SUMMARY

INTERACTION BETWEEN CERTAIN PESTICIDES AND PREDATORS OF AN INSECT PEST

Studies on the Interactions Between Certain Herbicides, The Entomogenous Nematode Neoaplectana Carpocapsae Wesiser, Culex pipiens and Some Mosquito Predators In the Aquatic Habitats

The present study aims at investigating a part of the possible interactions that may take place in the aquatic habitats of the rice culture which respresents a field of common interest for both those concerned with agricultural pest control, medical entomology and environmental protection.

Five herbicides (Ordram, Ponstar, Machete, Stomb 330E and Rifit 550 EC) used in weed control programmes in rice fields were tested for their insecticidal activity against C.pipiens and six associated aquatic insects among which were four mosquito predators. Two herbicides (i.e. Stomb 330 E and Rifits 550 EC) seemed to be lethal for mosquito larvae, pupae and adults at concentrations equivalent to rates recommended for field use Nymphs of the Mayfly Polymetarsus Sp., dragonfly. Crocthemis erythraea, DAMSELFLY Ischnura senegalensis were not affected when exposed to all the tested compounds even at higher concentrations.

However, nymphs and adults of both the backswimmer Anisops Sardea and the water boatman Sigara mayri as well as midges of Chironomus sp. were drastically affected when exposed to the tested herbicides, even when concentrations less than those applied in the field were used. These results revealed that these herbicides are not selective and they may have disruptive impact on the biota in rice field ecosystems.

On the other hand, the entomogenous nematode Neoaplectana carpocapsae were tested as a potential biological control against larvae of C. pipiens. Results showed that 4th instar-larvae was more susceptible to the nematode infection than 2nd instar ones and that N. carpocapsae could be a promising tool for the biological suppression of mosquito larvae. Yet, this entomogenous nematode showed a wide host range, it infected the mosquitoassociated insects alike, with the exception of A.Sardea. Variability of the susceptibility of the tested insects to the invasion of the dauer juveniles of N.carpocapsae was discussed . Nence, caution should be paid if it is recommended to use N.carpocapsae to biologically control mosqiuto larvae. Its use should be limited to habitats free of mosqiuto natural enemies.

In addition, results indicated that the five tested herbicides have no detrmiental effect on the infective juveniles

of N. carpocapsae and that both the nematode and herbicides could be compatible in control programmes provided that their effects will be limited on the target pests. Keeping in mind that the present work is a part of wider-scope multidisciplinary research programme, further investigations are urgently needed to explain several observations recorded during the course of this study.