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STUDIES ON INDIAN CALANOIDS II. DESCRIPTION OF A NEW CALANOID COPEPOD *NEODIAPTOMUS SEWELLI* SP. NOV. (CALANOIDA : DIAPTOMIDAE) FROM NILGIRI DISTRICT

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ABSTRACT

A new species of the genus *Neodiaptomus* Kiefer is described from the Kargudi of Nilgiri District in Southern India. Affinities with previously described species of this genus, is discussed.

INTRODUCTION

Genus *Neodiaptomus* was established in 1932 by Kiefer to accomodate the species of *schmackeri* (= *D. schmackeri* Poppe & Richard, 1892) from China. Since then, ten species of this genus were described so far. It is interesting to note that the type localities of four species out of ten, are in the Nilgiri District of southern India. These are, *N. physalipus* Kiefer, 1935 ; *N. diaphorus* Kiefer, 1935 ; *N. lindbergi* Brehm, 1953 and *N. tiwarii* (Roy, 1981 in press). The remaining six species out of which four of them *N. schmackeri* (Poppe & Richard, 1892) ; *N. meggitti* Kiefer, 1932 ; *N. lymphatus* Brehm, 1933 and *N. mephistopheles* Brehm, 1933 are from China, Burma, Celebes and Java respectively. The rest of two species, *N. satanas* Brehm, 1933 and *N. kamakhiae* Reddiah, 1964 are from other parts of India. One more new species (*N. kherai*) was described from Nilgiri District by the author elsewhere.

In the course of studies of the Calanoid Copepods of India, an examination of the collections from the Nilgiri District of southern India as a part of the general survey of the fauna of Tamilnadu State in January-February, 1971, the species described here was encountered. It was collected from a swampy roadside nullah (below culvert) with emergent bushes.

MATERIAL AND METHODS

Samples of the surface plankton were collected by the author with the help of 29 cm diametre conical (0.5 mm to 1.0 mm mesh size) plankton tow-net for about ten minutes in each haul. All the specimens were preserved in 85% Ethyl alcohol (C_2H_5OH) including 2/3 drops of Glycerine.

The specific name of the new species *sewelli* is dedicated to honour late Dr. R. B. S. Sewell, former Director, Zoological Survey of India, Calcutta and a well known Copepodologist of India.

Neodiaptomus sewelli sp. nov.

(Figs. 1 a-d, adult female ; e-h, adult male)

Material-Holotype : Adult female, Nullah

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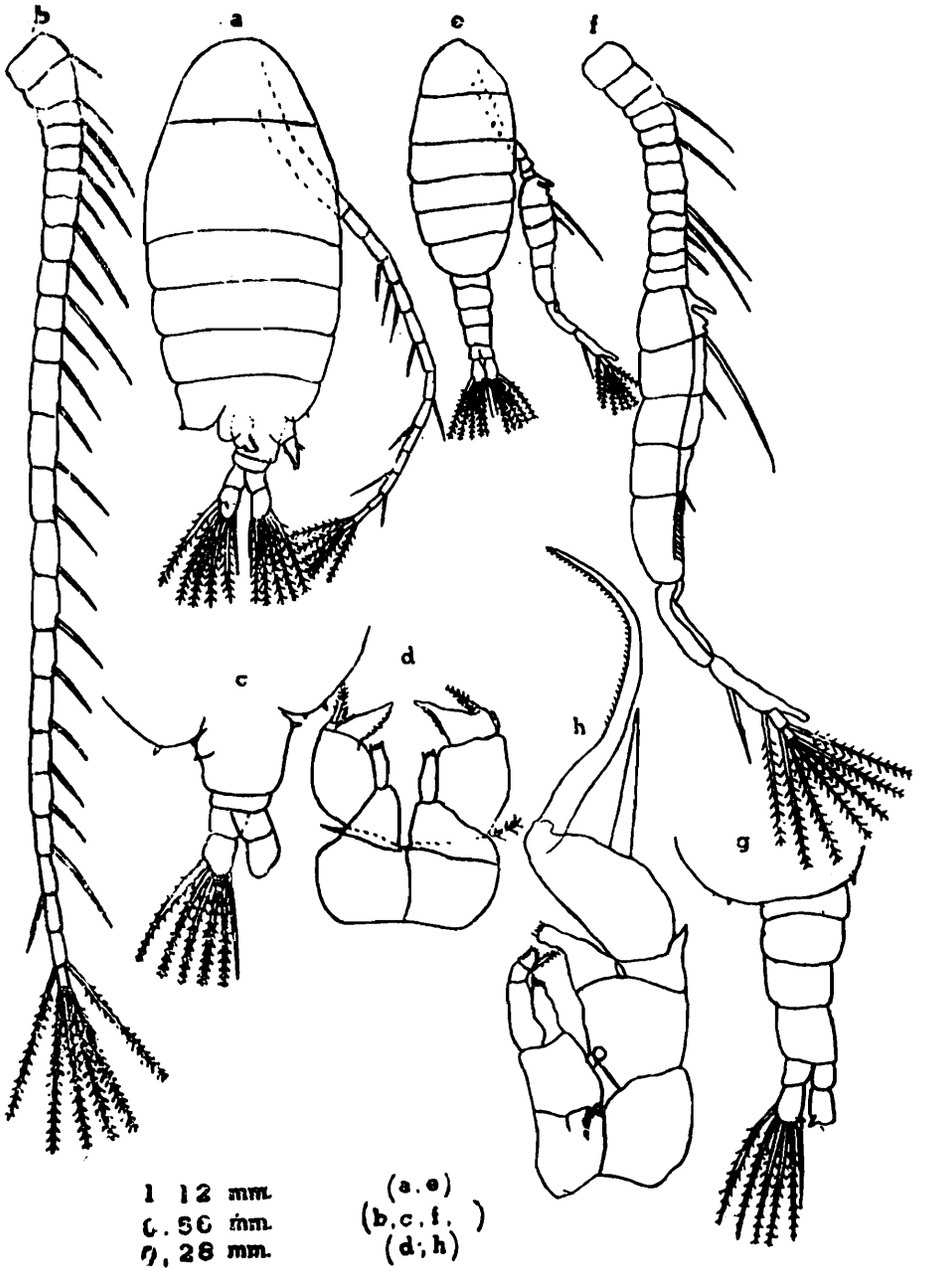

Fig. 1. *Neodiaptomus sewelli* sp. nov.

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

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

(below culvert) nearly 8 kms. east of Kargudi Forest Rest House, Nilgiri District, Tamilnadu, India, 12.2.1971 (*T Roy* Coll.) Regd. No. C 2578/2. *Allotype* : Adult male, with same data as the holotype, Regd. No. C. 2579/2. *Paratypes* : 178 females and 142 males with the same data as the holotype, Regd. Nos. C 2580-81/2. All the specimens including the non types have been deposited in the National Collections of the Zoological Survey of India, Calcutta.

Description of the adult female :

The body (Fig. a) robust, rounded in the anterior end of the cephalic region. The total length of the body excluding the caudal setae is 1.50 mm. The body is rather long with six imperfect divisions of the prosome. The wings of the last metasomal segment is asymmetrical. The postero-lateral corner of the outer lobe of the left wing has two spines ; similar spines appear on the right lobe but these seem to be closer than those of the left lobe. Cephalosome is about four times longer than the urosome. The urosome (Fig. c) is three segmented and the proportional lengths of the segments are shown in segment A.

Each ramus (Fig. c) bears six setae, excepting the innermost, the other five setae are almost equal in length and are plumose. The innermost naked seta is thin with a sclerotised knee a short distance from the base.

The first antennule :

When it (Fig. b) folds back to the body, it reaches a little beyond the total length of the body including the caudal setae. It consists of 25 segments. The arrangemnt of the setae are as shown in the figure.

The proportional lengths of the segments are shown in segment B.

The setae of the ultimate and penultimate segments are feathered.

Fifth leg :

Fifth legs (Fig. d) are somewhat symmetrical. It consists of two pairs of basipod, two pairs of exopod and one pair of endopod segments, segments of the first and second exopod and the endopod of the right being a little wider than those of the left.

The right fifth leg :

It (Fig. d) consists of two basipod, two exopod and one endopod segments. The first

Segments (A)	-1	-2	-3	caudal rami	=100
	47	11	20	22	

Segments (B)	1	2	3	4	5	6
	38	44	24	24	29	31
	7	8	9	10	11	12
	38	34	34	36	34	58
	13	14	15	16	17	18
	53	53	53	53	48	53
	19	20	21	22	23	24
	39	43	38	38	38	43

$\frac{25}{24}$ =1000

basipod segment is nearly circular. The second basipod segment is smaller than the first and possesses a little protuberance on its inner margin and a small seta on its outer margin. The first exopod segment is nearly cylindrical and is a little wider than its counterpart of the left leg and unornamented. The second exopod segment forms a claw, is knobbed at its base has a knotch on its outer side from which two unequal setae arise. The outer seta is serrated while the inner one is small and naked. The inner margin of the claw is set with 8-9 highly chitinised, conical denticles, the outer margin of which is naked. The endopod is cylindrical and is a little larger than its counterpart of the left leg, its tip reaching almost the distal end of the first exopod segment. It arises from the distal lateral corner of the second basipod segment. It is barrel-shaped with a fringe of fine hairs between the two spinules at its tip.

The left fifth leg :

The left leg (Fig. d) is similar to that of the right but differs only in the size and ornamentation of the claw and the size of the endopod. The second exopod segment (claw) is set with eight highly chitinised, conical denticles on the inner magin and three on its outer. The endopod is smaller than its counterpart of the right leg.

Description of the adult male :

The body (Fig. e) is smaller than the female, the total length of the body excluding the caudal setae being 1.10 mm ; with five imperfect divisions of the prosome. The wings of the last pedigerous segment are symmetrical, Each wing bears a small spine pointing downwards. Cephalosome is more than two times longer than the urosome. The urosome (Fig. g) is five segmented. The proportional length of the segments are shown in segment C.

Caudal rami are symmetrical. Each ramus bears six setae. Excepting the innermost, the other five caudal setae are equal in length and is plumose. The innermost naked seta is thin and short and has a sclerotised knee a short distance from the base.

The right antennule :

The right (Fig. f) antennule consists of 21 segments. The arrangement of spines and setae are as shown in the figure. The proportional length of the segments are shown in segment D.

Segments 17 and 18 are the longest and the ultimate segment, the 21st is the shortest of all. Segment 13 bears the longest, and the highly chitinised spine. The terminal process of the antepenultimate segment is

Segments (C)	-1	-2	-3	-4	-5	caudal rami	
	14	19	18	24	11	14	=100

Segments (D)	1	2	3	4	5	6	7	8	
	46	37	24	31	24	24	40	31	
	9	10	11	12	13	14	15	16	
	21	31	24	24	72	61	58	67	
	17	18	19	20	21				
	116	116	104	31	18				=1000

finger-like with a blunt end. The setae of the ultimate and penultimate segments are plumose.

Fifth leg :

The fifth leg (Fig. h) is asymmetrical. It consists of right and left halves.

The right fifth leg :

Right fifth leg (Fig. h) consists of two basipod, three exopod and one endopod segments. The first basipod segment is nearly circular. Inner margin of the second basipod segment bulges out. Proximal 1/3rd of the inner margin of the second basipod segment has one small lateral swelling. Outer margin of it is unornamented. The first exopod segment is small and has one strong spinous process on its outer distal corner. The second exopod segment is the strongest and widest of all. It tapers towards the distal end, and bears a strong spine on the middle of its outer margin. The third exopod segment is a long, stout and recurved claw ; bearing fine hairs on the 2/3rd of the inner margin from distal portion and unornamented on the outer margin of it. The endopod is large and broad-based originating from the distal lateral corner of the inner margin of the second basipod segment and is fringed with fine hairs between the two spinnules on its tip.

The left fifth leg :

The left fifth leg (fig. h) consists of two basipod, three exopod and one endopod segments. The first basipod segment is nearly circular and smaller than its counterpart of the right fifth leg. The second basipod segment bulges on the proximal region of the inner margin and has a small lateral swelling on the middle of it. The first exopod segment is thin and almost equal in length of the second basipod segment. The second exopod segment is very small and nearly 1/3rd as long as the first. The third exopod segment is represented by a small thick and recurved spine and a seta, both of which arise terminally on the second exopod segment. Both the spine and the seta are set with fine hairs. The endopod is smaller than its counterpart but the margins are more wavy. Tip of the endopod is fringed with a set of fine hairs.

REMARKS

N. sewelli differs from *N. schmackeri* (Poppe & Richard, 1892) in the length of the antennules and in the structure of the claw of the male right fifth leg and the shape and denticulation of the both sides of the claw of the female fifth leg. The new species differs from *N. meggitti* (Kiefer, 1932) in the shape and size of the genital segment of the female. It also differs from *N. lymphatus* and *N. mephistopheles* (Brehm, 1933) in the absence of serrations on the process of the antepenultimate segment of the right antennule of the male and from *N. physalipus* and *N. diaphorus* (Kiefer, 1935) in the shape of the process of the antepenultimate segment of the right antennule of the male and in the shape of the claw of the male and female fifth legs. New species differs from *N. lindbergi* (Brehm, 1953) in the length and ornamentation of the tip of the endopod of the female fifth legs. In the male, it differs in the shape and ornamentation of the tip of the endopod of the right fifth leg. *N. satanas* (Brehm, 1933) differs from the new species in having a serrated process of the antepenultimate segment of the right antennule, a small lateral process at the outer distal corner

in addition to the curved lateral spine of the second exopod segment and in the shape of the endopod of the right fifth leg of the male. In the female, it differs only in the lack of ornamentation at the tip of endopod of the right fifth leg. New species differs from *N. kamakhiae* (Reddiah, 1964) in the position of the lateral spine of the second exopod segment of the right fifth leg and in the shape of the endopod of the right male fifth leg. In the female, it differs only in the shape of the genital segment, shape and denticulation of the claw and in the size of the endopods of the fifth leg. New species differs from *N. tiwarii* (Roy, 1981 in press) in the structure of the claw and endopod of the right fifth leg and in the shape of the process of the antepenultimate segment of the right antennule of the male. In the female, it differs only in the nature of denticulation of the claw and size of the endopods of the fifth leg.

N. sewelli differs from all the species in the structure and degree of denticulation of both sides of the claw of the left fifth leg and in the shape of the genital segment of the female. In the male, it differs in the shape of endopods and in the shape of the process of the antepenultimate segment of the right antennule.

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