



## ADDITIONAL NOTES ON THE GENUS *ANCYLOTROPUS* CAMERON (HYMENOPTERA: EUCHARITIDAE) FROM INDIAN SUBCONTINENT

P. GIRISH KUMAR, T. C. NARENDRAN\*, K. RAJMOHANA\*\* AND P. M. SURESHAN\*\*

Zoological Survey of India, M-Block, New Alipore, Kolkata

West Bengal- 700 053, India. E- mail: kpgiris@gmail.com

\*All India Coordinated Project on Taxonomy & Capacity Building,

Western Ghat Regional Centre, Zoological Survey of India, Jafer Khan Colony,

Eranhipalam, Kozhikode, Kerala- 673 006, India. E- mail: drtcnarendran@yahoo.com

\*\*Western Ghat Regional Centre, Zoological Survey of India, Jafer Khan Colony,

Eranhipalam, Kozhikode, Kerala- 673 006, India

E- mail: mohana.skumar@gmail.com; pmsuresh43@yahoo.com

### INTRODUCTION

The genus *Ancylostropus* was erected by Cameron (1909) based on the male specimen of the type species *Ancylostropus cariniscutis* Cameron. This genus was treated briefly by Narendran & Sheela (1995) and Bouček (1988) and in detail by Heraty (2002). They are distributed in Palaeotropical Region through the Malagasy subregion to western Malaysia. Six species are known from all over the world of which 4 species were reported from Oriental Region including 2 species from Indian subcontinent. These 6 species are *A. cariniscutis* Cameron from Oriental Region, *A. ivondroi* (Risbec) from Malagasy Region, *A. keralensis* Girish Kumar & Narendran from Oriental Region (Indian subcontinent), *A. manipurensis* (Clausen) from Oriental Region (Indian subcontinent), *A. montanus* (Girault) from Oriental Region and *A. seyrigi* (Risbec) from Malagasy Region (Heraty, 2002; Noyes, 2003; Girish Kumar, 2004; Girish Kumar & Narendran, 2008). In this paper we are providing some additional information to the present knowledge about the species of the genus *Ancylostropus* Cameron from Indian subcontinent. The female of the species *A. keralensis* Girish Kumar & Narendran is described here for the first time. A

redescription of the male of *A. manipurensis* (Clausen) is provided and a modified key to separate the species of the Indian subcontinent is also provided. All the specimens studied are added to the "National Zoological Collections" of the Zoological Survey of India, Kolkata (NZC).

*Abbreviations used for the Museums:* NZC = 'National Zoological Collections' of Zoological Survey of India, Kolkata, India; USNM = United State National Museum of Natural History, Washington D. C., U. S. A.

*Abbreviations used for the terms used in the text:* F1-F8 = Funicular segments 1-8; MV = Marginal vein; OOL = Ocellocular line; PMV = Postmarginal vein; POL = Postocellar line; SMV = Submarginal vein; SSS = Scutoscutellar sulcus; STV = Stigmal vein; Gt1 = First gastral tergite.

### Genus *Ancylostropus* Cameron

*Ancylostropus* Cameron, 1909, *Entomologist*, 47: 229. Type species: *Ancylostropus cariniscutis* Cameron by monotypy.

*Diagnosis:* Antenna 11 or 12 segmented in females and 12 segmented in males; notauli distinct and complete; spiracle situated at the anterior face of the pronotal-prepectal complex under a shelf-like expansion of the lateral lobe of

the mesoscutum; usually have a distinct, vertical, anterior prepectal carina that terminates dorsally just below or posterior to the mesothoracic spiracle, rarely the carina is indistinct from the surrounding sculpture or the anterior margin is abrupt without any carina; posterodorsal margin of prepectus apically truncate or rounded, not reaching to tegula; apex of scutellum rounded or prolonged in to a truncate or emarginate projection; propodeal spiracle circular or at most with a very small ventral emargination; basal gastral tergite triquetrous or bivalved.

*Hosts:* Based on their phylogenetic position, they are probably parasites of Ponerinae in the tribe Ectatommini (Heraty, 2002).

*Distribution:* Palaeotropical region through the Malagasy subregion to western Malaysia (Heraty, 2002).

**Key to species of the genus *Ancylotropus*  
Cameron from Indian subcontinent**

1. Basal gastral tergite triquetrous (three sided) (Image 7); eyes bare; scutellar horn almost at the same plane of scutellum and not tilted upwards; scutellum with posterior horn almost rounded or at least slightly incised (Image 3).....  
..... *keralensis* Girish Kumar & Narendran
- Basal gastral tergite bivalved (two sided) (Image 15); eyes with minute sparse hairs; scutellar horn tilted upwards about 30° on horizontal axis of scutellum; scutellum with posterior horn usually deeply incised at apex, rarely truncated or slightly rounded (Images 11, 16, 17 & 18).....  
..... *manipurensis* (Clausen)

*Ancylotropus keralensis* Girish Kumar and  
Narendran  
(Images 1-8)

*Ancylotropus keralensis* Girish Kumar and Narendran, 2008: 92-95, Holotype Male, Muthanga (Kerala, India) (NZC).

*Plesiotype Female:* Length 3.34 mm. Head, mesosoma and petiole black with metallic green refringence, metallic green reflections on head and petiole very slight; antenna pale brown except scape and pedicel yellow; mandibles pale brownish yellow with tip of teeth brown; eyes black with silvery white reflections; ocelli

reflecting pale yellow to brown; legs pale brownish yellow except coxae brownish black; claws brown; wings hyaline without any infumation around stigma, veins brown; gaster blackish brown.

*Head:* Transverse subtriangular (Image 2), 1.18x as broad as high excluding mandibles; OOL as long as POL; vertex smooth with a few striations; frons also with a few strong transverse striations; gena and sides of lower frons with minute scattered pits; labrum 9 digitate; clypeal and supraclypeal area smooth; tentorial pit deep; vertex and frons with sparse hairs; eyes bare, eye separated by 1.75x their height. Antenna (Image 4) 11 segmented; scape cylindrical, not reaching front ocellus; relative proportions of length and width of antennal segments: scape: 43:13; pedicel: 20:14; F1: 36:15; F2: 36:15; F3: 36:15; F4: 34:15; F5: 32:16; F6: 27:16; F7: 27:16; F8: 23:16; clava: 40:17.

*Mesosoma:* Mesoscutum and scutellum including posteriorly projecting horn with close rugoso-alveolate sculpture, and moderately pubescent, interstices carinate; SSS transversely carinate; scutellum with a single horn directed straight posteriorly, almost rounded at apex (Image 3); callus and propodeal disc with felt like pilosity; mesepimeron with sparse pilosity; median length of scutellum up to apical tip of scutellar horn in dorsal view 1.31x basal width (excluding axillae) of scutellum; scutellar horn almost at the same plane of scutellum and not tilted upwards; propodeum sculptured as in image 5; mesepisternum with a large smooth area, upper and lower mesepimeron almost fully sculptured with small smooth areas; coxae sparsely pubescent; femora moderately pubescent; pubescence on tibiae and tarsi denser than those on femora. Fore wing (Image 6) 2.58x as long as broad; fore wing densely pubescent except basal cell sparsely pubescent; SMV 1.38x MV; MV 2.46x PMV; PMV 2.07x STV; hamuli 4 in number.

*Metasoma* (Image 7): Petiole 0.43x as long as gaster, with longitudinal striations; Gt<sub>1</sub> bivalved, smooth and shiny; ovipositor exerted.

*Male* (Image 8): See Girish Kumar & Narendran, 2008.

*Hosts and Biology*: Unknown.

*Material examined*: Holotype ♂, INDIA: Kerala, Wayanad district, Muthanga Wildlife Sanctuary, 07.v.2000, Coll. T. C. Narendran & Party, NZC Regd. No. 9991/H3. Paratypes, 2 ♂, same data of holotype, 06.v.2000 & 07.v.2000, NZC Regd. Nos. 9992/H3 & 9992/H3. Other materials. INDIA: Kerala, Palakkad district, Silent Valley National Park, 1 ♂, 30.xii.1988, Coll. M. Hayat, NZC Regd. No. 13792/H3; Silent Valley National Park, Sirendri, 2 ♀ & 1 ♂, 04.xii.2007, Coll. K. Rajmohana & Party, NZC Regd. Nos. 13793/H3 to 13795/H3; Kunthipuzha riverside, 1 ♀ & 3 ♂, 05.xii.2007, Coll. K. Rajmohana & Party, NZC Regd. Nos. 13796/H3 to 13799/H3; Aringapara, 1 ♀ & 4 ♂, 06.xii.2007, Coll. K. Rajmohana & Party, NZC Regd. Nos. 13800/H3 to 13804/H3.

*Variation*: Labrum with 8-9 digitate; scutellar process almost rounded to slightly incised.

*Distribution*: India: Kerala.

*Ancylotropus manipurensis* (Clausen)  
(Images 9-18)

*Schizaspidia manipurensis* Clausen, 1928: 85-86, Male, Female. Type Male, Imphal (Manipur, India) (USNM).

*Stilbula manipurensis*: Gahan, 1940: 436. Description of both sexes. Change of combination. Additional citation: Hedqvist, 1978, 247 (catalogue).

*Ancylotropus manipurensis*: Bouček, 1988: 534. Change of Combination. Additional citations: Narendran & Sheela, 1995: 46-47. Description of both sexes; partly based on type studied by Narendran, partly based on the figures supplied by Heraty and partly based on original description; Heraty, 2002: 79-80 (key; species catalogue).

*Plesiotype Male*: Length 4.74 mm. Head, mesosoma and petiole black with metallic refringence; antenna pale yellowish brown except scape and pedicel yellow; mandible pale

brownish yellow with margins brown; eyes black with silvery white reflections; ocelli reflecting brown; legs yellow except mid and hind coxae brownish black, fore coxa blackish brown; claws brown; wings hyaline with a very slight infumation around the surface of stigma, veins brown; gaster blackish brown.

*Head*: Transverse subtriangular (Image 10), 1.51x as broad as high excluding mandibles; OOL 0.62x POL; vertex with a few striations; frons with a few strong transverse striations; gena and sides of lower frons with minute scattered pits; labrum 8 digitate; clypeal and supraclypeal area smooth with hairs; tentorial pit deep; vertex and frons with sparse hairs; eyes with minute sparse hairs, eye separated by 2.32x their height. Antenna (Image 12) 12 segmented; scape cylindrical, not reaching front ocellus; flagellar segments filiform; relative measurements of length of antennal segments: scape: 16; pedicel: 9; F1: 38; F2: 31; F3: 31; F4: 30; F5: 29.5; F6: 26.5; F7: 26.5; F8: 25; F9: 22; F10: 24.

*Mesosoma*: Mesoscutum and scutellum including posteriorly projecting horn with close rugoso-alveolate sculpture and moderately pubescent, interstices carinate; SSS transversely carinate; scutellum with a single horn directed straight posteriorly, Y-shaped fork at apex (Image 11); callus and propodeal disc with felt like pilosity; lateral part of pronotum, prepectus and mesepimeron laterally with felt like pilosity (Image 14); median length of scutellum up to apical tip of scutellar horn in dorsal view 1.44x basal width (excluding axillae) of scutellum; scutellar horn tilted upwards about 30° on horizontal axis of scutellum; propodeum rugulose; mesopleuron almost fully sculptured; coxae with felt like pubescence; femora moderately pubescent; pubescence on tibiae and tarsi denser than those on femora. Fore wing (Image 13) 2.86x as long as broad; fore wing densely pubescent except basal cell sparsely pubescent; SMV 1.57x MV; MV 1.64x PMV; PMV 4.76x STV; hamuli 3 in number.

*Metasoma* (Image 15): Petiole 0.86x length of gaster, with longitudinal striations; Gt<sub>1</sub> triquetrous, smooth and shiny.



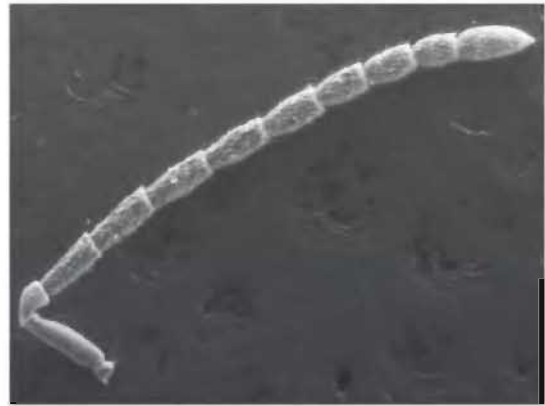
1



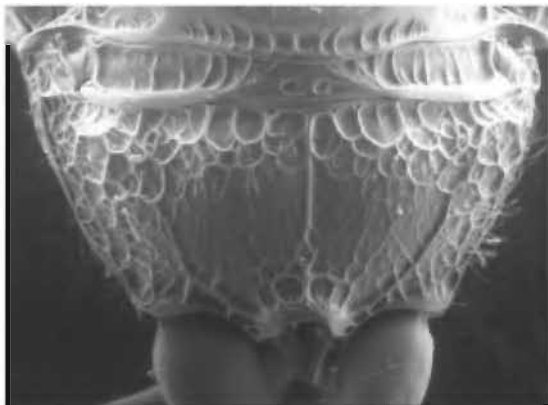
2



3



4

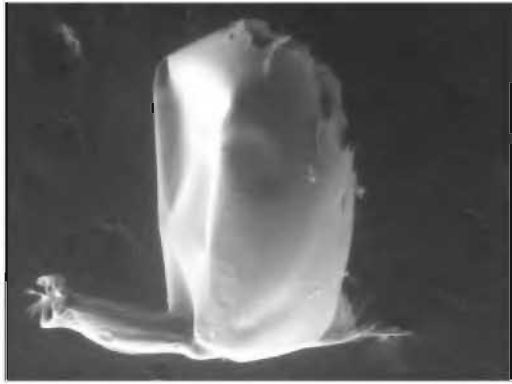


5



6

**Images 1-6 :** *Ancylostropus keralensis* Girish Kumar & Narendran Female. 1. Body Profile; 2. Head front view; 3. Head and Mesosoma dorsal view; 4. Antenna; 5. Propodeum; Forewing.



7



8



9



10



11



12

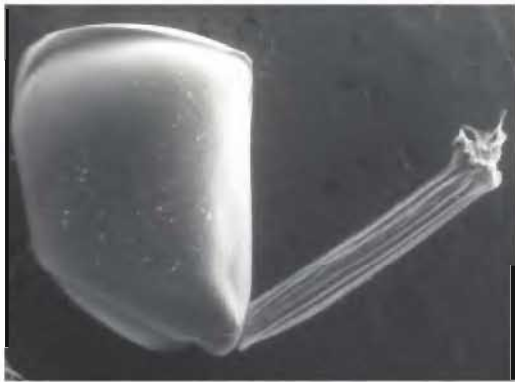
**Images 7-8.** *Ancylotropus keralensis* Girish Kumar & Narendran Female. 7. Mesosoma lateral view Female; 8. Body profile Male. **Images 9-12.** *Ancylotropus manipurensis* (Clausen) 9. Body profile; 10. Head front view; 11. Head and Mesosoma dorsal view; 12. Antenna.



13



14



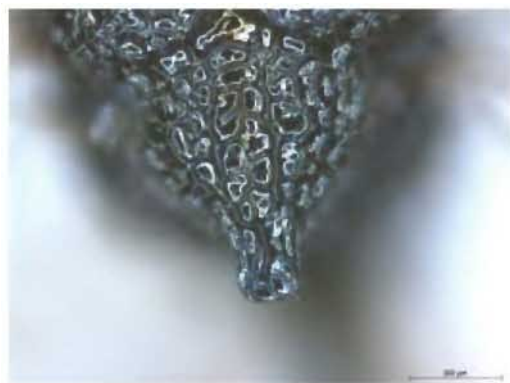
15



16



17



18

**Images 13-18 :** *Ancylostropus manipurens* (Clausen) Male. 13. Forewing;  
14. Measoma lateral view; 15. Metasoma lateral view; 16, 17 & 18.  
Scutellar horns in different specimens.

*Female*: See Clausen (1928), Gahan (1940) and Narendran & Sheela (1995).

*Hosts and Biology*: Oviposition habits and description of egg and first instar larva are reported in Clausen (1928, 1940).

*Material examined*: INDIA: Arunachal Pradesh, East Siang district, Mebo, 1 ♂, 19.x.1966, Coll. S. K. Tandon & Party, NZC Regd. No. 13836/H3; Dibang Valley district, Roing, 1 ♂, 08.xi.1985, Coll. G. K. Srivastava & Party, NZC Regd. No. 13811/H3; Changlang district, Namdapha National Park, Deban, 12 ♂, 14.xi.2009, Coll. P. M. Sureshan, NZC Regd. Nos. 13812/H3 to 13823/H3. Tripura, South Tripura district, Chandrapur, 3 ♂, 07.x.1977, Coll. N. Muraleedharan & Party, NZC Regd. Nos. 13837/H3 to 13839/H3; South Tripura district, Paratia East, 1 ♂, 09.x.1977, Coll. N. Muraleedharan & Party, NZC Regd. No. 13840/H3; South Tripura district, Paratia West, 5 ♂, 10.x.1977, Coll. N. Muraleedharan & Party, NZC Regd. Nos. 13841/H3 & 13845/H3; Gumati district, Amarpur, 1 ♂, 15.x.1977, Coll. N. Muraleedharan & Party, NZC Regd. No. 13846/H3; West Tripura district, Teliamura, 2 ♂, 23.x.1977, Coll. N. Muraleedharan & Party, NZC Regd. Nos. 13847/H3 & 13848/H3; Gumati district, Udaipur, 1 ♂, 14.v.1978, Coll. J. K. Jonathan & Party, NZC Regd. No. 13807/H3; West Tripura district, Teliamura, 3 ♂, 18.v.1978, Coll. J. K. Jonathan & Party, NZC Regd. Nos. 13808/H3, 13808/H3 & 13849/H3; West Tripura district, Agartala, 1 ♂, 24.xii.1991, Coll. M. Dutta & Party, NZC Regd. No. 13810/H3.

*Variation*: The apex of scutellar projection is highly varying in their shape and size. Usually it is forked (usually Y-shaped, rarely U-shaped) rarely truncated or slightly rounded dorsally (Images 11, 16, 17 & 18).

*Distribution*: India: Arunachal Pradesh (new record), Manipur, Tripura (new record).

### SUMMARY

The species of the genus *Ancylotropus* Cameron from Indian subcontinent is reviewed. The female of the species *A. keralensis* Girish Kumar & Narendran is described here for the first time. A redescription of the male of *A. manipurensis* (Clausen) is provided and a modified key to separate the Indian subcontinent species is also provided.

### ACKNOWLEDGEMENTS

We are grateful to Dr. K. Venkataraman, Director, Zoological Survey of India Kolkata for providing facilities and encouragements. PGK is also grateful to Dr. Kailash Chandra, Additional Director & Officer-in-Charge of Entomology Division (A), Zoological Survey of India, Kolkata and Dr. Gaurav Sharma, Officer-in-Charge, Hymenoptera Section, Zoological Survey of India, Kolkata for providing facilities and encouragements. TCN is also grateful to the Ministry of Environment & Forests, Government of India, New Delhi for financial assistance for his research under All India Coordinated Project on Taxonomy & Capacity Building (AICOPTAX).

### REFERENCES

- Bouček, Z. 1988. *Australasian Chalcidoidea (Hymenoptera). A Biosystematic Revision of Genera of Fourteen Families, with a reclassification of Species*. Wallingford: C.A.B. International, 832 pages.
- Cameron, P. 1909. On two new genera and seven species from Borneo. *Entomologist*, **42**: 229-234.
- Clausen, C. P. 1928. The manner of oviposition and the planidium of *Schizaspidia manipurensis* n. sp. (Hymenoptera: Eucharidae). *Proc. Ent. Soc. Wash.*, **30** (4): 80-86.
- Clausen, C. P. 1940. The Oviposition habits of the Eucharidae (Hymenoptera). *J. Wash. Acad. Sci.*, **30**: 504-516.
- Gahan, A. B. 1940. A contribution to the knowledge of Eucharidae (Hymenoptera: Chalcidoidea). *Proc. United States Nat. Mus.*, **88** (3086): 425-458.

- Girish Kumar, P. 2004. A review of Family Eucharitidae (Hymenoptera: Chalcidoidea) of Indian subcontinent. In: *Perspectives on Biosystematics and Biodiversity*, Prof. T. C. Narendran Commemoration Volume. Rajmohana K., *et al.*: 627-646. SERSA, Kerala, India.
- Girish Kumar, P. and Narendran, T. C. 2008. A new species of *Ancylotropus* Cameron (Hymenoptera: Eucharitidae) from India. *Records of Zoological Survey of India*, **108** (1): 91-95.
- Heraty, J. M. 2002. A revision of the genera Eucharitidae (Hymenoptera: Chalcidoidea) of the world. *Memoirs of the American Entomological Institute*, **68**: 1-367.
- Narendran, T. C. and Sheela, S. 1995. A systematic study of the Oriental genus *Ancylotropus* Cameron (Hymenoptera: Eucharitidae). *Uttar Pradesh J. Zool.*, **15**: 43-47.
- Noyes, J. S. 2003. Universal Chalcidoidea Database. Updated. <http://www.nhm.ac.uk/entomology/chalcidoidea> (Last updated June, 2012; Accessed on February, 2013).