

COCCOPHAGUS OCHRACEUS HOWARD (HYMENOPTERA : APHELINIDAE), A NEW RECORDED PARASITOID OF THE SOFT SCALE INSECT, PULVINARIA TENUIVALVATA (NEWSTEAD) (HOMOPTERA : COCCIDAE) ON SUGAR CANE, SACCHARUM OFFICINARUM L. IN EGYPT

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Abstract

The newly recorded species, *Coccophagus ochraceus* Howard (Hymenoptera : Aphelinidae) is redescribed and compared with *C. scutellaris* (Dalman). The two species parasitize the soft scale insect, *Pulvinaria tenuivalvata* (Newstead) (Homoptera : Coccidae) on sugar cane, *Saccharum officinarum* L. in Qena, Egypt. Diagnosis and illustrations of the two parasitoid species are provided.

INTRODUCTION

The hymenopterous genus *Coccophagus* Westwood is one of the best known genera of the family Aphelinidae. This genus is cosmopolitan and includes 170 species which are primary parasitoids of the soft scale insects and have been used in the biological control of these pests (Annecke & Insely, 1971 and Hayat, 1983). Under Egyptian conditions, Priesner and Hosny (1940) collected *C. scutellaris* (Dalman) from *Coccus hesperidum* L. on *Olea* sp. and from *Pulvinaria floccifera* West. on *Ficus* sp. Later Abd-Rabou (2001) recorded and collected this species from various species of soft scale in different locations in Egypt.

Abd-Rabou (1999 and 2003) recorded *Coccophagus bivittatus* Compere, *C. ishii* Compere, *C. lycimnia* (Walker), *C. qenai* Abd-Rabou (a new species) and *C. scutellaris* from different soft scale insects, added a key to the Egyptian species. The same author (2004) imported, mass reared and released *C. cowperi* Girault for the first time in Egypt to control *Saissetia coffeae* (Walker).

The present work aimed to redescribe the newly recorded species, *C. ochraceus* Howard and compared with *C. scutellaris* parasitizing *P. tenuivalvata* on the same host plant.

MATERIALS AND METHODS

Leaves, stems, twigs having the nymphs and adult females were picked up. The samples were introduced into wooden boxes (15x25x40cm) ,each was provided with four glass tubes, fixed at each box side. The emerging parasitoids was attracted to light and thus entered the tubes. Leaves, stems, twigs infested with different species of soft scales were substituted with new ones every week. A survey of the soft scales, *Coccus hesperidum* L on *Olea* sp., *Psidium guajava* and *Bambusia* sp.; *Killifia acuminata* (Signoret) on *Mangifera indica*; *Pulvinaria tenuivalvata* (Newstead) on *Saccharum officinarum* and *Saissetia coffeae* (Walker) on *Olea* sp. was carried out at Giza, North Sinai (El-Arish) and Qena during July 2003 - December 2004.

Preservation of the specimens of *Coccophagus* are best preserved as slide mounts. It may not be possible to see all the characters and measure some structures in carded specimens. However, when more specimens are available, it is preferable to have both slide mounted and carded specimens. Since body colour is likely to fade during clearing process, it might be necessary to note the colour and sculpture either from dried or freshly collected specimens preserved in alcohol. The smaller size of the specimens and their soft, less sclerotized bodies, make the specimens almost useless for study if preserved in alcohol for longer periods.

The procedures of slide mounts after Abd-Rabou (2002) are as follows

1. Dried specimens are soaked in glacial acetic acid (7 drops) mixed with chloral phenol (5 drops) in small watch glasses.
2. After 48 hours specimens should be satisfactorily cleared.
3. The cleared specimens are then mounted in Hoyer's medium.
4. After drying for about two weeks under 40 °C, the slide cover is ringed with a suitable sealer.

Morphology: The terminology of the morphology of adult *Coccophagus* used is mainly based on Hayat (1983).

A set of the collected specimens of Genus *Coccophagus* were sent to Dr. Gerg Evans, University of Florida, USA for confirmation.

RESULTS AND DISCUSSION

Coccophagus ochraceus Howard

Diagnosis: Yellow species with dark brown band across gaster (terga V-VII), a black spot on tergum X directly above gonostyli, pronotum medially, anterior part of mesoscutum black; legs yellowish; the tibiae externally at most slightly suffused with dusky; mandible with acute lower tooth deeply separated from upper truncation (Fig. 4); antenna with funicle segments ventrally connected, longer ventrally than dorsally, antennal scape long and slender, more than 5 times, longer than funicle segments combined, funicle segment 1 the smallest, shorter than pedicel, with no rhinaria (Fig. 1); axillae each with one setae; scutellum with 3 pairs of setae (Fig. 3); forewing hyaline; stigmal vein rather swollen; marginal fringe moderate length (Fig. 2); ovipositor slightly shorter, 1.3 times as long as middle tibia, about 3-4 times as long as the slender gonostyli, shortly exerted (Fig. 5); and male antenna with club not differentiated (Fig. 7). Male genitalia shown in (Fig.6).

Material Examined: 10 ♀♀, 3 ♂♂ Qena, XI. 2004, ex. *Pulvinaria tenuivalvata* (Newstead) on *Saccharum officinarum*

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

C. scutellaris (Dalman)

Diagnosis: Thorax black except scutellum partly yellow, legs yellow except mid and hind coxae and hind femur black, scutellum mostly dark yellow, funicle segments, I-III longer than wide, head capsule shown in (Fig. 11); antennal scape usual, about four times as long as wide, funicle segment 1 longest, slightly more than twice as long as wide (Fig. 8); axillae each with two setae; scutellum with numerous setae, scattered over the greater part of disc (Fig. 10); forewing hyaline, marginal fringe short (Fig. 9); ovipositor less than three-fourths length of gaster, not exerted (Fig. 12); male antenna with club differentiated (Fig. 14). Male genitalia shown in (Fig. 13)

Material Examined: 15 ♀♀, 5 ♂♂ Qena, X. 2003, ex. *Pulvinaria tenuivalvata* (Newstead) on *Saccharum officinarum*

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

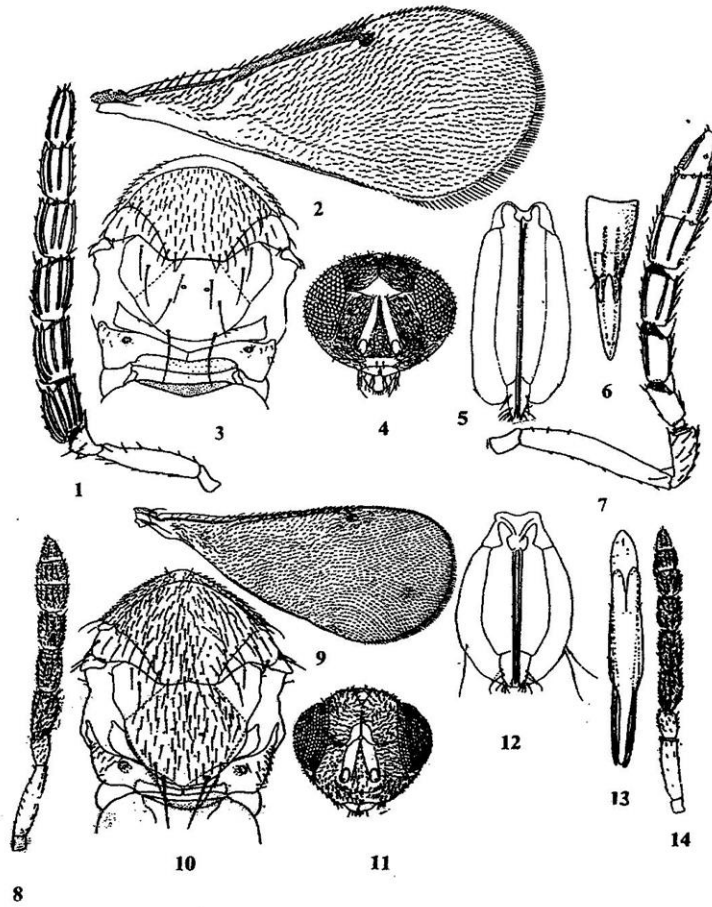
During the present work two species from genus *Coccophagus*, these are *C. ochraceus* and *C. scutellaris* were collected from the recent dangerous pest on sugar cane, soft scale insect, *Pulvinaria tenuivalvata* (Newstead) in Qena governorate. The first species recorded here for the first time in Egypt. Table 1 observed the characters that differentiated and compared between the two *Coccophagus* species in Egypt.

Table 1. The most important taxonomic characters compared between *Coccophagus ochraceus* Howard and *C. scutellaris* (Dalman) on sugar cane, *Saccharum officinarum*

Characters	<i>C. ochraceus</i>	<i>C. scutellaris</i>
Scutellum setae	Scutellum with 3 pairs of setae	Scutellum with numerous setae
Axillae setae	Axillae each with one setae	Axillae each with two setae
Marginal fringe	Marginal fringe moderate	Marginal fringe short
Ovipositor	Ovipositor shortly exerted	Ovipositor not exerted
Male antenna	Club not differentiated	Club differentiated

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Figs 1-14: *Coccophagus* sp. Figs (1-7). *Coccophagus ochraceus*, (1) Female antenna, (2) Fore wing, (3) Mesoscutum and scutellum, (4) Head capsule, (5) Female ovipositor, (6) Male genitalia, (7) Male antenna. Figs (8-14). *C. scutellaris*, (8) Female antenna, (9) Fore wing, (10) Mesoscutum and scutellum, (11) Head capsule, (12) Female ovipositor, (13) Male genitalia, (14) Male antenna.

تسجيل طفيل جديد من جنس *Coccophagus* على

الحشرة القشرية الرخوة على القصب في مصر

شعبان عبدريه ، سعدية عبد البصير عبد السميع

معهد بحوث وقاية النباتات - مركز البحوث الزراعية - الدقي - جيزة

تضمن هذا العمل تجميع عينات مصابة بالحشرة القشرية الرخوة ومنتطفل عليها على القصب في محافظة قنا خلال شهر نوفمبر ٢٠٠٣-٢٠٠٤ وتم عزل و تحضير عينات الطفيليات لتعريفها باستخدام المفاتيح التصنيفية المتخصصة لتعريف الطفيليات. أتضح من نتائج التعريف أن هذه الطفيليات هي الطفيليات *Coccophagus ochraceus* Howard و *C. scutellaris* (Dalman). و يعتبر *Coccophagus ochraceus* تسجيلًا جديدًا من جنس *Coccophagus* على الحشرة القشرية الرخوة على القصب في مصر. تم في هذا العمل أيضا مقارنة بين الصفات التصنيفية الهامة والروسومات التي تفصل بين النوعين.