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TAXONOMIC STUDIES OF THE HOVER WASPS (HYMENOPTERA : VESPIDAE; STENOGASTRINAE) OF ARUNACHAL PRADESH, INDIA

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INTRODUCTION

The hover wasps belong to the subfamily Stenogastrinae is a group of primitive eusocial wasps endemic to the Oriental Region. Currently 57 species are reported under 7 genera even though one species namely *Cochlischnogaster menglunensis* Dong & Otsuka is kept uncertain by Carpenter, 2001 (Carpenter & Kojima, 1996; Dong & Otsuka, 1997; Carpenter & Nguyen, 2003; Saito *et al.*, 2006; Saito & Kojima, 2007).

The genus *Eustenogaster* Van der Vecht consists of 4 species from Indian subcontinent namely *E. eximia eximia* (Bingham) from Sri Lanka, *E. eximia eximioides* (Dover & Rao) from India (Kerala and Tamil Nadu), *E. fraterna* (Bingham) from India (Assam and Sikkim) and Myanmar, *E. hauxwellii* (Bingham) from India (Sikkim) and Myanmar and *E. scitula* (Bingham) from India (Assam, Meghalaya and Sikkim) and Myanmar. The genus *Parischnogaster* Von Schulthess consists of only one species namely *P. mellyi* (de Saussure) from India (Assam, Meghalaya and Sikkim) and Myanmar (Das & Gupta, 1989; Carpenter & Kojima, 1996; Saito & Kojima, 2007). The subfamily Stenogastrinae is not recorded from Arunachal Pradesh till date (Kundu *et al.*, 2006). Hence in this paper we record two species of hover wasps namely *Eustenogaster scitula* (Bingham) and *Parischnogaster mellyi* (de Saussure) from Arunachal Pradesh for the first time.

MATERIALS AND METHODS

All the specimens were collected by using sweep net. The collected specimens were killed by using ethyl acetate and preserved as dry specimens. The pinned specimens were subjected to taxonomic studies by using Wild Heerbrugg Stereozoom microscope and drawings were made.

All the materials examined have been received on loan from Arunachal Pradesh Field Station of Zoological Survey of India (APFS/ZSI) at Itanagar and eventually will be deposited at the same station.

Detailed synonymical references are published by Carpenter & Kojima (1996). So we have not mentioned all the synonyms of the species in this paper.

SYSTEMATIC ACCOUNT

- Family VESPIDAE
 Subfamily STENOGASTRINAE
 Genus *Eustenogaster* van der Vecht
 1. *Eustenogaster scitula* (Bingham)
 Genus *Parischnogaster* Von Schulthess
 2. *Parischnogaster mellyi* (de Saussure)

RESULTS

1. *Eustenogaster scitula* (Bingham)

(Figs. 1 & 2; Plate-I)

1897. *Ischnogaster scitula* Bingham. *Fauna Brit. India, Hym.* 1 : 377 (Key), 379, female—"Rangit Valley, Sikkim; Margherita, Assam" (London).

1983. *Eustenogaster scitula* (Bingham): Das & Gupta. *Oriental Ins.* 17: 402. cat., syn., ref., distr.

Diagnosis : Female : Length 16-20 mm. Body black. Yellow markings as follows : A large mark on clypeus, propodeum with one circular small yellow mark on each side at apex, a line on fore tibia below, an elongated mark on each side of third gastral segment basally. Yellowish brown markings as follows : pronotum with an apical band interrupted in middle and not reaching tegula; a large mark on mesepisternum ventrally. Legs largely and gastral petiole laterally and ventrally with reddish tinch. Wings fusco-hyaline and iridescent. Body covered with silvery pubescence; supraclypeal area reticulate; interantennal space, frons, vertex up to posterior ocelli, pronotum on sides, mesoscutum, scutellum, mesepisternum above dorsal episternal groove and mesepimeron rugoso-reticulate. Vertex behind posterior ocelli with close large and small punctures. Pronotum smooth with moderately close deep punctures; postscutellum, dorsal and ventral metapleuron and propodeum with fine close superficial punctures.

Male : Length 16- 18.5 mm. Male differs from female in having mandible apically rounded with distinct blunt tooth (Figs. 1, 2).

Variations : The female and male specimens studied in this paper are showing the following variations from the descriptions provided by Das & Gupta (1989) : (1) Length : Female : 20 mm; Fore wing : 12 mm (in Das & Gupta, Female : 16- 17 mm; Fore wing : 15- 16 mm); (2) Length : Male : 18.5 mm; Fore wing : 12.5 mm (in Das & Gupta, Male : 16 mm; Fore wing : 15-16 mm); (3) Clypeus with a large yellow mark (in Das & Gupta, clypeus with a small yellow spot); (4) A



Figs. 1-2. : *Eustenogaster scitula* (Bingham)

Fig. 1 : Female. Apex of right mandible showing teeth.

Fig. 2. : Male. Apex of left mandible showing teeth.

yellow line present on distal fore tibia (in Das & Gupta, no yellow line on distal fore tibia). All other characters are similar to the description provided by Das & Gupta (1989).

Distribution : India (Arunachal Pradesh, Assam, Meghalaya and Sikkim).

Elsewhere : Malaysia and Myanmar.

Material examined : 1 Female, India, Arunachal Pradesh; Papumpare Dist.; Hathi Nallah Doimukh, 29.vi. 2005, coll. G. Srinivasan, Reg. No. 10/Inv. (APFS/ZSI). 1 Male, India, Arunachal Pradesh; West Siang Dist.; Payum village, 4.xii.2003, coll. G. Srinivasan, Reg. No. 11/Inv. (APFS ZSI).

Remarks : This forms the first report of this species from Arunachal Pradesh.

2. *Parischnogaster mellyi* (de Saussure)

(Plate-II)

1852. *Ischnogaster mellyi* de Saussure. *Ann. Soc. Ent. France.* (2) 10 : 25, Pl. 2, Fig. 1, Male : "Java" (Geneva).

1927. *Parischnogaster mellyi* (de Saussure) : von Schulthess. *Suppl. Ent.* 16 : 82, 87.

Diagnosis : Female : Length 10-11.5 mm. Head black, thorax dark brown. Yellow markings are : mandible (except basal area and teeth reddish), antennal scape below, interrupted band on pronotal collar, broad apical uninterrupted band on pronotum, two oval marks at base and a circular mark at apex of mesoscutum, two circular marks on scutellum, a band on post scutellum at base, two marks on mesepisternum, one on dorsal metapleuron, two circular marks on propodeum at apex, a mark on fore and mid femora apically, a line below fore and mid tibia. Antenna, pronotum, mesopleuron and metapleuron (except the yellow marks), sides of propodeum, legs (except yellow marks) reddish brown. Gaster reddish brown. Yellow portions are: one short line on gastral petiole on sides towards apex, another on the side of petiolate second gastral tergite, two vertical lines on second gastral sternite on sides, third to sixth sternites with large marks on sides. Body narrow covered with fine silvery pubescence. Clypeus with a characteristic pointed tooth apically, basal two- thirds reticulato-rugose, apical one- third with a few scattered large punctures; supraclypeal area, interantennal space, frons, vertex up to posterior ocelli, mesoscutum, scutellum, mesopleuron almost entirely rugoso-reticulate; inner orbit, ocular sinus almost smooth. Postscutellum with a few punctures in the middle; metapleuron with a few punctures in the middle; metapleuron mat; propodeum with irregular narrow striations and narrow but distinct median groove. Gastral petiole long, strongly swollen towards apex, slightly narrowed again at apex; maximum width of gaster lies at both second and third gastral segment.

Variations : The female specimens studied in this paper are showing the following variations from the descriptions provided by Das & Gupta (1989) : (1) Length 11.5-12 mm. (in Das & Gupta, 10 mm); (2) Head black (in Das & Gupta, head dark brown); (3) Clypeus entirely black (in Das & Gupta, clypeus with a yellow mark on apex); (4) Mandibles yellow except basal area and teeth reddish (in Das & Gupta, mandibles yellow except reddish teeth); (5) Fore coxa in front entirely brown (in Das & Gupta, fore coxa in front almost entirely yellow). All the other characters are similar to the description provided by Das & Gupta (1989).

Distribution : India (Arunachal Pradesh, Assam, Meghalaya and Sikkim).

Elsewhere : Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

Material examined : 2 Female, India, Arunachal Pradesh; Papumpare Dist.; Itanagar, 20.ii.2005, coll. G. Srinivasan, Reg. Nos. 12/Inv. (APFS/ZSI) & 13/Inv. (APFS/ZSI).

Remarks : This forms the first report of this species from Arunachal Pradesh.

SUMMARY

This paper deals with the hover wasps of Arunachal Pradesh. This forms the new record of the subfamily Stenogastrinae with 2 species under 2 genera from the state.

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