

Comparing toxicity of plant pesticides, Tondexir[®] and chemical acaricides, Ortus[®] on two spotted spider mite *Tetranychus urticae* Koch (Acari: Tetranychidae) and its natural enemies *Phytoseiulus persimilis* Athias-Henriot (Acari: Phytoseiidae)

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Received: 2 September 2016

Accepted: 21 May 2017

Abstract

In this research, the effect of plant pesticides tondexir (Tondexir[®]) and chemical acaricides fenpyroximate (Ortus[®]) was investigated on the egg and an adult of two-spotted spider mite *Tetranychus urticae* and its natural enemies *Phytoseiulus persimilis* in lab and field conditions. To evaluate the effect of field recommended concentrations (2000 ppm tondexir and 700 ppm fenpyroximate) an experiment was also conducted with three treatments and four replications in a randomized complete block design under field conditions. The numbers of *T. urticae* and *P. persimilis* (egg and adult) on leaf samples were counted before treatment and 3, 7, 14 and 21 days after treatment. The LC₅₀ values of tondexir and fenpyroximate on the egg and the adult of *T. urticae* were 661.01, 396.1 and 379.3, 291.6 ppm 72 h after treatment respectively. The egg and adult of *P. persimilis* were less susceptible compare to *T. urticae* and fenpyroximate toxicity was higher than the tondexir for this predatory mite. The field bioassay results showed tondexir to have longer persistency effect than fenpyroximate. According to IOBC standards, 21 days after treatment, tondexir and fenpyroximate were categorized as moderately toxic and very toxic for both egg and adult of predatory mite, respectively. The overall results showed that tondexir caused high mortality on the egg and adult of spider mite and its toxicity was less than fenpyroximate to predatory mite.

Keywords: *Tetranychus urticae*, *Phytoseiulus persimilis*, *Tondexir*, *Fenpyroximate*