



EVALUATION OF INSECTICIDES AGAINST MANGO HOPPERS *AMRITODUS ATKINSONI* AND *IDIOSCOPUS CLYPEALIS*

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ABSTRACT

Field experiments were conducted during 2015-16 to evaluate the efficacy of certain insecticides against mango hoppers *Amritodus atkinsoni* and *Idioscopus clypealis*. Imidacloprid was observed to be the most effective with no leaf hoppers even 21 days after application; and it was on par with thiamethoxam (0.02), acetamiprid (0.15) and carbosulfan (0.76). Buprofezin (1.23) and fipronil (1.54) were the next best. Based on fruit yield, the order of efficacy was: imidacloprid (with 75.33 kg/tree) > thiamethoxam > acetamiprid > carbosulfan > buprofezin > fipronil as against 44.50 kg/tree in untreated control.

Key words: *Amritodus atkinsoni*, *Idioscopus clypealis*, mango, imidacloprid, acetamiprid, thiamethoxam, carbosulfan, buprofezin, fipronil, fruit yield

Mango (*Mangifera indica* L.) is attacked by about 492 species of insects, 17 species of mites and 26 species of nematodes. Of these, 188 insects species had been reported from India (Tandon and Verghese, 1985). Nearly 250 insect and mite pests attack the tree in different stages (Pena and Mohyuddin, 1997). Among these, hoppers are the most serious and widespread (Verghese, 2000), and these cause a loss of 20-100% of inflorescence. Among these, *Amritodus atkinsoni* and *Idioscopus clypealis* are important and are the most predominant in the central and eastern part of Chhattisgarh. Similar trend of continuous threat of other insect pests in terms of buildup and multiplication is known (Kaushik et al., 2014). Though several natural enemies had been reported on mango hoppers, chemical control remains the widely followed (Verghese, 2000). The extensive and indiscriminate use of pesticides has led to several problems like resurgence of secondary pests, health hazards and pesticide residues on fruit. There is a need to evaluate newer molecules, and hence the present study for evaluating the efficacy of certain new insecticides against mango hoppers under field conditions.

MATERIALS AND METHODS

Field trials were conducted during October-May, 2015-16 at the Horticultural orchard, Thakur Chhedilal Barrister College of Agriculture and Research Station, Bilaspur, Chhattisgarh (22.1049° N, 82.1406° E). There were seven treatments replicated thrice in randomized

block design, with 21 trees (cv. Dashehari) randomly selected and tagged. Imidacloprid 17.8 SL (Sensex) 5 ml/ tree, thiamethoxam 25% WG (Evident) 4gm/ tree, acetamiprid 20% SP (Magik) 4 gm/ tree, carbosulfan 25% SC (Aatank) 30 ml/ tree, buprofezin 25% SC (Kaal) 30 ml/ tree, and fipronil 5% SC (Regent) 20 ml/ tree were the insecticides evaluated. The insecticidal sprays were applied with rocker sprayer before bud burst stage when the pest population reached between 5-10 hoppers/twig/panicle. The pre and post treatment observations were recorded a day before and after 1st, 7th, 15th and 21st days of spray. The hopper population was recorded on randomly selected and tagged 12 panicles i.e. three panicles in each direction (north, south, east, and west)/ branch/ tree. For counting nymph and adults, the selected twig/panicle was inserted into the polythene bag (30-60 cm) during 6-9 am, and the contents counted. The sample size of each panicle/inflorescence was of about 10 to 12 cm. The data on the pretreatment and post treatment counts were transformed and subjected to statistical analysis. The fruit yield obtained was also compared. To find out the efficacy of insecticides, the observed pre and post treatment counts were transformed to square root $\sqrt{X+1.0}$ transformation and subjected to statistical analysis under randomized block design (Gomez and Gomez, 1984).

RESULTS AND DISCUSSION

The observations on the efficacy of insecticides against mango hoppers compare imidacloprid 17.8 SL