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STUDIES ON INDIAN CALANOIDS III. ON A NEW SPECIES OF *TROPODIAPTOMUS* KIEFER (CALANOIDA : DIAPTOMIDAE) FROM NILGIRI DISTRICT OF SOUTHERN INDIA

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ABSTRACT

Genus *Tropodiaptomus* includes forty five species, of whieh eight species were reported from India. The ninth species, *T. chauhani* sp. nov. revealed from examination of the collections from various fresh water bodies in the Nilgiri District in southern India, is described and figured and its close similarities with the species *T. orientalis* and *T. processifer*, discussed.

INTRODUCTION

Genus *Tropodiaptomus* was established in 1932 by Kiefer to accomodate the species of *orientalis* (= *D. orientalis* Brady-Sars, 1886/ 1889) from Ceylon. Literature on various species of the genus is much scattered. Brehm (1953) has pointed out that there are atleast thirty species belonging to this genus. Humes (1960) reported forty or more species which have been ascribed to the genus. After going through scattered literature of recent and past, reveals that this genus is now represented by at least forty five species of which eight species are known from India. These are : *T. doriai* (Richard, 1894) ; *T hebereri* Kiefer, 1930 ; *T. mutatus* Kiefer, 1930 ; *T. vicinus* Kiefer, 1930 ; *T euchaetus* Kiefer, 1936 ; *T. informis* Kiefer, 1936 ; *T nielseni* Brehm, 1953 and *T lakhimpurensis* Reddiah, 1964.

Study of plankton collections from fresh water bodies in the Nilgiri District of southern India, continues to reveal species of Copepods which is new to science. The present report includes the third new species in the series and ninth of the genus *Tropodiaptomus* collected by the author.

MATERIAL AND METHODS

Specimens used in this study consisted of plankton samples collected with relatively fine mesh net (0.5 mm to 1.0 mm mesh size) from a pool containing a few emergent and floating vegetation in the Mudumalai Wild life sanctuary in the Tamilnadu State during Nilgiri District Faunistic Survey by the

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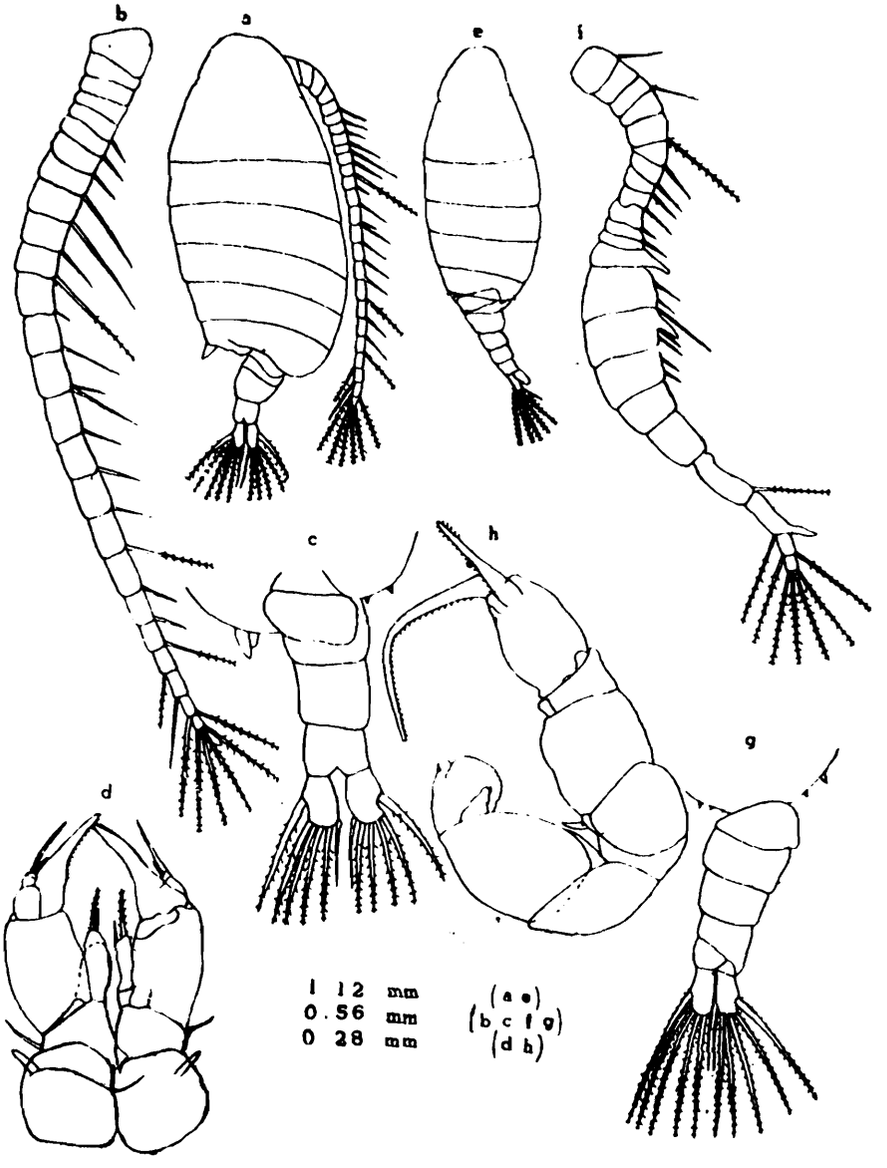
Zoological Survey of India in January-February, 1971. All the type and non type specimens preserved in 85% Ethyl alcohol (C_2H_5OH) including 2/3 drops of Glycerine. Line drawings were made from Glycerine-mounted specimens with the aid of an ocular micro-meter. The magnification of each line drawing is indicated in the figure by a letter under the appropriate scale.

The specific name of the new species,



Tropodiaptomus chauhani sp. nov.

Fig. 1. a—d, adult female ; e—h, adult male

Fig. a adult female	dorsal view
Fig. b. „ „	first antennule
Fig. c. „ „	urosome with last thoracic segment
Fig. d. „ „	fifth pair of legs
Fig. e. adult male	dorsal view
Fig. f. „ „	right antennule
Fig. g. „ „	urosome with last thoracic segment
Fig. h. „ „	fifth pair of legs

chauhani is after in honour of Dr. B. S. Chauhan, a renowned Zoologist and former Deputy Director, Zoological Survey of India, Calcutta.

Tropodiaptomus chauhani sp. nov.
(Figures : 1 a-d, adult female ;
e-h, adult male)

Material—Holotype : Adult male, Pool at Mudumalai Wild-life sanctuary, Nilgiri District, Tamilnadu State, INDIA, 13.2.1971 (*T Roy* Coll.) Regd. No. C 2589/2. *Allotype* : Adult female, with the same data as the holotype, Regd. No. C 2590/2. *Paratypes* : Two males and three females with the same data as the holotype, Regd. Nos. C 2591-92/2. All the specimens including non types have been deposited in the National Collections of the Zoological Survey of India, Calcutta.

Description of the adult male :

The body of the adult male (Fig. e) excluding the caudal setae is 1.30 mm. The urosomal segment (Fig. g) is about 1/3rd of the prosome. The wings of the last metasomal segment are symmetrical and bear two small spines postero-leterally. Spines of the left lobe are closer than the right lobe. The urosome (Fig. g) is five segmented. The proportional length of the segments are as follows (A) :

The caudal rami (Fig. g) are longer than the fifth urosomal segment and symmetrical. Each ramus bears six setae of which the innermost naked seta is the smallest. Further, it is thinner with sclerotised knee a short distance from the base. The other five caudal setae are equal in length with feather-like arrangement of the thickened setules.

The first antennule : The first antennule (Fig. f) consists of 22 segments. The spines and setae are arranged as shown in the figure. The proportional length of the segments are shown in 'B' marked segments.

Segments 13 and 15 bear strong and highly chitinised spine. Segment 19 is the longest and the terminal segment is the smallest of all. The terminal process of the antepenultimate segment reaches beyond the distal end of the 21st segment and is a little recurved distally. The setae of the ultimate and penultimate segments are feathered with fine setules.

Fifth leg : The fifth leg (Fig. h) is asymmetrical. The tip of the left leg reaches almost beyond the end of the first exopod segment. The size and shape of the segments of the fifth leg are as shown in the figure.

The right fifth leg : The right fifth leg (Fig. h) consists of two basipods, three exopods and one endopod segment. The first

(A) Segments

-1	-2	-3	-4	-5	caudal rami
19	21	17	10	12	21

=100

(B) Segments

1	2	3	4	5	6	7	8
53	38	31	38	46	38	31	23
9	10	11	12	13	14	15	16
27	34	16	19	31	69	60	62
17	18	19	20	21	22		
57	84	104	78	38	23		

=1000

basipod segment is nearly circular and bears a strong spine on its inner margin. The second basipod segment is larger than the first. The first exopod segment is the smallest and has a short thick process at its outer distal corner. The second exopod segment originates from the terminal region of the first exopod segment and is cylindrical. It tapers distally and has a fairly long spine ornamented with fine hairs completely in the inner margine and a little on the outer margin. It originates very close to the base of the third exopod segment (claw). The third exopod segment forms a claw which bends inside. The endopod is very short and it does not reach beyond the distal end of the first exopod segment. It arises from the dorso-lateral region of the inner margin of the second basipod segment.

The left fifth leg : The left fifth leg (Fig. h) consists of two basipods, one exopod and one endopod segment. The first basipod segment is smaller than its counter part of the right leg. The second basipod segment is almost equal in size. The first exopod

with rounded lobe on the posterior aspect. The endopod is single-segmented with a bluntly rounded extremity. A row of fine setae are present on its anterior face.

Description of the adult female : The body (Fig. a) is robust, moderately long and wide. The total length of the body excluding the caudal setae is 1.58 mm. The last metasomal segment has two asymmetrical lateral wings. The postero-lateral wing of the left lobe bears two strong hyaline spines and the right lobe with two small spines. All the spines of both lobes of the metasomal segment are pointing downwards. The prosome is nearly three times longer than the urosome.

The urosome (Fig. c) is three segmented. The third segment is the smallest of all. Caudal rami (Fig. c) are symmetrical. Each ramus possesses six setae of which the innermost is naked and smaller than the rest. The other four setae are almost equal in size except the outermost which is a little thicker. All setae possess thickened setules and are plumose. The proportional length of the urosomal segments are as follows :

Segments	-1	-2	-3	urosome	
	32	24	22	22	=100

segment is a semicircular lobe which bends a little inside. The free edge of the inner margin of the lobe is shaped like a saw with striations and the outer distal extremely small

The first antennule : The first antennule (Fig. b) consists of 25 segments. The size of the segments and the arrangement of the setae are as shown in the figure.

Segments								
	1	2	3	4	5	6		
	56	19	25	25	28	25		
	7	8	9	10	11	12		
	31	31	44	44	38	50		
	13	14	15	16	17	18	19	20
	50	56	59	56	56	56	50	44
	21	22	23	24	25			
	38	31	38	31	19	=1000		

Fifth leg : The fifth leg (Fig. d) is well developed and symmetrical. The size and shape of the fifth leg are as shown in the figure.

The right fifth leg : The right fifth leg (Fig. d) consists of one basipod, three exopods and one endopod segment. The basipod segment is almost circular. It bears a strong spine on its dorso-lateral region. First exopod segment is smaller than the basipod segment. A thin spine originates on its outer margin. The second exopod segment is cylindrical and a little wider than its counter part of the left leg. The third exopod segment originates from the terminal portion of the second exopod segment and forms a claw. It is knobbed at its base and bears two unequal spines on its outer edge. About 2/3rd of the inner margin of the claw is finely serrated. The endopod is one-segmented and cylindrical and about 2/3rd in length of the second exopod segment. The endopod arises from the distal lateral corner of the first exopod segment and is tipped with two unequal setae. The larger seta is serrated and the smaller one is naked.

The left fifth leg : The left fifth leg (Fg. d) is almost identical in shape and structure of the right fifth leg except for the difference in size of the second exopod segment.

Remarks

As the genus *Tropodiaptomus* is representing a large number of species and the meagreness of the descriptions of the several species which have been assigned to this genus from various parts of the world at different times, it is extremely difficult to make in details comparative study of all the known species. However, the present specimens of *T. chauhani* show very close resemblance to *T. orientalis* described by Brady-Sars 1886/1889) and *T processifer* described by Kiefer (1927) even in the minute details of the appendages. It could be distinguished from *T orientalis*, in the presence of setae on the lateral spine of the second exopod segment of the right male fifth leg and on the inner and outer edges of the claw of the third exopod segment of the right male fifth leg and from *T processifer*, in the larger setal arrangement on the terminal portion of the endopods of the female fifth leg and more circular in shape of the first exopod segment of the left female fifth leg. In the male, it differs in the small claw and larger spine with fine hairs on the second exopod segment of the right fifth leg.

New species, *T chauhani* is quite distinct enough from all other species in the shape and structure of the second exopod segment of the left male fifth leg and in the structure of the claw of the female fifth leg.

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