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241.
STIMULATION OF BIOFILM FORMATION BY HYDRO-CARBON DEGRADING STRAINS IN THE PRESENCE OF SQUAMOCIN

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Previous studies have shown that annonaceous acetogenins (ACGs) stimulates biofilm formation in a *P. aeruginosa* strain of clinical origin.

ACG squamocin is structurally related to the γ -lactones, a family of bacterial autoinducers that play an essential role in the quorum sensing mechanism to coordinate the biofilm maturation. In this work, 37 polycyclic aromatic hydrocarbon degrading strains were tested for their attachment capability and biofilm development on polystyrene microplates using squamocin as a biofilm inducer.

Out of the 37 strains tested, 22% showed natural formation of bacterial biofilms that increased in the presence of squamocin, in some cases up to 40%. In the remaining 12 strains over 60% showed an increase in biofilm production and were therefore selected for future studies.

242.
CYTOTOXIC EFFECTS OF ACANTHOSPERMAL B ON BLOOD AND TUMOR CELLS

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The main compound of the chloroform extract of the American herb *Acanthospermum hispidum* DC is the sesquiterpene lactone Acanthospermal B (AcB), which displayed bacteriolytic effects on a wild strain of *Staphylococcus aureus* (F7 methicillin-resistant). We investigated the effects of AcB on blood and tumor cells. Polymorphonuclear (PMN) and mononuclear (MN) cells were isolated from human blood. The tumor cells (CTM3) were obtained by enzymatic digestion from a breast cancer (M3) in Balb/c mice. Peritoneal macrophages (PMo) were obtained from normal Balb/c mice. Suspensions of 10⁶ cells/ml of each kind were incubated in RPMI 1640 media plus 10% fetal bovine serum and gentamicin 100ug/ml of AcB for 12 h at 37°C in the presence of 0 (control), 10, 50 and 100 μ g/ml of AcB. The viability of the human PMN and MN was determined by flow cytometry and iodure propidium and the viability of mice cells (P Mo and CTM3) by trypan blue vital stain. In the presence of 100 μ g/ml, a decrease of 45 and 16% in the viability of PMN and MN was observed. Viability decreased 26 and 40% in PMo and CTM3 cells in relation to the control. The highest concentration tested showed a significant but non selective cytotoxic effect on tumor and PMo mouse cells. However, the cytotoxic effect was selective for human leukocytes (PMN are more sensitive to AcB than MN). This selectivity correlates with the effect of other sesquiterpene lactones on human leukemia (HL-60). Further studies are needed to determine AcB cytotoxic effects on different human leukemia.

243.
ENZYMATIC TREATMENT OF THE CONNECTIVE TISSUE COVERING THE NERVOUS SYSTEM OF *Spodoptera frugiperda*

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The study of the nervous system of insects is an interesting way to regulate insect feeding behavior. The nerve stimulation is transmitted by electrical impulses that generate a membrane potential, inducing biological stimuli such as hunger. In order to measure changes in the nervous system generated for different agents, we established the steps necessary to measure membrane potential in the nervous system of *S. frugiperda*, an important corn pest in Argentina. The central nervous system of insects is covered with a transparent layer of dense connective tissue that presents mechanical resistance to penetration. To penetrate the neural ganglia we manufactured microelectrodes with the adequate diameter. In order to disintegrate the connective tissue, we conducted various tests documenting the enzymatic action as a function of time: Test 1) collagenase (0.5%); 2) collagenase (5%), 3) mixture of collagenase (0.6%) and protease (0.06%). The tests were carried out for 10 min and the enzymatic action was photographed at 1 min intervals. Treatment with collagenase (5%) resulted aggressive for the nervous tissue and disintegrated the connective tissue but also the neural ganglion, a fact assessed by observation of single neurons which showed structural discontinuity. Treatments 1 and 3 enabled penetration of microelectrodes inside neuronal ganglia. This is the first report on the investigation of electrophysiological responses to stimuli in *S. frugiperda*.

244.
IDENTIFICATION OF AGENTS RESPONSIBLE FOR BIODETERIORATION IN A HISTORICAL MONUMENT

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This work is part of the project "Restoration and Integral Reevaluation of the The Indian Monument", located in the provincial route 307 to Tafi del Valle, Tucumán, Argentina. It is the work of the Argentine sculptor Enrique Prat Gay from 1943. Data on preservative restorations is very scarce in South America. In Argentina, we can only refer to the works of Hladki (2000) and Rosato (2006). With the purpose of identifying the causing agents of biodeterioration, 3 inspections were carried out, 30 samples were also collected taking into account the different levels and orientations of the sculpture. As a result of this study, based on the recognition *in situ* and their later exam in the laboratory, 23 taxa were registered: Dicotyledonae (*Parietaria debilis*, Rosaceae), Monocotyledonae (*Cynodon hirsutus*, *Polypogon viridis*, *Sporobolus indicus*, *Tillandsia* sp.), Pteridophyta (*Polypodium tweedeanum*, *Thelypteris hispidula*), Bryopsida (*Bryum* sp., *Bryum argenteum*, *Hyophila* sp., *Racopilum tomentosum*, *Sematophyllum* sp., *Tortula* sp.), Fungi (*Alternaria alternata*, *Aspergillus niger*, *Chaetopsis* sp., *Cylindrotrichum* sp., *Kylindria* sp., *Mucor* sp., *Nigrospora* sp.) and lichens (*Leptogium* sp., *Rhizocarpon* sp.).