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Effect of some insecticides on the nymphal parasitoid of whitefly (*Bemisia tabaci*) in brinjal

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This study was conducted to evaluate the effect of four different insecticides viz. acetamiprid, imidachloprid, deltamethrin and dimethoate on the associated parasitoids of *Bemisia tabaci* in brinjal at the Agronomy farm, Eastern University, Sri Lanka. Insecticides were sprayed twice at 14 days interval during the experimental period. The percentage of parasitized whitefly nymphs was monitored at weekly intervals from a day prior to spraying to 14 days after second spraying. The percentage of parasitized whitefly nymphs was calculated by multiplying the ratio of number of emerged parasitoids per sample: number of whitefly nymphs per sample by 100. Statistical analysis was limited to the post-spray sampling dates.

Encarsia cibcensis Lopez Avila and *Eretmocerus californicus* were the two primary species of parasitoids found attacking *Bemisia tabaci* at the research site. There were significant ($P<0.05$) differences in the averaged (over the post-spray sampling dates) percentage parasitism of whitefly nymphs between treatments. Highest rate of parasitism (49.85%) being observed in the acetamiprid treatment followed by control (49.27%), imidachloprid (39.8%), dimethoate (28.48 %) and deltamethrin (18.85%). The percentage parasitism was significantly ($P<0.05$) low in both deltamethrin and dimethoate treatments compared with the control. Therefore both dimethoate and deltamethrin were not suitable to use as selective insecticides against *Bemisia tabaci* without affecting the parasitoids relative to control. But, both acetamiprid and imidachloprid treatments did not show any significant difference ($P>0.05$) with control in the recorded percentage parasitism. Even though the imidachloprid treatment did not show any significant difference with the control in the recorded percentage parasitism it also show no significant difference ($P>0.05$) with dimethoate treatment. Based on these results, concluded that the acetamiprid had the minimal effect on the activity of parasitoids, especially relative to other three tested insecticides.

The results of this study suggested that acetamiprid could be used as a selective insecticide against *Bemisia tabaci* in brinjal with minimal effect on the associated parasitoids such as *Encarsia cibcensis* Lopez Avila and *Eretmocerus californicus*. Therefore it has the potential to improve the compatibility between chemical and biological control, especially relative to imidachloprid, dimethoate and deltamethrin.

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