



**THE AFRICAN NETWORK FOR THE CHEMICAL ANALYSIS OF PESTICIDES
(ANCAP)**

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13th September 2006

Dr. Moravvej Gholamhossein
Ferdowsi University of Mashad,
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Iran

**RE: ACCEPTANCE OF YOUR ABSTRACT AND INVITATION TO THE INTERNATIONAL
CONFERENCE ON PESTICIDE USE IN DEVELOPING COUNTRIES,
ARUSHA, TANZANIA, OCTOBER 16TH – 20TH 2006**

Dear Gholamhossein

Greetings from Dar es Salaam.

This is to inform you that the abstract for your paper titled "*The effects of nitrogen fertilization of host plants on insecticide susceptibility of Acyrthosiphon pisum aphids*", has been accepted for an oral presentation at the International Conference on Pesticide Use in Developing Countries to be held in Arusha from the 16th to the 20th of October 2006. Please note that you will be required to cover for your travel and subsistence costs and pay a conference registration fee of USD 250. Up-to date information on the conference is available on the website: www.ancap.org.

Looking forward to seeing you in Arusha. You are most welcome - *karibu sana*.

Yours Sincerely,

Dr. C.A. Mgina
Secretary, Organising Committee

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contamination of surface water. Biofilters are now registered by the Ministry of Agriculture and Environment of the Walloon Region in Belgium and are recommended to pesticides users.

SL-03

DNA SCREENING FOR BACTERIA THAT DEGRADE PESTICIDES WITHIN LAKE VICTORIA SEDIMENT

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ABSTRACT

The ideal fate of a pesticide which has been introduced in the environment is its complete mineralization. Such a transformation results into changes in chemical structures leading to formation of one or more new chemical species, and may be mediated by chemical or biological means. In bed sediment, biologically mediated reactions are probably the most important transformation mechanisms. These mechanisms involve microorganisms inducing pesticides to undergo both hydrolysis and oxidation-reduction reactions. Transformation rates of pesticides depend on their chemical structures, environmental conditions and the microorganisms that are present. The structure of the organic chemical determines the types of enzymes needed to bring about this transformation. In this paper, DNA screening for presence bacteria that degrade pesticides will be presented.

Extraction of sediment samples for DNA was performed using a Fast DNA kit following the MO BIO protocol. DNA Screening was done using a PCR-Perkin Elmer, with DEG, TOD, TOL, PHE and NAH as the Primers at annealing temperatures of 47, 49, 52, 53 and 55. Results indicate presence of DEG – Catechol gene, Phenol gene, TOL-Xylene gene and Naphthalene gene within the lake sediment.

SL-04

THE EFFECTS OF NITROGEN FERTILIZATION OF HOST PLANTS ON INSECTICIDE SUSCEPTIBILITY OF *ACYRTHOSIPHON PISUM* APHIDS

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ABSTRACT

The susceptibility to a carbamate insecticide (pirimicarb) of *Acyrtosiphon pisum* reared on a partially-resistant *Pisum sativum* L. genotype (Onward) and a susceptible one (Hurst Greenshaft) grown in two nitrogen regimes, was assessed by topical application and leaf-dip bioassays, using either detached or intact leaves. Similar trends in insecticide susceptibility were found between treatments (genotypes or nitrogen levels) in all application methods. However, differences in susceptibility were less apparent when aphids were exposed on insecticide-treated intact leaves than when on detached ones. In all bioassays, an interaction was found between nitrogen level and genotype for insecticide

susceptibility of aphids. The fourth instar nymphs and adult aphids reared on 'Onward' were significantly more susceptible to pirimicarb than those reared on 'Hurst Greenshaft' when plants were supplied with nitrogen solution (15 mM N), but not when supplied with nitrogen-free solution (0 mM N). On N-fertilised plants, the differences in the insecticide susceptibility of aphids between the two genotypes were more pronounced in older plants. Nitrogen fertilisation increased the LD50 of pirimicarb to adults by 87% when aphids were reared on the susceptible 'Hurst Greenshaft' genotype, but by only 7% on the partially-resistant 'Onward' genotype. The results were discussed in terms of the relationship between aphid weight and the level of insecticide susceptibility, and the implications for practical insecticide resistance management.

SL-05

INTEGRATED TOXICITY ASSESSMENT OF THE EFFECTS OF A PESTICIDE APPLICATION IN A TROPICAL SOIL

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ABSTRACT

International guidelines for the ecotoxicological characterization of contaminated soils integrate the characterization of the soil habitat function (through tests with soils) with that of the soil retention function (through tests with soil extracts) - an expression of the soil leaching potential. Yet, besides leaching, pesticides can be mobilized from soils into aquatic systems also via surface runoff. This is particularly so in tropical and subtropical regions, where the intensive use of agricultural pesticides is still not paralleled by adequate environmental assessments, partly due to a lack of information regarding contaminant fate (e.g. which compartment/s?) and effects (e.g. species sensitivity differences?). This study aimed at performing an integrated toxicity assessment of the application of the insecticide diazinon (Piñorel 60EC) on pineapple plantations in Costa Rica, through the ecotoxicological characterization of the soil system (by performing avoidance and reproduction assays with *Folsomia candida*, *Enchytraeus crypticus* and *Eisenia andrei*) and of the hazard to aquatic organisms via leaching and surface runoff (by performing reproduction assays with *Daphnia magna*, *Ceriodaphnia dubia* and the local cladocerans *D. ambigua*, *C. richardi* and *Simocephalus serrulatus*). Piñorel was sprayed at the dose recommended for pineapple (2.4 Kg a.i./ha) and at 5 times this dose, since overuse of pesticides is a usual practice among farmers. The spraying of Piñorel had no effects on the avoidance behavior of earthworms and Collembola, but affected the reproduction of the three soil species at the highest dose. Leaching- and runoff-related effects of the spraying of Piñorel were observed for both doses and for all cladocerans, though differences in species sensitivity were observed. Yet, the reproductive impairment due to runoff was higher than that due to leaching, demonstrating that the ecological risk assessment of pesticide applications should consider not only toxic effects due to leaching, but mainly those due to runoff.