

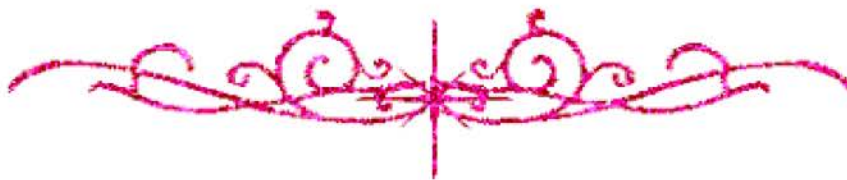
# بسم الله الرحمن الرحيم



**HOSSAM MAGHRABY**



# شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



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# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

### قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
على هذه الأقراص المدمجة قد أعدت دون أية تغيرات



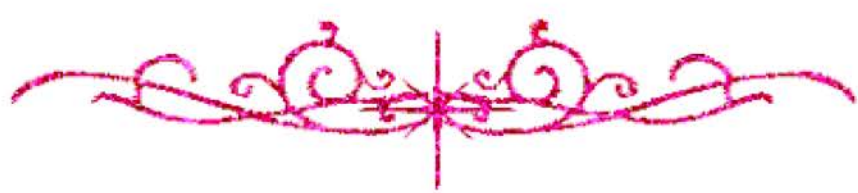
## يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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# بعض الوثائق الأصلية تالفة



**HOSSAM MAGHRABY**





بالرسالة صفحات

لم ترد بالأصل



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B 18781

**STUDIES ON SOME MITES ASSOCIATED WITH  
HONEY BEES IN EGYPT**

**Thesis**

**Submitted in Partial Fulfillment for  
the Degree of Master of Science**

**In  
Zoology**

**By**

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B.Sc. (Zoology)**

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**2001**

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**STUDIES ON SOME MITES ASSOCIATED  
WITH HONEYBEES IN EGYPT**

**Name of the Candidate :**

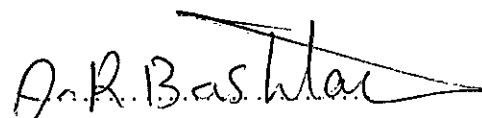
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# ***Introduction***



## 1. INTRODUCTION

Honey bees are considered the most important beneficial insects, which have a direct and indirect roles in agricultural production. Honey is the main product of this insect, and there are additional products such as : royal jelly, pollen, wax, propolis and poison. The role of honey bees in the pollination of flowering plants lead to an increase in agricultural products and an improvements in the product quality (Allam, 1994).

Honey bees (*Apis mellifera* L.), similarly to other social insects in their habitats, is accompanied by numerous arthropods, a great number of which belongs to mites (Acarina). Relations between mites and bees are of a diverse character. These mites may be either ectoparasites, or endoparasites, phoretic mites and house guests.

Diseases of bees caused by parasitic mites are especially interesting from the scientific point of view and have a great economic importance. The literature on these species is very rich, but the knowledge on other mite species associated with bees, their biology, their nests and stored hive products is rather poor (Chmielewski, 1989).

*Varroa jacobsoni* Oud. is an ectoparasite of the Asian honey bee *Apis cerana*, has been introduced world wide, and is currently decimating colonies of the European honey bee *Apis mellifera* (Donze and Guerine, 1994). This mite presents serious problems in world beekeeping due to its parasitic relationship with *Apis mellifera* (Griffiths and Bowman, 1981). It feeds on haemolymph of broods, drones and workers, causing serious damage to colonies, decrease broods and emerging bees (De Jong *et al.*, 1982a).

Efforts to control *V. jacobsoni* have focused on the evaluation of synthetic acaricides. Fluvalinate and amitraz (Henderson, 1988; Herbert *et al.*, 1988a, b; Witherell and Herbert, 1988), clofentezin (Yoshida and Fuchs, 1989), apitol (Herbert *et al.*, 1988b), chlorobenzilate (Ritter and Czarnecki, 1982) and coumaphos (De Ruijter and van den Eijnde, 1986) all have been shown to provide effective control.

However, synthetic acaricides have significant drawbacks, including adverse consequences resulting from the inadvertent contamination of honey, wax, and pollen. Natural acaricides offer a highly desirable alternative to these synthetic products. They tend to have low mammalian toxicity, little environmental effect, and wide public acceptance (Calderone and Spivak, 1995).

The objectives of the present study is to investigate the following points:

- 1- Incidence of mites associated with honey bees in Egypt and their distribution among different governorates.
- 2- Effect of *Varroa jacobsoni* infestation on the haemocytes of workers honey bee *Apis mellifera*.
- 3- Control of *Varroa jacobsoni* using natural product substances under Egyptian conditions.
- 4- Biological observations of the Astigmatic mite *Rhizoglyphus robini* Claparéde, found in beehives debris.

# ***Review of Literature***

## 2. REVIEW OF LITERATURE

Hives of honey bees, *Apis mellifera* are suitable habitat for diverse mites including parasites, phoretic mites and house guests. The association between mites and honey bees was studied all over various countries of the world, and it has been noticed from reviewing the literature that the parasitic mite *Varroa jacobsoni* is considered as the most widespread pest of *Apis mellifera*.

### 2.1- Survey :

Twenty-nine species of mites were found in normal colonies of bees (Betts, 1934) in Germany; many of these, were carried back to the hive from flowers visited by foraging bees. So, several mite species were found associated with honey bees in Australia (Veitch, 1936; Simmonds, 1949; Eckert, 1959; Roff and Brimblecombe, 1961; Waite and McAlpine, 1992 and Knihinicki and Halliday, 1995). Also, Seeman and Walter (1995) investigated the life history of *Afrocypholaelaps africana* Evans on honey bees in southeastern Queensland. On the other hand, Benoit (1959) reported *Acarapis woodi* from Belgian Congo. While, Brimblecombe and Roff (1960) recorded *A. woodi* on a worker honey bees from California.

Krantz (1962) found two genera of Macrochelidae associated with stingless bees. Delfinado (1963) revealed that *V. jacobsoni* and *Tropilaelaps clareae* in association with honey bees causing its death. In Newzealand, Clinch and Ross (1970) found *Acarapis externus* Morgenthaler, *Acarapis dorsalis* Morgenthaler, and *Acarapis vagans*