Comparison of the different treatments to control the citrus leaf roller, *Archips rosanus* (L.) (Lep.: Tortricidae) on citrus trees

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The citrus leaf roller, *Archips rosanus*, a threatening pest of leaves and fruitlets of trees, which recently led to a considerable damage to different citrus trees in some parts of the Mazandaran province in Iran. Larvae cause the stunted growth and twisted leaf spring shot and upcoming yield loss of citrus. Egg masses of *A. rosanus* are laid on host tree trunk and spend one year as hibernating stage. In spring, hatched larvae feed on the opened buds and cause given damages. Chemical insecticides are often used to control, but most applications often failed because it is very important to choose the right time and way to spraying. According to the egg masses oviposited on tree trunk, different treatments containing chemical pesticides were used to prevent egg hatching in one of the citrus orchards, Thomson novel variety in the Qaym-Shahr city during 2015. Before treatments, the number of egg masses on each tree was counted and 20 egg masses have been marked. Different treatments including Ethion 0.2%, Hexaflumuron 0.2%, Volk oil 2%, Ethion 0.2% + Hexaflumuron 0.2% +Volk oil 1.5%, Padidaeh color stick 1 kg per 10 trees and control were compared on citrus trees. The experiment was laid out in a completely randomized design with three replicated (10 trees of 20 years old orange in each replicate). Treated eggs were examined two weeks later and number of live and dead eggs were counted and percentage of mortality was calculated Significant difference was observed in the results of hatching eggs and percentage of mortality of eggs in the treatments (df=5, 12; F=256.67; $P \leq 0.001$). Padidaeh color stick with 100% mortality had the highest toxicity on pest eggs. Ethion+Hexaflumuron+Volk oil treatment with 96.73%, Volk oil 2% treatment with 60.02%, Hexaflumuron 0.2% treatment with 12.80%, Ethion 0.2% treatment with 10.93% and control with 4.28% mortality were in the next steps, respectively. There was no significant difference between Ethion and Hexaflumuron treatments. Our results suggest that there is relatively high efficacy from Padidaeh color stick sprays on the citrus leaf roller, *A. rosanus* developing in eggs but that mortality of other compounds may be insufficient.

Keywords: *Archips rosanus,* citrus, chemical treatments, Padideh color stick