

Format: Abstract ▾

J Econ Entomol. 2006 Oct;99(5):1596-604.

Effect of insecticides on mealybug destroyer (Coleoptera: Coccinellidae) and parasitoid *Leptomastix dactylopii* (Hymenoptera: Encyrtidae), natural enemies of citrus mealybug (Homoptera: Pseudococcidae).

Cloyd RA¹, Dickinson A.

+ Author information

Abstract

In this study, we measured, under laboratory conditions, the direct and indirect effects of insecticides on mealybug destroyer, *Cryptolaemus montrouzieri* Mulsant (Coleoptera: Coccinellidae), and parasitoid *Leptomastix dactylopii* Howard (Hymenoptera: Encyrtidae), natural enemies of citrus mealybug, *Planococcus citri* (Risso) (Homoptera: Pseudococcidae). The adult stages of both natural enemies were exposed to sprays of the insecticides buprofezin, pyriproxyfen, flonicamid, acetamiprid, dinotefuran, and clothianidin at label-recommended rates to assess direct mortality after 24, 48, and 72 h, respectively. The effects of the insecticides on *L. dactylopii* parasitization rate and percentage of parasitoid emergence also were monitored using the label and 4x the recommended label rate. Dinotefuran was extremely detrimental to the adult parasitoid at the label rate with 100% mortality after 24 h. Buprofezin, pyriproxyfen, and flonicamid were not harmful to *L. dactylopii* when applied at the label rate. At 4x the recommended label rate, dinotefuran, acetamiprid, and clothianidin were all harmful to the parasitoid with 100% mortality 72 h after application. Both buprofezin and flonicamid were not toxic to *L. dactylopii* with 100% adult survival after 72 h. Pyriproxyfen and flonicamid, at both the label and 4x the recommended label rate, did not negatively affect *L. dactylopii* parasitization rate or percentage of parasitoid emergence. Acetamiprid, dinotefuran, and clothianidin were toxic to *C. montrouzieri* adults with 100% mortality after 48 h, whereas buprofezin, pyriproxyfen, and flonicamid demonstrated minimal (10-20% mortality after 48 h) harmful effects to the predator. Based on the results from our study, the indirect effects of the insect growth regulator (IGR) buprofezin were not decisive; however, the IGR pyriproxyfen and the insecticide flonicamid were not directly or indirectly harmful to the predator *C. montrouzieri* and parasitoid *L. dactylopii*, indicating that these insecticides are compatible with both natural enemies when used together for control of citrus mealybug in greenhouses and conservatories.



MeSH terms, Substances



LinkOut - more resources



PubMed Commons

[PubMed Commons home](#)

 0 comments

[How to join PubMed Commons](#)