ECOLOGICAL STUDIES ON CERTAIN PESTS INFESTING MEDICAL PLANTS FAMILY LABIATAE

By

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ABSTRACT

Mona Ibrahim Amaar: Ecological Studies on Certain Pests Infesting Medical Plants Family Labiatae. Unpublished M. Sc. Thesis, Department of Plant Protection, Faculty of Agriculture, Ain Shams University, 2010.

The two investigated plants, sweet marjoram (*Origanum majorana* L.) and sweet basil (*Ocimum basilicmum* L.) plants are considered the most important medicinal and aromatic plants. They are infested with many insect pests specially, the paircing sucking insects during growing season which cause considerable damage in the crop under Egyptian conditions**.** The present study was conducted during 2005 & 2006 seasons for sweet marjoram and sweet basil plant species at both North Sinai and Giza governorates to survey the pests infesting these two crops at both governorates, the population fluctuations of the most important key pests and their relation to the abiotic factors (Means of the maximum, minimum and mean temperatures & mean relative humidity as well as their associated predator, *Orius albidipennis* as biotic factor. In addition, the effect of the different levels of infestation of three sap sucking insects, *Aphis gossypii*, *Empoasca descipiens* and *Thrips tabaci* on the extracted essential oil of sweet marjoram plants at Giza governorate was had been studied. Survey of twenty–two insect pest species, one mite species and ten predator species were recorded on sweet marjoram at Giza and North Sinai governorates, while only seventeen insect pest species , one mite species and nine predator species were found on sweet basil at both governorates. The seasonal abundance of nymphs and adults of three sap-sucking insect pests; *Aphis gossypii* Glover (nymphs & adults), *Empoasca decipiens* Paoli (nymphs & adults) , *Thrips tabaci* Lind (nymphs & adults) in addition to the mite, *Tetranychus urticae* Koch (larvae , nymphs & adults) on sweet marjoram and the same pests as well as *Bemisia tabaci* Genn. (nymphs & adults) and *Liriomyza trifolii* (larvae & pupae) on sweet basil. The activity of all

the studied insect pests during the year differed from year to another and from region to another and from host plant to another. The relation of the tested weather factors and the predator *Orius albidipennis* as biotic factor with the population fluctuations of the studied pests did not provide a consistent pattern. These factors gave different correlations with the population activity at both years, both governorates and both host plants. A highly negative significant correlation was found between the infestation with each insect pest and the quantity and quality of Sweet marjoram essential oil. In addition, A highly negative significant correlation between the level of infestation of these insect pests and both quantity and quality of the extracted Sweet marjoram essential oil and E.V. % was significantly high (72%). Also, all of the detected components of essential oil were sharply and negatively affected with different infestation levels with the three sap-sucking insects in compare with the control.

Key words: Sweet marjoram, Sweet basil, *Aphis gossypii*, *Empoasca decipiens*, *Thrips tabaci*, *Bemisia tabaci*, *Tetranychus urticae*, *Liriomyza trifolii*, weather factors, predator, *Orius albidipennis*, Essential oil.

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