Oriental Insects, Vol. 41: 387–390, 2007.

DESCRIPTION OF A NEW SPECIES OF *COCCOPHAGUS* (HYMENOPTERA: APHELINIDAE), PARASITOID OF *PARATACHARDINA LOBATA* (HOMOPTERA: KERRIDAE) FROM INDIA

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ABSTRACT. A new species of the *Coccophagus ochraceus*-group, *C. parlobatae*, is described from material reared from *Paratachardina lobata* in India. This species is of potential use in the biocontrol of the lac scale which invaded from India into south Florida (U.S.A.).

Key words: *Coccophagus parlobatae*, sp. nov., Aphelinidae, Kerridae, India.

Introduction

The invasive lobate lac scale in South Florida was identified as *Paratachardina lobata* (Chamberlin), native to southern India and Sri Lanka. It was first detected in Florida and the Bahamas in 1999 and 1993 respectively (Pemberton, 2003b). The scale spreads extremely fast and threatens a great number of native and economic plants in Florida. Approaches for the biological control of the invasive scale were initiated, to find appropriate parasitoids against the pest from its origin (Pemberton, 2003a). Four parasitoids were associated with *P. lobata* from southern India (Schroer et al., in press). Among these parasitoids, I have identified an encyrtid, *Ooencyrtus kerriae* Hayat (in Hayat et al., 2003), and an undescribed species of the aphelinid genus *Coccophagus* Westwood of the *ochraceus*-group (Annecke & Insley, 1974; Hayat, 1992).

The new species is described in this paper. Terminology for the aphelinid follows Hayat (1998).

***Coccophagus parlobatae*, sp. nov. (Figs. 1–6)**

Female: Length, holotype, 0.87mm. Head pale yellow to nearly white, with mouth margin and malar space behind sulcus infuscate pale brown yellow; thorax yellow with pronotal collar and anterior margin of mid lobe of mesoscutum dark brown; side lobes basally yellow brown; axillae washed with brown in anterior half; sides of metanotum and propodeum mesally between spiracles dark brown; propleura and mesopleura brown; tegulae yellow; gaster dark brown with faint violet shine. Antenna yellow; scape and pedicel dorsally brownish; clava brownish-yellow. Wings hyaline. Legs pale yellow to white; coxae, femora and tibiae, except apices, infuscate pale brown; fore tarsus infuscate pale brown; last segment of mid and hind tarsi brown (Colour was noted before mounting the specimens on slides.)

Structural details as given in figures 1-6, but the following characters may be noted:

Vertex with raised irregular reticulate sculpture; frons and face with very fine (discernible at 400x) sculpture of irregular lines; mandibles apically narrow with two teeth and a short dorsal truncation (Fig.3); toruli about their diameters from mouth margin;

eyes with brown prominent setae, each seta at least as long as diameter of a facet; setae on frontovertex as shown in Fig .4; a line along each eye margin and several setae on vertex, all dark brown; face nearly without setae; 3 or 4 pairs of fine setae in the intertorular space; setae along mouth margin as in Fig. 3. Relative measurements (Holotype): head dorsal width, 28.5; frontovertex length, 17; frontovertex width at posterior ocelli, 12.

Thorax shorter than gaster (32:42 in holotype) mid lobe of mesoscutum with fine, large, penta-hexagonal cells; scutellum same but the cells smaller; propodeum without a triangular projection in posterior margin. Setae on thoracic sclerites as follows (Fig. 4): mid lobe with setae arranged more or less in a symmetry, the apical pair of setae about as long as the first pair of scutellar setae; each side lobe with 4 setae (5 in one paratype); setae on axilla variable from 2-4 (in holotype, 3 on right axilla, 2 on left axilla; in one paratype; 3 on right axilla, 4 on left axilla (Fig. 6); in the second paratype, 2 on right axilla, 3 on left axilla); scutellum with 6 setae; propodeum with 2 setae on each side distad of spiracles. Fore wing 2.28x as long as broad; costal cell slightly longer than marginal vein (20:18); longest marginal fringe 0.18x of wing width; marginal fringe of hind wing 0.66 –0.68x of wing width.

Gaster with setae on terga as follows: TI – 0+0; TII – 1+1; TIII – 2+2; TIV – 2+2; TV – 6 in a line; TVI – 1+2+1; TVII – 4. Relative measurements (Holotype): ovipositor length, 28; third valvula length, 7. [Lengths: mid tibia, 19.5; mid basitarsus, 6; mid tibial spur, 6.]

Male: Unknown.

Holotype: ♀ (on slide under 2 coverslips): INDIA: Karnataka: Banglore; ii. 2006, ex. *Paratachardina lobata* on *Pongamia pinnata* (S. Bernard). *Paratypes:* 1♀ (on slide under 4 coverslips) with same data as holotype; 1 ♀ (on slide under 4 coverslips) labelled. 'India, Karnataka, Banglore, Jarakabande State Forest (N-13.0334xE-77.325722) on *Pongamia pinnata*, xi.2005'.

Holotype deposited in The National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi; paratypes in the collection of the Department of Zoology, Aligarh Muslim University, Aligarh.

Host: Paratachardina lobata (Chamberlin).

Distribution: India: Karnataka.

Variation: The paratype with the same data as holotype, is relatively a larger specimen. It has broader wings; fore wing 2.17x as long as broad and marginal fringe about 0.12x of wing width; length of ovipositor, 30.5; third valvula, 9; mid tibia, 24.5; basitarsus, 7; mid tibial spur, 6.5. The paratype collected xi.2005 is more or less similar to the holotype except it has a broader frontovertex (Head width, 30; frontovertex width,19).

Comments: In the key to species given by Hayat (1998), the new species runs to couplet 23, but does not agree with either of the species included there, *longiclavatus* and *indochraceus*. It differs from *longiclavatus* in body colour, mid tibial spur about as long as mid basitarsus; ovipositor longer than mid tibia; antennal clava shorter than funicle; and propodeum without a triangular projection in middle of posterior margin. (In *longiclavatus*: mouth margin and lower malar space, TI in basal half, TIII – VI, dark brown; propodeum with a distinct triangular projection in middle of posterior margin; ovipositor 0.76x of mid tibia; antennal clava longer than funicle; TVII with 8 setae). The new species differs from *indochraceus* in colour of gaster, different dimensions of funicle seg-

ments and relative lengths of ovipositor, third valvula and mid tibia.(In *indochraceus*: gaster with TV pale and posterior half or so of TVII whitish; antenna with F1 as long as pedicel; F2 and F3 each not less than 2x as long as broad; gaster with setae as follows: TI-1+1; T II-1+1; TV, 4+4; TVII- 5+2; third valvula 0.47x of second valvifer, and 1.41x as long as mid basitarsus). The new species also differs from *C. ochraceus* Howard (see Annecke & Insley, 1974; Hayat, 1992) mainly in the colour of the gaster, relatively shorter funicle segments, and relative lengths of ovipositor and mid tibia. (In *ochraceus*: mouth margin and malar space brown; gaster with TI and TII yellow, TVII yellow with a brown spot; torulus less than its diameter from mouth margin; antenna with F1 and F3 about 1.5 - 1.6x as long as broad, F2 about 2x as long as broad; ovipositor shorter than mid tibia (52:61); third valvula 0.48x of second valvifer or 0.32x of ovipositor length, and subequal in length to mid basitarsus. Based on my notes and figures made from the syntypes.)

Acknowledgements

I am thankful to the following persons involved in the biological control of the lobate lac scale in Florida for sending to me the chalcid specimens for identification: Dr. S. Schroer, University of Florida, Fl. Lauderdale, FL; Dr. R.W. Pemberton, USDA, ARS, Fl. Lauderdale, FL; and Dr. B. Selvaraj, Sun Agro Biotech Research Centre, Chennai, India. I am grateful to the Indian Council of Agricultural Research, New Delhi, and Dr. V.V. Ramamurthy, Division of Entomology, Indian Agricultural Research Institute, New Delhi, the national coordinator of the ICAR Network Project on Insect Biosystematics, for financial assistance. I am thankful to the authorities of the Aligarh Muslim University, and the Chairman, Department of Zoology, for providing working facilities.

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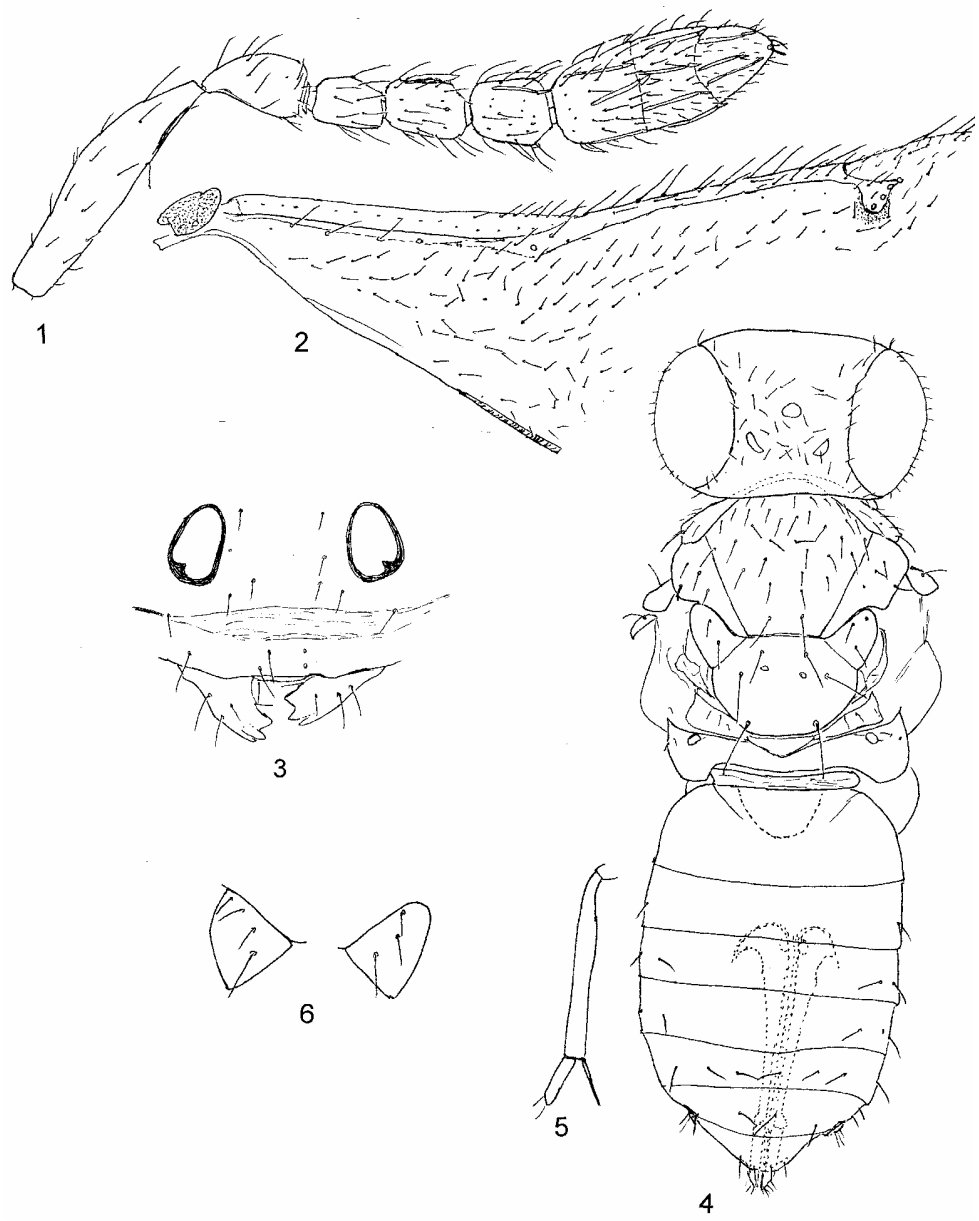

Figs. 1–6: *Coccophagus parlobatae*, sp. nov., female: 1, antenna; 2, fore wing showing venation and setation; 3, facial region showing mandibles; 4, body dorsal; 5, mid tibia, drawn on same scale as Fig 4; 6, axillae showing variation in number of setae.(Figs. 2, 4 and 5 from holotype; Figs. 1, 3 and 6 from paratypes.)