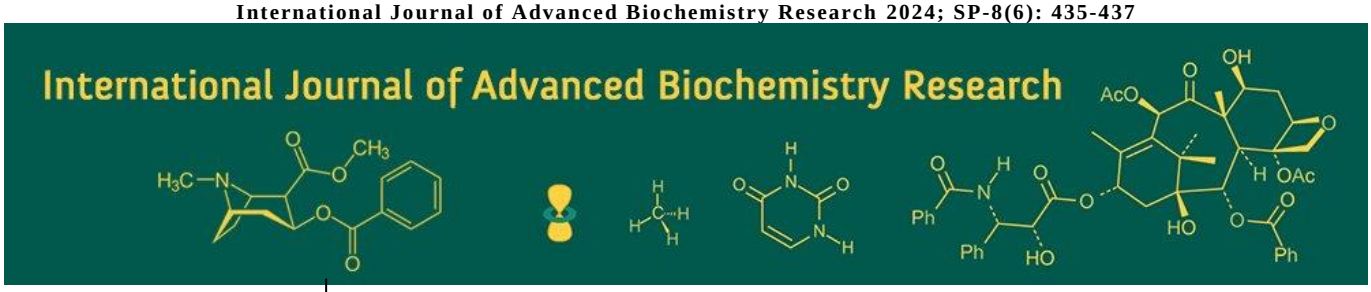

ISSN Print: 2617-4693
ISSN Online: 2617-4707
IJABR 2024; SP-8(6): 435-437
www.biochemjournal.com
Received: 07-03-2024
Accepted: 11-04-2024

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First record of a freshwater crab, *Maydelliathelphusa lugubris* (Wood Mason, 1871) (Decapoda: Brachyura: Gecarcinucidae) from Chhattisgarh, India

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DOI: https://doi.org/10.33545/26174693.2024.v8.i6Sf.1331

Abstract
The genus *Maydelliathelphusa* Bott, 1969 is native to India and has five species*: M. masoniana* (Henderson, 1893), *M. edentula* (Alcock, 1909), *M. falcidigitis* (Alcock, 1910), *M. harpax* (Alcock, 1909), and *M. lugubris* (Wood-Mason, 1871". Recent field surveys revealed presence of *Maydelliathelphusa lugubris* (Wood-Mason, 1871) in Chhattisgarh of India for first time.

Keywords: Decapoda, freshwater crab, new report, taxonomy

Introduction
Crabs associated with the infraorder Freshwater Decapoda order brachyura are significant for small-scale fisheries, bio-indicators of habitats, nutrient cycles, and disease transmission (1, 2). They can be identified by their large, carapace-covered cephalothorax, which has a shortened abdomen and five pairs of thoracic legs, or pereiopods (one pair of chelipeds and four pairs of walking legs) (3). Without migrating to saltwater, these crabs finish their whole life cycle in freshwater habitats (3). There are 127 species of freshwater crabs in India, which are categorized into two families: Potamidae Ortmann, 1896, and Gecarcinucidae Rathbun, 1904 (4). Within the Gecarcinucidae family, the genus *Maydelliathelphusa* Bott, 1969 is comprised of five species: *Masoniana masoniana* (Henderson, 1893) [6], *Edentula masoniana* (Alcock, 1909) [4], *Falcidigitis masoniana* (Alcock, 1910) [7], *Harpax masoniana* (Alcock, 1909) [4], and *Lugubris masoniana* (Wood-Mason, 1871) (5). According to (1), all of these are found in India; however, at present *M. lugubris* first time has been documented from Chhattisgarh, India.

Materials and Methods
Two *M. lugubris* specimens were retrieved during an ichthyological survey from a tiny stream in the Indravathi River system in the Chhattisgarh, India by Bhupendra Kothari and party on 23th July 2023 (18.7281N, 80.2647E) (Fig 1). The specimens were gathered and photographed right away. After being anesthetized, morphometric measurements were made and the specimens were kept in 10% formalin. The specimens were recognized using the (6), Alcock (1910a, b) [8], and Ng *et al*. (2008) [5] standard identification keys. The specimens were placed in the Fish museum, Department of Zoology, Andhra university, (Reg. No. CRAB/NR/CRUSTACEA/ -1 to 2).

Results
Taxonomy
Class: Malacostraca
Order Decapoda
Sub Order – pleocyemata
Family Gecarcinucidae,
Genus Maydelliathelphusa

Diagnosis

Carapace transversely hexagonal, flat, external orbital angle 45°, blunt, antero-lateral margin with one strong tooth and five tuberculate teeth, eight parallel rows of epibranchial groves on either side, six rows of postero-lateral cristae originate from the carapace margin on either side. The antero-lateral margin of the carapace is beaded with granules, nearly straight for its anterior one third before the epibranchial small tooth, and weakly convex outward behind the epibrachial tooth. The posterolateral margin of the carapace is weakly concave laterally and dorsally, as long as the main part of the antero-lateral margin behind the epibranchial tooth. The ‘ H ‘ mark is significant at cardiac region, the posterior extensions of the ‘H’ mark descend initially, breaks, curves in upward direction and then descends up to the anterior part of the intestinal zone. A well- defined vertical notch originate below the frontal margin and extends up to meso- gastric region. The dorsal surface is rather flattened, areolated and covered with minute pits, the cervical groove is broad and deep at both sides of the post-gastric region, running obliquely from each mesogastric postero-lateral furrow to the epibrachial tooth at the anterior region, the branchial regions are weakly convex, frontal and post-orbital regions are deeply sunken, the epigastric regions of both sides are weakly convex dorsally and forward, separated from each other by the median longitudinal furrow, separated laterally from each postorbital gastric region by a well-marked depression, that is confluent posteriorly with each protogastric region.

Colour: Dark brown in fresh condition.

Habitat: Present species we collected from small burrows at the adjoining areas of soil and water of the stream for living and breeding purpose. Their preferred habitat is the small or narrow canals or streams with slow-moving water. They are nocturnal in habit.

Distribution: Assam, Meghalaya, Jammu & Kashmir, Nagaland, Sikkim, West Bengal, Arunachal Pradesh, Chhattisgarh (present study).

Conservation status: As per the IUCN Red List of threatened species, the species belongs to the Least Concern (LC) category (Cumberlidge 2008) [3].

Discussion

Bott (1970) created the subgenus *Maydelliathelphusa* and placed the species in that subgenus in a revisionary work. Specimen collected in the present study is in agreement with the original description of. *Maydelliathelphusa lugubris*, and it resembles to *Barytelphusa cunicularis* in same morphological characters but differs mainly in the structure of the Antero-lateral margins and gonopods, second pair of gonopods in *Maydelliathelphusa lugubris* are longer. The antero-lateral spines are prominent and shape in *Maydelliathelphusa lugubris* but in *Barytelphusa cunicularies*, the antero-lateral spines are absent.

Fig 1: Map highlighted circle indicated collection location of the species

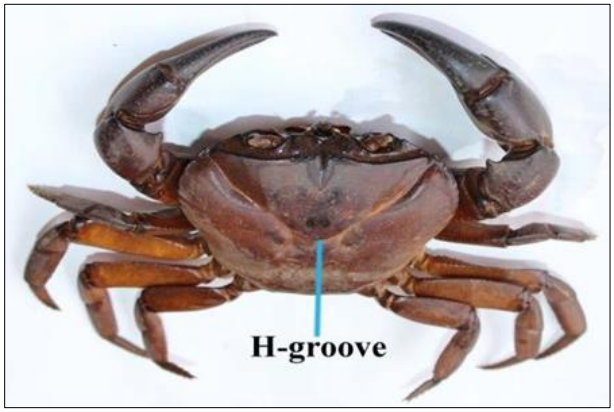

Fig 2: Dorsal view of *Maydelliathelphusa lugubris*

Fig 3: Ventral view of male *Maydelliathelphusa lugubris*

Fig 4: Ventral view of female *Maydelliathelphusa lugubris*

Fig 5: Frontal view of *Maydelliathelphusa lugubris*

Conclusion

With this study, *Maydelliathelphusa lugubris* range is expanded to include Chhatishgarh. Given the morphological similarity of all five species in the genus *Maydelliathelphusa*, molecular taxonomy is necessary to validate the species' morphological taxonomy. To further understand the biology, conservation, and threat facing this species, as well as to assess its commercial fishery potential in that area, more research is required.

Acknowledgements

We are grateful local fisherman who generously helped in this present explorations.

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