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The Effect of Three Botanical Oils on Management of Onion Thrips and Ecological Aspects, Sudan

FAIZA SALAH¹, ABDDELHAMID ABDI²

¹University of Gezira, Dept. of Crop Protection, Sudan

²U. of Gezira, Crop Protection,

Abstract

Onion thrips (*Thrips tabaci*) (Lindeman) is the most serious insect pest causing damage to the crop. This study aimed to evaluate the effects of some botanical oils including cotton, castor bean and bitter cucumber oils on thrips infesting onion. Field experiments were conducted at Gezira state during two winter seasons. Two experiments were conducted in the first season at the experimental farm of the University of Gezira and in the Gezira research Station farm of the Agricultural Research Corporation (ARC). The third experiment was conducted in the second season for confirmatory studies at the (GRSF) in (ARC) and observation plot of 20x40 m² was used to study the population dynamic of the thrips and natural enemies. The design of the experiments was RCBD with four replications. Cotton oil, castor bean oil and bitter cucumber oil were applied at a concentration of 2.5% in the first season. In the second season 50% upper and lower concentration of castor oil and bitter cucumber oil were applied at the rate of (1.25, 2.5 and 3.75)%. The onion variety used was Saggai. The results indicated that all oil treatments were effective against the onion thrips compared to the untreated control. Significant differences at $P < 0.01$ in the mean number of insects were found. This study shows that the bitter cucumber oil was the most effective in reducing the number of thrips compared to other two oils as well as the control treatment. Large number of natural enemies of thrips were found in the (GRSF) of (ARC), while, Orius bug and jumping spider were most available and by the end of the season these natural enemies had a role to decrease the number of onion thrips. No significant difference was observed between treatments in yield. This study recommends that, bitter cucumber crude oil at 1.25% concentration can be used to reduce the number of onion thrips.

Keywords: Botanical, Onion, Sudan, thrips