

A PICTORIAL KEY OF THE PARASITOID SPECIES OF GENUS *APHYTIS* (HOWARD) (HYMENOPTERA: APHELINIDAE) FROM EGYPT

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Abstract

A pictorial key is provided for the identification and differentiation of eighteen species of genus *Aphytis* (Howard) from Egypt, based on the characteristics of adult females.

INTRODUCTION

Species of genus *Aphytis* (Howard) (Hymenoptera: Aphelinidae) are the most important parasitoids of armored scale insects (Homoptera: Diaspididae). All the identified species are ectoparasitoids, and many are host feeders as adults. This genus was redefined in relation to closely allied genera, the well developed propodem, with distinct crenulae, serving as the best diagnostic character for identification (Rosen and De Bach, 1974). Genus *Aphytis* comprizes 100 species of the world (Rosen and De Bach, 1979). The present paper offers a key of 18 species of genus *Aphytis* recorded in Egypt during the study.

MATERIALS AND METHODS

Data related to the first and second nymphal instars and non-gravid females and the males, (preadult) of armored scale insects were collected from different host plants and from various localities in Egypt for several months annually (over three years) to construct a pictorial key of the genus *Aphytis*. Specimens were kept under the laboratory conditions ($27\pm 2C^{\circ}$) in well-ventilated emergency glass tubes and were observed daily for adult *Aphytis* species emergence.

Identification of the species was made by examining their adults mounted in Hoyer's media, according to Abd-Rabou (1999) as follows:

- Dried specimens were soaked in glacial acetic acid (7 drops) mixed with choral-phenol (5 drops) in small watch glasses.

- After 48 hours, specimens were satisfactorily cleared.
- The cleared specimens were mounted in Hoyer's media.
- After drying for about two weeks under 40°C, the slide covers were ringed with a suitable sealer.

All the collected species of genus *Aphytis* were identified and confirmed by Prof. Dr. Mohammad Hayat of Aligarh, Muslim University, India, and Dr. Shaaban Abd-Rabou, Plant Protection Research Institute, Agricultural Research Center.

Morphological terminology and synonymys used were taken after Rosen and De-Bach (1979), Viggiani (1994) and Yasnosh (1994).

RESULTS AND DISCUSSION

Collection of different species of genus *Aphytis* found on several host plants from various localities revealed the presence of 18 species. The following is a key for these species. It is hoped that this key may help the specialists in the field of biological control in Egypt to identify such important species of armored scale insects.

MATERIALS AND METHODS

Key to *Aphytis* species attacking armored scale insects in Egypt:

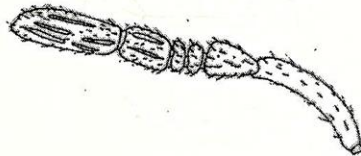
- 1. Female and male antennae 6-segmented, first funicle segment not triangular..... 2
- Female antennae 6-segmented, first funicle segment triangular, setae on head and thorax readily visible, male antennae 4-segmented..... *Aphytis chilensis* Howard



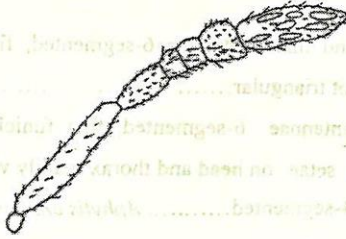
- 2 (1). Head with a distinct black bars and margins..... 3
- Head without black bars and margins..... 7
- 3 (2). Biparental species..... 4
- Uniparental species..... 5
- 4 (3). Antennal club about 3 times as long as wide.....
- *Aphytis parameculicornis* DeBach and Rosen



- Antennal club less than three times as long as wide.....
- *Aphytis philippinensis* DeBach and Rosen



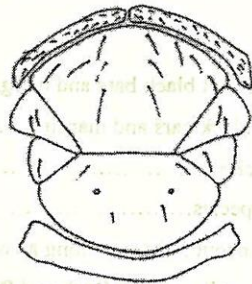
5 (3). Club 7 sensilla..... *Aphytis diaspidis* (Howard)



.Club 6 sensilla..... 6

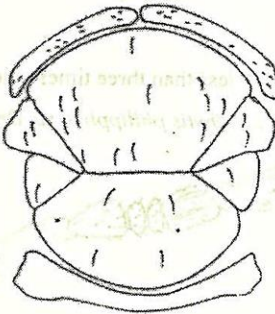
6 (5). Mesoscutum 11 setae, propodeum 0.7 as long as scutellum, 3 times as long as metanotum.....

..... *Aphytis vandenboshi* DeBach and Rosen

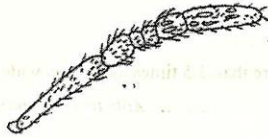


.Mesoscutum 13 setae, propodeum 0.6 as long as scutellum, 4 times as long as metanotum.....

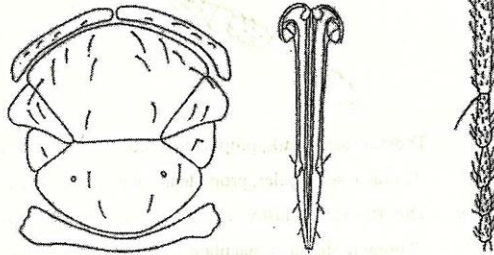
..... *Aphytis hispanicus* (Mercet)



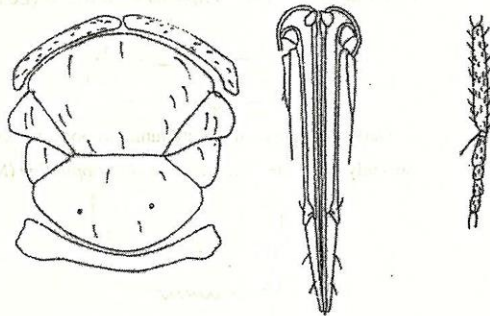
- 7(2). Propodeal crenulae large and overlapping..... 8
 Propodeal crenulae either large but not overlapping or small..... 12
 8(7). Thoracic sterna dusky..... 9
 Thoracic sterna immaculate..... 11
 9(8). Club 3. 2 times as long as wide..... 10
 Club 3 times as long as wide..... *Aphytis coheni* DeBach.



- 10 (9). Mesoscutum 12 setae, ovipositor 1.5 times as long as midtibia..... *Aphytis africanus* Quedenau



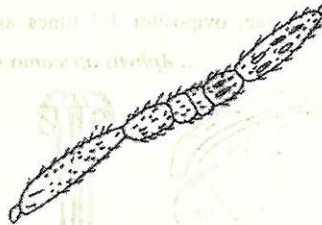
- Mesoscutum 10 setae, ovipositor 1.9 times as long as midtibia..... *Aphytis lingnanensis* Compere



- 11(8). Club 3.4 to fully 4 times as long as wide.....
*Aphytis melinus* DeBach



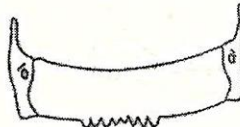
- .Club not more than 3.5 times as long as wide.....
*Aphytis holoxanthus* DeBach



- 12 (7). Thoracic satae dark, propodeum short..... 13
 .Thoracic setae paler, propodeum long..... 17
 13 (12). Thoracic sterna dusky..... 14
 . Thoracic sterna immaculate..... 15
 14 (13). Pale, margins of scutellum, propodeum, crenulae
 infuscate..... *Aphytis mytilaspidis* (Le Baron)

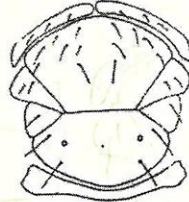


- . Dark, margins of scutellum, propodeum, crenulae
 strongly infuscate.....*Aphytis opuntiae* (Merec)

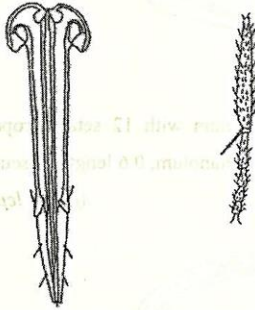


- 15 (13). Pale yellow, posterior margin of scutellum narrowly lined with blackish or fuscous, thoracic setae very dark... 16
Entirely pale yellow, posterior margin of scutellum concolorous, thoracic setae pale

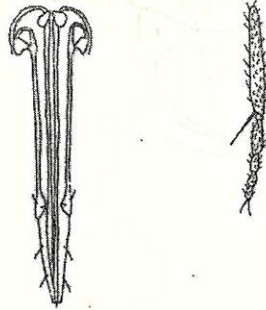
.....*Aphytis libanicus* Traboulsi



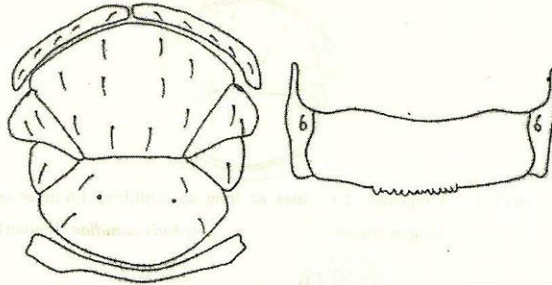
- 16 (15). Ovipositor 1.6 times as long as midtibia, 4.6 times as long as sheath.....*Aphytis aonidiae* (Mercet)



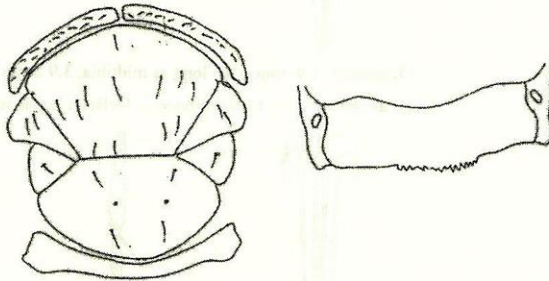
- . Ovipositor 1.9 times as long as midtibia, 3.9 times as long as sheath.....*Aphytis phoencis* DeBach and Rosen



- 17 (12). Mesoscutum with 10 setae, propodeum 6 times as long as metanotum, 0.7 length of scutellum.....
 *Aphytis chrysomphali* (Mercet)



- . Mesoscutum with 12 setae, propodeum 4.5 times as long as metanotum, 0.6 length of scutellum.....
 *Aphytis lepidosaphes* Compere



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