



S.P.
J4747

XX INTERNATIONAL CONGRESS OF ENTOMOLOGY



Firenze, Italy, August 25 - 31, 1996

PROCEEDINGS

LORINI, I.; GALLEY, D.J. Cross resistance in strains of *Rhyzopertha dominica* (F.) (Coleoptera: Bostrychidae) and changes in insecticide tolerance with or without deltamethrin selection. In: INTERNATIONAL CONGRESS OF ENTOMOLOGY, 20., 1996, Firenze, Italy. **Proceedings...** Firenze: Accademia Nazionale Italiana di Entomologia / Società Entomologica Italiana, 1996a. poster 18-084, p.572.

18-084

CROSS-RESISTANCE IN STRAINS OF *RHYZOPERTHA DOMINICA* (F.) (COLEOPTERA: BOSTRYCHIDAE) AND CHANGES IN INSECTICIDE TOLERANCE WITH OR WITHOUT DELTAMETHRIN SELECTION.

I. Lorini & D.J. Galley

Department of Biology, Imperial College, University of London, Silwood Park, Ascot, UK.

Cross-resistance in deltamethrin resistant strains of *Rhyzopertha dominica* was evaluated with three insecticides used also in stored grain to control pests, permethrin (pyrethroid), pirimiphos methyl and chlorpiriphos methyl (organophosphates). Deltamethrin was used as standard. Ten strains from Brazil (BR1, BR2, BR3, BR4, BR5, BR6, BR7, BR8, BR9 and BR10) were used and one laboratory strain from Imperial College at Silwood Park (UK1). BR4 and UK1 were susceptible and BR6 and BR7 had shown high resistance to deltamethrin. The other strains had intermediate resistance to that insecticide. Changes in tolerance in five of these strains (BR4, BR2, BR6, BR7 and UK1) when exposed or not to selection with deltamethrin at each generation were investigated. The selection like the bioassays was carried out on filter paper, the survivors were cultured and selected again at the next generation. At every third generation adults were bioassayed against deltamethrin. The LD₅₀ of each strain was determined and resistance ratios calculated. The results showed that cross-resistance to permethrin existed in strains BR6 and BR7 strains, but no clear evidence of cross-resistance to pirimiphos methyl or chlorpiriphos methyl was found in any of the strains tested. In the selection experiments, resistant strains reared without selection decreased in their susceptibility while susceptible ones were not changed. Also selected strains changed in their tolerance to this insecticide.

18-086

POTENTIAL BIOLOGICAL CONTROL OF BRUCHIDS INFESTING STORED DRIED LEGUMES WITH THE GENERALIST PREDATOR *XYLOCORIS FLAVIPES* (REUTER)(HEMIPTERA: ANTHOCORIDAE)

S. Sing^{1,2}, R.T. Arbogast¹, J.H. Brower¹, R.K. Stewart²

1 USDA-ARS, Insect Attractants, Behavior and Basic Biology Research Laboratory, Gainesville, FL USA -2 Department of Natural Resource Sciences, McGill University, Montreal, PQ, Canada -3 USDA-ARS, U.S. Grain Marketing Research Laboratory, Manhattan, KS, USA

F₁ emergence of the pest Bruchidae *Callosobruchus maculatus* (Fabricius), *Callosobruchus chinensis* (Linnaeus), *Callosobruchus analis* (Fabricius), *Zabrotes subfasciatus* (Boheman), and *Acanthoscelides obtectus* (Say) infesting the common bean *Phaseolus vulgaris* (L.), chickpea *Cicer arietinum* (L.), and cowpea *Vigna unguiculata* (L.) Walp. was significantly reduced by the presence of *Xylocoris flavipes* (Reuter) in test arenas. Both predator density and predator introduction time impacted the number of emerging F₁ bruchids.

Suppression of pest bruchids was enhanced by the combined treatment of *Xylocoris flavipes* and various strains and species of the pesticide-resistant and pesticide-susceptible hymenopteran larval parasitoids *Anisopteromalus calandrae* (Howard), *Pteromalus cerealellae* (Ashmead), and *Choetospila elegans* Westwood. Biocontrol efficacy of a pesticide-susceptible laboratory strain of *Xylocoris flavipes* was not significantly different from that of the pesticide-resistant field strain of the predator.