



Indian Journal of Geo Marine Sciences
Vol. 49 (08), August 2020, pp. 1501-1504



Short Communication

New host record of *Joryma malabaricus*, *Joryma hilsae* and first record of *Joryma sawayah* (Isopoda: Cymothoidae) from Odisha coast, India

J K Seth^{*a}, S Chakraborty^a, S Roy^b & Anil Mohapatra^b

^aPost Graduate Department of Zoology, Berhampur University,
Berhampur, Odisha – 760 007, India

^bEstuarine Biology Regional Centre, Zoological Survey of India,
Gopalpur-on-Sea, Odisha – 761 002, India

*[E-mail: jkseth52@gmail.com]

Received 26 March 2019; revised 14 November 2019

The parasitic isopod *Joryma malabaricus* Aneesh, Helna & Trilles, 2018 and *Joryma hilsae* Rameshkumar, Ravichandran & Trilles, 2011 collected from the host *Ilisha melastoma* (Bloch & Schneider, 1801) for the first time, resulting in their host extension. The report of *Joryma sawayah* Bowman & Tareen, 1983 collected from the host *Ilisha melastoma* (Bloch & Schneider, 1801) is the first record from the state of Odisha, India.

[Keywords: Cymothoidae, Isopod, New host record, New record, Odisha]

Introduction

Parasitic isopods of family Cymothoidae are economically important due to their range of detrimental effect on the fisheries resources which includes large wounds, growth inhibition, tissue damage, anaemia, instability of the host, often damaging internal organ, affecting the reproductive potential of the adult and death in the small fishes¹. These parasites are found attached to different body parts of host fishes *viz.*, on the body surface, on the fins, buccal cavity and branchial region. Our knowledge on the taxonomy, geographical distribution and host record of the cymothoid isopods have been considerably increasing due to the contribution of noteworthy work by various workers. However, knowledge of cymothoid isopods from Indian water is still scanty and required comprehensive approach^{2,3}. The genus *Joryma* Bowman & Tareen, 1983 of family: Cymothoidae includes six species from Indian water *viz.*, *Joryma engraulidis* Barnard, 1936, *J. brachysoma* Pillai, 1954, *J. tartoor* Pillai, 1954, *J. sawayah* Bowman & Tareen, 1983, *J. malabaricus* Aneesh, Helna & Trilles, 2018 and *J. hilsae* Rameshkumar,

Ravichandran & Trilles, 2011. Out of these, the species *J. malabaricus* has recently been described from the host fish *Escualosa thoracata* (Valenciennes, 1847)³. The host fish species *Ilisha melastoma* (Bloch & Schneider, 1801) has been parasitized by Cymothoid isopods *viz.*; *Anilocra leptosoma* Bleeker 1857, *Elthusa raynaudii* (H. Milne-Edwards, 1840), *J. brachysoma*, *J. sawayah*, *J. tartoor*, *Nerocila phaiopleura* Bleeker 1857, *N. sundaica* Bleeker 1857^{4,5}. The present paper reports *Ilisha melastoma* (Bloch & Schneider, 1801) as new host record of the parasitic isopods *J. malabaricus* and *J. hilsae* for the first time. Further, *J. engraulidis* is the only species of the genus *Joryma* which was described and reported from Odisha coast earlier³. The record of *J. sawayah* is the first report of this species from Odisha coast, India.

Materials and Methods

The isopod *Joryma malabaricus* (female) was collected from the host *Ilisha melastoma* (Bloch & Schneider, 1801) on 15th December, 2017 and 19th November, 2018 respectively from Haripur fish landing centre (19°15'43.22" N and 84°54' 50.01" E), Gopalpur-on-Sea, Odisha, India. The host fish species *Ilisha melastoma* was collected on 29th January, 2014 from Boxipalli fish landing centre (19°14'46.37" N and 85°53'45.25" E), was parasitized by *J. hilsae* (male) and *J. sawayah* (female). The isopod *J. sawayah* (male) was collected from the host *I. melastoma* on 12th December, 2017 from Boxipalli fish landing centre. The parasites were gently pulled out from the attachment sites of host fishes, photographed and then preserved in 70 % alcohol. The parasites were deposited in the national repository of Estuarine Biology Regional Centre, Zoological Survey of India, Gopalpur-on-Sea, Odisha, India. The host fish taxonomy and nomenclature was according to Fish Base⁶. The identification of the parasite is based on the standard keys and description³.

Results

All the three parasites *viz.* *Joryma malabaricus*, *J. hilsae* and *J. sawayah* under this report were found attached to the branchial region of the host *Ilisha*

melastoma (Fig. 1a-g) in different period of the study as mentioned in the material and methods section.

Taxonomic accounts of the species are given here under:

Order: Isopoda Latreille, 1817

Family: Cymothoidae Leach, 1818

Genus: *Joryma* Bowman & Tareen, 1983

1. *Joryma malabaricus* Aneesh, Helna & Trilles, 2018

Material examined: 02 numbers of female, registration number: EBRC/ZSI/Cr-10865.

Total length: 14.94-16.69 mm; Total width: 5.94-6.29 mm (5th Perionite); Length of the Pleotelson: 4.04-4.27 mm; Width of the Pleotelson: 3.46-3.61 mm.

Description

Body is dorso-ventrally flattened, asymmetrical and curved towards one side. Cephalon is immersed deeply in Pereonite 1, symmetrical, slightly longer



Fig. 1 — (a-g) Cymothoid isopods and their site of attachment affecting the brachial region of host *Ilisha melastoma*. a) *Joryma malabaricus* (female) with the host. b) *Joryma malabaricus* (female). c) *Joryma hilsae* (male) and *Joryma sawayah* (Female) with the host. d) *Joryma hilsae* (male). e) *Joryma sawayah* (Female). f) *Joryma sawayah* (male) with the host. g) *Joryma sawayah* (male)

than wide, anterior margin rounded and extending beyond Pereonite 1 expansion. Pereonite 1 anterolateral expansion unilateral and not bilobed, not reaching the anterior margin of head. Eyes distinct and visible dorsally. Number of Pereonites are 7. In general, postero-lateral regions of all Pereonites slightly developed but it is more pronounced in Pereonites 3-7. Pleonites 1 and 2 are overlapped laterally by Pereonite 7. There are 5 free Pleonites and a 6th Pleonite fused with Telson forming Pleotelson. Pleotelson longer than width, posterior margin triangular. Antennule is stouter and shorter than the antenna, well separated at the base, reaching anterior one-third portion of eye. Antenna extends slightly beyond the anterior border of Perionite 1. Pereopods 1-3 sub equal in length and are shorter than Pereopods 4-7, which are sub equal in length as well. Colour: Brownish yellow on both dorsal and ventral side.

2. *Joryma hilsae* Rameshkumar, Ravichandran & Trilles, 2011

Material examined: 01 male, registration number: EBRC/ZSI/Cr-10862.

Total length: 12.21 mm; Total width: 4.41 mm (5th Perionite); Length of the Pleotelson: 2.06 mm; Width of the Pleotelson: 3.23 mm.

Description

Body is symmetrical and dorso-ventrally flattened and straight. Cephalon triangular and not immersed in Perionite 1; anterior margin of the Cephalon rounded. Eyes are distinct. There are 7 Pereonites; Pereonite 1 antero-lateral corners slightly produced; Pereonite 1 longest, 7 shortest. 5 free Pleonites and a 6th Pleonite fused with Telson forming Pleotelson. Pleonites dorsally visible, not immersed in Pereonite 7. Pleotelson slightly wider than long, shorter than Pleonite 5, posterior margin broadly rounded. Antennule stouter than antenna and are well separated at the base. Antenna is slightly shorter and more slender than Antennule. Pereopods gradually increase in size from 1 to 7. Pleopods are not distinctly visible in dorsal view. Colour: light brown on both dorsal and ventral side.

3. *Joryma sawayah* Bowman & Tareen, 1983

Material examined: 01 female, registration number: EBRC/ZSI/Cr-10861 and 01 male, registration number: EBRC/ZSI/Cr-10863. *Female*: Total length: 23.12 mm; Total width: 10.34 mm (4th Perionite);

Length of the Pleotelson: 5.84 mm; Width of the Pleotelson: 7.76 mm.

Description

Body is asymmetrical, oblong and dorso-ventrally flattened and curved to left side. Cephalon not reaching the margin of Perionite 1 expansion; anterior margin of the Cephalon rounded, accommodated in the antero-lateral expansion of the Pereonite 1. Eyes are covered by Pereonite 1 and not visible dorsally. There are 7 Pereonites; Pereonite 1 produced on each side into inflated bilobed process reaching well beyond the anterior margin of head; anterior-median margin with a narrow furrow. Seven pairs of uniramous Periopods having marginal spines and terminal claw-like structure. Five free Pleonites and a 6th Pleonite fused with Telson forming Pleotelson. Biramous Pleopods 5 in pairs. Antennule is stouter than Antenna. Pereopods 1-3 are sub equal in length and are shorter than Pereopods 4-7; which are sub equal in length as well. Pereopod 4 is the longest and gradually decreases in length from Pereopod 5 to 7. Colour: Yellowish-white on both dorsal and ventral surfaces.

Male: Total length: 14.89 mm; Total width: 6.20 mm (5th perionite); Length of the Pleotelson: 2.84 mm; Width of the Pleotelson: 3.72 mm.

Description

Body is symmetrical and dorso-ventrally flattened and straight. Cephalon not immersed in Perionite 1; anterior margin of the Cephalon rounded. Eyes are prominent and larger than female. There are 7 Pereonites. Seven pairs of uniramous periopods having marginal spines and terminal claw-like structure. 5 free Pleonites and a 6th Pleonite fused with Telson forming Pleotelson. Pleonites visible dorsally, not immersed in Pereonite 7. Pleonite 1 is overlapped entirely by Pereonite 7; whereas Pleonite 2 is overlapped partially by Pereonite 7. Biramous pleopods 5 pairs. Pleotelson slightly wider than length, shorter than Pleonite 5, posterior margin broadly triangular. Antennule stouter than Antenna and are well separated at the base. Pereopods gradually increase in size from 1 to 7. Pleopods are not distinctly visible in dorsal view. Colour: Yellowish-white on both dorsal and ventral surfaces.

Discussion and Conclusions

The species *J. malabaricus* was recently been described from the host fish *Escualosa thoracata* and

its type locality is Malabar Coast, India³. The present report of isopod *J. malabaricus* from *Ilisha melastoma* is the new host record of the species and also confirms the occurrence of the isopod from an extended geographical range.

The species *J. hilsae* have been earlier reported from the host *Sardinella* sp., *Stolephorus commersonnii* Lacepède, 1803, *Hilsa kelee* (Cuvier, 1829) and *Pellona ditchela* Valenciennes, 1847 from South-Western Coast, Malabar Coast and Chennai in India^{2,7}. This report of the species from the host *I. melastoma* justifies the new host record and range extension of the species.

In India, the species *Joryma sawayah* has been reported from the host species *Ilisha indica* (Swainson, 1839), *I. melastoma*, *Terapon puta* Cuvier, 1829 and *P. ditchela*. Its geographical distribution in India is from Malabar Coast, coastal water of Chennai and Nagapattinam Coast³. So this report evidences the availability of *J. sawayah* for the first time from Odisha coast, India.

Acknowledgements

Authors are thankful to the Head, P. G. Department of Zoology, Berhampur University for providing necessary working facilities. The third and fourth authors are thankful to Director, Zoological Survey of India, Kolkata for providing necessary working facilities.

Conflict of Interest

Authors don't have any conflict of interest.

Author Contributions

JKS, SC, SR & AM: Collection, preservation, identification, manuscript preparation and critical analysis.

References

1. Kumar A A, Rameshkumar G, Ravichandran S, Priya E R, Nagarajan R, *et al.*, Occurrence of cymothoid isopod from Miri, East Malaysian marine fishes, *J Parasit Dis*, 39 (2) (2015) 206-210. doi: 10.1007/s12639-013-0320-7.
2. Aneesh P T, Helna A K, Trills J P & Chandra K, Occurrence and redescription of *Anilocra leptosome* Bleeker, 1857 (Crustacea: isopoda: Cymothoidae) parasitizing the clupeid fish *Tenualosa toli* (Valenciennes) from the Arabian Sea, India, *Mar Biodivers*, 49 (1) (2019), 443-450. <https://doi.org/10.1007/s12526-017-0828-7>.
3. Aneesh P T, Helna A K, Trills J P & Chandra K A, taxonomic review of the genus *Joryma* Bowman and Tareen, 1983 (Crustacea: Isopoda: Cymothoidae) parasitizing the marine fishes from Indian waters, with a description of a new species, *Mar Biodivers*, 49 (2018) 1449-1478. <https://doi.org/10.1007/s12526-018-0920-7>.
4. Trills J P, Ravichandran S & Rameshkumar G A, checklist of the Cymothoidae (Crustacea, Isopoda) recorded from Indian fishes, *Acta Parasitol*, 56 (4) (2011) 446-459. doi: 10.2478/s11686-011-0077-z.
5. Rameshkumar G, Ravichandran S, Sivasubramanian K & Trills J P, New occurrence of parasitic isopods from Indian fishes, *J Parasit Dis*, 37 (1) (2013) 42-46. doi: 10.1007/s12639-012-0128-x.
6. Froese R & Pauly D (eds.) *FishBase*, World Wide Web electronic publication. [http:// www.fishbase.org](http://www.fishbase.org) Version (06/2018).
7. Sethi S, Occurrence of isopod parasites in clupeids off Chennai coast, India, *Indian J Fish*, 59 (3) (2012) 153-155.