THE SPECIES OF *ANAGYRUS HOWARD* (HYMENOPTERA: ENCYRTIDAE) RECORDED FROM EGYPT

SHAABAN ABD-RABOU

Plant Protection Research Institute, Agricultural Research Centre, Dokki, Giza, Egypt

(Manuscript received April 2000)

Abstract

Six species of the encyrtid genus *Anagyrus* Howard were recorded. Each species is briefly diagnosed and the known informations on hosts and distribution are given. An identification key for distinguishing each of these six species is provided.

INTRODUCTION

The species of the encyrtid genus *Anagyrus* Howard (Hymenoptera: Encyrtidae) are primary endoparasitoids on mealybugs (Homoptera: Pseudococcidae) (Noyes and Hayat, 1984). This genus is the most successfully used in pest control. The world fauna comprise mostly about 200 species (Noyes and Hayat, 1994).

The taxonomy of the genus *Anagyrus* was studied by Compere (1939), Tachikawa (1963), De Santos (1964), Beardsley (1969), Shafee et al., (1975), Hayat (1979), Noyes and Hayat (1984, 1994).

The present work deals with a preliminary contribution to the taxonomy of these Egyptian species of *Anagyrus*.

MATERIALS AND METHODS

Mealybug species were collected from different plants from different localities in Egypt. They were kept in the laboratory in well-ventilated emergence boxes and the emerged of *Anagyrus* species were sorted out and identified according to Noyes (1982). Specimens of *Anagyrus* species were identified and confirmed by the present author and Prof. Dr. Mohammad Hayat, Aligarh Muslim University, India.

RESULTS AND DISCUSSION

Genus *Anagyrus* Howard


Epidinocarsia Girault, 1913, Arch Naturgesch (A), 79 (6): 83.

**Diagnosis:** Female: Scape not more than three times as long as broad; funicle 6-segmented, all funicle segments longer than broad; clava three-segmented; fore wing more or less generally suffused pale fuscous or with only longitudinal infuscate streaks adjacent to venation or with a pattern of dark and pale setae, postmarginal vein not longer than stigmatic vein; gaster varying from shorter than thorax to clearly much longer than head and thorax together; ovipositor hidden to strongly exerted, varying from about half length of mid tibia to two or three times as long.

**KEY TO EGYPTIAN SPECIES OF ANAGYRUS FEMALEs**

1. Frontovertex about half head width .......................... Anagyrus shahidi Hayat.
   Frontovertex less than half head width .......................... 2.

2(1). First funicle segment dark brown, remainder of flagellum brown .......................... Anagyrus kamali Moursi.

3(2). Stigmatic vein about as long as marginal vein .......................... Anagyrus saccharicola Timberlake.
    Stigmatic vein longer than marginal vein .......................... 4.

4(3). Gaster longer than thorax .......................... Anagyrus greeni (Howard).
    Gaster about as long as thorax .......................... 5.

    Second funicle segment white .......................... Anagyrus pseudococci (Girault).

1. **Anagyrus aegypticus** Moursi, Fig. 1.


   **Diagnosis:** Female: First and second funicle segments completely dark brown, remainder of flagellum white; ventral surface of costal cell with at least two complete lines of setae; propodeum with at least one or two setae inside each spiracle; eye margins distinctly diverging anterior to posterior ocelli; mesoscutum entirely orange or orange mixed with brown; marginal and postmarginal veins combined a little longer than stigmatic, postmarginal quite long and distinct; gaster about as long as thorax; oviposi-
tor very slightly exerted.

**Hosts:** *Nilquaecoccus viridis* (Newstaed).

**Distribution:** Beni-Suef, Giza.

**Comments:** This species was first recorded in Egypt by Mourai (1948).

### 2. *Anagyrus greeni* (Howard), Fig. 2.


**Diagnosis:** Female: First funicle segment brown, remainder of flagellum white; ventral surface of costal cell with at least two complete lines of setae; hypopygium not unusually elongate; marginal and postmarginal veins combined at least as long as stigmal vein; gaster slightly shorter than head and thorax together; ovipositor slightly exerted; frontovertex nearly two-fifths head width.

**Hosts:** *Antonina* and *Pseudococcus* sp.

**Distribution:** Cairo, Giza, Qalyubiya.

**Comments:** This species was recorded for the first time in Egypt by Mercet (1925).

### 3. *Anagyrus kamali* Mourai, Fig. 3.


**Diagnosis:** Female: First funicle segment dark brown, remainder of flagellum brown; ventral surface of costal cell with several lines of setae; marginal and postmarginal veins shorter than to about as long as stigmal; gaster about as long as thorax; ovipositor not exerted; apex of forewing devoid of marginal setae; frontovertex slightly wider to much wider than one-third head width.

**Hosts:** *Maconellicoccus hirsuta* (Green).

**Distribution:** Cairo, Giza, Qalyubiya.

**Comments:** This species was recorded for the first time in Egypt by Mourai (1948).
4. *Anagyris pseudococci* (Girault), Fig. 4.

*Epidinocarsis pseudococci* Girault, 1915, Entomologist, 4: 185.

**Diagnosis:** Female: First funicle segment dark brown, remainder of flagellum white; ventral surface of costal cell with at least two complete lines setae; stigmatic vein longer than combined lengths of marginal and postmarginal veins; gaster about as long as thorax; ovipositor very slightly exserted; frontovertex less than one-third head width; genae, mouth margin, interantennal prominence almost dark brown.

**Hosts:** *Macroleucus hisuts* (Green), *Planococcus citr* (Risso).

**Distribution:** Alexandria, Giza.

**Comments:** This species was recorded for the first time in Egypt by Priesner and Hosny (1940).

5. *Anagyris saccharicola* Timberlake, Fig. 5.


**Diagnosis:** Female: First funicle segment dark brown, remainder of flagellum white; stigmatic vein about as long as marginal vein; gaster about as long as head and thorax together; ovipositor hardly exserted; frontovertex two-fifth head width; head in side view about twice as long as deep.

**Hosts:** *Saccharicoccus sacchari* (Cockerell).

**Distribution:** Beni-Suef.

**Comments:** This species is recorded here for the first time in Egypt.

6. *Anagyris shahidi* Hayat, Fig. 6.


**Diagnosis:** Female: Flagellum varying from yellow brown to dark brown almost always with F2 and F3 white to yellow; frontovertex about half head width; ovipositor hardly exserted; forewings characteristically infuscate below submarginal vein and apex of venation.
Hosts: *Antonina graminis* (Maskell).

Distribution: Alexandria.

Comments: This species was recorded for the first time in Egypt by Karam and Abou-EIKhair (1996).

**ACKNOWLEDGEMENTS**

The author thank Prof. Dr. Mohammed Hayst, Zoology Department, Aligarh Muslim University, India for help in identifying and confirming the *Anagyrus* species.
Figs. 1-6. Antenna of *Anagyrus* species (females). Fig. (1): *Anagyrus aegyptiacus*, Fig. (2): *A. greeni*, Fig. (3): *A. kamali*, Fig. (4): *A. pseudococci*, Fig. (5): *A. saccharicola* and Fig. (6): *A. shahidi*. 
REFERENCES


أنواع جنس ANAGYRUS HOWARD في مصر

شمبان عبد ربه

تم حصر عدة أنواع من جنس ANAGYRUS HOWARD في مصر. ومن خلال هذا العمل تم تسجيل نوع جديد على الغطاء المصري إلى جانب شرح لصفات التصنيفية للأنواع الستة مع تذكر العوامل المصرفية والتوزيع الجغرافي لهم بالإضافة إلى ذلك تم عمل مفتاح تصنيف لهذه الأنواع.