

ECE 2018

XI EUROPEAN CONGRESS OF ENTOMOLOGY
2-6 JULY 2018, NAPOLI



Accademia
Nazionale Italiana
di Entomologia



UNIVERSITÀ DEGLI STUDI
DI NAPOLI FEDERICO II



BOOK OF ABSTRACTS



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it has been found that some mosquito populations increase their resistance to those agrochemicals. For this reason, there is clearly a dire need for discovering new structurally different molecules with the similar action mode. Considering the above stated, in this work the mosquito larvicidal activity and acetylcholinesterase (AChE) inhibition effects of diverse twelve acyclic and cyclic N-benzyl-4-aminopiperidines against third-instar larvae of a wild strain of *Ae. aegypti* (Piedecuesta-Colombia) have been assessed. Following by WHO protocols and Ellman's procedure, we determined their larvicidal activity and could observe moderate to good activity with LC50 values of 7.9-61.1 ppm for all 12 compounds. Once the bio-efficacy of the tested molecules was confirmed, their inhibitory activity against AChE from *Electrophorus electricus* was examined verifying that in deed, all tested compounds could inhibit this enzyme with IC50 values of 9.0-44.0 ppm. One of them, 6-chloro-4'-methyl-3',4'-dihydrospiro[N-benzylpiperidine-4,2'-(1'H)quinoline] with promising both larvicidal and anti-AChE activities (LC50=7.9 ppm, IC50=9.0 ppm) was also tested against cholinesterases (ChE) from *Ae. aegypti* larval homogenates. Results obtained in these *in vitro* and *ex vivo* studies clearly showed that 1) at least this compound has direct inhibitory effect on insect cholinergic system and 2) ChE inhibition was responsible for larvae death observed during the chemical treatment of larvae mosquitoes. Exhibiting the major enzymatic inhibition (78%) after 48 h exposure, this molecule is a viable structural model for the development of new larvicidal agents against *Ae. aegypti*.

Keywords: Acetylcholinesterase, *Aedes aegypti*, N-benzyl-4-aminopiperidines, mosquito larvicidal activity

Insecticide Toxicology and Non Target Effects

PO256

DIAZINON DEGRADATION BY SOIL ISOLATE BACTERIA AND MEASURING OF THE RESIDUAL CONCENTRATION IN THE PRESENCE OF THESE ISOLATES BY HPLC

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Diazinon is an organic phosphorus pesticide which has a wide range of effectiveness; therefore it has gained a lot of attention from many agricultural producers in recent years. The primary environmental concerns associated with its use namely, killing birds, surface water pollution, and destructive effects on aquatic species were taken into consideration. Biodegradation of pesticides is one of the methods for cleaning up soil, which is cost effective and adaptive with environment. Microorganisms isolated from soil samples using an enrichment culture technique have been in the minimal media where diazinon favoured as a sole carbon source. A diazinon biodegradation study was performed in liquid medium with four bacterial strains labeled S1, S2, S3 and S4 that were isolated from lately agricultural soil. All these isolates were able to entirely reduced 50 mg L⁻¹ diazinon in mineral salt medium (MSM) as an only carbon source within 15 days of incubation. Diazinon residues were measured at continuous duration until 15 days after incubation, compared with control samples. Diazinon recovery rate was conducted at 0.1 and 1 mg kg⁻¹, the obtained values were 80.30 and 91.80%, respectively, limit of detection (LOD) was 0.4 mg kg⁻¹ while limit of quantification (LOQ) was 0.2 mg kg⁻¹ Diazinon half- life values (T1/2) were 4.66, 3.76, and 3.84 and 3.87 days for S1, S2, S3 and S4, respectively and control value was 6.44 days. No significant effect on diazinon occurred with S1 (*Stenotrophomonas. maltophilia*), S2 (*Pseudomonas. stutzeri*), S3 (*Alealigen. sp*) and S4 (*Pantoea. ananatis*) treatments showed considerable effect that increased diazinon degradation rate compared with control treatment. These results highlight the potential of these bacteria to be applied in the purify of polluted pesticides wastage in the environment.

Keywords: Bacteria, Biodegradation, Diazinon, HPLC, Pesticide residue

PO257

SIDE-EFFECTS OF TWO STROBILURIN FUNGICIDES ON *NESIDIOCORIS TENUIS* AND *MACROLOPHUS PYGMAEUS* (HEMIPTERA: MIRIDAE)

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Making compatible the combined use of pesticides and natural enemies is one of the key aspects to achieve success in biological control programs. Currently, *Nesidiocoris tenuis* and *Macrolophus pygmaeus* are frequently used as biological control agents in various greenhouse crops. In this context, to evaluate the side-effects of pesticides used in this kind of crops on these predators is of great importance. Thus, in the present work, the strobilurin fungicides kresoxim-methyl and trifloxystrobin were tested against the adults of *N. tenuis* and *M. pygmaeus*. A negative (water only) and a positive control (chlorpyrifos) were also used. The mortality of the adult predators was evaluated by contact on fresh residue. To that end, the compounds were applied on glass substrate by using a Potter Tower. The mortality was recorded after 24, 48 and 72 h of exposure. Additionally, the sublethal effects after 72 h of exposure were evaluated, when possible (only in the case of *N. tenuis*). To do this, pairs of survival adults were used and the necessary data to obtain the parameters of the life tables were collected. The Abbott mortality after 72 h of exposure was of 100% in the case of chlorpyrifos for both predators. In the case of *N. tenuis*, kresoxim-methyl was classified slightly toxic and trifloxystrobin harmless (categories 2 and 1, according with the International Organisation for Biological Control, respectively). Nevertheless, both compounds were moderately toxic for *M. pygmaeus* (category 3). The *rm* values recorded for *N. tenuis* treated with kresoxim-methyl and trifloxystrobin were of 0.0874 and 0.1019, respectively. In both cases, no significant differences of this parameter were obtained with respect to the control (water only).

Keywords: *Nesidiocoris tenuis*; *Macrolophus pygmaeus*; strobilurin fungicides; kresoxim-methyl; trifloxystrobin; side-effects; intrinsic rate of increase.

PO258

Poster withdrawn.

PO259

ASSESSMENT OF INSECTICIDAL ACTIVITIES OF FARM-MADE PLANT EXTRACTS AGAINST TWO INSECT PESTS, *APHIS GOSSYPII* (HOMOPTERA: APHIDIDAE) AND *FRANKLINIELLA OCCIDENTALIS* (THYSANOPTERA: THRIPIDAE)

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