

New record of the Sesarmid crab *Episesarma versicolor* (Tweedie, 1940) (Crustacea: Decapoda: Sesarmidae) from the West Coast of India

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Abstract

Episesarma versicolor (Tweedie, 1940) also known as violet vinegar crab is widely distributed species in the south-east Asian countries. However, its presence in India is restricted, with just one record from Pichavaram and Vellar mangroves of Tamil Nadu state located on the east coast of India. The present paper reports the occurrence of *E. versicolor* for the first time from Gujarat and Goa states located on the west coast of India.

Keywords: Brachyura, Sesarmidae, New record, West coast of India.

1 Introduction

The sesarmid genus *Episesarma* (De Man, 1895) contains some of the largest sesarmid crabs. The species of the genus are characterised by the number of tubercles on dorsal margin of the dactylus and the colouration of the chelae (Lee et al., 2015; Serène and Soh, 1967b). Currently *Episesarma* is represented by seven species: *E. chentongense* (Serène and Soh, 1967), *E. crebrestriatum* (Tesch, 1917), *E. lafondii* (Hombron and Jacquinot, 1846), *E. mederi* (Milne Edwards, 1853), *E. palawanense* (Rathbun, 1914), *E. singaporense* (Tweedie, 1936) and *E. versicolor* (Tweedie, 1940), out of which three species: *E. chentongense*, *E. mederi* and *E. versicolor* are reported from India (Manikantan et al., 2016; Trivedi et al., 2018). In India, the distribution of *E. versicolor* is restricted to mangroves of Tamil Nadu state located on the east coast (Manikantan et al., 2016). Present study records occurrence of *E. versicolor* for the first time from West coast of India.

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2 Materials and Methods

Specimens examined in the present study were collected from mangrove habitat of Gujarat and Goa states located on west coast of India. Specimens were collected using hand picking method. The specimens were washed properly to remove debris and photographed. Specimens were preserved in 90% ethanol and deposited in the Zoological Reference collection (LFS.ZRC), Department of Life Sciences, Hemchandracharya North Gujarat University, Patan, Gujarat, India. Abbreviations: CW, carapace width; CL, carapace length; G1, male first gonopod; coll. collector. Morphological terminology used in this article follows Lee et al., (2015).

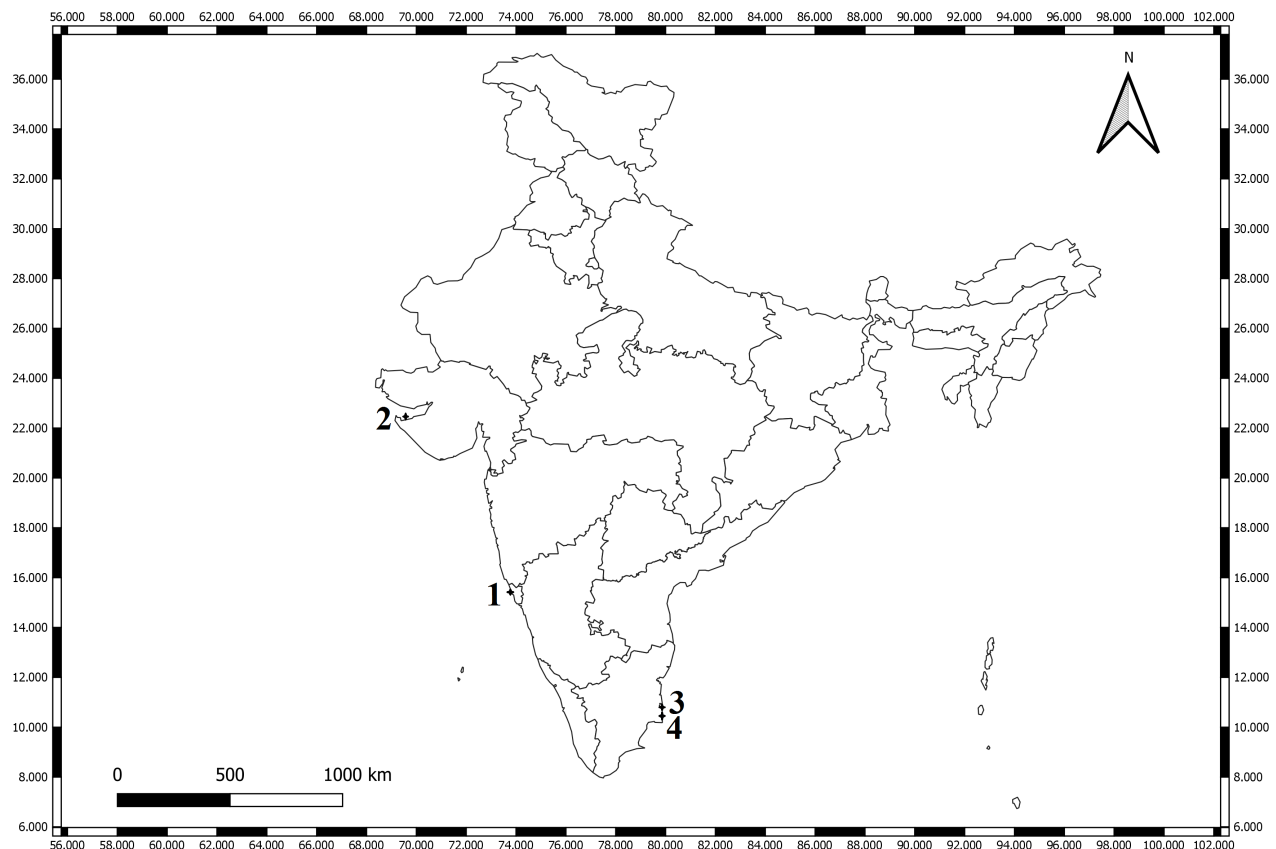


Figure 1. Map showing distribution of *Episesarma versicolor* (Tweedie, 1940) in India. 1. Chapora estuary, Goa state, 2. Jakjau, Gujarat, 3. Vellar estuary, Tamil Nadu state, 4. Pichavaram mangroves, Tamil Nadu state.

3 Results and Discussion

Systematics

Order Decapoda Latreille, 1802

Superfamily Grapsoidea MacLeay, 1838

Family Sesarmidae Dana, 1851

Genus *Episesarma* De Man, 1895

Episesarma versicolor (Tweedie, 1940) (Fig. 2)

Sesarma (Sesarma) palawanensis– Tweedie, 1936: 54–58, text fig. 1a, pl. 14

Sesarma versicolor Tweedie, 1940: 98, fig. 7.

Sesarma (Sesarma) versicolor– Serène and Soh, 1967b: 27–29, pl. 3, 4.

Neopisesarma (Neopisesarma) versicolor– Serène and Soh, 1970: 396, 405 (list); Dai et al., 1986: 495, fig. 279 (2), pl. 70 fig. 1.

Episesarma versicolor– Ng, 1998: 1143, fig. 10, 11., Ng et al., 2008: 220 (list)., Lee et al., 2015: 209, Figs. 7C, D; 8B; 10; 13B; 14E–H; 16D; Manikantan et al., 2016: 166–169

Material Examined

One adult male, CL 27.72 mm; CW: 29.65 mm, two juvenile males CL 14.54 mm, 16.46 mm; CW 15.83 mm, 17.44 mm. LFSc.ZRC– 91, Chapora estuary (15°37'22.67"N, 73°44'52.81"E) , Goa State, India, mangrove habitat, 6 September 2020, Coll. M. Bhat. One adult male, CL 43.21 mm; CW: 45.55 mm. LFSc.ZRC– 91, Jakhau (23°13'58.00"N, 68°36'42.00"E), Gujarat state, India, mangrove habitat, 7 July 2015, Coll. J. Trivedi (Fig. 1).

Daignosis (modified from Lee et al., 2015)

Carapace quadrate, slightly wider than long, covered with tufts of setae on entire carapace, posterolateral region with inverted 'V' shaped row of setae. Regions well marked, with four distinct frontal lobes (Fig.2 a). Lateral margin subparallel with one lateral tooth behind the external orbital angle. Adult male cheliped with dorsal surface of palm sparsely granulated; dorsal margin of dactylar finger of chela with 46 tubercles increasing in size towards distal end of dactylus. Single longitudinal pectinated ridge on dorsal margin with 70 fine tubercles (Fig.2. d). Palm of chela violet with fingers white (Fig. 2. c); juveniles with delicate chela without ridge or dactylar tubercles and with whitish to violet colouration. Ambulatory legs long and slender with violet and black colouration and chitinous dactylus tips. Male abdomen narrow, telson tip oval. Abdomen and sternum white coloured (Fig. 2. b); G1 with single row of setae on the exterior margin, tip of G1 with dense tufts of setae, single peak with chitinous crest relatively narrow. (Fig. 2.e, f).

Remarks

The specimen examined in the present study agrees well with the description and figures provided by Lee et al., (2015) and Manikantan et al., (2016). *Episesarma versicolor* can be distinguished from other species of the genus on the basis of following characters: palm of chela violet in colour with white finger tips; dorsal margin of dactylus of male chela having 65–80 densely packed tubercles and apical lobe of male G1 having single peak (Lee et al., 2015). *Episesarma versicolor* was described on the basis of specimens collected from mangroves of Singapore (Tweedie, 1940), later on the species was reported from China, Hong Kong, India, Bangladesh, Sri Lanka, Thailand, Indonesia, Malaysia, Philippines and Australia (Lee et al., 2015; Manikantan et al., 2016). In India, the species was recorded from Pichavaram and Vellar mangroves of Tamil Nadu state located on east coast of India (Manikantan et al., 2016) and now recorded for the first time reported from mangroves of Gujarat and Goa states located on west coast of India (Fig. 1). Morphological variation was not observed in the specimens of *E. versicolor* collected from west and east coast of India.

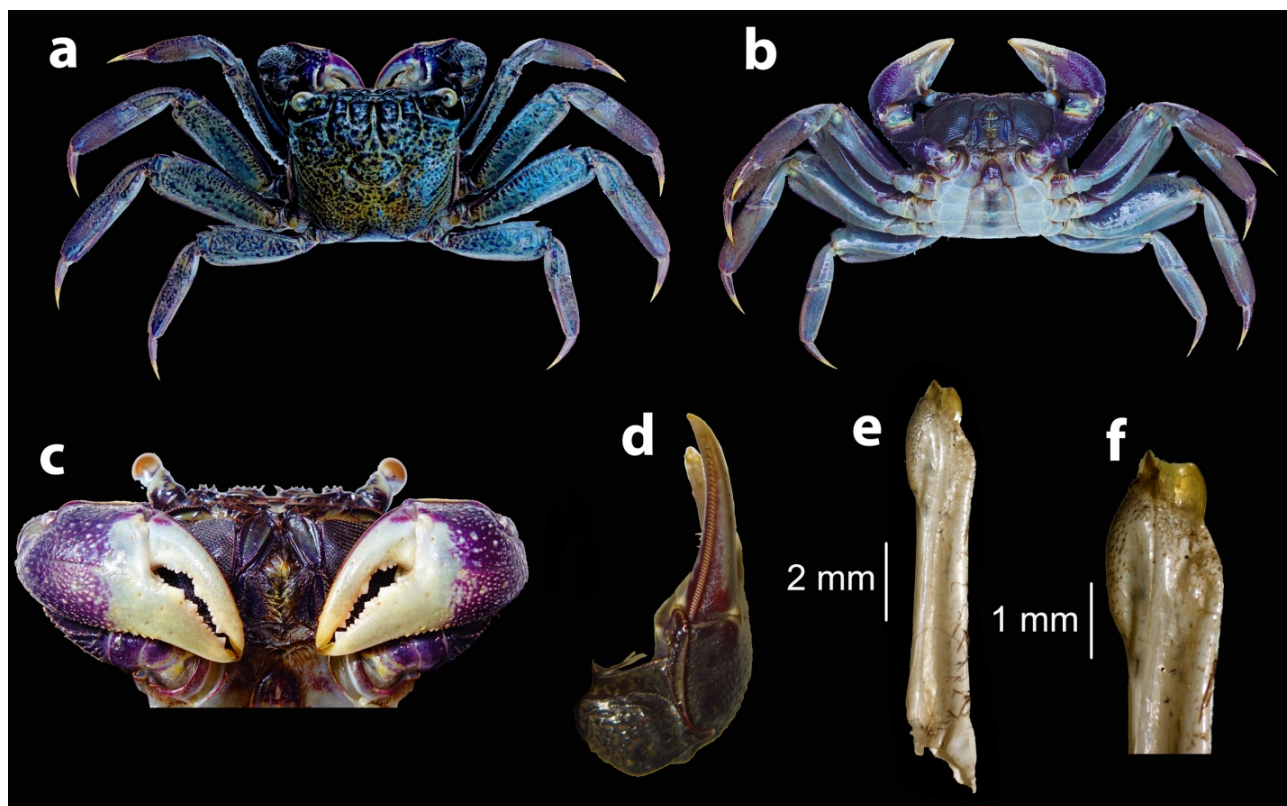


Figure 2. *Episesarma versicolor* (Tweedie, 1940), male LFSsc.ZRC- 91; CL 27.72 mm; CW: 29.65 mm: a. dorsal view; b. ventral view; c. chelae, outer view; d. upper surface of chelae; e. G1, dorsal view; f. tip of G1, dorsal view.

Conflict of interests

The authors declare that there are no competing interests.

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References

- Dai, A. Y., Yang, S. L., Song, Y. Z., & Chen, G. X. (1986). Crabs of the China Seas. China Ocean Press, Beijing, 17 +642 pp., pls. 1-74.
- Dana, J. D. (1851). Crustacea Grapsoidea, (Cyclometopa, Edwardsii.): Conspectus Crustacearum quae in Orbis Terrarum circumnavigatione, Carolo Wilkes e classe Reipublicae Foederatae Duce, lexit et descriptis J.D. Dana. Proceedings of the Academy of Natural Sciences of Philadelphia, 5, 247-254.

- De Man, J. G. (1895). Berichte uber die von Herrn Schiffscapitän Storm zu Atjeh, an den westlichen Küsten von Malakka, Borneo und Celebes sowie in der Java-See gesammelten Decapoden und Stomatopoden. Zoologische Jahrbücher, Abtheilung Für Systematik, Geographie Und Biologie Der Thiere, 9(1), 75–218.
- Hombron, J., & Jacquinet, H. (1846). Voyage au Pôle Sud et dans l'Océanie sur les corvettes l'Astrolabe et la Zélée pendant les années 1837-1838-1839-1840, Crustacés. Crustacés. Atlas d'Histoire Naturelle. Zoologie, pls. 1-9.
- Latreille, P. A. (1802). Histoire naturelle, générale et particulière des Crustacés et des Insectes. Ouvrage faisant suite à l'histoire naturelle générale et particulière, composée par Leclerc de Buffon, et rédigée par C.S. Sonnini, membre de plusieurs sociétés savantes. Familles Naturelles Des Genres, 3(Paris: F. DuFart), 467 pp.
- Lee, B. Y., Ng, N. K., & Ng, P. K. L. (2015). The taxonomy of five species of *Episesarma* De Man, 1895, in Singapore (Crustacea: Decapoda: Brachyura: Sesarmidae). Raffles Bulletin of Zoology, 2015(31), 199–215.
- MacLeay, W. S. (1838). On the Brachyurous Decapod Crustacea. Brought from the Cape by Dr. Smith, in Illustrations of the Annulosa of South Africa; being a portion of the objects of natural history chiefly collected during an expedition into the interior of South Africa, under t. In A. Smith (Ed.), Smith, Elder and Co. 65, Cornhill, London, 1849. London: Smith, Elder & Co.
- Manikantan, G., Ajmal Khan, S., Lyla, S., Esa Syed Abdul Rahman, M., & Victorraj, M. (2016). Occurrence of violet vinegar crab *Episesarma versicolor* Tweedie, 1940 (Crustacea: Decapoda: Brachyura) in mangroves of Pichavaram and Vellar, Tamil Nadu. International Journal of Fisheries and Aquatic Studies, 4(2), 166–169 .
- Milne Edwards, H. (1853). Mémoire sur la famille des Ocypodiens, Suite. Annales Des Sciences Naturelles, 20(Ser. 3), 163–228, pls 6–11.
- Ng, P. K. L. (1998). Crabs. In V. . Carpenter, K.E. & Niem (Ed.), FAO Species identification guide for fishery purposes. The living marine resources of the Western Central Pacific (Volume 2, pp. 1045–1155). Food and Agriculture Organisation.
- Ng, P. K. L., Davie, P. J. F., & Guinot, D. (2008). Systema Brachyurorum: Part I . an Annotated Checklist of Extant Brachyuran Crabs of the World. The Raffles Bulletin of Zoology, Supplement, 1–286.
- Rathbun, M. J. (1914). New species of crabs of the families Grapsidae and Ocypodidae. Proceedings of the United States National Museum, 47(2044), 69–85. <https://doi.org/10.1126/science.9.231.776>.
- Serène, R., & Soh, C. L. (1967a). A new species of *Sesarma* from Singapore. Bulletin of the National Museum Singapore, 33(16), 107–111.
- Serène, R., & Soh, C. L. (1967b). Note on the five largest species of *Sesarma* crabs in Malaysia and Singapore. Malayan Nature Journal, 20(1–2).
- Serène, R., & Soh, C. L. (1970). New Indo-Pacific genera allied to *Sesarma* SAY 1817 (Brachyura, Decapoda, Crustacea). Treubia. Buitenzorg, 27(4), 387–416, pls. 1–8.

- Tesch, J. J. (1917). Synopsis of the genera *Sesarma*, *Metasesarma*, *Sarmatium* and *Clistocoeloma*, with a key to the determination of the Indo-Pacific species. Zoologische Mededeelingen, Leiden, 3(2-3), 127-260.
- Trivedi, J. N., Trivedi, D. J., Vachhrajani, K. D., & Ng, P. K. L. (2018). An annotated checklist of the marine brachyuran crabs (Crustacea: Decapoda: Brachyura) of India. Zootaxa, 4502(1). <https://doi.org/10.11646/zootaxa.4502.1.1>.
- Tweedie, M. W. F. (1936). On the crabs of the family Grapsidae. Bulletin of the Raffles Museum, 12, 44-70, pls. 14, 15. h.
- Tweedie, M. W. F. (1940). New and interesting Malaysian species of *Sesarma* and *Utica* (Crustacea, Brachyura). Bulletin of the Raffles Museum, 16, 88-113 pl.24.