

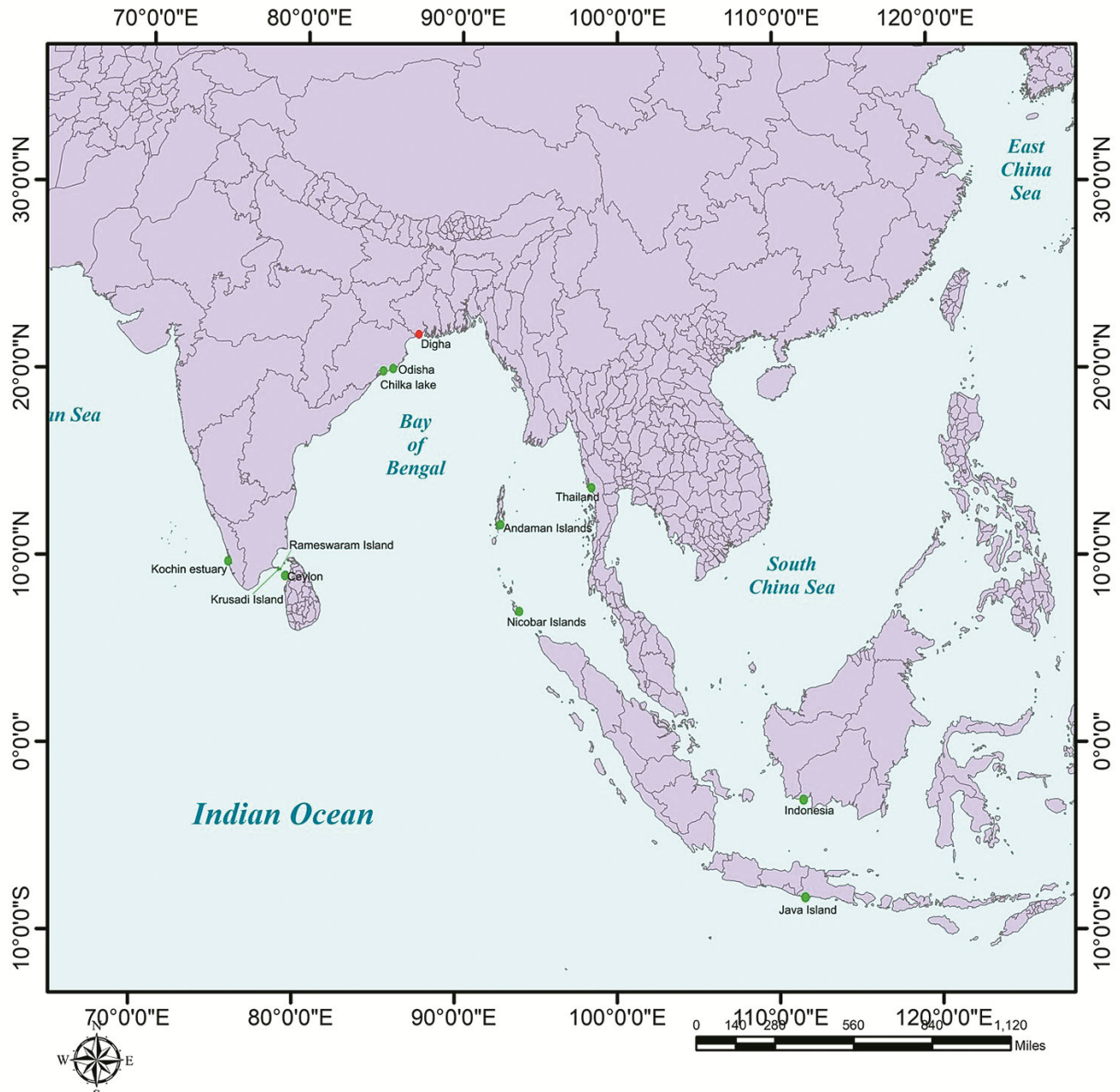


Fig. 1 — Distribution of *Hesione eugeniae* Kinberg 1866 worldwide. The green circle indicates previous reports, and the red circle indicates the present report

Material examined: 23.01 mm (1 specimen), MARC/ZSI/P10134, January 11, 2023; 10.03 mm (3 specimens), MARC/ZSI/P11182, January 19, 2024, Hospital Ghat, Digha, West Bengal, India; Coll. S. Balakrishnan & Jyoshna Pradhan.

Diagnostic characters: Body straight and sub-cylindrical tapered posteriorly; transverse brown band present throughout the body (Fig. 2a). Each band bears irregular lines on the anterior margins and darker blackish lines along the posterior margins.

Body extended lengthwise, with a thin, pale stripe segmentally interrupting it dorsally, barely visible in chaetiger 1. White coloured tentacular cirri, dorsal cirri and chaetal lobes; reddish brown eyes, anterior ones two times larger than the posterior ones (Fig. 2a). Length of antennae same as anterior eye diameter, digitate, blunt, 4 – 5 times as long as wide. Long tentacular cirri, irregularly twisted, longest one reached up to chaetigers 5. Lateral cushions are very low, and it's divided into three sections. The posterior

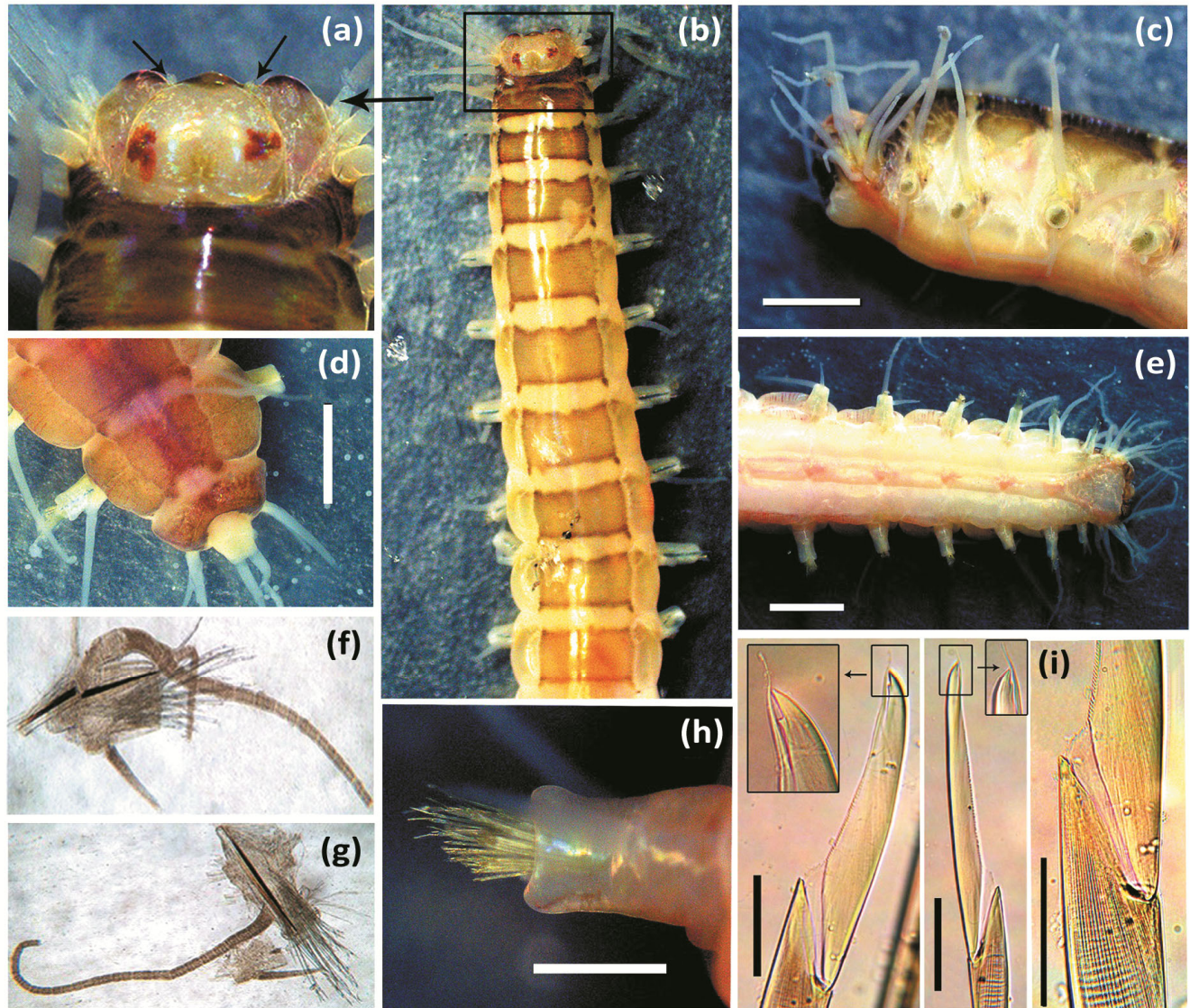


Fig. 2 — *Hesione eugeniae* Kinberg 1866: a) Live specimen: Dorsal view of prostomium with arrow marking antennae; b) Dorsal view of anterior region; c) Lateral view of anterior region with cirri; d) Dorsal view of Pygidium; e) Ventral view of anterior region; f) Chaetiger 8th, anterior view of right parapodium; g) Chaetiger 9th, anterior view of right parapodium; and h-i) Chaetiger 8th, blades of upper and lower neurochaetae showing bi-dentate with guard surpassing distal tooth. Scale bars — c-e: 2000 μ m; h: 800 μ m; and i: 50 μ m

region tapered into a blunt cone, pygidium shiny and slightly granulated (Fig. 2d). Neuroaciculae blackish, two, one thinner, the other thicker, tapered, tips colourless. Acicular lobe is single tapered and occasionally has a tiny, rounded lobate bottom tine that is 1/5 the length of the upper tine (Fig. 2f & g). Parapodia with chaetal lobes as long as wide and tapered. The neurochaetal blades projected beyond the distal teeth (Fig. 2h & i). Truncate dorsal cirri are smooth, annulated medially, distally arcuated, and have cirriphores that are one to two times as long as wide. Ventral cirri smooth.

Distribution: This species is reported from Indonesia, the Gulf of Thailand, the Torres Strait, Holothuria Bank, Java Sea⁵. In India, it is reported from the Nicobar Islands, Andaman Islands, Chilika Lake, Odisha coast, Krusadi Islands, Rameswaram Island, Sri Lanka, Arabian Sea, and Cochin Estuary⁷.

Discussion

Based on the literature review, it is confirmed that this is the first species record of the family on the northeast coast, with no pigmentation as in *H. splendida*, longitudinal discontinuous lines as in

H. intertexta, but transverse bands as in *H. picta*. In *H. splendida*, which was reported from Japan have transverse white bands dorsally and a white-yellow coloured circular spot on dorsal bands is present in *H. praetexta*, whereas it is present in pygidium portion of *H. picta*^{5,8}. In *H. genetta*, antennae are large, acicular lobes are double, and in neurochaetal blades, the subdistal teeth are equivalent in size to the distal ones, with guards nearly reaching the subdistal teeth; regarding pigmentation, the initial band is broader than the subsequent ones, and typically there are circular spots between the bands, although intermediate spots are absent in both *H. picta* and *H. eugeniae*. The band pattern is distinguished from that of *H. picta*, which has no darker marginal lines but is present in several thin transverse pale lines, whereas *H. eugeniae* has solid band and darker marginal lines. The neurochaetal blades have guards surpassing distal teeth, similar to the structure in *H. eugeniae* and *H. osbornae*. But the main character difference between these two species is *H. eugeniae* has digitated acicular lobes, and neurochaetal blades are 4 – 10 times longer than wide, whereas in *H. osbornae*, acicular lobes are tapered, and neurochaetal blades are about 15 times longer than wide^{9,10}. The examined specimens have a pharynx exposed, a acicular single lobe, neurochaetal blades bidentate, and a dorsal papilla slightly as long as wide. The present study specimens were found in the muddy, sandy bottom, and intertidal areas. The family Hesionidae, with only 23 species reported from Indian waters, there are limited works to update the checklist of marine polychaetes of Indian coastal areas¹¹⁻¹⁸. Thus, this report represents the new report of the species from India.

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Conflict of Interest

Authors declare no competing or conflict of interest. All authors have reviewed the manuscript

and signed off on its submission to the Indian Journal of Geo-Marine Sciences.

Ethical Statement

Not applicable. The study was conducted following the minimum required sampling protocols.

Author Contributions

SB: Execution of the survey, manuscript editing, and verification; JP: Collection, preservation, identification, and manuscript preparation; PCT: Collection, identification, and manuscript preparation.

References

- 1 Rizzo Q E & Vallejo S I S, Hesionidae Grube, 1850 (Annelida: Polychaeta) from South- Southeastern Brazil, with descriptions of four new species, *Zootaxa*, 3856 (2) (2014) 267–291. <http://dx.doi.org/10.11646/zootaxa.3856.2.7>
- 2 Rouse G W & Pleijel F, *Polychaetes*, (Oxford University Press), 2001, pp. 354.
- 3 Imajima M, Polychaetes Annelids from Sagami Bay and Sagami Sea Collected by the Emperor Showa of Japan and Deposited at the Showa Memorial Institute, National Science Museum, Tokyo (II). Orders included within the Phyllodocida, Amphinomida, Spintherida and Eunicida, *National Science Museum Monographs, Tokyo*, 23 (2003) 1–221.
- 4 De Assis J E, Bezerra E A S, de Brito R J, Gondim A I & Christoffersen L M, An Association between *Hesione picta* (Polychaeta: Hesionidae) and *Ophionereis reticulata* (Ophiuroidea: Ophionereididae) from the Brazilian Coast, *Zool Stud*, 51 (6) (2012) 762–767.
- 5 Salazar-Vallejo S I, Revision of *Hesione* Savigny in Lamarck, 1818 (Annelida, Errantia, Hesionidae), *Zoosystema*, 40 (2018) 1–12.
- 6 Hartman O, The marine annelids erected by Kinberg, with notes on some other types in the Swedish State Museum, *Arkiv Zoologi*, 42A (1949) 1–137.
- 7 Pillai N G K, On some benthic polychaetes from Cochin estuary, *J Mar Biol Assoc India*, 43 (1 & 2) (2001) 120–135.
- 8 Kinberg J G H, *Annulata nova* (Nephyydea, Phyllodocea, Alciopaea, Hesionidae, Glycera, Goniadea, Syllidae, Ariciea, Spiodea, Anoidea, Cirratulida, Opheliacea), *Öfversigt af Kongelige Vetenskaps-Akademiens Förhandlingar*, 22 (1866) 239–258.
- 9 Day J H, *A monograph on the Polychaeta of southern Africa, Part I (Errantia) and Part II (Sedentaria)*, Trustees of the British Museum Natural History, London, 1967, pp. 878.
- 10 Lee Y & Ong R, New records of two Hesionid polychaetes from the Singapore Strait, *Singapore Biodivers Rec*, (2015) 201–204.
- 11 Alikunhi K H, On *Anophthalmus* (Fam: Hesionidae) A new genus of polychaetes with descriptions of four new species from the sandy beach of Madras, *Proc Indian Sci Congr*, 35 (1949) p. 192.

- 12 Fauvel P, *The fauna of India including Pakistan, Ceylon, Burma and Malaysia- Annelida Polychaeta, Part I (Errantia) and Part II (Sedentaria)*, (The Indian Press Ltd, India), 1953, pp. 499.
- 13 Chandrasekhar Rao G, Littoral Meiofauna of Little Andaman, *Rec Zool Surv India*, 155 (144) (1993) 54–58.
- 14 Misra A, Polychaeta Fauna of West Bengal, *Rec Zool Surv India*, 3 (10) (1998) 125–225.
- 15 Murugesan P, Sarathy P P, Muthuvelu S & Mahadevan G, Diversity and distribution of Polychaetes in Mangrove East coast of India, *IntechOpen*, 6 (2018) 107–130.
- 16 Sivadas S K & Carvalho R, Marine Annelida of India: taxonomy and status evaluation and an updated checklist, *J Threat Taxa*, 12 (12) (2020) 16647–16714. <https://doi.org/10.11609/jot.5357.12.12.16647-16714>
- 17 Balakrishnan S & Tudu P C, An updated checklist of polychaetes (Animalia, Annelida, Polychaeta) from Odisha and West Bengal coasts, *Indian J Geo-Mar Sci*, 50 (06) (2021) 507–510.
- 18 Hasan M N, Reynolds J W, Deuti K, Mandal C K & Misra A, Studies on the Polychaeta Annelids from Digha coast, West Bengal, India, *Megadrilologica*, 27 (5) (2022) 41–56.