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A NEW CALANOID COPEPOD, *CENTROPAGES KARACHIENSIS*, FROM THE INSHORE WATERS OF THE KARACHI COAST, WEST PAKISTAN

by

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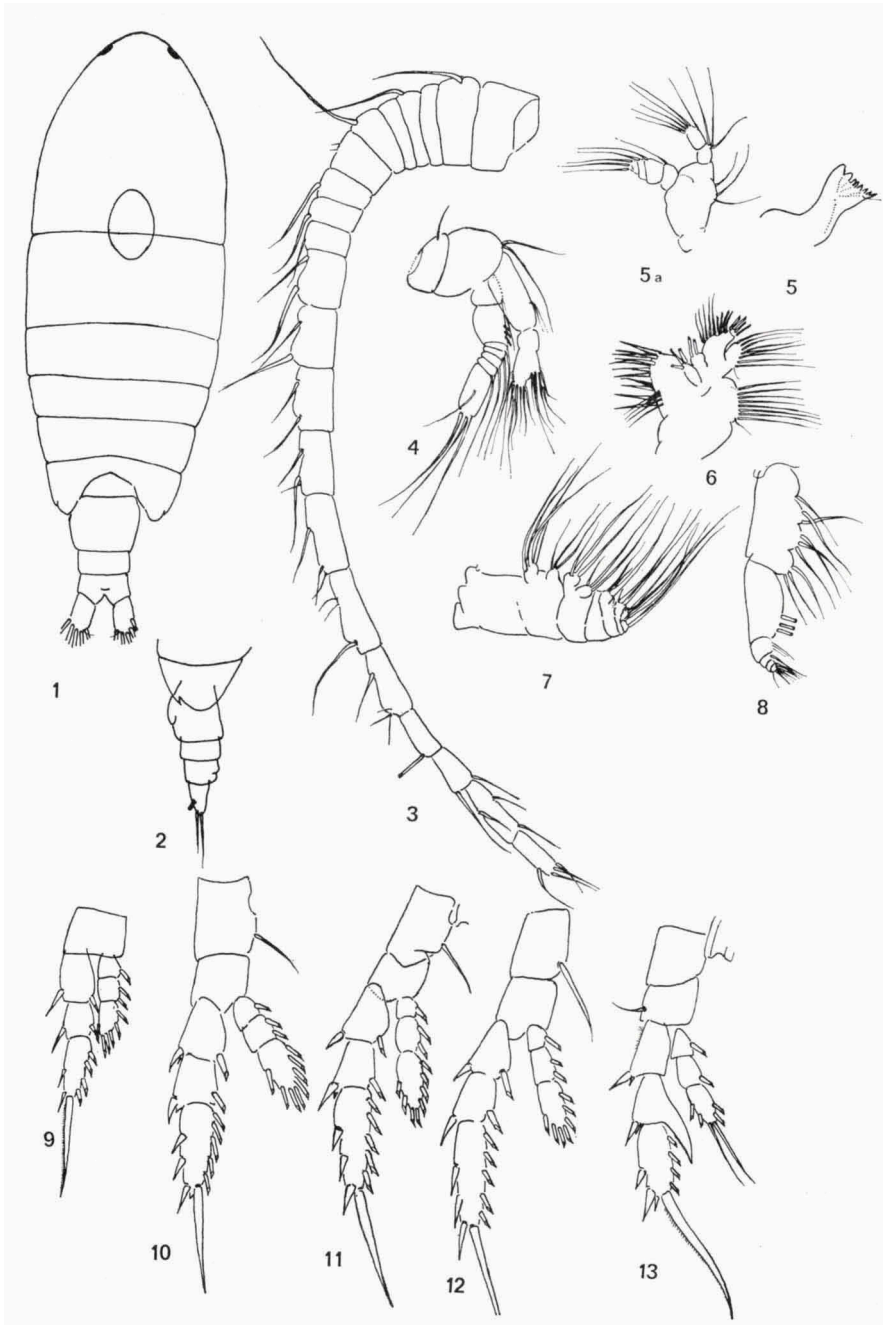
With 19 text-figures

INTRODUCTION

The new species *Centropages karachiensis* which is described below was found in small numbers in surface hauls made during September inside Karachi harbour and in the Korangi Creek area situated about 7 miles south-east of the Karachi harbour break water. The holotype is deposited in the Institute of Marine Biology, University of Karachi and the paratypes in the British Museum (Natural History), London and the Rijksmuseum van Natuurlijke Historie, Leiden (Reg. no. Crust. F 792).

Centropages karachiensis sp. nov.

Description. — Female (figs. 1-13). The total body length varies between 1.2 mm and 1.35 mm. The body is cylindrical in shape. The front end of the head is rounded with a typical middorsal crest provided with two purple coloured eyes situated ventrally. The first thoracic somite is distinctly separated from the cephalic region. A large purple middorsal spot is present at the junction of the first thoracic segment and the posterior margin of the cephalic segment (fig. 1). The posterior thoracic corner is rounded and flexed in a downward direction, it is provided with a notch on the ventral aspect of the segment (fig. 2). The abdomen is three-segmented. The genital segment is slightly asymmetrical in dorsal view, bulging slightly towards the left. The furca is symmetrical, it is about two times as long as broad and bears 5 small setae. It has an additional sensory bristle located between the first and second setae.



Figs. 1-13. *Centropages karachiensis* sp. nov., female. 1, dorsal view; 2, urosome lateral view; 3, antennule; 4, antenna; 5, cutting edge of mandibular blade; 5a, mandibular palp; 6, maxillule; 7, maxilla; 8, maxilliped; 9, first leg; 10, second leg; 11, third leg; 12, fourth leg; 13, fifth leg.

The antennule (fig. 3) does not extend beyond the 4th thoracic somite and consists of 21 free segments. The number and position of setae and the proportional length of the segments are as shown in the figure.

The exopod of the antenna (fig. 4) is longer than the endopod. The coxal segment bears one seta while the basal segment bears two fine setae on the outer edge. The endopod is two-segmented, the terminal and the subterminal segment of the endopod bear 13 setae. The exopod is 7-segmented, the seventh segment being the longest and bears 3 terminal setae, the second segment bears 3, while all others bear one seta on the outer edge.

The mandible (fig. 5, 5a) is well developed and appears typical of the genus with eight bicuspidate teeth and a fine seta. The mandibular palp is well developed with a large basal segment: the endopod is 2-segmented while the exopod consists of four segments; the terminal segments are indistinct.

The maxillule (fig. 6) shows the usual features of this family. The probase bears a gnathobase with 15 setae arranged in double rows and a lacine bearing 3 setae on the outer side; segments 3 and 4 are separated; the coxal epipod is provided with 9 setae.

The maxilla (fig. 7) has 7 endites with the arrangements of bristles as shown in the figure.

The maxilliped (fig. 8) is typical of the family; the first segment of the basipod has three protuberances each bearing 3 setae; the distal segment is not so distinct as in allied species.

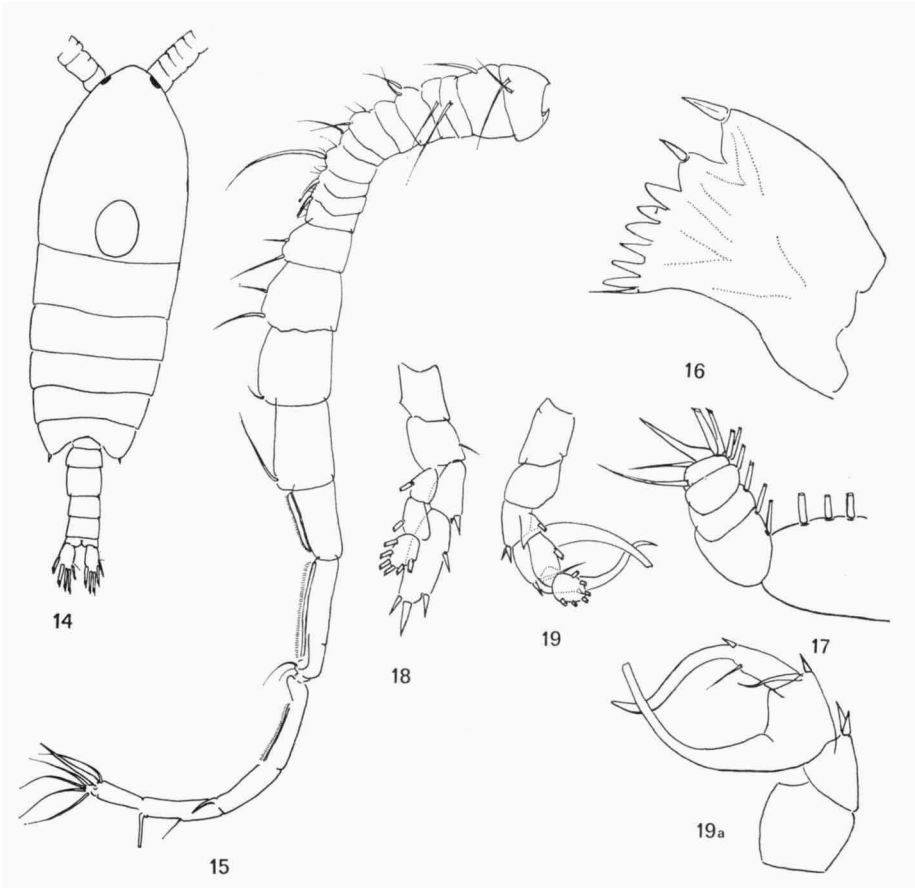
The swimming feet 1 to 4 (figs. 9-12) are biramous, with a 2-segmented basipod. The first basal segment carries one plumose seta internally. The exo- and endopods of the first four pairs of feet are 3-segmented. Details of the setation and spinulation of the swimming legs are given in table 1.

TABLE 1

	Basipod				Endopod							Exopod						
	1		2		1		2		3			1		2		3		
	Si	Se	Si	Se	Si	Se	Si	Se	Si	St	Se	Si	Se	Si	Se	Si	St	Se
P1	1	0	0	0	1	0	2	0	3	2	1	1	1	1	1	4	1	2
P2	1	0	0	0	1	0	2	0	4	2	2	1	1	1	1	5	1	3
P3	1	0	0	0	1	0	2	0	4	2	2	1	1	1	1	5	1	3
P4	1	0	0	0	1	0	2	0	3	2	2	1	1	1	1	5	1	3

The abbreviations Si, Se, St stand for internal, external and terminal spines (or setae), respectively.

The 5th pairs of legs in the female is typical of the genus (fig. 13). The second segment of the exopod is produced into a stout spiniform process towards the inner side; the terminal edge of it is serrated internally. This spine is about half as long as the terminal segment of exopod.



Figs. 14-19a. *Centropages karachiensis* sp. nov., male. 14, dorsal view; 15, right antennule; 16, cutting edge of mandibular blade; 17, distal portion of maxilliped; 18, left fifth leg; 19, right fifth leg; 19a, chelate portion of right fifth leg enlarged.

Male (figs. 14-19). The total body length varies from 1.05 mm to 1.275 mm. The body resembles that of the female. The middorsal purple spot lies in the cephalic region, thus more anteriorly than that observed in the female. The fifth thoracic segment is rounded in shape with a distinct spine on either posterolateral corner (fig. 14).

The urosome is symmetrical and is 5-segmented. The furca is symmetrical and about twice as long as broad.

The right antennule is modified into a grasping organ with the flexing located between the 18th and 19th segment. The 17th to 19th segments are finely serrated. On segment 11 and 12 there are small spines, the details of the setation are shown in figure 15. Other cephalic and thoracic appendages,

except the 5th leg, are similar to those of the female. The 5th pair of legs in the male is typical of the genus; the right leg is chelate (fig. 19, 19a) and the terminal segment of the exopod of the left leg is provided with a small spine as shown in fig. 18.

Discussion. — Earlier records by Cleve (1901), Thompson & Scott (1903), A. Scott (1909), Sewell (1912, 1914, 1932), Mori (1937), Ganapati & Shantha-Kumari (1961), and Tanaka (1963) show that so far 21 species of the genus *Centropages* have been reported from the Indo-West Pacific region (Japan to the Red Sea). Careful examination shows that the species under consideration is markedly different in structural details from all other species so far known. However, among all other species so far known, the present new species resembles very closely *C. dorsispinatus* (Thompson & Scott, 1903). It is distinguished from the latter by the absence of a mid-dorsal hook situated at the posterior end of the cephalic region and by the presence of a purple spot mid-dorsally. Furthermore, in *C. dorsispinatus* there are distinct spines present on the antennnular segments 2, 4, 9 and 10, whereas no such spines are present in the new species. Also the inner marginal spine of the second segment of the exopod of the female 5th leg in *C. dorsispinatus* is as long as the third segment of the exopod, while in the present species it is about half as long as that segment and is beset with minute denticles internally. Similarly, the left 5th legs of the male of the two species are markedly different; in *C. dorsispinatus* the terminal segment of the exopod is provided with a distinct seta which in the new species is represented by a small spine.

In view of the presence of distinctive characteristics and marked differences in other structures referred to above, it seems justified to consider the present material to belong to a new species.

Acknowledgements

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