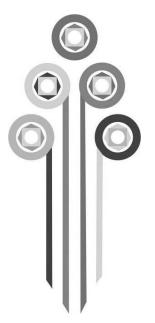
BIOCELL 39 (suppl. 5), 2015 ISSN 1667-5746 (online version) ABSTRACTS A1 – A232



Abstracts from the

THIRD JOINT MEETING OF THE BIOLOGY SOCIETIES OF ARGENTINA

(Tercera Reunión Conjunta de Sociedades de Biología de la República Argentina)

XXXII Annual Scientific Meeting of the Tucumán Biology Association XX Annual Scientific Meeting of the Córdoba Biology Society XXXIII Annual Scientific Meeting of the Cuyo Biology Society XVII Annual Meeting of the Argentine Biology Society

September 9-11, 2015 San Miguel de Tucumán, Argentina

The abstracts have been revised and evaluated by a Scientific Committee prior to publication

ABSTRACTS A1 - A232

A184

BONE BIOCOMPATIBILITY OF HYBRID BIOACTIVE GLASS-CHITOSAN-POLYVINYL ALCOHOL 3D **MATRIXES FOR TISSUE ENGINEERING.** <u>Missana LR^{3,4,5}</u>, ColettaDJ^{1,5}, VitelliEJ^{1,5}, BumaguinGE¹, GarbinoFG¹, ZabalzaF¹, Jammal MV^{3,4}, PereiraM², FeldmanS¹.

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Bone biocompatibility of hybrid polymer compounds bioactive glass (MHVB) 20% polymerized with different chitosan ratios (Q) and polyvinyl alcohol (PVA) for bone tissue engineering scaffolds was evaluated. MHVB with chitosan-PVA 3:1 ratio made up Group A (Ga), Group B (Gb): 1:1 ratio and Group C (GC): 1:0 ratio, respectively. In femoral defects, 6 mm Ø, 15 matrices were implanted for 3 months into 1-week-old New Zealand rabbits, Samples were obtained, fixed in buffered formalin10, with and without decalcification. Serial sections were stained with H&E or Masson-Goldner. Two areas were assessed: 1) matrix and interface and 2) surrounding bone. Zone1: Ga) new bone sections surrounded by fibrous and bone tissue. Gb) little bone formed and mineralization cores surrounded by fibrous and bone tissues and Gc) mineralized matrix and new bone areas, granulation tissue and inflammation were found. There was non bone capsule. Zone 2: all groups showed bone trabeculae, compound and pagetoid type. Osteoid layer thickness was variable. Ga: cubic osteoblasts and other shapes, in multiple prominent layers. Gb and Gc: osteoblasts and lining cells were found. All groups showed foreign particles, bleeding and congestion. Inflammation. There was new bone formation in all MHVB-PVA-Q. Absenceof bone capsule in Gc demonstrates its greater biocompatibility.

A185

MEDICINAL PLANTS FROM KAZAKHSTAN AND ARGENTINA: ANTIFUNGAL ACTIVITY OF THEIR **ESSENTIAL OILS**

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Plant essential oils are usually considered with low toxicity and with a reduced impact on the environment. Some of them are biostatics or biocides, with low ability to induce microbial resistance. The aim of this work was to evaluate the composition and antifungal activity of essential oils from native medicinal plants of Argentina and Kazakhstan. These oils were obtained by hydrodistillation from the aerial parts of Acantholippia deserticola, Artemisia proceriformis, Achillea micrantha and Libanotis buchtormensis. They were analyzed by gas chromatography coupled to mass spectrometry and the antifungal effect was evaluated by the microdilution method in YES medium. The main constituents of the essential oils were β -thujone (66.5±0.2%), and *trans*-sabinyl acetate (12.1±0.2%) in A. deserticola, α -thujone (66.9±0.4%) in A. proceriformis, 1,8-cineole(26.9±0.5%), and campbor (17.7±0.3%) in A. micrantha and cis-β-ocimene (23.3±0.3%), and trans-β-ocimene (18.4±0.2%) in L. buchtormensis. The fungal susceptibility was Septoria tritici and S. glycines (MIC₁₀₀=0.70-2.70 mg/ml) >Fusarium verticillioides, F. graminearum and Aspergillus carbonarius (MIC₁₀₀=2.70-10.60 mg/ml) and A. niger (MIC₁₀₀=5.31-21.20 mg/ml). The essential oil of A. deserticola showed the highest antifungal activity. Further research is needed to establish the safety and real potential of the essential oils from A. deserticola as botanical fungicides.

A186

EFFECT OF Pseudomonas putida ON THE GROWTH OF Arabidopsis thaliana IN THE PRESENCE OF HIGH LEVELS OF Al³⁺

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The high levels of AI^{3+} in the soil affect root growth, which influences the absorption of water and nutrients and disrupts normal plant development. Pseudomonas putida A (ATCC 12633) is capable of adsorbing Al³⁺ through the formation of complexes with phosphatidylcholine (PC) of the membrane. The objective of this work was to study in A. thaliana the capacity of P. putida to mitigate the effects of Al^{3+} on plant growth and development. 7 days after growth in MS medium or MS supplemented with 20 mM Al^{3 \ddagger}, the seedlings were inoculated with 10µl (1 x 10⁸ ufc ml⁻¹) of *P. putida* A (ATCC 12633) or *P. putida* PB01 (a mutant strain without PC). After 28 days of incubation, root length (A), leaf mass (B) and amount of protein (C) were determined. With respect to the absence Al³⁺, plants grown in the presence of the ion showed a decrease in A, B and C of 72%, 42% and 55%, respectively. In the presence of Al³⁺ and when inoculated with P. putida, parameters A, B and C increased by 79%, 45% and 41%, respectively, while an increase of 33%, 22% and 19% for A, B and C, respectively, was detected in those inoculated with P. putida PB01. The analysis of plant roots using the fluorochrome 2,3,4,5,7-pentahydroxyflavone (morin reagent), which forms Al-morin complex, showed a lesser