



ROLE OF BIORATIONAL INSECTICIDES IN RESISTANCE MANAGEMENT OF INSECT PESTS - A REVIEW

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ABSTRACT: Insecticides have been viewed as the ultimate weapon to fight today's pest problems in intensively farmed agriculture. Problems of resistance to the insecticides, emergence of pests, accumulation of dangerous residues and toxicity against nontarget organisms have arisen as a consequence of an increasing and inimical use of these pesticides. Therefore, the need to develop alternatives that may be possible and effective in terms of controlling insects but which are also environmentally friendly has arisen. The right insecticide must be chosen if pest control is to be effective because insecticide resistance reduces the effective window for insecticides to achieve economical control of the target pest. This review summarises existing knowledge about the evolution of insecticide resistance in insects and discusses possible strategies to manipulate certain important biorational insecticides as a potential instrument within the Insect Resistance Management Innovation Programme for sustainable insect pest management systems.

Key words: *Biorational insecticide, entomopathogens, insect pests, resistance management*

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INTRODUCTION

Insecticide resistance management (IRM) is a strategy of resistance containment or suppression using a variety of tactics including insecticides and other nonchemical control. The primary goal of insecticide resistance management (IRM) strategies is to at least slow down the treadmill of resistance, extending the usefulness of available chemicals. To reduce the need for a variety of insecticidal agent applications while lowering the magnitude of selection pressures that put pressure on insect populations, a long-term

philosophy of integrated pest management is desired that integrates cultural, physical, mechanical, chemical, and microbial methods (Pedigo, 2002). Apart from the above, biorational insecticides having enzyme inhibition activity and entomopathogens infection are found to increase susceptibility of larvae to the insecticides. Successful IRM involves more than just a deft mix and rotation of chemical countermeasures. If resistance is not properly incorporated into adequate integrated pest management programs, the IRM strategies will have little chance of