Asian J. of Bio Sci. (2007) Vol. 2 No. 1 : (25-30)

Ovicidal and ovipositional deterrent botanicals against *Leucinodes orbonalis* Guenee (Pyraustidae : Lepidoptera)

P. YASODHA[1]* AND N. NATARAJAN[2]
[1] Department of Plant Molecular Biology and Biotechnology, Centre for Plant Protection Studies, T.N.A.U., COIMBATORE (T.N.) INDIA
[2] Department of Agril. Entomology, Tamil Nadu Agricultural University, COIMBATORE (T.N.) INDIA

(Accepted : February, 2007)

Laboratory experiments were carried out inorder to test the oviposition deterrency and ovicidal action of certain wild *Solanum* spp., kernels of *Azadirachta indica* and dried powder of *Acorus calamus* against *Leucinodes orbonalis* females and its eggs. Maximum oviposition deterrency is expressed in the form of minimum oviposition index (OI). At highest concentration of 5 per cent as aqueous extract, NSKE + *A. calamus* was found to have minimum oviposition index of 0.22, indicating the strong oviposition deterrent effect. Considering wild *Solanum* spp, *S. mauritianum* exhibited strong deterrency only at 5 % concentration. Methanol extracts of NSKE + *A. calamus* as observed in the aqueous extract showed maximum oviposition deterrency with the least OI (0.14). Among wild *Solanum* spp., the strong deterrancy was exhibited by 0.2 per cent methanol extract of *S. viarum* and *S. lasiocarpum*. Hence, organic solvents of various tested botanicals exhibited more deterrency effect than the aqueous extract. The maximum ovicidal action (62.60%) was achieved with NSKE +*A. calamus* combination while the minimum was by *S. trilobatum* (25.61%).

Key words : Botanicals, Oviposition deterrancy, Ovicidal nature, *L. orbonalis.*

INTRODUCTION

Considering the vegetable production in the global scenario, India occupies the second after China. The average productivity of eggplant in India has been estimated to be 130.8 q / ha. Out of several factors to cause low productivity, the insect pest attack to the crop is one of the vital constraints. *Leucinodes orbonalis* is the most important and destructive pest of eggplant. The pest starts damaging eggplant a few weeks after transplantation.

Upto 70 per cent loss is caused to the crop by this pest. Lack of resistant varieties as well as efficient biological control measures forced the farmers for using toxic chemicals for its control. Of late, there has been reduced effectiveness of several chemical in controlling this pest. This situation is further aggravated owing to indiscriminate as well as frequent use of tank mix of highly toxic pesticides irrespective of safe waiting period, chemical group and monoculture of the crop in the same area over years.

The management of this pest after hatching is very difficult, therefore, in the present study, management of eggs and laying of eggs by adults are targeted by using botanicals.

MATERIALS AND METHODS

Laboratory experiment with aqueous and solvent extracts of the leaves of wild *Solanum* spp. (*Solanum pubescence, S. seaforthianum* Dunal, *S. macrocarpum* L, *S. torvum* Sw., *S. nigrum* L., *S. trilobatum* L., *S. erianthum* Don, *S. incanum* L., *S. viarum* Dunal., *S. robustum* Ripperger., *S. mauritianum* Scop., *S. lasiocarpum* Dunal., *S. elagnifolium* Cav., *S.xanthocarpum* Schrad.), kernel of *Azadirachta indica* and dried powder of *Acorus calamus* L. were tested against *Leucinodes orbonalis* eggs and its females.

Aqueous extract was prepared with leaves (15 g) of each plant species were homogenized in 100 ml of water using the mixer and allowed to settle at room temperature in a flask. After 30 minutes, the extract was filtered through muslin cloth and filter paper. In the case of neem seed kernel extract NSKE, 15 g of kernel powder was soaked in 100 ml of hot distilled water overnight and homogenized and filtered. Filtrate of both wild *Solanum* and neem kernel was made up to 500 ml and refrigerated for further use. In the case of *A. calamus*, 50 g of dust was soaked in 100 ml of distilled water for an hour and filtered. The test concentrations of 2, 3 and 5 per cent of wild *Solanum* spp, *A. indica*, and *A. calamus*

* Author for Correspondence