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STUDY OF GENUS CHEIROCHELA (NAUCORIDAE) FROM DIFFERENT PART OF INDIA

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AUTHOR'S CONTRIBUTION

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

Naucoridae is a small family of aquatic insect of sub order Heteroptera. The member of family Naucoridae are easily distiguished due to broad, oval and flattned body. The study of Indian naucoridae is of a great importance. The genus cheirochela is previously record by two species cheirochela assamensis hope, 1841 and Cheirochela Feena, Montand 1897. A new species of the genus is being discovered for the first time in its current state. The current study is the result of a three-and-a-half-year continuous survey of these bugs in various locations of India. Several field surveys were conducted in Uttar Pradesh, Punjab, Haryana, Delhi, Assam, and Rajasthan to gather a significant number of bugs from ponds, lakes, rivers, streams, and water reservoirs in various parts of India. The genital propagation of the new species was made and examined. The insect of this study were preserved in 90% Alcohal. The study was made under binoculars, stereoscope and compound microscope, camera lucida were used for making the sketches and measurements were taken with the halp of micrometer.

Keywords: Naucoridae; water bugs; Uttar Pradesh.

1. INTRODUCTION

Economically, the naucorids are of great importance in destroying the eggs and larvae of Anopheles and culex mosquitoes. Although the Naucorids are extremely common in Indian water very little is known about their taxonomy and Zoogeography [1-3]. Although India, as a large area of ponds, lakes, and water reservoirs, has a diverse fauna of water bugs, no serious efforts have been made to examine the systematics of the naucoridae in India [4,5]. The current work includes various new facts, including the description of new species and the reevaluation of taxonomic features.

2. MATERIALS AND METHODS

During the entire studies, insects were collected from various places of Uttar Pradesh, Rajasthan, Delhi, Haryana, Punjab, and Assam. After determination,

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the insects were preserved in 90% Alchohal and kept in entomological boxes. The genitalia were taken out with the help of forceps and cleared them in 10% KOH for 24 hours. Amature genitalia were heated for 5 to 10 minutes in 10% KOH. After the material had been heated, it was placed in acetic acid to neutralise the alkali. For transparency, the bodily fluids were extracted and transferred to clove oil. The slides were then mounted with Canada balsam and dried for an hour on hot plates after being cleaned in xylol to remove oil. All diagrams were created with a camera lucida on a Leitz dissecting microscope, and all measurements were taken with a micrometr.

2.1 Observation

The genus Cheirochela previously described by two species viz, Cheirochela assamensis, hope 1841 and Cheirochela feana, Montand 1897 A new species of the knowledge in present contribution.

2.2 Description

Cheirochela distanti sp. nov.

Size: Winged Male 16.86 mm. long width across head including eyes 5.00 mm; width across humeri 5.86 mm, width across measoacetabula 5.32 mm. winged Female 16.38 mm. long, width across head including eyes 5.18mm. width across humeri 5.84 mm. width across mesoacetabula 5.30 mm.

Colour: Ground colour dark reddish brown with slightly dark patches; most of the pronotum and external part of connexiva yellow brown; anterior part of pronotum lighter, antennae and legs grayish Mesonotum yellow with a single median black stripe. Abdominal tergites yellow with a median black small spot in first tergite only Venter slightly greyish Antennae and legs yellowish brown. Hemelytra brown.

2.3 Stractural Characteristics

Head: Proportional length of antennal segments of winged male 1st :2nd:3rd:4th : 8.7:3.9: 3.6 : 6.9, total length of antenna 1.48 mm., of winged female 1st: 2nd: 3rd: 4th:: 8.6: 3.7 : 3.5 : 6.5, total length of antenna 1.39 mm. Head including eyes wider than long. The body surface, especially dorsum covered by a dense pile of long suberect hairs while slight pubescence in apterous female; ventral lobes of head produced backwards, overlapping poststernum, eyes exerted, inner margin slightly rounded, covering anterolateral angle of pronotum. Antenniferous tubercles indistinctly defined. Clypeus with basal margin obscure. Mandibular and maxillary plates distinctly separated from each other. Rostrum elongate reaching onto about the middle of mesosternum; the third segment relating longer than last segment.

Thorax: Pronotum rather board, lateral margins divergent posteriorly. Posterior margin feebly bisinute, intersegmental suture between mesonnotum ans metanotum fairly distinct laterally. Pronotal lobe slightly broad anteriorly. Median longitudinal sulcus of metanotum indistinct. Legs clothed with scattered long sub erect hairs; fore tibia distinctly widened in apical part. Metasternum, highly reduced. Omphalium and omphalial groove absent. Hind tibia of male without definite patch of dark hairs in distal part; tarsus much longer than tibia, first segment long and curved, with a row of bristles arising from thickened basal part. In female hind tibia and tarsus not modified, claws arising from apical third of inner margin of second segment.

Wing venation: In the membranous region, there are two apical veins, one coming from the lower apical angle of the embolium and the other from the point of union of R+M+Cu and A.

Table 1. Relative length of leg segments

Winged Male (16.86 mm.)					
	Femur	**Tibia**	**First tarsal Segment**	**Second tarsal Segment**	**Total tarsal length**
Fore leg	42	39	2.76	6.98	9.74
Mid leg	37	34	2.69	6.48	9.17
Hind leg	67	65	2.88	7.02	9.90
Winged Female (16.38mm.)					
	Femur	**Tibia**	**First tarsal Segment**	**Second tarsal Segment**	**Total tarsal length**
Fore leg	41	38	2.69	6.87	9.56
Mid leg	37	32	2.58	6.28	8.86
Hind leg	66	63	2.78	6.99	9.77

Abdomen: Abdomen broad, narrow posteriorly, anterior margin of first and second tergites obliterated. First ventrite indistinct. Ventrite more reduced than tergites. Connexiva slightly raised in apterous male and steeply raised in apterous female. Abdominal spiracles situated at about middle between both the margins of each segment. Ventral median longitudinal carina distinct slightly.

Male genitalia: Seventh ventrite a little shorter and broader than preceeding ventrites. Eighth segment prolonged, with apical margin bisinuate. Ninth segment distinct suranal plate; pygophore ventrally depressed near base; claspers symmetrically developed with kidney shape apical part. Endosoma with dorsal plate little short and only moderately expanded apically with hind margin; ventral plate short, membranous; apical plate bifurcate apically; lateral plates long and oblipue.

Female genitalia: Seventh segment slightly shorter than preceeding segments together ventrally. Ventral apical margin slightly concave. Eighth segment exposed ventrally; slightly convex at apical margin. First valvulae not well sclerotized, outer lobe small, broad apically and narrowed basally. Second valvulae membranous, curved apically; extending far beyond apical margin of intervalvular membrane. Vulva conspicuous and membranous.

Material examined: Holotype winged 1 male, allotype 1 female on pins.

Paratypes 6 males and 9 female in spirit. Uttar Pradesh, Rajasthan, bhalung pong, Bomdila 3-12.vi.2014 (Mohd. Shoeb).

Distribution: India: Uttar Pradesh, Uttrakhand, Rajasthan.

Remark: The spacies cheirochela distanti sp.nov. is closely related to cheirochela feana montand is pronotum being granulose with transverse striae on central area and posterior leteral angles greatly produced with a transverse sub basal furrow but can be easily separated by lateral and anterior margins of the head being distinctly ovate [6-10]; lateral margins and posterior angles of pronotum triangular, corium much less rugose with its anterior marginal area distinctly convex, membrane reaching apex of abdomen; femora greatly dilated and posterior pronotal angles distinctly convex and bachwordly produced.

Etymology: The species has been named after the name of W.L. Distant in recognition of his outstanding contribution in the taxonomy of Heteropetra.

Digram of (*Cheirochela distant Sp. nov*.)

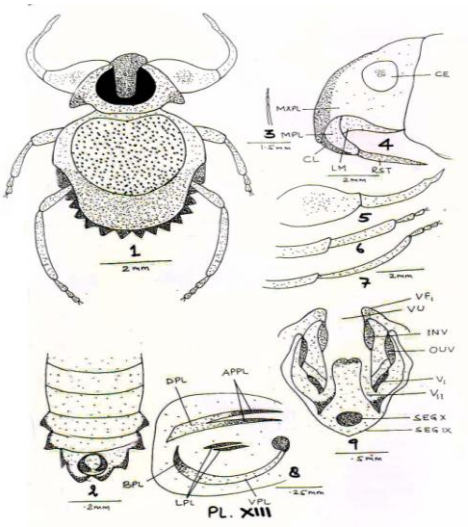

Fig. 1. Entire Specimen (Dorsal view, Male)
Fig. 2. Ventral view abdomen, Female
Fig. 3. Anteena
Fig. 4. Head & rostrum (Lateral view)
Fig. 5. Apical Part of fore leg
Fig. 6. Apical Part of Mid leg
Fig. 7. Apical Part Hind leg
Fig. 8. Endosoma (Lateral view)
Fig. 9. Female genitalia

3. DISCUSSION AND CONCLUSION

The genus cheirochela hope is previously known by two species viz., cheirochela feana montand, 1897 and cheirochela assamensis hope, 1841 (Distant, 1906). "It is also recorded form foregoing review though a large number of papers have appeared on the taxonomy of naucoridae from the other parts of the world" (brown, 1968, poison, 1957 stal, 1868 and truxal, 1977, Brooks, G.T. 1974). "This work contained several new facts of description of new species and also contained reevaluation of taxonomic characters."

COMPETING INTERESTS

Author haS declared that no competing interests exist.

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