



107th Annual Meeting
Of the
Texas Academy of Science
LATE BREAKING ABSTRACTS

Biological Science, Session I
Friday Morning, March 5, 2004, Weir 201

- 8:00S DETECTION OF ARBUSCULAR MYCORRHIZAL FUNGI IN AN EAST TEXAS FOREST. Amrita Kandlur*, Hailun Wang, Armen Nalian, Alexandra Martynova-Van Kley, Division of Biotechnology, Stephen F. Austin State University, Nacogdoches, TX.
Arbuscular mycorrhizal fungi (AMF) from the order Glomales form mutualistic symbiotic associations with the roots of 80-90% of all terrestrial plant species. Despite their importance, AMF have been neglected in most field studies because of difficulties in isolating and identifying them using traditional methods. PCR amplification of a region of the small ribosomal subunit gene sequence with Glomales-specific primers was used to detect arbuscular mycorrhizal fungi (AMF) in the roots of *Chasmanthium sessiliforum* (Poir.) Yates growing in a natural forest in the eastern Texas Pineywoods. Twenty two amplified sequences along with sequences from fifty five other AMF species reported from previous studies outside Texas with a >97% pair wise sequence identity with these twenty two were successfully positioned into a Phylogenetic tree. The east Texas sequences appear to belong to the genus *Glomus* and to a group which includes *G. manihotis*, *G. interadicas*, and *G. fasciculatum*.

Environmental Science, Session I
Friday Morning, March 5, 2004, Weir 110

- 8:00G# PESTICIDE RESIDUES IN THE TROPICAL RIVERS OF GRENADA IN WEST INDIES AND BRAZOS RIVER. Ambrose Okpokpo*, Mohamed H. EL-Saeid, John B. Sapp, and Mahmoud A. Saleh, Chemistry Department, Texas Southern University, Houston, TX 77004.
We investigated 22 water samples from rivers in carefully marked areas of Grenada in West Indies and 5 water samples from the Brazos river in the Southwestern Texas for contamination by Organochlorines (OCPs) and Organophosphates (OPPs) pesticides residues of anthropogenic origin. We measured Organochlorine and Organophosphates residues in water samples that showed high turbidity and intense human activities. Samples were solvent extracted, cleaned up by column dehydration, and concentrated to 1 ml in ultra-pure hexane before analysis by Gas Chromatograph with Electron Capture Detector (GC/ECD), Gas Chromatography with Flame Photometric Detector (GC/FPD), and Gas Chromatography with Mass Spectrometry (GC/MS). Six OCPs were detected in all the Grenada water samples. But in the Brazos water samples, three OCPs were detected. Seven OPPs were detected in Grenada water samples but only one was detected in Brazos River.

Environmental Science, Session II
Friday Afternoon, March 5, 2004 Room

- 4:20G COMPREHENSIVE CLINICAL DIAGNOSES OF NEUROPSYCHOLOGICAL IMPAIRMENTS ASSOCIATED WITH CHRONIC INDOOR ENVIRONMENTAL EXPOSURES TO *ALTERNARIA TENUIIS*. Ebere C. Anyanwu*, Mohamed H. Elsaied, Mahmoud A. Saleh, Department of Chemistry, Texas Southern University, Houston, Texas 77004.

The objective of this paper is to report the involvement of the toxigenic mold – *Alternaria tenuis* in exposed patients that manifested symptoms of neuropsychological illnesses, most likely, due to indoor environmental toxigenic mold exposures. Immunologic, basic EEG, and comprehensive neuropsychological tests were carried out on patients who were environmentally exposed to mycotoxins, to evaluate and identify the toxigenic mold species responsible for their major complaints of neuropsychological impairments. Abnormal antibodies to *Alternaria tenuis*, *Pullularia pullulans*, and *Epicoccum nigrum* antigens were found in the patients sera, while others and - *Aspergillus*, *Stachybotrys*, and *Penicillium*, *Cladosporium* genera were within normal limits. EEG examination was abnormal with 10 Hz posterior dominant activities, which were synchronous, symmetrical and attenuated on eye opening and eye-closure. There was an evidence of tremor of the extremities in 40% of the patients. Their reflex was abnormal, and they had accommodation paresis. Gross neuropsychological abnormalities including those observed in the brain-damaged population and significantly below non-brain damaged functioning were observed in 80% of the patients. These findings seem to indicate that chronic exposures to *Alternaria tenuis*, *Pullularia pullulans*, and *Epicoccum nigrum* might have neuropsychological effects, and that most likely, only one abnormal antibody to toxigenic mold antigen could have the most dominant adverse toxic exertion leading to the observed neuropsychological effects. It is concluded therefore, that chronic exposures to certain toxigenic molds might lead to neuropsychological manifestations and that although, it is acknowledged that the contaminations of the indoor environment by toxigenic molds are directly related to the adverse health effects on the occupants, there could be a situation where such relationship does not exist.

4:40G# RAPID MSE AND HPLC METHOD OF BENZO(a)PYRENE IN FISH. **Mohamed H. EL-Saeid***, Biomarkers and Environmental Toxicology Laboratory, Chemistry Department, Texas Southern University, Houston, Texas

Several types of fish samples such as fresh, canned, salted (salted cured) and smoked fish samples were collected from Houston local market and analyzed by rapid HPLC determination method. Diode Array detector, 100 % acetonitrile and 2.00 ml/min. as a flow rate were used. The detection and run time of Benzo(a)pyrene (BaP) was 3 min. with only 0.01 ppm as a Minimum Detection Limit (MDL). Microwave Solvent Extraction (MSE) was used with 25ml of acetone petroleum ether (1:1 v/v) in 15 min. The averages of the presence of Benzo(a)pyrene in fresh, canned, salted and smoked fish samples will be discussed.

5:00G THE ELECTROPHYSIOLOGICAL DIAGNOSIS OF NEUROTOXIC EFFECTIVE CHRONIC ENVIRONMENTAL MYCOTOXINS IN HUMANS. Ebere C. Anyanwu*, **Mohamed H. Elsaied**, Mahmoud A. Saleh, Department of Chemistry, Texas Southern University, Houston, Texas 77004.

An extensive body of data demonstrates that diverse groups of mycotoxins can alter the structure and function of the nervous system in a variety of ways with notable human health consequences. Alterations that significantly compromise an individual's ability to function appropriately in his or her environment are considered adverse health effects. Myconeurotoxicity therefore, refers to any adverse effects of exposure to mycotoxins or byproducts of primary and secondary mold metabolism, including volatile organic compounds (VOCs) on the structural or functional integrity of the developing or adult nervous system. Neuromycotoxic effects may involve a spectrum of biochemical, morphological, behavioral, and physiological abnormalities whose onset can vary from immediate to delayed action, following exposure to a mycotoxin, and whose duration may be transient or persistent. Depending upon their severity, some of these abnormalities may have life-threatening consequences; more commonly, they may result in diminished quality of life. Myconeurotoxicity may result from effects of the mycotoxins acting directly on the elements of the nervous system or acting on other biological systems, which then adversely affect the nervous system.