

Comparative effect of chemical and botanical pesticides on the first nymph instar of white peach scale, *Pseudaulacaspis pentagona* and its predator, *Chilocorus bipustulatus* ladybird in the field conditions

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White peach scale, *Pseudaulacaspis pentagona* Targioni-Tozzetti (Hem.: Diaspididae) is a oligophagous pest that feeds on 120 genera in five plant families. This pest can establish on the leaves, young shoots of the kiwi plant and feed on plant sap and with high density causes general weakness in the host, pour the fruit and leaves and young shoots are dried. The ladybird, *Chilocorus bipustulatus* L. is important predator of this pest that feed on egg and nymphs in the larval and adult stages. Chemical control is the most common methods of pest management. Due to harmful effects of chemical pesticides, the use of botanical pesticides seems to be a safe and convenient way to control this pest. In this study, the contact toxicity of several different compounds on the first instar nymphs of *P. pentagona* and adult insects of *C. bipustulatus* were studied. Treatments were consisted of dishwashing liquid 10 ppm, Dayabon 5, 6, 7, 8, 9 and 10 ppm, Palizin 1.5, 2, 2.5 ppm + Citrol oil 5 ppm, Tondaxir 2 and 3 ppm + soap 1 ppm, Dursban 2 ppm and control (water). Experiments were carried out in natural conditions under a Completely Randomized Blocks design in the Kiwi orchard with five replicates for each treatment. In each replication, 100 crawlers of *P. pentagona* and 20 ladybirds were placed on each infested branch. Counting of live and dead insects were carried out 24 hours after the spray (10 ml on a branch) with various concentrations of the mentioned treatments. The results of the data analysis showed that the highest percentage of mortality (100%) of the crawlers of white peach scale was observed in Dayabon 9 and 10 ppm and Palizin 2.5 ppm + Citrol oil 5 ppm and its least one (27%), except control treatment, in Palizin 1.5 ppm. For ladybird, the highest and the lowest percentage of mortality were obtained in Dursban 2 ppm (92.74%) and Dayabon 5 ppm, Palizin 1.5 ppm (5.74 and 3.16%), respectively and except for Dursban treatment, significant difference was not observed in the other treatments. According to the obtained results it seems that Dayabon 9 and 10 ppm and Palizin 2.5 + Citrol oil 5 ppm treatments have effective control on the *P. pentagona* and have not an adverse effect on ladybird and they can be a good substitution for high-risk chemical pesticides in the pest control.

Keywords: Chemical treatments, Dayabon, Kiwi, mortality, Palizin, white peach scale