



**A new record of *Excirolana Orientalis*
(Dana, 1853), a cirolanid genus and species
(Isopoda, Flabellifera) from the Pakistan coast**

Item Type	article
Authors	Yasmeen, Rehana
Download date	08/04/2022 21:00:57
Link to Item	http://hdl.handle.net/1834/33300

**A NEW RECORD OF *EXCIROLANA ORIENTALIS*
(DANA, 1853), A CIROLANID GENUS AND
SPECIES (ISOPODA, FLABELLIFERA)
FROM THE PAKISTAN COAST**

Rehana Yasmeen

Department of Zoology, University of Karachi, Karachi-75270, Pakistan.

ABSTRACT: *Exciorolana orientalis* (Dana, 1853) belonging to the Cirolanidae, hitherto unknown from Pakistan, is collected from the rocky intertidal region of Manora Island, Karachi coast. The specimens are fully described and illustrated. A list of the known species of the genus *Exciorolana* is also provided since the genus is also first time reported from here.

KEY WORDS: Isopoda, new record, Karachi.

INTRODUCTION

Exciorolana orientalis (Dana, 1853), recently collected from the Karachi coast, provides the first record of the genus and the species from the Pakistan waters.

Most species of *Exciorolana* are tropical and have been found in the Indian, Atlantic and Pacific Oceans. Of the 15 species in the genus, 5, 4 and 7 species are recorded from the Indian, Atlantic and Pacific Oceans respectively.

Table 1: Distribution of the known species of *Exciorolana* (Dana, 1853)

S.No.	Species	Indian Ocean	Atlantic Ocean	Pacific Ocean
1.	<i>E. affinis</i> (Jones, 1971)	Kenya	–	–
2.	<i>E. argentinae</i> (Giambiagi, 1931)	–	Argentina	–
3.	<i>E. armata</i> (Dana, 1853)	–	Brazil	–
4.	<i>E. braziliensis</i> Richardson, 1912	–	Brazil	–
5.	<i>E. chamensis</i> Brusca & Weinberg, 1987	–	–	Panama
6.	<i>E. chilensis</i> Richardson, 1912	–	–	Chile
7.	<i>E. chitoni</i> (Richardson, 1905)	–	–	California
8.	<i>E. geniculata</i> Jones, 1971	Kenya	–	–
9.	<i>E. hirsuticauda</i> Menzies, 1962	–	–	Chile
10.	<i>E. latipes</i> (Barnard, 1914)	South Africa	–	–
11.	<i>E. linguifrons</i> (Richardson, 1899)	–	–	California
12.	<i>E. mayana</i> (Ives, 1891)	–	Yucatan, Florida Mexico, Venezuela	–
13.	<i>E. monodi</i> Carvacho, 1977	–	–	Chile
14.	<i>E. natalensis</i> (Vanhoeffen, 1914)	South Africa	–	–
15.	<i>E. orientalis</i> (Dana, 1853)	Madagascar to tropical Australia	–	Philippines, Japan

SYSTEMATIC ACCOUNT
Genus *Excirolana* Richardson, 1912

Diagnosis:

“Cephalon with prominent rostrum separating antennular bases; fused with flattened frontal lamina. Clypeus with short, broadly triangular blade projecting anteroventrally. Antennal peduncle with four or five articles. Maxillipedal endite with single coupling hook. Pleopods 3-5, endopods lacking marginal setae. Pleonite 5 with free lateral margins, not overlapped by pleonite 4. Uropod sympod produced along mesial margin of endopod” (Kensley and Schotte, 1989: 149).

Excirolana orientalis (Dana, 1853)

(Figs. 1-3)

Cirolana (Eurydice) orientalis Dana, 1853: 773, pl. 51.

Cirolana orientalis Hansen, 1890: 353, pl. IV; Stebbing, 1900: 633; Thielmann, 1910: 17; Richardson, 1910: 4.

Excirolana orientalis Richardson, 1912: 201; Hale, 1925: 156, 1929a: 34; Nierstrasz, 1931: 148; Pichon, 1967: 70, 83; Roman, 1970: 174; Jones, 1971: 213, 1979: 667; Holdich, Harrison and Bruce, 1981: 587, fig. 12; Bruce, 1982: 613, 1986: 41.

Cirolana bombayensis Joshi and Bal, 1959: 58, pl. 1.

Exirolana orientalis Fishelson, 1971: 128 (err. typ.).

Material Examined:

Manora Island, 24°47'40"N, 66°58'39"E. 15 November, 1996, 21 males, 6.0-8.0 mm, 40 females, 5.8-9.0 mm.

Description of Adult Male:

Cephalon (Fig. 1A) slightly more than 2 times as wide as long, without submarginal and interocular furrows, rostrum well developed and dilated anteriorly, maxillipedal somite complete, eyes lateral, of dark orangish or brown colour. Cephalon and body surface without ornamentation and setae. Pereonite 1 longer than pereonite 2, maximum breadth at pereonite 5, pereonite 1 (Fig. 1B) with 1 fine longitudinal furrow on lateral surface, coxae 7 visible dorsally, each coxae with entire carina and without setae on posterolateral angles. Lateral margins of pleonites 4-5 acute. Pleotelson with a depression on each lateral side anteriorly, lateral margin slightly convex, without setae, apex (Fig. 1C) rounded bearing short plumose setae and spinules and a medially directed spine on each lateral side, apex provided with a notch with about 5 spines interspersed with plumose setae.

Frontal lamina (Fig. 1D), anterior margin truncate and broader than proximal portion, lateral margins straight, clypeal region developed, projecting anteroventrally, acutely pointed in lateral view.

Antenna 1 (Figs. 2A, 2B), flagellum not extending to posterior margin of pereonite 1, peduncle 3-articled flagellum composed of 9 articles, each article (Fig. 2B) with a pair of aesthetascs except on last 2 articles. Antenna 2 (Fig. 2C), peduncle 5-articled, article 3 with 1 and article 4 with 2 setae on distomedial angles, article 5 longest and with a few

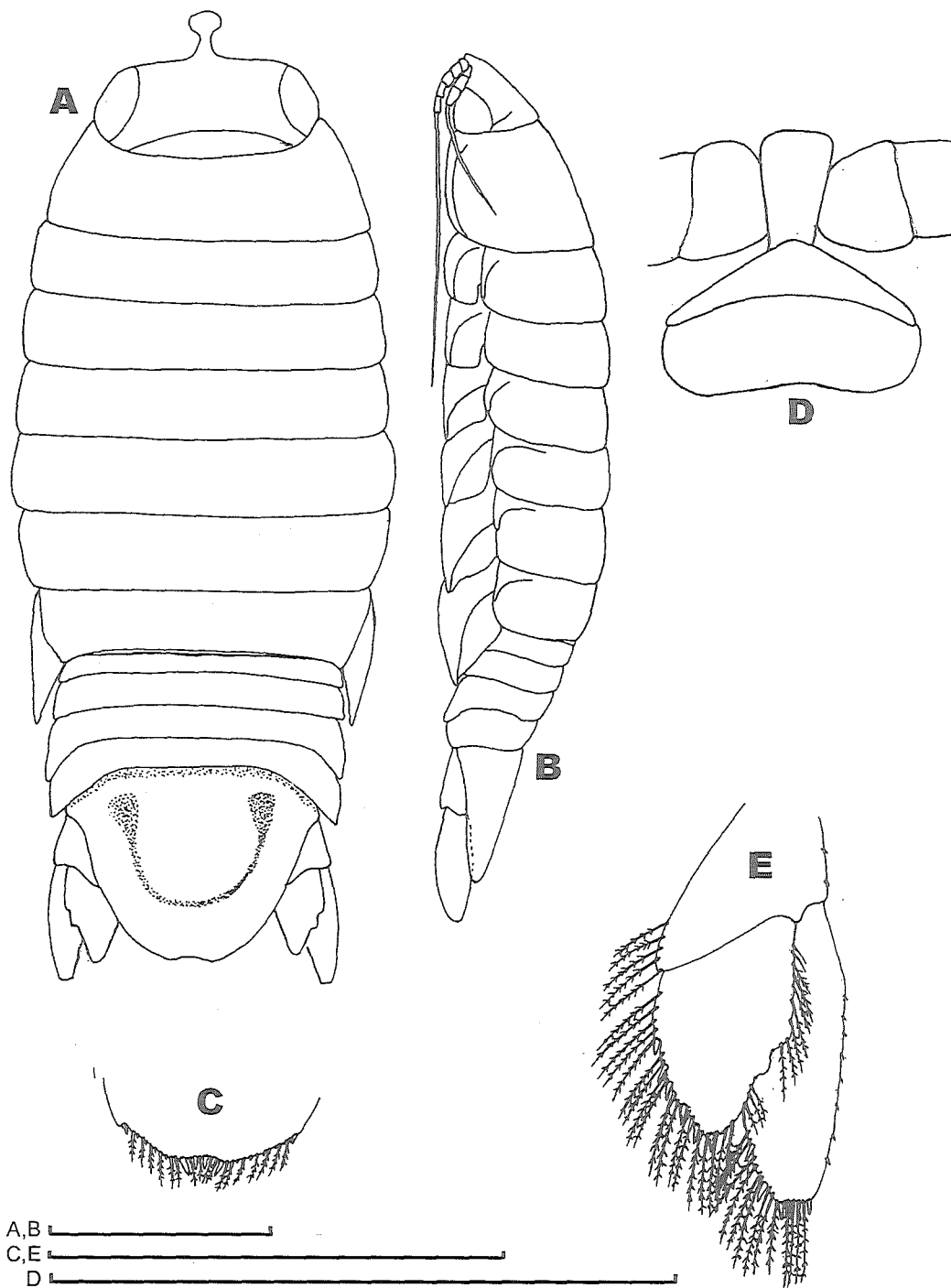


Fig. 1. *Excirolana orientalis* (Dana, 1853), male, 5.8 mm. A, dorsal view; B, lateral view; C, pleotelson apex; D, clypeal region; E, uropod. Scale 1.0 mm.

setae on each distal angle, flagellum extending beyond the posterior margin of pereonite 3, composed of about 17 articles, each article (Fig. 2D) bearing 2 bunches of fine setae on distomedial angle. Mandible (Fig. 2E), incisor medial cusp about twice as long as middle cusp, lateral cusp blunt and shorter, spine row well developed with about 12 spines, palp article 2 longest, slender, bearing 7 setae on distolateral margin, lateral margin of article 3 fringed with simple setae. Maxilla 1 (Fig. 2F), lateral lobe with 10 spines and 2 setae on distal margin, medial lobe broken. Maxilla 2 (Fig. 2G), lateral lobe 2-segmented, distal margin bearing 5 long setae, 3 of them pectinate; central lobe with 7 setae on distal and medial margins; medial lobe anteriorly produced, triangular, anterior and medial margin bearing simple long setae. Maxilliped (Fig. 2H), endite with 1 coupling hook, distal margin thickly setose, bearing 7 long, plumose setae; palp articles 2-4 medial margins thickly setose, palp articles 2 and 4 bearing only 1 seta on distolateral angle, lateral margin of palp article 3 fringed with about 6 setae.

Pereopod 1 (Fig. 3A), basis distolateral margin with 4 simple setae; ischium lateral margin with 2 spines, distomedial margin armed with 4 spines; merus lateral margin with 5 pegs, 3 spines and 1 seta, distomedial angle bearing 2 spines, carpus lateral margin with 1 spine and 1 seta, distal margin bearing 1 seta, propodus lateral margin with 3 spines, each with a subterminal setule, distolateral angle with 1 spine and 3 setae, distomedial angle with 1 seta, dactylus (Fig. 3B) with accessory unguis and 1 seta, medial submarginal row absent. Pereopod 2 (Fig. 3C) basis distolateral angle with 3 long simple setae and 1 spine, ischium distolateral margin with 4 stout spines and 2 setae, distomedial margin bearing 2 spines and 1 long seta; merus lateral margin armed with 3 pegs, 4 blunt spines each with a subterminal setule and 1 seta, distomedial angle with 1 spine and 2 setae, distomedial margin bearing 2 stout spines and 1 seta; carpus lateral margin with 3 spines and 1 seta; propodus lateral margin with 2 spines each with a subterminal setule, distolateral angle with 1 spine and 1 seta, distomedial angle with 1 seta; dactylus (Fig. 3D) with well developed accessory unguis and 1 seta, medial submarginal row of setae absent. Pereopod 7 (Fig. 3E), basis distolateral angle with 4 setae and 1 spine, ischium lateral side bearing 2 marginal and 2 submarginal spines, distal margin armed with 7 spines and 2 setae; lateral margins of merus and carpus each with a group of 3 spines, distal margins of merus and carpus bearing clusters of spines; propodus lateral margin with a pair of spines, distolateral angle bearing 2 spines; dactylus (Fig. 3F) with distinct accessory unguis and 1 seta, medial submarginal row with 3 setae.

Penes (Fig. 3G) present as separated and posteriorly directed 2 lobes.

Pleopod 1 (Fig. 3H) rami slender, apices rounded, exopod slightly longer than endopod; peduncle lateral margin produced into a lobe, medial margin (Fig. 3I) with 4 coupling spines and 1 plumose seta. Pleopod 2 (Fig. 3J) exopod longer than endopod, appendix masculina distinctly shorter than exopod, (Fig. 3L) stout, bearing setules on proximomedial margin, arising subbasally, tapering to medially deflected apex; peduncle lateral margin lobed, medial margin (Fig. 3K) with 3 coupling spines and 2 plumose setae. Pleopods 3-5 (Figs. 3M, O, Q) endopods naked, exopods larger than endopods; proximomedial angle of endopod of pleopod 5 produced into a short anteriorly directed lobe, peduncle lateral margins of pleopods 3-5 lobed, those of pleopods 4 and 5 bearing a terminal seta, peduncle medial margins of pleopods 3 and 4 (Figs. 3N, P) each with 3 coupling spines and 2 plumose setae.

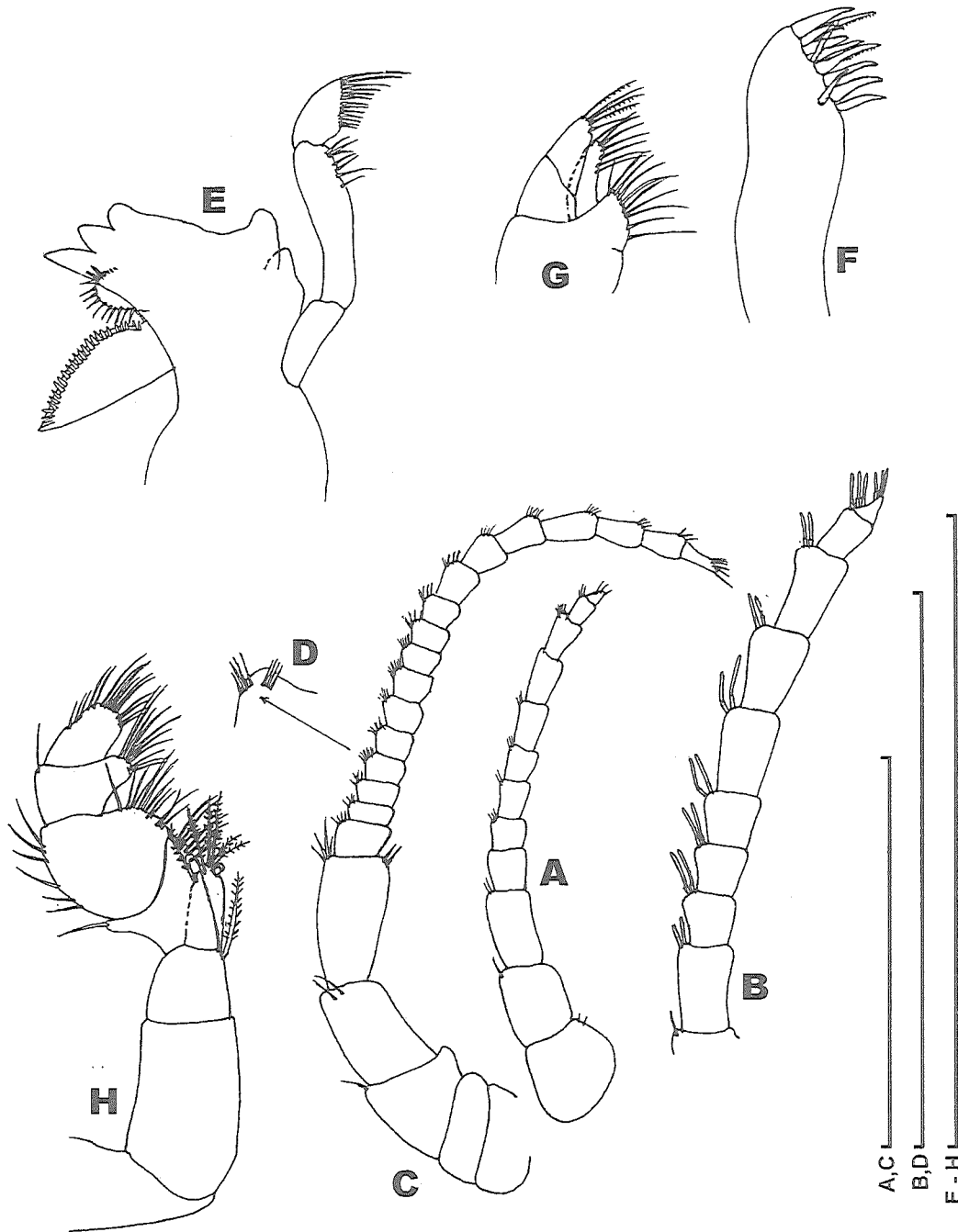


Fig. 2. *Excirolana orientalis*, male, 6.0 mm. A, antenna 1; B, antenna 1 flagellum; C, antenna 2; D, antenna 2, flagellar article 5; E, mandible; F, maxilla 1; G, maxilla 2; H, maxilliped. Scale 1.0 mm.

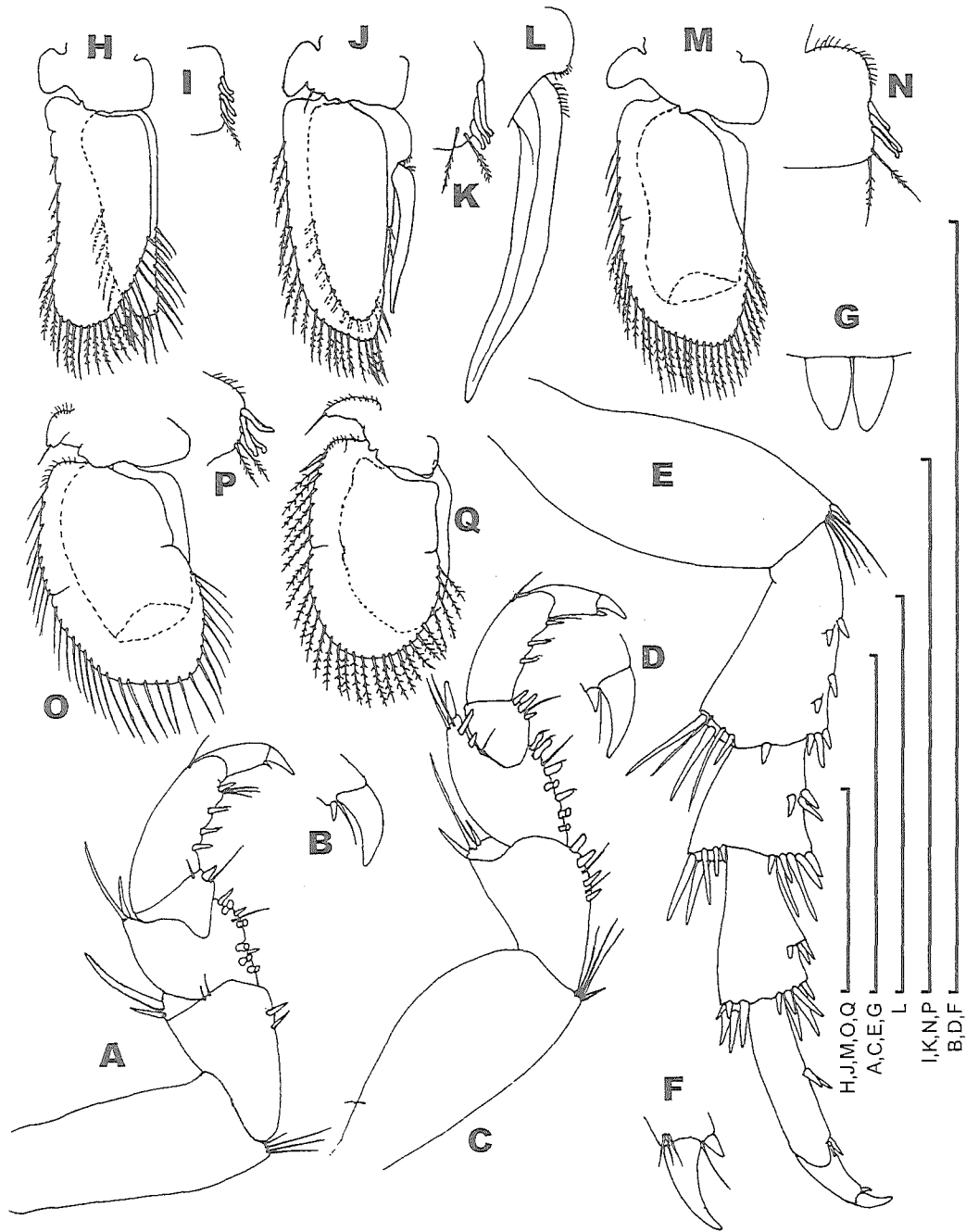


Fig. 3. *Excirrolana orientalis*, male, 6.0 mm. A, pereopod 1; B, pereopod 1 dactylus; C, pereopod 2; D, pereopod 2 dactylus; E, pereopod 7; F, pereopod 7 dactylus; G, penes; H, pleopod 1; I, pleopod 1 peduncle; J, pleopod 2; K, pleopod 2 peduncle; L, appendix masculina; M, pleopod 3; N, pleopod 3 peduncle; O, pleopod 4; P, pleopod 4 peduncle; Q, pleopod 5. Scale 1.0 mm.

Uropod (Figs. 1A, E) extending beyond distal margin of pleotelson. Exopod longer than endopod, lateral margin bearing spinules, devoid of setae, distal margin truncate, bearing 1 spine on each lateral end and long plumose setae between these 2 spines; distomedial margin fringed with long plumose setae and 2 spines. Endopod broad proximally, lateral margin indented, distal margin smoothly rounded bearing long, plumose setae and 1 spine, entire medial margin setose and with 5 spines.

Female:

Similar to male except for the primary sexual characters.

Distribution in the Indo pacific:

Known from Sulu Sea- Philippines; New Guinea; Queensland – Australia; Indonesia; Penang – Malaysia. Nicobar Islands; Madagascar; Kenya; Red Sea; Persian Gulf and Bombay, now range extends to Pakistan.

Remarks:

The detailed description and illustrations of this species have been given by Holdich *et al.* (1981) and Bruce (1986). The present material agrees closely with the Australian material except that the dactylus of pereopod 1 in Australian male has medial submarginal row of setae well developed (Bruce, 1986; Fig. 24C), while it is absent in the males from Pakistan.

ACKNOWLEDGEMENT

Thanks are due to Prof. Dr. (Mrs.) Waqar Javed, Department of Zoology, University of Karachi, for providing valuable research papers and suggestions.

REFERENCES

- Barnard, K.H. 1914. Contributions to the crustacean fauna of South Africa. No. 3. Additions to the marine Isopoda with notes on some previously incompletely known species. *Annals of the South African Museum*, 10: 325-442, 325a-358a, 359-442.
- Bruce, N.L. 1986. Cirolanidae (Crustacea: Isopoda) of Australia. *Records of the Australian Museum*, Australia, Supplement 6: 1-239.
- Brusca, R.C. and J.R. Weinberg. 1987. A new isopod crustacean from Pacific Panama. *Exciorolana chamensis* new species (Isopoda: Flabellifera: Cirolanidae). Natural History Museum of Los Angeles County. *Contribution in Science* 392: 11-17.
- Carvacho, A. 1977. Isopodes interdause de cotes du centre et du Nord du Chili. Families des Cirolanidae, Excorallanidae et Covallanidae. *Crustaceana* 32: 27-44.
- Dana, J.D. 1853. Crustacea, Part II. In 'United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842, under the command of Charles Wilkes, U.S.N., Vol. 14: 689-1681, C. Sherman, Philadelphia.
- Fishelson, L. 1971. Ecology and distribution of the benthic fauna in the shallow waters of the Red Sea. *Marine Biology* 10: 113-133.
- Hale, H.M. 1925. Review of Australian isopods of the cymothoid group. Part I.

- Transactions of the Royal Society of South Australia, 49: 128-185.
- Hansen, H.J. 1890. Cirolanidae et familiae nonnullae propinqua Musaei Hauniensis. Det. Kongelige Danske. Videnskabernes Selskab Skriffter, Naturvidenskabelig og Mathematisk 6: 237-426.
- Holdich, D.M., K. Harrison and N.L. Bruce, 1981. Cirolanid isopod crustaceans from the Townsville region of Queensland, Australia, with descriptions of six new species. *Journal of Natural History*, 15: 555-605.
- Ives, J.E., 1891: Crustacea from the northern coast of Yucatan, the harbour of Vera Cruz, the west coast of Florida, and the Bermuda Islands. *Proceedings of the Academy of Natural Sciences of Philadelphia* 1891: 185-189.
- Jones, D.A. 1971. The systematics and ecology of some sand beach isopods (Crustacea: Eurydicidae) from the coast of Kenya. *Journal of Zoology*, London 165: 201-227.
- Jones, D.A. 1979. The ecology of sandy beaches in Penang, Malaysia, with special reference to *Excirrolana orientalis* (Dana). *Estuarine and Coastal Marine Science*, 9: 677-682.
- Joshi, U.N. and D.V. Bal, 1959. Some of the littoral species of Bombay isopods, with detailed description of two new species. *Journal of the University of Bombay*, New Series 27B: 57-69.
- Kensley, B. and M. Schotte, 1989. Guide to the marine isopod crustaceans of the Caribbean, Smithsonian Institution Press, Washington, D.C.
- Menzies, R.J. 1962. The zoogeography, ecology and systematics of the Chilean marine isopods. The Lund University Chile Expedition, 1948-1949, No. 42. Lunds Universitets Arskriffter, Avd 2, Bund, 57: 1-162.
- Nierstrasz, H.F. 1931. Die Isopoden der Siboga-Expedition 3. Isopoda Genuina. 2. Flabellifera. *Siboga-Expedition Monograph* 32C: 123-233.
- Pichon, M. 1967. Contribution a l'etude des peuplements de la zone intertidale sur stables fins et stables vageux non fixes, dans la region de Tulear (Madagascar). Recueil des Travaux de la Station Marine Endoume, Faculte des Sciences de Marseille, Fascicule hors serie. Travaux de la Station Marine, Tulear supplement 5: 57-100.
- Richardson, H. 1899. Key to the isopods of the Pacific coast of North America, with descriptions of twenty two new species. *Annals and Magazine of Natural History Ser.* 7(4): 157-186, 260, 279; 321-328.
- Richardson, H. 1905. A monograph on the isopods of North America. *Bulletin of the United States National Museum*, 54: 1-727.
- Richardson, H. 1910. Marine isopods collected in the Philippines by the United States Fisheries Steamer "Albatross" in 1907-1908. Department of Commerce and Labor, Bureau of Fisheries Document, 736: 1-44.
- Richardson, H. 1912. Descriptions of a new genus of isopod crustaceans, and of two new species from South America. *Proceedings of the United States, National Museum*, 43: 201-204.
- Roman, M.L. 1970. Ecologie et repartition des certains groupes d' isopods dans les divers biotopes de la region de Tulear (Sub-ouest de Madagascar). Recueil des Travaux de la Station Marine Endoume, Faculte des Sciences de Marseille, Fasc. Hors serie supplement 10: 163-208.
- Stebbing, T.R.R. 1900. On Crustacea brought by Dr. Willey from the South Sea. In:

- 'Zoological results based on material from New Britain, New Guinea, Loyalty Islands and elsewhere, collected during the years of 1895, 1896 and 1897' (ed. A. Willey), 5(33): 605-690. University Press, Cambridge.
- Thielemann, M. 1910. Beiträge zur Kenntnis der isopoden fauna Ostasiens. Beiträge zur Naturgeschichte Ostasiens. Abhandlungen der Mathematisch-Physikalischen Klasse der Königlich Bayerische Akademie der Wissenschaftliche, 2, Suppl. Band, 3: 1-110.
- Vanhoffen, E. 1914. Die isopoden der Deutschen Sudpolar-Expedition 1901-1903. In 'Deutsche Sudpolar-Expedition, 1901-1903'. Vol. 15, Zoology 7: 447-524.

(Received: 20 December, 2001)