Recent Research in Science and Technology 2011, 3(6): 12-15
ISSN: 2076-5061
www.recent-science.com

ZOOLOGY

NEW RECORD OF NAUCORIDS (HEMIPTERA:HETEROPTERA) IN INDIA

Mohammad Shoeb[1], Nasim Jahan[2]* and Ramesh Chandra[3]

[1]*Department of Zoology, Sir M.U. Degree College, Sahawar Kanshiramnagar, (U.P.) India.*
[2]*Department of Life Science, R.K.S. Degree College, Sahawar Kanshiramnagar, (U.P.) India.*
[3]*Department of Zoology, S.S. (P.G.) College, Shahjhanpur, (U.P.) India*

Abstract

The Naucoridae are most interesting and fascinating aquatic water bugs known as water creepers, needle bugs and toebiters. In view of the studies of Naucoridae fauna from other parts of world, the study of Indian Naucoridae is of a great importance. The genus *Naucoris* is previously record by three species viz., *Naucoris scutellaris* Stal., 1859, *Naucoris sordidus* Distant, 1910 and *Naucoris vividus* Distant, 1910. A new species of the genus are being for the first brought to the knowledge in present condition. The present work is an outcome of three and a half years continuous survey of these bugs from different parts of India. During the course of study a large number of bugs were collected from ponds, lakes, rivers, ditches, streams and water reservoirs of various ports of India. Several field surveys were undertaken in Uttar Pradesh, Punjab, Haryana, west Bengal, Assam, Delhi, Rajasthan, Madhya Pradesh, Himachal Pradesh, Tamil Nadu, Kerala, Karnataka, Jammu and Kashmir. The genital Propagation of the species was examined made and studied. The entire insects collected in the field were immediately preserved in 90% alcohol. The entire study was made under stereoscope, binoculars and compound microscope. The sketches were made with the help of camera lucida and all measurement was taken with micrometer.

Keywords: *Naucoridae*, Uttar Pradesh, India

Introduction

Insects comprise 75-80% of the total species that have been recorded on this planet. In the insects world of exopterygote insects and is represented by nearly 77 families and 18.000 species. Naucoridae is a small family of aquatic insects of sub order heteropteras. The Heteropterara is an important suborder of order hemiptera and includes a large number of aquatic and sub aquatic forms which are of great important due to their peculiar predatory and phytophagous nature. These water bugs effectively performed the role of biological control of mosquito's larvae which are harmful to the mankind. India being a vast land of ponds, lakes and water reservoirs possesses a rich fauna of water bugs unfortunately no sincere efforts has been made to study the systematic of naucoridae from India. The present study contains several new facts not only in the description of new species but also in reevaluation of taxonomic characters having bearing on the phylogeny a distribution.

Matrial and Methods

Specimens were collected from the various localities of Uttar Pradesh, Rajasthan, Madhya Pradesh, Himachal Pradesh, Punjab, Haryana, west Bengal, Assam, Delhi, and South India, the types of naucoridae available at Z.S.I. Kolkata were also studies and evaluated. After determination, the specimens were preserved in 90% alcohol and kept in entomological boxes. The genitalia were taken out with the help of forceps and cleared in 10% KOH for a period of 24 hours. At times the genital armature was heated in 10% KOH for 5-10 minutes then material was placed in acetic acid for neutralizing the alkali. The body contents were removed and transferred in to clove oil for perfect transparency. After that material was rinsed in xylol to remove oil. The slides were mounted with Canada balsam and placed on hot plate for an hour for drying. All the drawing was made by the use of camera lucida on Leitz dissecting microscope and all the measurement were taken by using a micrometer.

Observation

The genus *Naucoris* previously recorded by three species viz, *Naucoris scutellaris* Stal., 1859 *Naucoris sordidus* Distant, 1910 and *Naucoris vividus* Distant, 1910. A new species of the knowledge in present contribution.

Description

Naucoris nanitalensis sp. Nov. (Plate-A, Figs. 1-9).

Size: Winged Male 6.80 mm long, width across head including eyes 3.32 mm; width across pronotum 3.69 mm; greatest width of body across mesoacetabula 3.54 mm. Winged Female 6.68 mm long, width across head including eyes 3.29 mm ; width across pronotum 3.58

* Corresponding Author, *Email*: nasimj9@gmail.com

mm;, greatest width of body across mesoacetabula 3.52 mm.

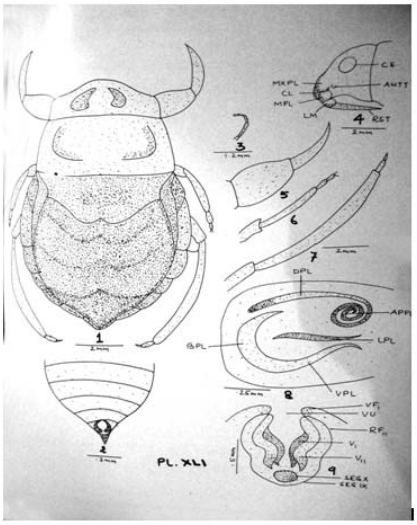
Colour: Upper surface yellowish brown with black markings. Head brown with light black stripes; antenniferous tubercles, clypeus and a pair of oblique stripe at base. Pronotum yellowish brown with a pair of round stripes near anterior margin Propleuron black with a triangular stripe anterolaterally. Meso and metapleural regions yellowish brown with a black longitudinal stripe, covered with golden pubescence. Venter creamish white. Connexivum brown laterally. Antennae and legs dark brown. Hemelytrsa slightly dark.

Structural Characteristics

Head: Proportional length of antennal segment of apterous male 1st : 2nd: 3rd : 4th :: 9.6 : 4.2: 4.1 : 8.2, total length of antenna 1.74 mm of apterous female 1st : 2nd : 3rd : 4th :: 9 : 4 : 3.8 : 7.8 total length of antenna 1.69 mm. Head including eyes wider than long (69 : 43 in apterous male and 65 : 38 in apterous female) Eyes broadly rounded on outer margin, concave on inner margin. Antenniferous as equal to eyes slightly obliquely anteriorly. Clypeus with obliterated basal margin. Mandibular and maxillary plates indistinctly separated from each other. Rostrum slender surpassing hind margin of prosternum, third segment about three and a half times as long as last segment (28 : 8 in male and 24 : 7 in female).

Thorax: Pronotum subpentagonal in shape, a little wider than head including eyes, broadly rounded margins, feebly concave posteriorly. Inter segmental surface between mesonotum and metanotum distinctly defined dorsolaterally. Mesonotum without median longitudinal sulcus. Mesostemum ten times longer than metasternum (68 : 7 in male and 59 : 5.8 in female); Median longitudinal sulcus present, paired longitudinal sutures indistinct, Metacetabular suture obliquely raised. Omphalium small, distinct, situated more closer to posterior margin than to anterior margin. Fore leg with femur simple a little longer than tibia, tibia with a conspicuous process at apical inner surface; tarsus a little shorter than tibia. Rear margin of metacoxa with thorn like projection. Claws arising from apex.

Fig. 1-9



Relative length of leg segments:

Winged male (6.80 mm)

	Femur	*Tibia*	*First tarsal Segment*	*Second tarsal Segment*	*Third tarsal Segment*
Fore leg	48	42	3.28	8.1	11.38
Mid leg	42	39	3.1	7.2	10.3
Hind leg	68	67	3.4	8.3	11.7

Winged female (6.68 mm)

	Femur	*Tibia*	*First tarsal Segment*	*Second tarsal Segment*	*Third tarsal Segment*
Fore leg	44	41	3.26	7.92	11.18
Mid leg	41.8	37	2.92	7.02	9.94
Hind leg	67.2	66.6	3.36	8.13	11.49

Wing venation: Hemelytra with R + M and Cu veins distinct from each other basally, the two veins basally connected by a cross vein beyond middle of hemelytra. Vein a connected with Cu at about apical third of the wing.

Abdomen: Abdomen long, narrow posteriorly, Anterior margin of first tergite well demarcated, first tergite much shorter than second, second to six tergites nearly equal to each other. Abdominal spiracles located more close to anterior margin than to posterior margin of each segment. Ventral longitudinal suture of connexivum distinct Median ventral longitudinal carina absent.

Male genitalia: Eighth segment with ventral apical margin concave. Ninth segment with suranal plate simple; pygophore simply narrowed apically, parameres greatly reduced. Genital segment very small, ventral depression of first segment circular, lateral margins, a median ridge and a small posterior furnished with short hairs. Endosoma with dorsal plate curved apically along margin of endosoma; basal plate fused districtly with basal margin plate, ventral plate small, membranous.

Female genitalia: Eighth segment lobately produced laterally, the lobes splits into upper and lower lobes, connexival spines are long raised well above the dorsal margin of dorsolateral lobe of eighth segment. First valvula divided into two lobes apically with apical cleft, densely clothed with long hairs on the area between the valvulae. Second valvula weakly sclerotized, narrow posteriorly, acute apically, extending far beyond the apical margin of inter valvular membrane.Vulva membranous.

Material examined: Holotype-winged 1 males; allotype winged 1 females on pins. Paratypes- wigned 2 males, 5 females, Uttaranchal, Nanital, Khurpatal, 19.01.2002.

Distribution: India (Uttaranchal)

Etymology: The species is named after the place of its collection Nanital.

Discussion

It is evident from foregoing review that though a large number of papers have appeared on the taxonomy of aquatic heteroptera from the other parts of the world (Brooks, 1974; Brown, 1968; Poison, 1957; Spuse, 1893; Stal, 1868 and Truxal, 1977).Whereas no sincere effort is on the records to study the systematic of these insects from India after Distant, 1906 and 1910.the pioneer work of species belonging to seven genera of naucoridal from India in clouding Burma, Bhutan and Ceylon. Unfortunately the description are based color marking which are not of much importance as are subject to changes due to ecological conditions. Distant himself has admitted that he could not avail the opportunity to access several species as no representative was available before him in his collection. The present contribution provides a systematic treatment of the taxonomy of naucoridae from India. The genus *Naucoris* is previously recorded by three species viz., *Naucoris scutellaris* Stal., 1859, *Naucoris sordidus* Distant, 1910 and *Naucoris vividus* Distant, 1910. The new species of the genus are being for the first and have been described based on statistical measurements of insect's size and the changes in color markings. The species *Naucoris scutellaris* Stal., 1859 and *Naucoris vividus* Distant, 1910 were the earliest species of *Naucoris.*

The present new species of *Naucoris* is close to *Naucoris vividus* Distant, 1910 but is relatively broader species and easily distinguished due to head longer, posterior margin of pronotum, distinctly curved, different colour marking and due to less armed femur. It is also easily differentiated due to head being much smaller than twice the breadth between eyes. Eyes were very short and distinctly separated to each other; Clavus with horn like mark; apical plate of endosoma broadly rounded, first valvulae thickly sclerotized; second valvulae less sclerotized.

The measurements suggest that the present species are considerably differ and the above critical comparisons with the earlier reported species and discussion indicates that the *Naucoris* species encountered from the water creepers is distinct and is thus designated as a new species, *Naucoris nanitalensis* sp. nov. with the specific characters as mentioned in this account.

References

Brooks, G. T. (1974). A new species of *Chirochel* from Sumba (Het. Naucoridae). Verh. Naturf. Ges. Basel.65: 29-30.

Brown, E. S. (1968). On Naucoridae and Notonectidae (Hemiptera-Heteroptera) Insecta from the silent valley, Kerala. Rec. Zoo. Surv. India. 84: 9-33.

Distant, W. L. (1906). The fauna of British India including Ceylon and Burma. Vol. III Rhynchota Heteroptera: Appendix, Taylor and Francis, London. 25-33.

Distant, W. L. (1910). The fauna of British India including Ceylon and Burma. Vol. V. Rhynchota Heteroptera: Appendix, Taylor and Francis, London. 318-327.

Poisson, R. (1957). Hemiptera – Heteroptera: Hydrocorisae, Geocorisae-Gerroidea and

Naucorids. In Hanstrom, Brinck and Rudeback, South African animal life Vol. IV: 327-373.

Stal, C. (1868). Hemiptera Fabriciana. Fabricianka Hemipterarter,effer de kopenhamn och kiel forvarade typexemplaren granskade och beskrifine-1. Kongl. Svenska Ventesk. Akad. Handlingar, Band Vii.pp.1-148.

Spouse, F. A. A. (1893). Notes on Australian, aquatic Hemiptera. Rec. Austral. Mus., II. pp. 42-45.

Truxal, F. S. (1977). The Machris Brazilian expedition. Entomology: general; systematics of the naucoridae (Hemiptera). Contr. Sci. Los. Angles No.12:1-22.