COMPARATIVE EFFICACY OF SOME NEW-CHEMISTRY INSECTICIDES AGAINST AMALTAS LEAF STITCHER *PIESMOPODA OBLIQUIFASCIELLA* HAMPS. ATTACKING KACHNAR (*BAUHINIA VARIEGATA* LINN.)

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ABSTRACT

Efficacy of four new-chemistry insecticides viz. Steward 150 EC, Proclaim 19 EC, Tracer 240 SC and Match 50 EC at recommended rates were tested against amaltas leaf stitcher *Piesmopoda obliquifasciella* Hamps. at Pakistan Forest Institute, Peshawar. Results of the post-spray data recorded after 1, 3 and 7 days revealed that all the insecticides were significantly effective in reducing the larval population of the pest as compared to the untreated check. Steward 150 EC (Indoxacarb) was found to the most effective insecticide with maximum % mortality of 96.167, 98.167 and 100.00 %, after 24 hours, 72 hours and one week respectively, closely followed by Tracer 240 SC, with 92.880, 97.003 and 100.00 % mortality while Proclaim 19 EC with 90.673, 97.643 and 100.00 % mortality and Match 50 EC with 87.247, 93.860 and 95.063 % mortality after 24 hours, 72 hours and one week, respectively.

INTRODUCTION

Bauhinia variegata Linn. (kachnar) is a medium-sized deciduous tree. It is native to Southeastern Asia and grows from India to China. *Bauhinia variegata* Linn. is traditionally used in bronchitis, leprosy and tumors (Rajani and Purnima, 2009). The stem bark is used as astringent, tonic and anthelmintic (Ram and Mehrotra, 1980). The stem bark has also been investigated and reported to have antibacterial, antifungal, antiulcer and hepatoprotective activity (Bodakhe *et al*. 2007). The bark is a source of tannins. It is used for dyeing. Wood is used for house construction and making house hold implements (Manandhar, 2002). *Bauhinia variegata* Linn. is also used in some countries of the world as fodder purpose (Devendra,1990).

Unfortunately such a precious tree species is attacked heavily by a serious insect pest amaltas leaf stitcher *Piesmopoda obliquifasciella* Hamps. (Lepidoptera; Pyralidae) at the Pakistan Forest Institute, Peshawar. In case of severe infestation, only leaf skeleton are left behind which result in low photosynthetic activities along with bad appearance (Bajwa and Gul, 1995). Khawaja *et al.*, 1983 reported more than 50% foliage are destroyed every year in *Cassia fistula,* besides causing serious growth losses the leaf stitcher infestation destroys the natural colour of the foliage thereby ruining the whole complexion of the avenue for which the tree is mainly grown.

To protect the plantation from severe losses, working out effective method of controlling the leaf stitcher was considered essential. Suitable integration of safe and effective chemicals with other tactics can prove effective strategies for IPM (Gogi *et al*. 2006). This insect pest has been controlled by conventional insecticides; the present study aims to check the efficacy of some important new-chemistry insecticides, which are considered environmentally friendly and safe for beneficial insects.

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MATERIAL AND METHODS

The study was conducted in Seed Resource Plot of *Bauhinia variegata* Linn. (kachnar) at the Pakistan Forest Institute, Peshawar to evaluate the some new-chemistry insecticides for the effective control of amaltas leaf stitcher *Piesmopoda obliquifasciella* Hamps.

The experiment was conducted in RCBD. There were five treatments including a check. All the treatments were replicated three times. There were 45 plants with 9 plants in each treatment. Knapsack spray machine was used for insecticides application at their recommended doses. The treatments applied at their recommended dosage were as follows:

Common Name	Trade Name	Formulation	Doses/ 100 L of water
Indoxicarb	Steward	150 EC	1.5 CC
Spinosad	Tracer	240 SC	40 CC
Emmamectin benzoate	Proclaim	19 EC	200 CC
Lufenuron	Match	50 EC	200 CC
Check (untreated)	-	-	-

Pre-spray data was recorded 24 hours before spray, while post –spray data were recorded after, 1, 3 and 7 days. The data were compiled and averaged and were subjected to statistical analysis using least significant differences (LSD) test.

Percent mortality was calculated with the help of Abbott Formula (Abbott, 1925).

$$\text{Percent mortality} = \frac{\text{Ca - Ta}}{\text{Ca}} \times 100$$

Where,

Ca = control alive and
Ta = treated alive treated

RESULTS AND DISCUSSION

The post-treatment data of percent mortality after 1, 3 and 7 days of spray have been given in Table 1.

Table 1. Heading

Common name	Average population before treatment	Mortality (%) after treatment		
		24 hours	72 hours	1 week
Steward 150 EC	5.6667 a	96.167a	98.167 a	100.00 a
Tracer 240 SC	5.1133 a	92.880 a	97.003 a	100.00 a
Proclaim 19 EC	3.6667 a	90.673 a	97.643 a	100.00 a
Match 50 EC	4.7800 a	87.247 a	93.860 a	95.063 a
Check (untreated)	5.3333 a	–	–	–

Means followed by the same letters are not significantly different at 5% level of probability.

The results presented in Table 1 revealed highly significant difference among treatments at all the post treatment intervals. It is evident from the result of data recorded after 1 day of spray that all the insecticides significantly reduced the pest population compared to check plot. Steward 150 EC and Tracer 240 SC control the insect population by 96.167 and 92.880 % followed by Proclaim 19 EC and Match 50 EC with 90.673 and 87.247 % of mortality. After 3 days of spray, Steward 150 EC, Tracer 240 SC and Proclaim 19 EC were most effective with 98.167 %, 97.003 %, and 97.643 % mortality and similar in action as compared to Match 50 EC with 93.860 % mortality. Similarly after 7 days of spray all the insecticides significantly reduced the population however, Match 50 EC showed inferior result with 95.063% mortality as compared to remaining three insecticides Steward 150 EC, Proclaim 19 EC, Tracer 240 SC that gave 100% mortality.

It can be concluded that Steward 150 EC, Proclaim 19 EC, Tracer 240 SC and Match 50 EC could be used safely against amaltas leaf stitcher *Piesmopoda obliquifasciella* Hamps. on *Bauhinia variegata* Linn. (kachnar).

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