

**EVALUATING OF SOME ENVIRONMENTALLY SAFE CONTROL
METHODS TO MANAGE SOME APHID SPECIES INFESTING SOME
MEDICINAL AND AROMATIC PLANTS IN EGYPT**

Submitted By

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M. Sc. in Environmental Sciences, Institute of Environmental Studies & Research,
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A Thesis Submitted in Partial Fulfillment
Of
The Requirement for the Doctor of Philosophy Degree
In
Environmental Sciences

Department of Environmental Agricultural Sciences
Institute of Environmental Studies and Research
Ain Shams University

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APPROVAL SHEET
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ABSTRACT

Esam Refat Mahmoud: Evaluating of some environmentally safe control methods to manage some aphid species infesting some medicinal and aromatic plants in Egypt.

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Medicinal and aromatic plants are considered very economic plants and play a very important role in some drug manufacturing. These plants infested with several insect pests especially sap-sucking insects such as aphids. This study aims at surveying, identifying aphids' infest medicinal and aromatic plants in Egypt as well as determining some ecological aspects and evaluating of some control methods against certain aphids species. Nine aphid species were surveyed and identified on 56 medicinal and aromatic plants in Egypt throughout three successive years, 2013 to 2015.

A bracket key based on morphological diagnostic characters of alate viviparous aphid females was designed to facilitate identification. Population dynamics of the most abundant aphid species; *Aphis gossypii* on roselle, *Brevicoryne brassicae* on fennel and *Myzus persicae* on both marigold and chamomile plant as well as associated predators were studied; also parasitism and predation percentages were calculated in Qalyubiya and Fayoum governorates during two successive seasons; 2013-2014 and 2014-2015. Effects of three main weather factors; minimum and maximum temperatures as well as relative humidity percentage on changes of population density of certain aphids on roselle, marigold, chamomile and fennel were detected in Fayoum and Qalyubiya governorates. Throughout two successive seasons, 2013-2014 and 2014-2015. Two environmentally safe control methods against the three aphids/were evaluated. The first method was direct treatments by using Biomectin, Brev-AM, A chock, Nimeex and Neem-force against

A.gossypii, *Myzus persicae* and *Brevicoryne brassicae* on the four plants (Roselle, Marigold, Chamomile and Fennel).

Results indicated that Bref-AM was the most efficiency against *A.gossypii* on Roselle, *M.persicae* on Marigold and Chamomile. While Neem-force was the most effective in reducing *B.brassicae* on fennel plants. Also, the second method was undirected by using traps to reduce aphids on medicinal and aromatic plants, two traps. Colored were used; water trap and yellow sticky trap.

Key words: Aphids, Identification, Population dynamics, Weather factors, Pesticides, Yellow sticky trap, Colored water trap.

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