

Management of Apple Stem Borer, *Aeolesthes sarta* Solsky (Coleoptera : Cerambycidae) in Kashmir

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Abstract

The experiment was carried out to determine the efficacy of various treatments against apple stem borer, *Aeolesthes sarta* Solsky under field conditions. Among various treatments dichlorvos resulted in highest cumulative per cent mortality of 75.20 followed by celphos with cumulative per cent mortality of 73.65 on day 21 after application. A cumulative per cent mortality of 69.50 was recorded when neem extract was used against this pest. The microbials viz. *Beauveria bassiana* and *Metarhizium anisopliae*, however, were comparatively less effective and recorded cumulative per cent mortality of 47.80 and 47.50, respectively.

Key words : *Aeolesthes sarta*, *Beauveria bassiana*, *Metarhizium anisopliae*, Neem.

Pests are a serious problem as they cause huge damage to all fruit trees at almost all phenological stages affecting production and quality of fruits. About 39 arthropod pests have been recognized to be associated with apple trees alone. Malik et al. (1) recorded as many as 10 species of fruit tree borers and bark beetles as potential horticultural pests in Kashmir with various degree of damage. Apple stem borer, *Aeolesthes sarta* Solsky (Coleoptera : Cerambycidae) is one of the serious pests of apple and other temperate fruit trees viz. walnut, almond, apricot, quince, plum, cherry and peach (2). The grubs (Fig. 1) feed on wood, however, the affected trees may not die as a result of feeding but their vitality and productivity is greatly impaired. The adult beetles (Fig. 2) feed on bark and have an unusual habit of cutting more than they actually consume. Considering the economic importance of the pest and loopholes in different methods of insect control, it has become necessary to develop viable control strategies against the pest, that is eco-friendly and sustainable. The present study was therefore carried out by integrating various components viz. microbials, botanicals and chemicals for their efficiency against this pest in Kashmir.

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Methods

The experiment was carried out to determine the efficacy of various treatments against apple stem borer, *Aeolesthes sarta* Solsky on 35 year old Red Delicious variety of apple at SKUAST (K), Shalimar, Srinagar, during 2007 and 2008. The various treatments viz. celphos (1 tablet/hole), commercial neem (1.0%), dichlorvos (0.1%), *Beauveria bassiana* (local) and *Metarhizium anisopliae* (local) at 1×10^8 spore/ml and check were evaluated for their efficacy against this pest. The microbials were sub-cultured under laboratory conditions and desired spore concentration was obtained by using hemocytometer. The experiment was made on randomized block design and each treatment was replicated thrice. The pre-count for each treatment was recorded on the basis of live holes. Celphos was applied in the form of tablets and other treatments were injected in the holes with the help of syringe. The holes were then covered with cotton and thereafter plugged with mud. The post-



Figure 1. Grubs of apple stem borer, *Aeolesthes sarta*. **Figure 2.** Adults of apple stem borer, *Aeolesthes sarta*.

count was based on the number of live holes that were observed at an interval of 7 days upto 21 days

after application of treatments. The data recorded was subjected to analysis of variance.

Table 1. Evaluation of various components for the management of apple stem borer *Aeolesthes sarta*. ** Each figure is mean of three replicates.

Treatment	Concentration	**Per cent mortality		Cumulative per cent mortality
		2007	2008	
<i>Beauveria bassiana</i> (local)	1 × 10 ⁸ spore/ml	45.60	50.00	47.80
<i>Metarhizium anisopliae</i> (local)	1 × 10 ⁸ spore/ml	51.00	44.00	47.50
Neem	0.1%	78.80	60.20	69.50
Dichlorvos	1.0%	62.40	88.00	75.20
Celphos	1 tablet	87.30	60.00	73.60
Check (water)	–	0.00	0.00	0.00
CD (<i>P</i> =0.05)		1.10	1.37	

Results and Discussion

Table 1 reveals that all the treatments were significantly superior to control. Among various treatments, dichlorvos resulted in highest per cent mortality of 62.40 and 88.00 during 2007 and 2008, respectively, with over all cumulative per cent control of 75.20 on day 21 after application. This was followed by celphos with cumulative per cent mortality of 73.65. These findings are in conformity with the suggestions of Sheikh (3) and Wani et al. (4). A cumulative per cent mortality of 69.50 was recorded when the plant extract, neem was used against this pest. The microbials viz. *B. bassiana* and *M. anisopliae*, however, were comparatively less effective than neem extract where cumulative per cent mortality of 47.8 and 47.500 was recorded on day 21, respectively. Wani et

al. (4) also reported a mortality per cent of 37.25 and 65.60 when *B. bassiana* and *M. anisopliae*, respectively, evaluated against this pest. The variation in the data may be due to the difference in the strains used during the evaluation.

References

1. Malik R. A., A. A. Punjabi and A. A. Bhat. 1972. Survey study of insect and non-insect pests in Kashmir. Hort. 3 : 29—44.
2. Sheikh A. G. 1979. Insect and non-insect pests of nut fruit in Kashmir and their control. Proc. 1st Symp. on possible improvement in temperate fruit culture in J & K state, Srinagar, Srinagar, India.
3. Sheikh A. G. 1999. Insect pests of temperate fruits and their management. Proc. Nat. Workshop-cum-Sem. on temperate fruits, SKUAST-K. SKUAST, Malang, Kashmir, India, pp. 95—98.
4. Wani N.A., F.A. Zaki, M. A. Parray, A. R. Wani and A. R. Lone. 2007. Eco-friendly tactics for the management of apple stem borer in Kashmir. Proc. Works. on Organic waste utilization of and eco-friendly technologies for crop protection, pp. 123—126.