charges were high until the beginning of the summer, when they decreased because of the IMH proposed. These results allowed us to avoid the use of antibiotics and confirm the efficacy of IMH in the reduction in the spore charge of *Nosema* spp.

39.

CACTACEA FRUITS IN NATIVE FORESTS OF NORTHWESTERN ARGENTINA: A NEW OPTION FOR FUNCTIONAL FOODS

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Fruits are a good source of phytochemicals that prevent degenerative diseases such as cancer and cardiovascular diseases. Comparative studies were carried out between the antioxidant activity (AOA) and nutritional properties of hydrophilic preparations of four Cactaceae fruits (*Lepismium lorentzianum* (Griseb.) Barthlott, *Lepismium lumbricoides* (Lem.) Barthlott, *Rhipsalis floccosa* spp *tucumanensis* (F.A.C.Weber) Barthlott & N.P. Taylor and *Pfeiffera ianthothele* (Monv.) F.A.C. Weber) that grow in the Argentine Yunga. *L. lumbricoides* and *L. lorentzianum* had the highest sugar content. All fruits accumulated reducing sugars (glucose and fructose). Protein content was 1.5 to 5 mg/g fresh fruit. *L. lorentzianum* showed a higher content of phenolic compounds. All fruits showed antioxidant capacity; however, *L. lorentzianum* had the highest antiradical capacity (SC_{50} = 2.4 µg / ml) and this activity was similar in all forms of extraction (with and without heating). There was a positive correlation between the AOA and the phenolic content of fruits. Conclusions: The fruits of epiphytic cacti of the Tucuman Yungas would be a new option for functional foods to promote health and prevent diseases related to oxidative stress.

40.

GERMINATING XIMENA AMERICANA (OLACACEAE), A MULTIPLE-USE NATIVE SPECIES

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The rural inhabitants of Santiago del Estero resort to *Ximena americana* L. because of its multiple uses and medicinal, dyeing, and nourishing properties, although the former are limited today because of its decrease in natural environments.
The aim of this paper was to evaluate the effect of pre-germinative treatments upon the germination and emergence rate of *Ximena Americana* L. under controlled conditions. Four treatments were carried out: untreated blank, 10' scarification by sulfuric acid, 24 hour water-soaking and mechanical scarification by sandpapering. Ten seeds with each treatment were sown in speedling-type containers, placed in a growth-chamber at 25°C with a 12 hour light/dark cycle for 60 days and counted weekly. Both emergence percentage and rate were calculated and results analyzed statistically using ANOVA. The soak-treated seeds registered 70% of emergence while acid-scarified and untreated ones showed no significant differences as to emergence percentages (50% and 55% respectively). The average emergence time was similar for both soaked and untreated seeds (37.38 and 30.15) while that for those acid-scarified seeds was the highest (50.34). The 24 hour water-soaking proved to be the most suitable treatment for germinating *X. americana* L. seeds.