IMPACTS OF MULBERRY CROP PEST CONTROL AGENTS ON THE SILKWORM BOMBYX MORI

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ABSTRACT

Silk production from Bombyx mori depends on the quality of mulberry leaves provided as feed. Although many new varieties of mulberry plant (Morus indica) like V1, V5, MR2, S32, S34, S36 etc., are developed by scientists their susceptibility to pest attack remain unsolved. For the pest management it is very necessary to use a minimum dose of pesticide that can control the mulberry pests. However many illiterate farmers apply pesticides indiscriminately and that leads to poor cocoon formation and a loss in silk yield. In Tamil Nadu most of the seri farmers apply the common pesticide Dichlorvos (organophosphate pesticide) and Botanicals like neem based pesticides (commercially called Vijay neem) These two pesticides are also recommended for controlling mulberry pests like mealy bugs, thrips, leaf roller pest etc. If the impact of sublethal dose of the commonly used pesticides Dichlorvos and Vijay neem on the energetics, economic characteristics and reproductive physiology were identified it will be very useful to fix the safe dose of pesticide. With this concern the present study was designed to find out the toxicity of two pesticides, Dichlorvos and Vijay neem. Before starting the experimental regime the sublethal concentrations of Dichlorvos and Vijay neem were evaluated using standard procedures. From the sublethal doses five different concentrations were identified to carry out other experiments. The sublethal concentrations of Dichlorvos and Vijay neem had influenced the various parameters associated with food consumption and energetics. The impact of five different sublethal concentrations of Dichlorvos and Vijay neem was traced on reproduction, growth and development in Bombyx mori. So when the mulberry leaf contaminated with pesticides is given to the larvae it is reflected in the adult metamorphosis and sometimes deformed adults are produced. Further the pesticide contained leaves consumed during larval stage is further reflected in the longevity and fecundity. In the present study both the pesticides Dichlorvos and Vijay neem were toxic to reproduction and growth. The consumption of pesticide sprayed leaves had extended the normal development duration. The effect of pesticides on the commercial characteristics of silk worm viz, shell weight, cocoon weight, shell ratio, sericin and fibroin content, silk filament length, reelability and denier were traced. In all the concentrations tested, (Dichlorvos and Vijay neem) the economic characteristics showed a negative impact. In the pesticide treated larvae architectural aberrations were observed in the alimentary tract and silk gland. From the present study it is clear that the Botanicals like Vijay neem should not be used indigenously as it is more toxic than Dichlorvos to the silk worm. Further the farmers should raise barrier crops in between their mulberry field and the fields in which other crops are cultivated. This will prevent the spread of pesticide molecules from adjacent fields. The ultimate aim of the present study is to ensure biosafety to the silk worm Bombyx mori to get maximum yield.
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Respected Sir,

Sub: Submission of Ph.D thesis – reg


I am hear with submitting 6 copies of thesis and 1 C.D of my Ph.D. work entitled “Impacts of mulberry crop pest control agents on the silkworm Bombyx mori”. Kindly take necessary action for earlier evaluation.

Thanking you

Yours faithfully,

(P. Kumutha)

Guide