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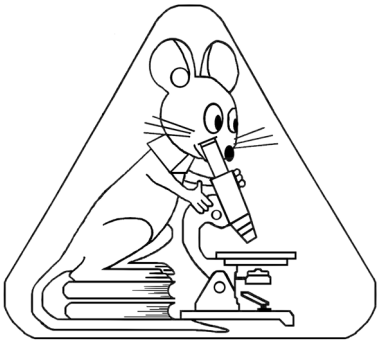

TUCUMAN BIOLOGY ASSOCIATION

(Asociación de Biología de Tucumán)

Abstracts from the

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

21.

Anacardiaceae FROM NORTHWESTERN ARGENTINA: ANTIFUNGAL POTENTIAL ON FUSARIUM SPECIES

Aristimuño Ficoseco ME[1,2], Sampietro DA[2], Vattuone MA[2], Catalán CA[1].
[1]INQUINOA–CONICET. [2]LABIFITO. FBQF. UNT, Ayacucho 471. 4000, Tucumán, Argentina. E-mail: dasampietro2006@yahoo.com.ar

Fusarium species reduce maize and wheat yields and contaminate grains with mycotoxins. Anacardiaceae are a potential source of antifungals for *Fusarium* control. The aim of this work was to identify leaf extracts and their constituents that may prove useful for the control of *F. graminearum* and *F. verticillioides*. Leaves of *Schinus* (*S. molle*, *S. fasciculatus*, *S. gracilipes*) and *Schinopsis* (*S. lorentzii*, *S. haenkeana*) were extracted with dichloromethane (CH2CL2), ethyl acetate (AcEt) and methanol (MeOH). Extracts were evaporated to dryness, suspended in 50 ml of MeOH and filtered. The methanolic filtrates FmCH2CL2, FmAcEt and FmMeOH were assayed by agar diffusion and broth microdilution methods. MID and IC50 were determined. Their constituents were separated by thin layer chromatography (TLC).The lowest DIMs were obtained for FmCH2CL2 and FmAcEt of *Schinopsis* species on *F. graminearum.* The FmCH2Cl2 and FmAcEt of *S. fasciculatus, S. gracilipes, S. haenkeana* and *S. lorentzii* on *F. graminearum* and FmCH2Cl2 of *Schinopsis lorentzii* on *F. verticillioides* showed IC50s between 125 and 400 µg/ml. TLC indicated terpenoids and alkylcatechols in FmAcEt and FmCH2Cl2 of *Schinopsis* species. These extracts were the most active ones on *Fusarium*. However, *F. graminearum* was the most sensitive. The separation of the bioactive constituents is in progress.

22.

METABOLITES WITH ANTIBIOFILM PROPERTY FROM *Aspergillus parasiticus*

Luciardi MC[1], Cartagena E[1], Bardón A[1,2], Arena ME[1].
[1]Facultad de Bioquímica, Química y Farmacia-UNT, Ayacucho 471, 4000, Tucumán. [2]INQUINOA-CONICET. E-mail: cotiluciardi@hotmail.com; arename@fbqf.unt.edu.ar

The presence of insect parts in the culture medium may increase structural diversity or modify the concentrations of fungal metabolites (FM) produced by entomopathogenic fungi. The aim of this work was to determine the antibacterial and antibiofilm activity of FM from *Aspergillus parasiticus* MEA1 on *Pseudomonas aeruginosa* ATCC 27853. The fungus was cultured on a dextrose potato broth in the absence (A) and in the presence of 2% (w/v) cuticle of *Spodoptera frugiperda* (B), using the medium with insect as a control (C). After 15 days incubation, the supernatant was separated from the mycelium by filtration, both were extracted with chloroform and the FM produced in the different media were analyzed by TLC and GC-MS. The chloroform extract (EC) obtained under condition B was separated by TLC and the antibacterial and antibiofilm activity were determined. In the EC of mycelium B the main metabolite found was 2-oleilglycerol. This extract caused a 41% inhibition in biofilm formation of *P. aeruginosa* at 100 µg/Ml. Three eluents were obtained from this extract, but only the more polar eluent (formed by 60% ergosterol) decreased bacterial growth (15%) and inhibited biofilm formation (30%). The presence of insects induced the formation of FM able to inhibit the biofilm of *P. aeruginosa;* these FM should be evaluated as potential antipathogenics.

23.

CYTOTOXIC AND INSECTICIDAL ACTIVITY OF EXTRACTS FROM *Vernonia nebularum* AND *Vernonia fulta*

Diaz M, Vera C, Pellegrino E, Bardón A, Borkosky S, Vera N.
FBQF. UNT. Ayacucho 471.Tucumán 4000. E-mail: nrvera@fbqf.unt.edu.ar

The search for methods for the natural protection of crops still continues, plants being used as botanical insecticides since they have fewer lethal consequences for beneficial insects and humans. These insecticides can reduce the risk of resistance in insects and cause less damage to the environment. The aim of this work was to evaluate the insecticidal potential of *Vernonia nebularum* and *Vernonia fulta* (Asteraceae) on larvae of *Spodoptera frugiperda* (Lepidoptera: Noctuidae), which causes severe damage to crops in our region. The cytotoxic activity of the extracts was tested on larvae of *Artemia salina*. All extracts (petroleum ether, dichloromethane and methanol), obtained from the aerial parts of *V. nebularum* and *V. fulta*, were tested at 300 ppm to assess the lethal and sublethal effects caused on *S. frugiperda*. Extracts and subextracts of *V. nebularun* showed high pupal mortality rates (up to 47%). Leaf extracts from *V. fulta* reached larval mortality percentages above 40%. The cytotoxicity in *A. saline* was tested at concentrations of 1000, 100, 10 and 1 ppm. Highest cytotoxic activity was observed in the dichloromethane extracts for both species. The results suggest that the plant extracts tested could be subjected to isolation studies and structural identification of new substances to determine their mechanism of action and the possible synergistic effect between them.

24.

STABILIZATION OF LISOSOME MEMBRANE BY SPECIES FROM ASTERACEAE, EPHEDRACEAE, FRANKENIACEAE, SOLANACEAE, ROSACEAE AND VERBENACEAE FAMILIES

Torres Carro R, Isla MI, Alberto MR.
INQUINOA-CONICET, UNT (4000) Tucumán, Argentina. E-mail: mralberto@fbqf.unt.edu.ar

During inflammatory processes, many leukocytes are damaged or destroyed, and their lisosomal enzymes are spread to the extracellular medium, damaging the tissue of the swollen area. This induces the synthesis of more inflammation mediators and worsens the inflammation. Plants are a promising source of metabolites with important bio-activities and potential use in the treatment of illnesses related to inflammatory processes. We evaluated the ability of seventeen plant species to stabilize the lisosome membrane, inferred from their capacity to protect the red blood cell membrane. Plant species were collected from arid regions of northwestern Argentina and the ability of their tinctures to protect the red blood cell (RBC) membrane was evaluated using a hypotonic saline solution and spectrophotometrical quantification of the hemoglobin released. As positive controls, anti-inflammatory drugs were used. The majority of the species studied were able to stabilize the RBC membrane, except for *Ephedra multiflora* and *Frankenia triandra*. The plant species that prevented the lyses of 50% or more RBC at 1.5 mg/ml were: *Baccharis boliviensis*, *B. incarum*, *Chiliotrichiopsis keidelii, Parastrephia lepidophylla, P. phyliciformis, Fabiana bryoides, F. patagonica* and *Junellia seriphioides*. Some species showed a higher effect than the anti-inflammatory drugs tested.