

**FIRST RECORD OF SOME HYMENOPTEROUS
PARASITOIDS OF WHITEFLIES, SCALE INSECTS AND
LEAF MINERS IN EGYPT WITH DESCRIPTION OF
APHYTIS SINAII (N.SP.)**

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Abstract

This paper dealt with the hymenopterous parasitoids of whiteflies, scale insects and leaf miners in Egypt. Six parasitoid species were recorded here for the first time in Egypt, in addition to *Aphytis sinaii* Abd-Rabou n. sp. Each species is briefly diagnosed and the known information on hosts and distribution is given, except the new species is fully described and illustrated.

INTRODUCTION

Hymenopterous parasitoids of whiteflies (Homoptera: Aleyrodoidea), scale insects and leaf miners (Homoptera: Coccoidea) belong to four families, Aphelinidae, Encyrtidae, Eulophidae and Platigastridae. These parasitoids have a good potential in controlling these pests in Egypt (Abd-Rabou, 1998a, 1999 and Evans *et. al.*, 1995). The aim of this work to collect and record the parasitoids of aforementioned pests to help in the biological control of these pests in Egypt.

MATERIALS AND METHODS

In the present work, hymenopterous parasitoids of whiteflies, scale insects and leaf miners was carried out, by examining the specimens collected from 1998 to 2002. The specimens were prepared for microscopic examination according to the method described by Noyes (1982) for slide and card mounting of Chalcidoidea. Morphological terminology is after Prinsloo (1980), Noyes and Hayat (1984) and Guerrieri and Noyes(2000). Samples of parasitoids of whiteflies and scale insects were collected from different host plants infested with different whiteflies and scale insects.

RESULTS

I. Parasitoids of Scale insects:

1. *Coenocercus* sp. (Family: Encyrtidae)

DIAGNOSIS: Club of antennae not segmented, with pronounced oblique truncate area; fore wing without a marginal vein; ovipositor slender and mandibles 3-toothed.

MATERIAL 2 ♀♀, 3 ♀♀, Giza 28.VII. 2001 ex. *Maconellicoccus hirsutus* on
EXAMINED: hibiscus plant.

HOST PLANE: Hibiscus plant

DISTRIBUTION: Giza

REMARKS: Abd-Rabou (2001) recorded 21 genera of family Encyrtidae in Egypt. While in the present work this genus recorded for the first time in Egypt.

2. *Encarsia perniciosi* (Tower) (Family: Aphelinidae)

DIAGNOSIS: Head dorsum yellow or darker yellow, face brownish and usually with a brown cross-band above toruli; marginal fringe of fore wing at least one fourth of wing width; tergum VI of gaster normal; ovipositor about as long as middle tibia and third valvula less than the length of second valvifer.

MATERIAL 2 ♀♀, Bihera 10.X. 2000 ex. *Insulaspis palidulus* on *Mangifera*
EXAMINED: *indica*.

HOST PLANE: *Mangifera indica*

DISTRIBUTION: Bihera

REMARKS: Polaszek *et al.* (1999) recorded fourteen species of genus *Encarsia* in Egypt. *E. perniciosi* recorded here for the first time in Egypt.

3. *Aphytis sinaii* Abd-Rabou sp.nov. (Family: Aphelinidae)

(Fig. 1-5)**Description:**

Female: This is biparental species. Thoracic sterna dusky, mesoscutum and the furca fuscous the surrounding plates slightly dark. Length 0.80mm. Head, occiput without such bars on sides of foraman, mouth margin and malar sulcus usually not fuscous, mandibles well-developed with 2 denticles and dorsal truncation, maxillary palpi 2-segmented, labial palpi 1-segmented. Antennae 6-segmented, antennal scape 5.5 times as long as wide; pedicel 2 times as long as wide, 1.3 times as long as F_3 ; F_1 0.8 as long as wide; F_2 0.6 as long as wide; F_3 1.3 times as long as wide; club 4.3 times as long as wide and 4 sensilla. Thorax, mesoscutum 15 setae, 1.3 times as long as scutellum; parapsis 4 setae; axilla 2 setae; scutellum 4 setae, 1.7 times as long as propodeum; metanotum the same length as apodeme. Forewing 2.7 times as long as wide, marginal vein 11 setae, submarginal vein 3 setae, 14 bullae, delta 48 setae in 5 rows, marginal fringe 0.2 as long as width of disk. Basitarsus 1.4 times as long as midtibial spur and midtibia 2.4 times as long as sheath, 0.7 as long as ovipositor.

Gaster, propodeum 0.6 as long as scutellum, 4.6 times as long as metanotum, overlapping 6 crenulae. Ovipositor 1.8 times as long as midtibia and 4 times as long as sheath. Tergite VII 2 setae, tergite VIII 4 setae and syntergum 5-6 setae.

Male: Similar to female. Length 0.70mm.

Species group placement: Lingnanensis.

Material examined: Specimens (20 slides, males and females), South Sinai; associated with *Aonidiella aurantii* (Maskell) on *Ficus nitida* XI.20.2002.

Comments: *A. sinaii* is similar to *A. africanus* Quednau but different in mesoscutum 12 setae, club shorter less than as long as wide length and ovipositor 1.5 times as long as midtibia in *A. africanus*. While in *A. sinaii* mesoscutum 15 setae, club 4.3 times as long as wide and ovipositor 1.8 times as long as midtibia.

Etymology: The species is named for the location of Sinai

4. *Metaphycus anneckeï* Guerrieri and Noyes (Family: Encyrtidae)

DIAGNOSIS: Head at least 4X as wide as frontovertex; notaular lines incomplete, not reaching more than halfway across mesoscutum; scape at most 2.7X as long as broad; clava with apical sensorial slightly oblique and transverse, 4/5 as wide as clava; forewing hyaline and uniformly infusate. Male torulus without associated pores

MATERIAL 3♀♀, Qena 25.X. 2001 ex. *Pulvinaria tenuivalvata* on *Saccharum officinarum* (sugar cane)

HOST PLANE: *Saccharum officinarum* (sugar cane)

DISTRIBUTION: Qena

REMARKS: Abd-Rabou (1998b) recorded five species of genus *Metaphycus* in Egypt. *M. anneckeï* collected for the first time in Egypt through this work.

5. *Cheiloneurus claviger* (Family: Encyrtidae)

DIAGNOSIS: Apex of scutellum with a semi-erect tuft of coarse bristles, fore wing strongly and more or less entirely infusate, body partly brilliant metallic, antenna with scape expanded ventrally, the funicle six-segmented, and the club three-segmented.

MATERIAL 1 ♀, 3♂♂, Cairo 20.VI. 2002 ex. *Maconellicoccus hirsutus* on hibiscus plant.

HOST PLANE: Hibiscus plant

DISTRIBUTION: Cairo

REMARKS: Abd-Rabou (2002) recorded one species of genus *Cheiloneurus* namely *C. aegyptiaca* in Egypt. In the present study, *C. claviger* recorded for the first time in Egypt.

II. Parasitoids of whiteflies**6. *Amitus aleurotubae* Viggiani and Mazzone (Family: Platigastridae)**

DIAGNOSIS: Pronotum triangular in a lateral view, reaching tegulae; antennae elbowed or filiform, number of antennal segments (7-15), club 3-segmented; fore wings with five or fewer closed cells or front wings with six or more closed cells. Male antennae without club.

MATERIAL EXAMINED: 1 ♀, Qalubiya 15.VII. 1999 ex. *Parabemisia myriacae* on *Citrus* sp.

HOST PLANE: *Citrus* sp.

DISTRIBUTION: Qalubiya

REMARKS: Abd-Rabou (1998a) recorded one species of genus *Amitus* namely *A. hesperidum* in Egypt. *A. aleurotubae* collected here for the first time in Egypt.

III. Parasitoids of leaf miners:**7. *Cirrospilus* sp. (Family: Eulophidae)**

DIAGNOSIS: Fore wing hyaline, head as wide as mesosoma, pronotum imbricate, ovipositor arising at base of tergite II and antennae inserted slightly below lower ocular line. Sensory organ of male present on scape and transverse bands tergites II and III broken centrally.

MATERIAL EXAMINED: 1 ♀, ♂♂ Qalubiya 20.VI. 2000 ex. Unknown leaf miners on *Phaseolus vulgaris* (green bean).

HOST PLANE: *Phaseolus vulgaris* (green bean).

DISTRIBUTION: Qalubiya

REMARKS: This species recorded here for the first time in Egypt.

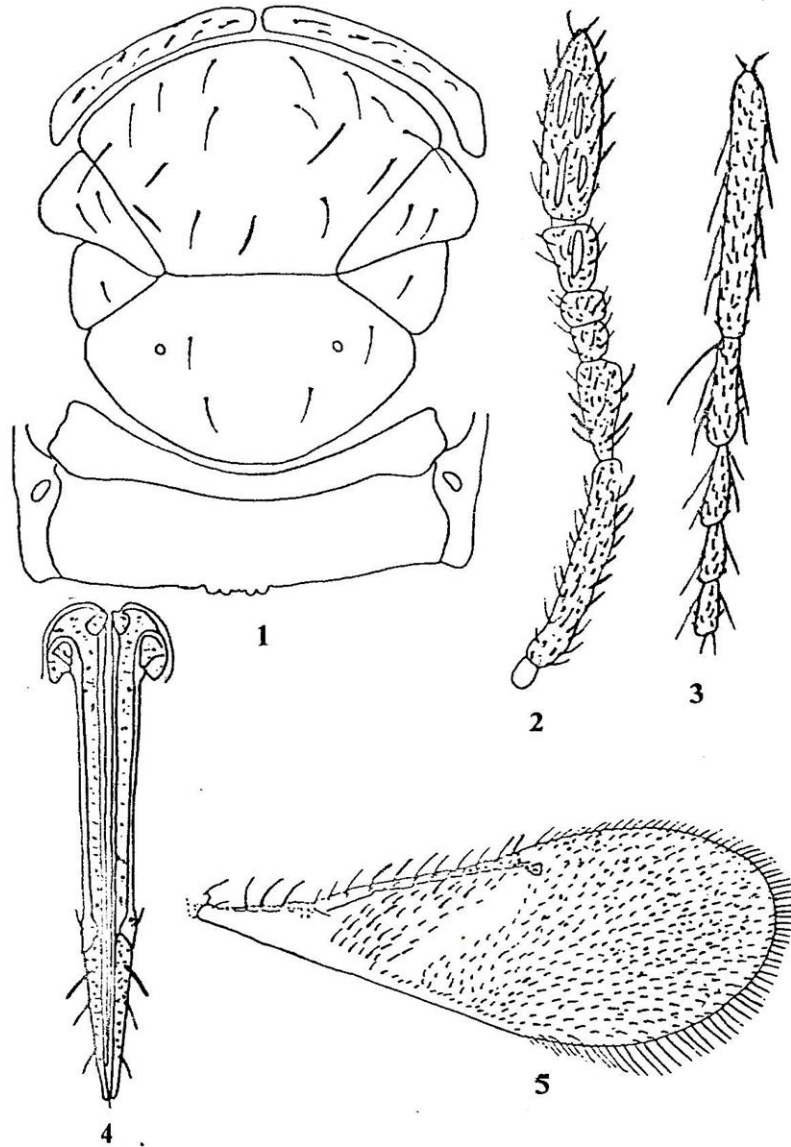
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REFERENCES

1. Abd-Rabou, S. 1998a. A revision of the parasitoids of whiteflies from Egypt. *Acta Phytopathologica et Entomologica Hungarica*, 33 (1-2): 193-215.
2. Abd-Rabou, S. 1998b. The species of genus *Metaphycus* (Encyrtidae: Hymenoptera) from Egypt. *Bull. Soc. Ent. Egypt*, 76: 67-74.
3. Abd-Rabou, S. 1999. Parasitoids attacking the Egyptian species of armored scale insects (Homoptera: Diaspididae). *Egypt J. Agric. Res.*, 77(3): 1113-1129.
4. Abd-Rabou, S. 2001. Key to the genera of Encyrtidae from Egypt (Hymenoptera: Chalcidoidea: Encyrtidae). *Egypt, J. Agric. Res.*, 79 (1): 79-87.
5. Abd-Rabou, S. 2002. Notes on some genera of Egyptian Encyrtidae (Hymenoptera: Chalcidoidea) and their role in biological control. *J. Agric. Res.* 80 (2): 597-603.
6. Evans, G. A., A. Polaszek and F. D. Bennett. 1995. The taxonomy of the *Encarsia flavoscutellum* species-group (Hymenoptera: Aphelinidae) parasitoids of Hormaphididae (Homoptera: Aphidoidea). *Oriental Insects*, 29: 33-45.
7. Guerrieri, E. and J. Noyes. 2000. Revision of European species of genus *Metaphycus* Mercet (Hymenoptera : Chalcidoidea : Encyrtidae), parasitoids of scale insects (Homoptera : Coccoidea). *Systematic Entomology*, 25: 147-222.
8. Noyes, J.S. 1982. Collecting and preserving chalcidid wasps (Hymenoptera: Chalcidoidea). *Journal of Natural History*, 16: 315-334.
9. Noyes, J.S. and M. Hayat. 1984. A review of the genera of Indo Pacific Encyrtidae (Hymenoptera: Chalcidoidea). *Bulletin of the British Museum (Natural History) (Entomology)*, 38(3) : 131-395.

10. Polaszek, A., S. Abd-Rabou and J. Huang. 1999. The Egyptian species of *Encarsia* (Hymenoptera: Aphelinidae): a preliminary review. *Zool. Med. Leiden*, 73: 131-163.
11. Prinsloo, G.L. 1980. An illustrated guide to the families of African Chalcidoidea (Insecta:Hymenoptera). *Science Bull. Dep. Agric. Fish. Republic of South Africa*, No.395, 66pp.



Figs(1-5): *Aplytis sinaii* Abd-Rabou (1) thorax , metanotum, propodeum and crenulae (2) antennae(3) midtibia and basitarsus(4) ovipositor(5) forewing.

تسجيلات جديدة لطفيليات الذباب الأبيض والحشرات القشرية
وصانعات الأنفاق من رتبة غشائية الأجنحة في مصر مع وصف نوع جديد

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ووصفه وهو *Aphytis sinaii* Abd-Rabou

الى جانب ذلك تم عرض وصف مبسط لكل هذه الأنواع و المعلومات الخاصه بالعوائل

الحشرية والتوزيع الجغرافى لها فى مصر.