

NOTES ON SOME GENERA OF EGYPTIAN ENCYRTIDAE (HYMENOPTERA : CHALCIDOIDEA) AND THEIR ROLE IN BIOLOGICAL CONTROL

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Abstract

This present work includes, surveys list of encyrtids (Hymenoptera : Chalcidoidea : Encyrtidae) of Egypt. Notes with keys to identify and separate these species of six genera (i.e. *Diversinervus*, Silvestri, *Gyranusoidea* Compere, *Habrolepis* Förester, *Leptomastidae* Mercet, *Leptomastix* Förester and *Microterys* Thomson) are presented. The role of these genera in biological control are included.

INTRODUCTION

Encyrtids (Hymenoptera : Chalcidoidea : Encyrtidae) are mostly parasitoids, but rarely hyperparasitoids, mainly of the superfamily coccoidea (Homoptera) and to a lesser extent, of lepidoptera. Other homopterous families, e.g. aphididae, ceropidae, fulgoridae, pentatomidae and psyllidae are also hosts for encyrtids. In addition, several encyrtids have been reared from some coleopterous species, hymenoptera, neuroptera and orthoptera as well as some arachnids. many species have been successfully utilized in the biological control of crop pests, particularly scales in fruit orchards. Noyes and Hayat (1994) documented identification and figures for 513 valid genera at different countries and regions in the old and new world. Abd-Rabou (2001) recorded 27 of these genera in Egypt. The present work deals with taxonomy of six of these genera belonging to family encyrtidae in Egypt. Figures were adopted from Noyes & Hayat (1984, 1994).

List of encyrtid genera in Egypt

- *Acerophagus* Smith
- *Anagyrus* Howard
- *Arrhenophagus* Aurivillius
- *Baeoanusia* Girault

- *Blastothrix* Mayr
- *Blepyrus* Howard
- *Bothriophryne* Compere
- *Clausenia* Ishii
- *Cheiloneurus* Westwood
- *Coccidencyrtus* Ashmead
- *Coccidoxenoides* Girault
- *Cowperia* Girault
- *Diversinervus* Silvestri
- *Encyrtus* Latreille
- *Gyranusoidea* Compere
- *Halbrolepis* Forester
- *Homalotylus* Mayr
- *Leptomastidae* Mercet
- *Leptomastix* Forster
- *Metaphycus* Mercet
- Microterys* Thomson
- *Ooencyrtus* Ashmead
- *Paraceraptocherus* Girault
- *Parecthodryinus* Girault
- *Prochiloneurus* Silvestri
- *Rhopus* Forster
- *Syrphophagus* Ashmead

Genus *Coccidencyrtus* Ashmead is recorded for the first time in Egypt through the present work.

Notes on some genera

1. *Diversinervus* Silvestri

Diversinervus Silvestri, 1915, Boll. Lab. Zoo. Scu. Sup. Agr., 9 : 301.

Cheiloneuroides Girault, 1915, Mem. Queen, Mum. 4, 96.

This genus is represented in Egypt by one species [*i.e.*, *Diversinervus elegans* Silvestri, Fig. 1]. This species is characterized by its antennal club being longer than the first, fourth and one-half of fifth funicle segments combined. First three funicle segments all slightly longer than wide. Abdomen is as long as thorax.

Role in biological control : This genus have a good role in natural control of soft scale insects, especially *Saissetia oleae* and *Saissetia coffae* (Abd-Rabou, 1998).

2. *Gyranusoidea* Compere

Gyranusoidea Compere, 1947, Univ. Calif. pub. Entomo., 8 : 17.

This genus is represented in Egypt by one species [*i.e.*, *Gyranusoidea indica* Shafee, Alam and Agarwal, Fig. 2]. This species is characterized by forewing less than 2.5X as long as broad, not parallel-sided distad of venation. Marginal vein distinctly longer than stigmal.

Role in biological control : This genus have a good role in biological control programs of mealybugs (Noyes and Hayat, 1994). In Egypt, this genus was recorded to be associated with hibiscus mealybug, *Maconellicoccus hirsutus* (Green) and it has a good role in natural control this species (Abd-Rabou, 2000).

3. *Habrolepis* Förster

Habrolepis Förster, 1856, Aachen, 34.

Gymnoheura Risbec, 1951, Memoires de l'Institute Francais d'Afrique Noire, 13 : 157.

This genus is represented in Egypt by two species [*i.e.*, *Habrolepis aspidioti* Compere & Annecke, Fig. 3 and *H. rouxi* Compere, Fig. 4].

Key to females of two species of the genus *Habrolepis* Förster recorded in Egypt

1. Apex of forewing hyaline and without coarse setae or at most very narrowly setose at extreme apex *Habrolepis rouxi*
 Apex of forewing distinctly infuscated and provided with coarse setae beyond hyaline transverse crossband *Habrolepis aspidioti*

Role in biological control : This genus, a common parasitoid of various species of diaspidid scale insects (Noyes and Hayat, 1984). It has an important role in controlling some diaspidid species in Egypt (Hafez *et al.*, 1970).

4. *Leptomastidea* Mercet

Leptomastidea Mercet, 1916, Bd. Real. Soc. Esp. Hist. Nat., 112.

Tanomastix Timberlake, 1918, Univ. Calif. Pub. Entomo., 1 : 362.

Leptanusia De Santis, 1964, Anales Comi. Invest. Cien. Provi. Bue. Aires, Gob., 4 : 80.

This genus is represented in Egypt by two species [*i.e.*, *Leptomastidea abnormis* (Girault), Fig. 5 and *L. bifasciata* (Mayr), Fig. 6].

Key to females of two species of the genus *Leptomastidea* Mercet recorded in Egypt

1. Forewing with two longitudinal bands *Leptomastidea bifasciatus*
 Forewing without two longitudinal bands *Leptomastidea abnormis*

Role in biological control : *L. abnormis* is the only species that has been used in biological control programmes (Noyes and Hayat, 1984). This species has a good role in controlling some species of mealybug in Egypt, especially *Maconellicoccus hirsutus* (Abd-Rabou, 2000).

5. *Leptomastix* Forster

Leptomastix Forster, 1856, Chalcidae und Proctotrupii, 34.

Sterrhacoma Forster, 1856, Chalcidae und Proctotrupii, 36.

Stenoterys Thomson, 1876, Skandnaviens Hymenoptera : 4, 115.

This genus is represented in Egypt by three species [*i.e.*, *Leptomastix flava* Mercet, Fig. 7. *L. nigrocoxalis* Compere, Fig. 8 and *L. dactylopii*, Fig. 9].

Key to females of three species of the genus *Leptomastix* Forster recorded in Egypt

1. Second funicle segment without sensilla *Leptomastix nigrocoxalis*
 Second funicle segment with sensilla 2

- 2.1. Forewing with more than 2.5 times as long as broad *Leptomastix dactylopii*
Forewing not more than 2.5 times as long as broad *Leptomastix flava*

Role in biological control : The species of this genus are most important parasitoids attack mealybugs (Noyes and Hayat, 1984). *L. nigrocoxalis* is an effective parasitoids in controlling some important economic species of mealybugs in Egypt (Attia, 1997).

6. *Microterys* Thomson

Sceptrophorus Forster, 1856, Chalcidae und Proctotrupii, 34.

Microterys Thomson, 1876, Skandnaviens Hymenoptera, 4, 155.

Apentelicus Fullaway, 1913, Report Hawaii Agricultural Experiment Station, 26.

This genus is represented in Egypt by one species [*i.e.*, *Microterys flavus* Howard, Fig. 10].

This species is characterized by the forewing beingshortened, clearly not reaching apex of gaster, scutellum without such a group of setae, ovipositor and gonostyli hardly protruding caudally.

Role in biological control : The species of this genus are mostly parasitoids of Coccidae, Kermococcidae and Lecanodiaspididae. *M. flavus* of the most important parasitoid attacks soft scales (Coccidae) in Egypt (Abd-Rabou, 2001).

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**نبذة عن بعض الأجناس المصرية فى فصيلة الانسرتيدى
ودورها فى المكافحة البيولوجية**

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يشتمل هذا البحث على قائمة بأجناس فصيلة الإنسرتيدى فى مصر، كما تضمن نبذة عن ست أجناس منها مع عمل مفاتيح تصنيفية لأنواع هذه الأجناس كل على حدة. واشتمل البحث أيضا دور كل جنس فى المكافحة البيولوجية فى مصر.