

**CANDONOPSIS URMILAE A NEW SPECIES OF SUBTER-  
RANEAN CRUSTACEA (OSTRACODA : CANDONIDAE)  
FROM INDIA**

*By*

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INTRODUCTION

Amongst known Indian freshwater Ostracods, family Candonidae is poorly represented. Only two species of the genus *Candonopsis* Vavra 1891 viz., *C. putealis* (Victor and Fernando, 1979) and *C. kingsleii* (Bhatia and Singh 1970) from India. The present species is an addition to the genus and to the fauna of India. I have followed the terminology of Neale (1977) in this paper.

***Candonopsis urmilae* sp. nov.**

( Figs. 1-5 )

**Diagnosis :** Valves subreniform in lateral view, comparatively higher in relation to length, left with dorsal protuberance overlapping the right dorsally, surface pitted ; mandibular palp much elongated with endopod segment-3 two and half and segment-4 about seven times as long as wide and terminal claw one and half times as long as fourth segment ; furcal claw longer than the ramus.

**Description ; Male carapace (Fig 4a, b, c) :**

Carapace white, finely pitted, with fine hairs, marginal pore canals present, subreniform in lateral view, left valve larger and dorsal protuberance overlap the right, anterior margin broadly rounded, antero-dorsal margin sinuate, dorsal margin somewhat straight, posterior rounded and subacuminate posteroventrally, ventral margin sinuate medially,

greatest height posteromedial and 52 percent of its length ; in dorsal view elliptical, more acuminate anteriorly, maximum width medial and one third of the length. Anterior inner lamella broad, muscle scar typical candonine.

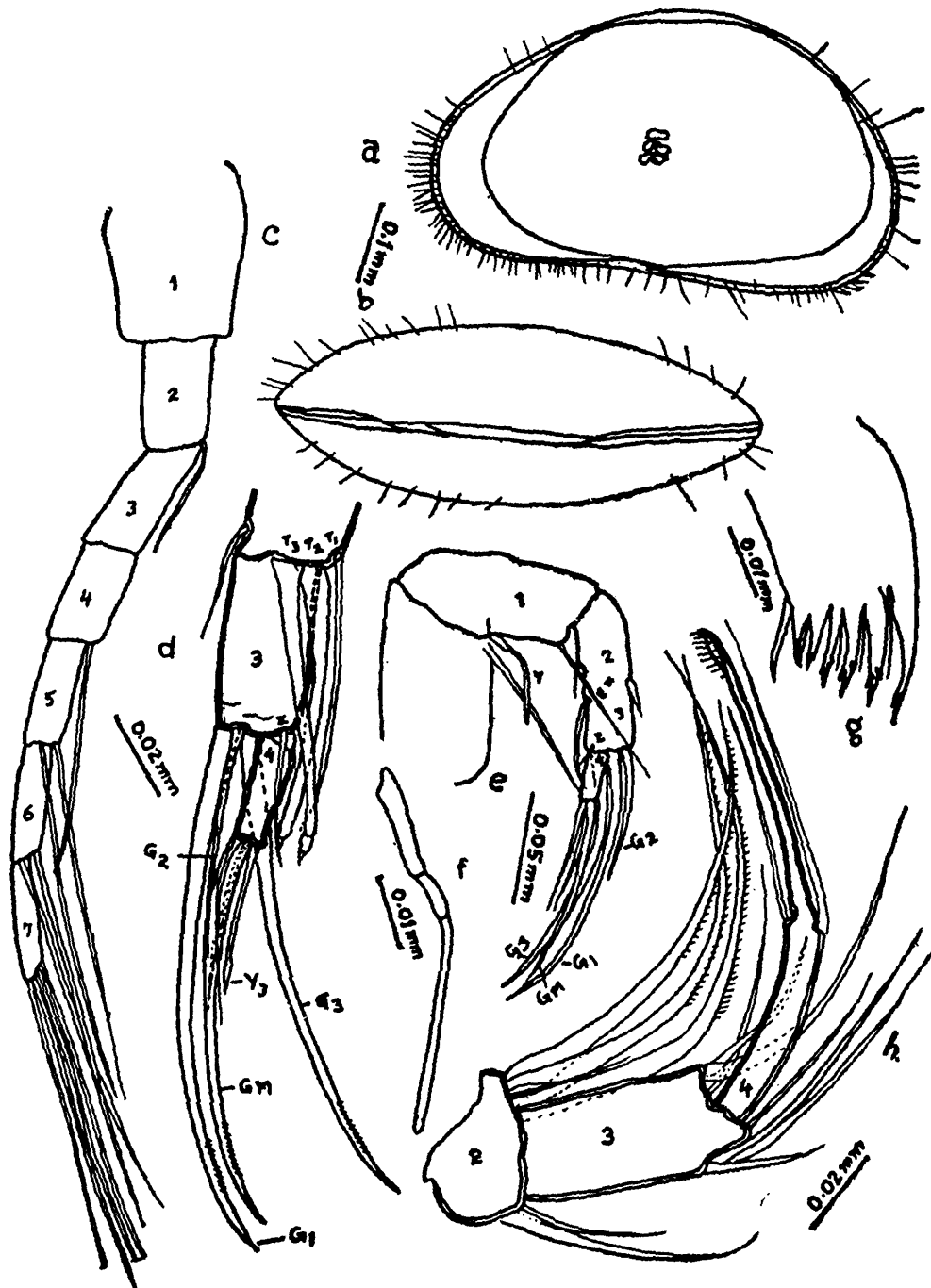


Fig. 1. a. Lateral view of shell ♀ b. Dorsal view of shell ♀  
c. Antennule ♂ d. Antenna (distalportion) ♀  
e. Antenna ♀ f. Y. Seta g. Mandibular teeth  
h. Mandibular palp.

*Antennule* (Fig. 1 C) : Seven segmented, relative length 5 : 3 : 3 : 3 : 3 : 3. 5 : 3. 5, natatory setae on distal four segments.

*Antenna* (Fig. 1d, f, 5a) : Natatory setae absent, endopod 4 segmented length ratio 6 : 3 : 3 : 2, proximal seta simple ; Y seta 57 percent of first segment, distal segment of Y seta 60 percent of its total length ; segment two with one seta, and three inner setae ( $T_1$   $T_2$   $T_3$ ) of which  $T_2$  and  $T_3$  are male bristles ending in conical bulbs ; third segment with two strong long serrated claws (G 1, G 3) and a smooth slender claw (G2) and a 'Z' seta ; fourth segment with one long stout serrated claw (GM), a narrow seta (Gm), an aesthetasc (Y3).

*Mandible* (Fig. 1g, h.) : Multidentate teeth ; mandibular palp with 4 endopod segments, segment-2 with two simple setae on outer, three long plumose and one slim setae on inner margin ; segment-3 with three long and one small simple setae on outer and one long and two slender setae on inner margins. Segment-4 with two long subequal simple setae and a long terminal claw 1.5 times longer than segment 4 while segment-3 two and half and segment-4 about seven times as long as wide.

*Maxillule* (Fig 2a) : Third lobe with 2 smooth spines and 2 simple setae.

*Maxilla* (Fig. 2 b, c, d.) : Prehensile palps asymmetrical, right palp very large with convex dorsal and a toe-like termination, left much smaller with convex ventral margin, exopod with three setae.

*Thoracopod-I* (Fig. 2 e,  $e_1$   $e_2$ ) : Protopodite with a seta in the middle of anterodorsal side ; endopodite 4 segmented ; second and third endopods fused, with distinct suture, length ratio of 4 segments 25 : 11 : 10 : 3 ; each segment with anterodistal seta ; terminal claw smooth about 90 percent of the combined length of 4 endopodial segments excluding claw ; shows similarity with *Candonopsis boui* Dan. In male 4th segment of right leg is nearly half of the left showing asymmetry.

*Thoracopod-II* (Fig. 2 f) : Four segmented, penultimate segment feebly separated from segment 2 ; segment 4 very

small ; segment 1, 2, 3, with one small seta at their distal ends ; segment 4 with three setae, one anteriorly directed

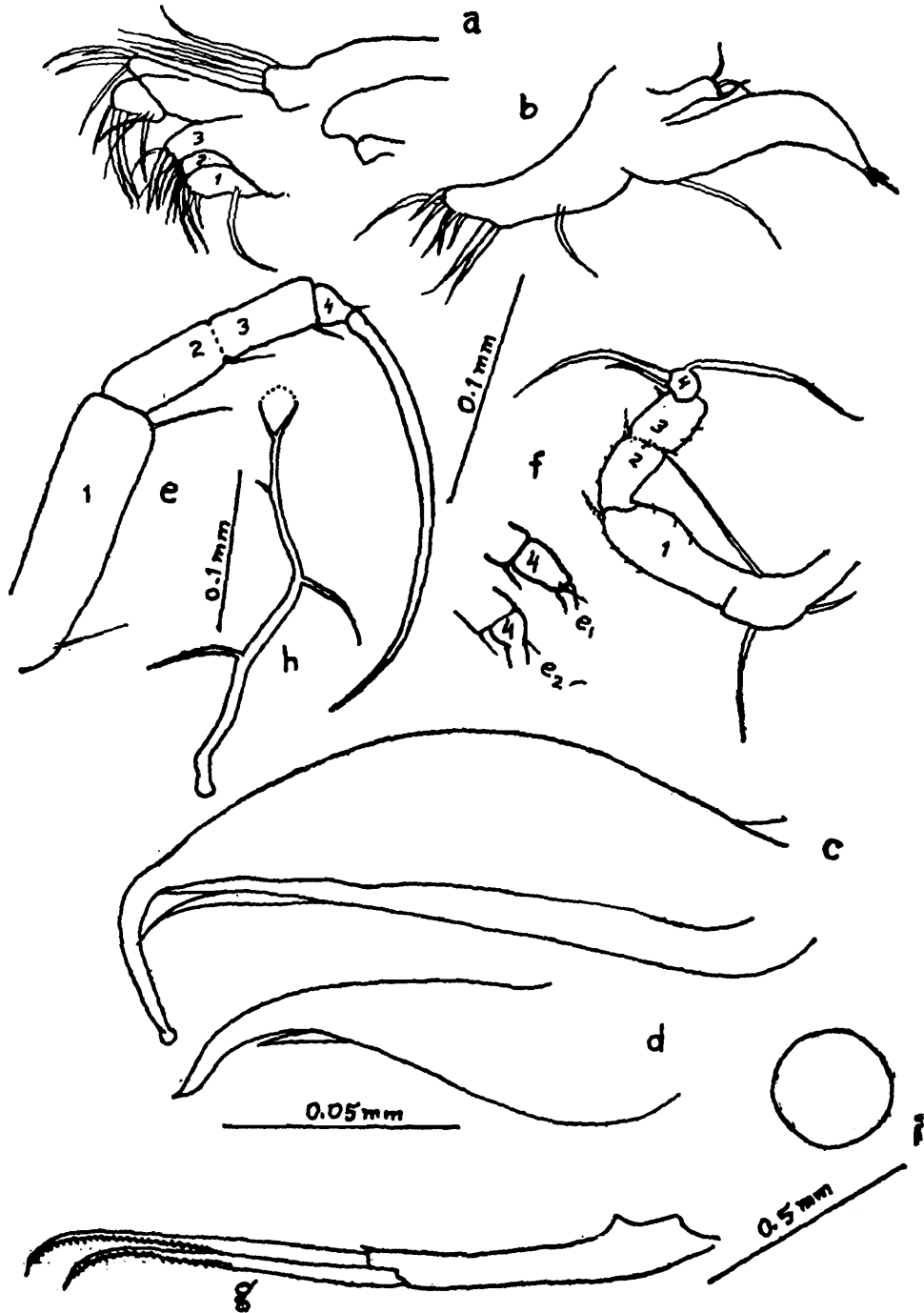


Fig. 2. a. Maxillule ♀ b. Maxilla ♀ c. & d. Right and left palp (Maxilla) ♂ e. Thoracopod I ♀ e<sub>1</sub> distal segment of left thoracopod I ♂ e<sub>2</sub> distal segment of Right thoracopod I. ♂ f. Thoracopod II ♀ g. Furca ♀ h. Chitin support, Furca ♀ i. egg size.

(reflexed) and long seta reaching the first segment, second and third small setae ; dorsal (anterior) margin of 3rd and 1st and ventral (posterior) margin of 2nd and 1st with 3 to 4 minute spines or denticles each ; all setae in thoracopod II smooth.

*Furca* (Fig. 3 g, h, 5b) : Symmetrical, ramus short, stout, ventral margin proximally curved gently ; equal terminal and subterminal claws with distal curvature ; dorsal seta absent, terminal seta very minute ; distal half of claws serrate ; claws longer than the length of the ramus ; furcal chitin support similar to *Candonopsis kingsleii* with distinct sexual dimorphism.

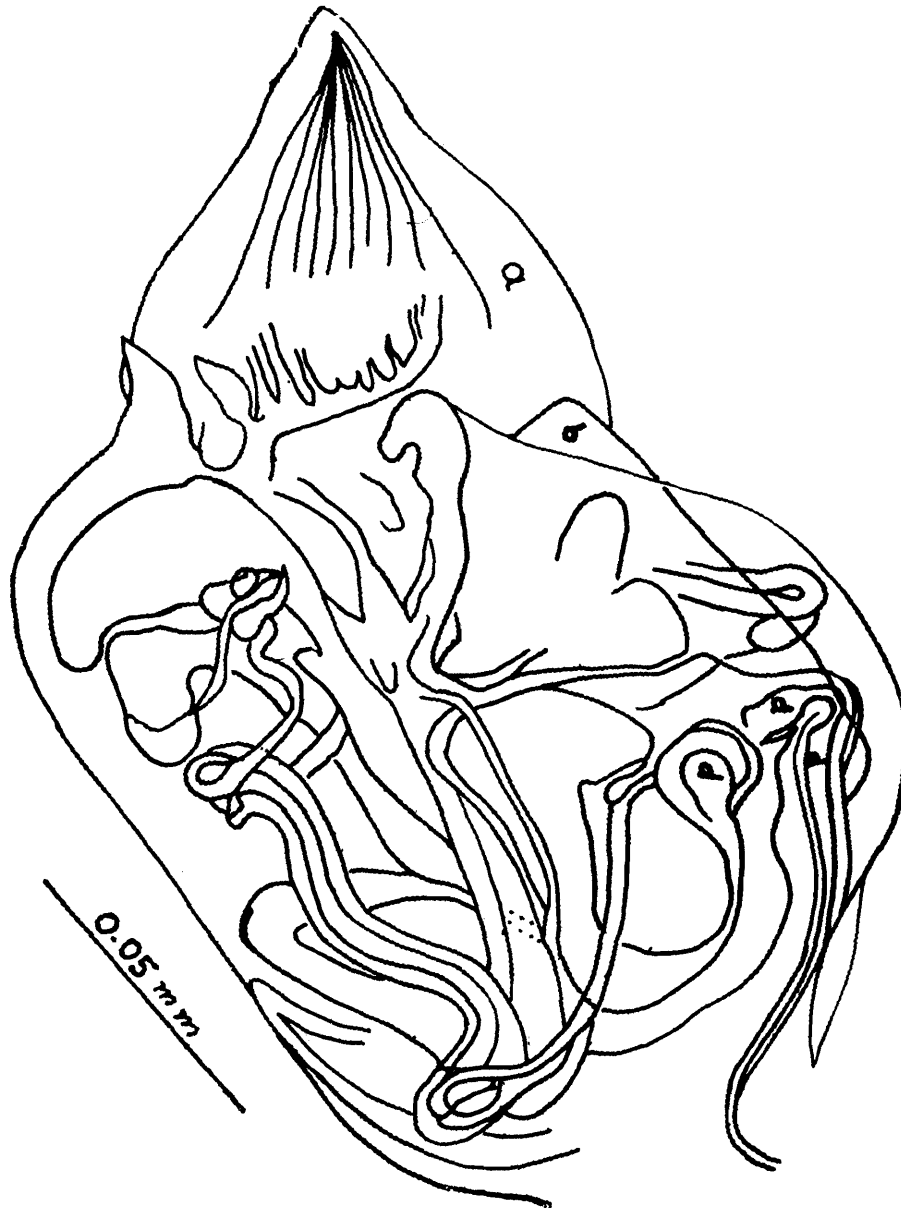


Fig. 3. Magnified view of Hemipenis.

*Zenker's organ* (Fig. 5 c.) : With 7 whorls of spicules.

*Hemipenes* (Fig. 3, 5d) : Rectangular in outline ; lateral lobe 'a' triangular with wide base and acute end, dorsal lobe round, median lobe (b) reduced ; labyrinth (d) rectangular ; piece 'M' somewhat like *Candonopsis boui* Dan.

Eyes : Absent.

*Female* : (Fig. 1a, b, 4d) : Shell length smaller than and height equal to male, dorsal protuberance prominent ; second antenna with only 3 segments, segment 2 and 3 fused, claw

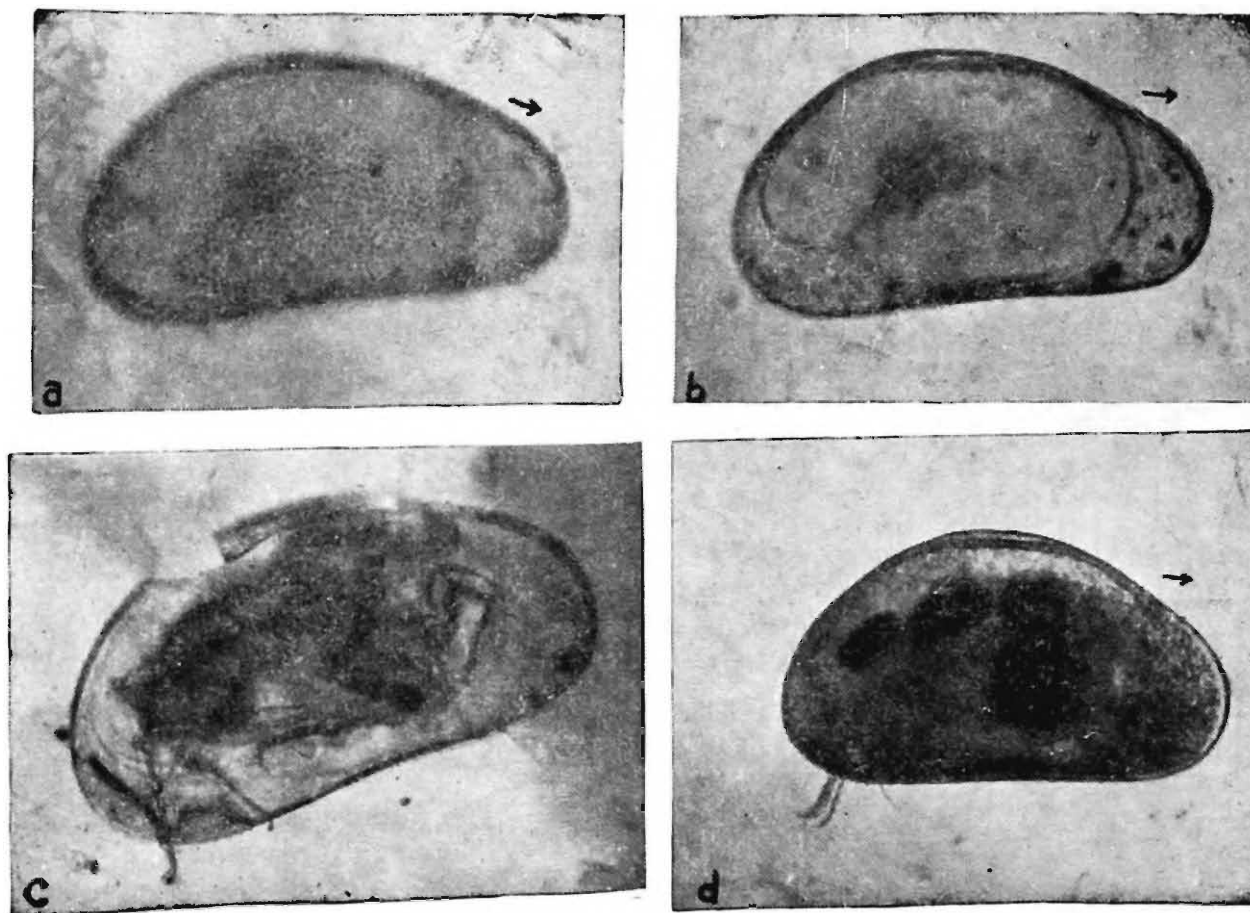


Fig. 4. a. Outer view of shell surface ♂ Photographs  
 b. Inner view of shell ♂ c. Internal Organs after  
 removal of right valve ♂ d. Female

G2 small but stout, only one 't' seta present ; chitin support of furca different from male as in *C. kingsleii* Br. & Rob. (Rome 1969). Maxillary palp with 3 small setae.

*Holotype* : 1 ♂ (on slide No. 1) Registration No. A-1032, Zoological Survey of India, Patna, loc. Monghyr, Bihar, India ; from a well (depth 25 ft) in Belan Bazar ; Coll. L. P. Gupta 28-IV-1983.

*Paratype* : 2 ♂ ♂ in spirit Reg. No. A-1033. 4 ♀ ♀ slides No. 2-5 Reg. No. A-1034 15 ♀ ♀ in spirit Reg. No. A-1035, Zoological Survey of India, Patna ; Details same as for Holotype.

*Discussion* : In spite of marked difference *Candonopsis urmilae* Gupta has been placed in *kingsleii* group of the genus. The shape of *C. urmilae* shows similarity in shell outline with *C. boui* Danielopol 1980, *C. trichota* Schafer 1945 and *C. sumatrana* Klie 1933.

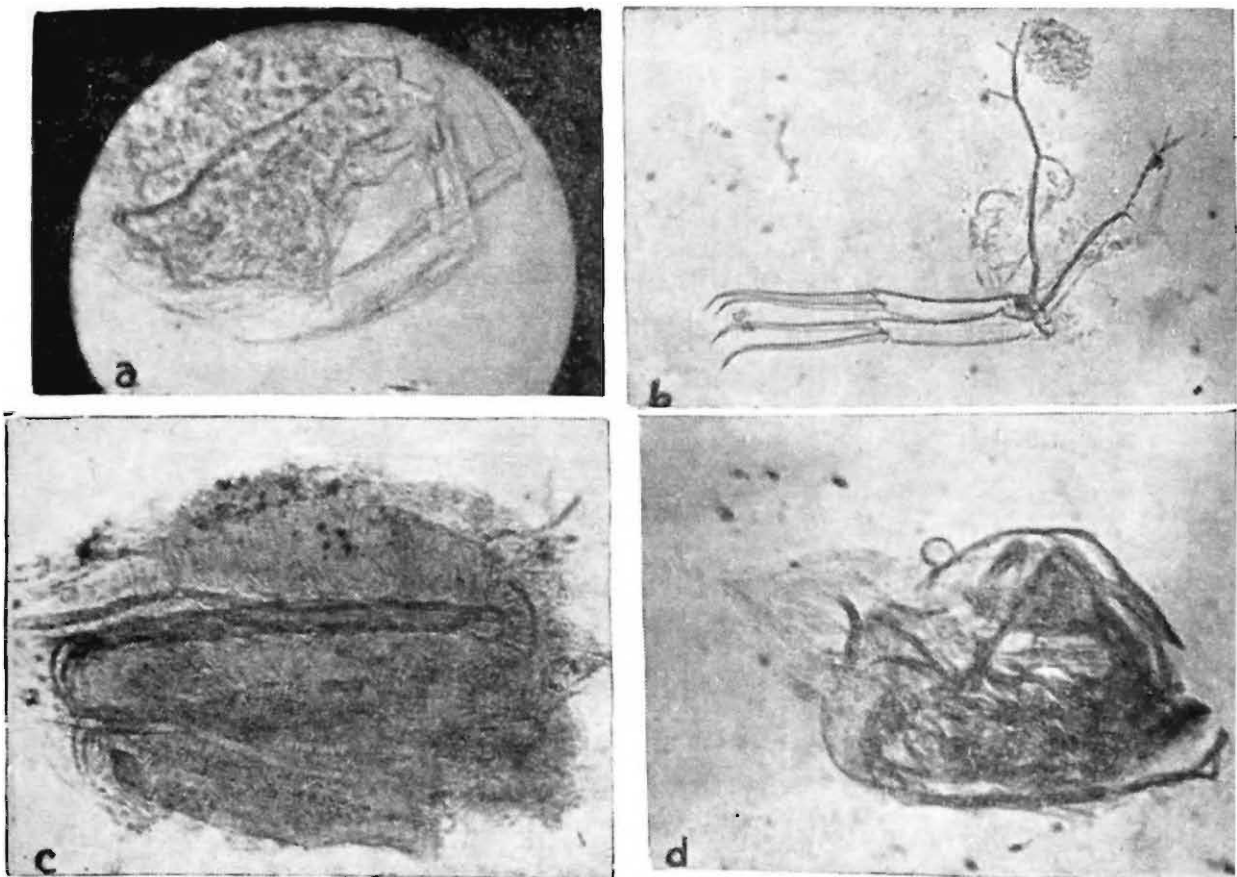


Fig. 5. a. Antenna (dissected) ♂ b. Furca ♂ c. Zenker's Organ ♂ d. Hemipenes ♂

Pitted surface and higher unequal valves in *C. urmilae* are features differing from elongated and smooth valves found in *kingsleii* group of species.

The mandibular palp has extremely long segments, like The terminal segment of mandibular palp is one and half times longer than the fourth segment while in *C. kingsleii*, (Sars 1928) and *C. hummelincki* Broodbakker 1983 it is equal.

The most interesting feature and variation from other species of *Candonopsis* is the furcal, claw which is longer than the furcal ramus. Presence of stronger teeth on serrated

claws in *C. urmilae* is very variable and does not seem to indicate any significant specific feature. There is a general reduction in number of the "t" and "z" setae in both male and female. Only one "z" and one "t" setae in female and one "z" and 3 "t" in male indicate more effective subterranean adaptation in *C. urmilae*. The aesthetasc "Y" is much longer as in other subterranean species. This species was collected from the same locality where from *Indocandona* Gupta (1984) has been described recently.

#### SUMMARY

A new species of the genus *Candonopsis* Vavra, has been described from subterranean water of Bihar, India. Its relationship with other subterranean species has been discussed.

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