ASSESSMENT OF AN INTEGRATED PEST MANAGEMENT PROGRAM FOR THE CONTROL OF THE WHITEFLY *BEMISIA TABACI* (GENN.) ON CANTALOUPE CULTIVARS

A Thesis submitted to the Department of Entomology, Faculty of Science, Ain Shams University for the award of the Ph.D. Degree

Entomology

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(2019)

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ABSTRACT

Cantaloupe, *Cucumis melo* L. (Family: Cucurbitaceae) is a commercially one of the most important tasty, nutritional summer vegetable crop cultivated in Egypt and many countries world wide. The whitefly; *B. tabaci* Genn. (Hemiptera: Homoptera: Aleyrodidae) is one of the most serious pests attacking cantaloupe.

Field studies were carried out over 2015, 2016 and 2017 summer plantations and 2015 and 2016 Nili plantations in Qaha, Qalyubiya Governorate to plan for an effective IPM program of the whitefly in Egypt. The relative susceptibility of four tested cantaloupe cultivars; Arava, Majus, Darvina and Royal 481 was assessed. Arava and Majus hosted the lowest *B. tabaci* eggs and nymphs. Darvina was the most susceptible cultivar especially to nymph population. Royal 481 hosted the highest deposited eggs number. Cantaloupe growth stages were represented here as: early stage (younger leaves) and late stge (older leaves). The early stage received more eggs than the late one in all tested cultivars. Majus and Royal 481 gave the highest yield.

The morphological cultivars traits clarified the rejection or attractaion features found in cantaloupe leaves. The lowest infested cultivar "Majus" has high trichomes' density. Royal 481 has lowest density and longest trichomes', which facilitate adults landing to lay eggs and feed. Long trichomes can act as shelters for *B. tabaci* immature stages.

The highest opened leaf stomata numbers was recorded in Arava and Majus and the highest number of closed ones was recorded in Darvina and Royal 481.

The chemical analysis across growth stages, as well as, certain biochemical elements, moisture content, and enzymes of cultivars revealed that, Majus had highest levels of reducing sugars, potassium, tannins, phenoloxidase and peroxidase enzymes. Majus cultivar also showed lower levels of carbohydrates, non-reducing sugar, total sugars and moisture content.

Darvina had higher levels of carbohydrates, non-reducing, total sugars, moisture content and the lowest levels of phenoloxidase and peroxidase. Royal 481 was found to have higher levels of carbohydrates, non-reducing and total sugars and the lowest phenols and tannins contents.

The interaction between the three tested sowing dates (March 16 , April 2 and April 16) and the four tested cultivars revealed that the best sowing date for Majus and Royal 481 was March 16 which resulted in highest yields.

Comparing the effect of weather factors and plant age (over the three tested sowing dates) on egg oviposition and nymphal infestation indicated that, plant age had more significant role compared to weather factors.

Application of low nitrogen rate and high potassium one (as fertilizers) reduced infestation rate to 2.8 nymphs/leaf and resulted in highest yield as 4.01 kg/plot (i.e. 3.97 m^2).

Intercropping with non-host aromatic plants; garlic, dill or coriander in cantaloupe field gave promising results in reducing *B. tabaci* egg oviposition and nymphal infestation in open field.

Key words: *Bemisia tabaci*, *Cucumis melo*, IPM.