

**CONCHOECIA INDICA, A NEW OSTRACOD FROM THE
SOUTH-WEST COAST OF INDIA**

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ABSTRACT

Plankton collections obtained during the research cruises of R.V. *VARUNA* along the south-west coast of India and the Laccadive Sea were examined for a detailed study of ostracods. Specimens of a hitherto undescribed species of *Conchoecia* were obtained from six stations. The species is described here as new to science and is placed under the *magna*-group of species of the genus.

INTRODUCTION

IN the plankton collections made during the research cruises of R.V. *VARUNA* between 1963 and 1964 along the west coast of India and the Laccadive Sea, ostracods belonging to the family Halocypridae, particularly of the genus *Conchoecia* were abundant in most of the samples from the oceanic waters. The plankton samples from six stations of this area have brought to light the occurrence of a hitherto undescribed species of this genus which is described here as new to science.

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Conchoecia indica sp. nov.

(Figs. 1-4)

Material: R.V. *VARUNA* stations: 2067: 09°50'N, 75°38'E; 18-12-'63; 200-0 m (2M, 1F). 2118: 08°10'N, 76°35'E; 6-3-'64; 200-0 m (40M, 18F, 160J). 2127: 08°50'N, 75°25'E; 7-3-'64; 200-0 m (7M, 3F). 2143: 10°00'N, 75°40'E; 20-3-'64; 175-0 m (1F). 2172: 08°10'N, 76°33'E; 6-4-'64; 180-0 m (1F). 2181: 08°50'N, 76°02'E; 6-4-'64; 100-0 m (5M, 3F). All samples were collected with the Indian Ocean Standard Net in vertical tows.

Holotype: CMFRI Cat. No. 180; mature male, length 1.46 mm, height 0.83 mm; from Stn. 2067.

Allotype: CMFRI Cat. No. 181; mature female, length 1.53 mm, height 0.85 mm; from Stn. No. 2118.

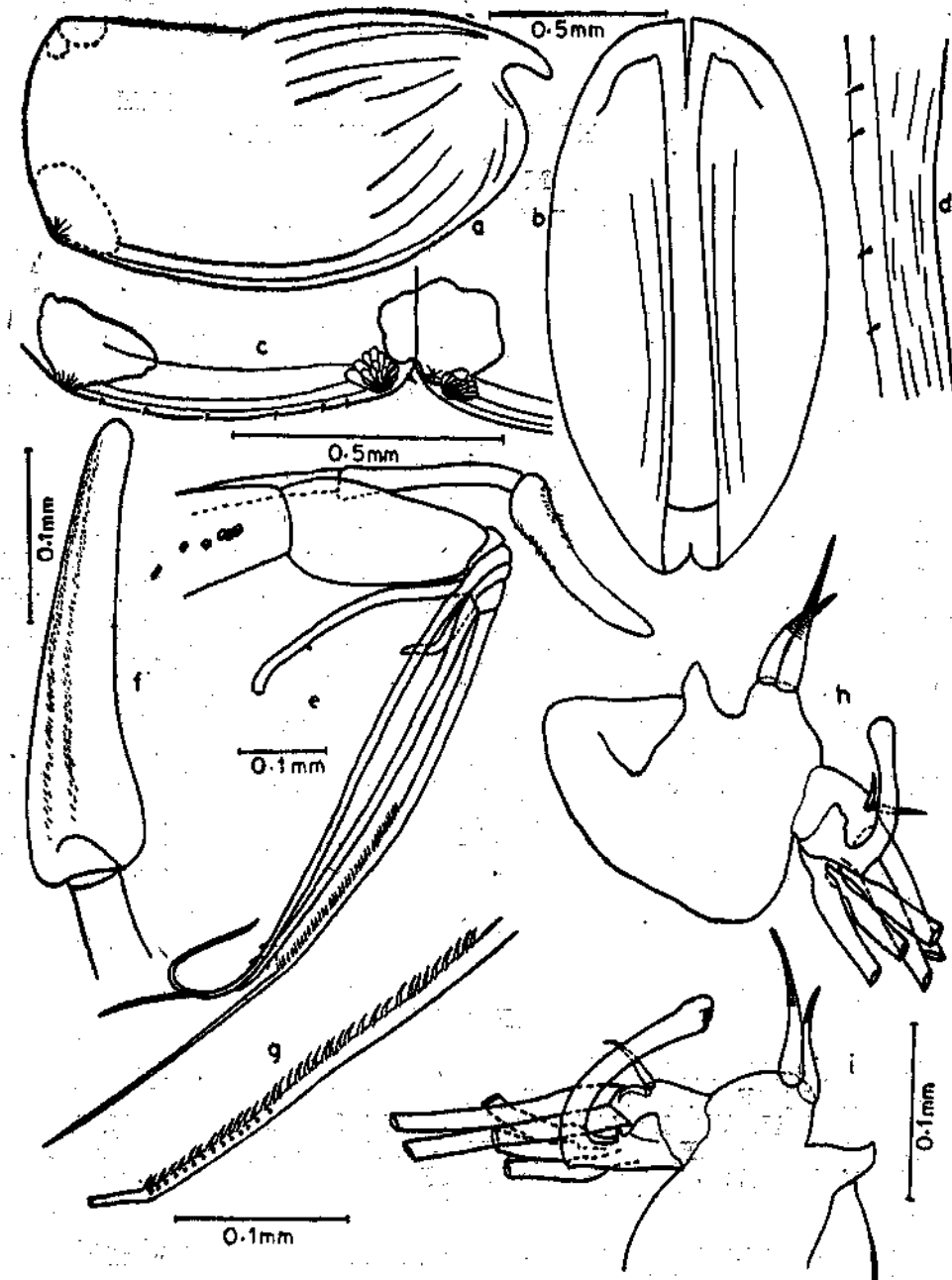


Fig. 1. *Conchoecia indica* sp. nov. Male. a. lateral view of carapace; b. ventral view of carapace; c. posterior margin of carapace, from inside; d. carapace margin showing spine-like hairs; e. frontal organ, ventral view; f. detail of armature; g. e-seta of first antenna, detail of armature; h. left antenna endopodite; and i. right second antenna endopodite.

Paratypes : CMFRI Cat. No. 182 ; 54 males, 27 females and 160 juveniles.

Diagnosis : Carapace with faint striations ; small spinules along selvage of ventral and posterior shell margin and a spinule at postero-dorsal corner of right valve ; a group of dorso-medial glands present in male ; principal seta of male with 37-40 spines, with distal spines forming 14-18 pairs and rest alternating ; copulatory limb with six transverse muscle bands ; second segment of first antenna of female with a short, bare, dorsal seta.

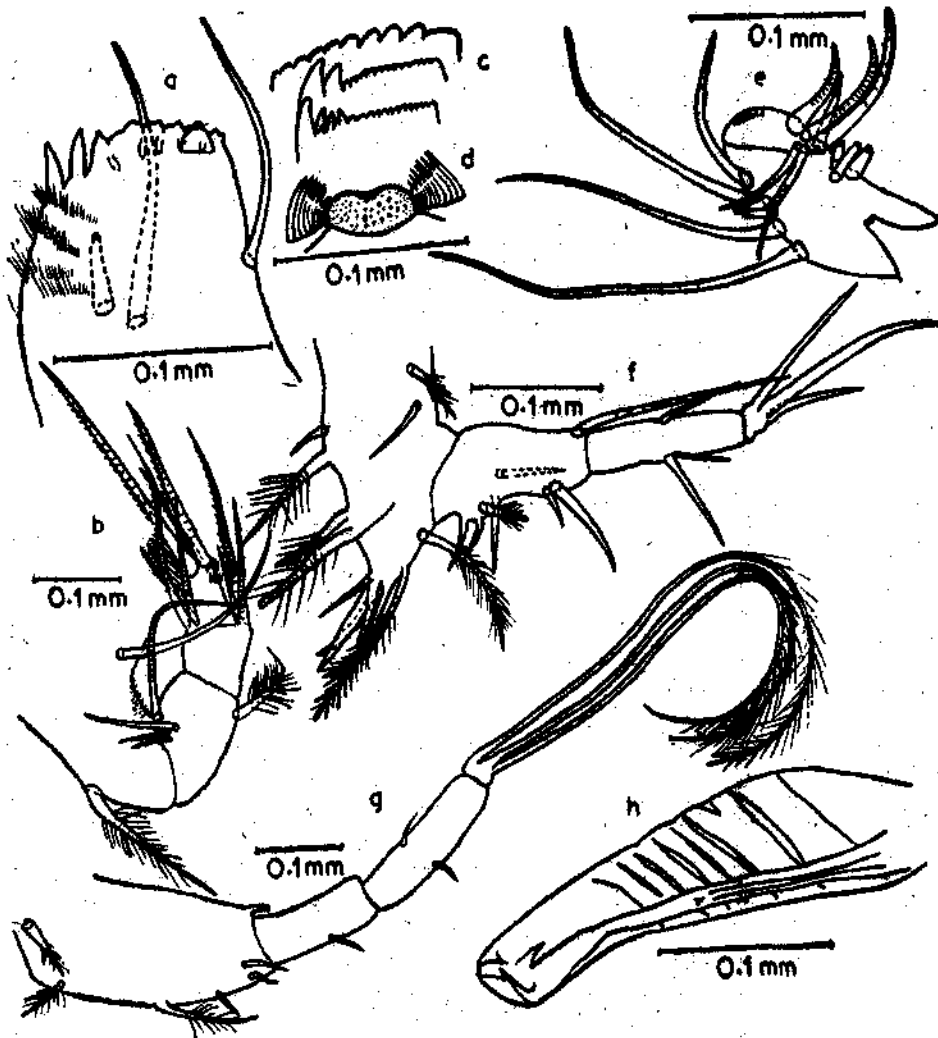


Fig. 2. *Conchoecia indica* sp. nov. Male. a. mandible-toothed edge of the basale ; b. mandible endopodite ; c. mandible tooth lists and toothed edge of the coxale ; d. labrum ; e. maxilla ; f. fifth limb ; g. sixth limb ; and h. copulatory limb.

Description of male: (Figs. 1 a-i and 2 a-h).

Carapace: Length 1.35 to 1.46 mm (mean 1.37 mm); relative height more than half carapace length; disto-dorsal and disto-ventral outline of carapace smoothly curved (Fig. 1 a, b); disposition of asymmetrical glands as in genus; postero-dorsal extremity of each valve with a dense cluster of medial glands which are absent in female (Fig. 1 c); shell with faint longitudinal striations on rostral shoulders and on ventral margins; small spinules present along selvage of ventral and posterior shell margin (Fig. 1 d); postero-dorsal corner of right valve with a small spine.

Frontal organ: Shaft ends in level with or just short of first antenna (Fig. 1 e, f); capitulum long, slender and declivous; fine short hairs present along ventral and proximo-dorsal surfaces.

First antenna (Fig. 1 e, g): Segments bare and with dark pigment spots in first segment; *a*-seta when adressed extends beyond joint between first and second segments; *b* and *d*-setae are shorter than *e*-seta, and have a few distally pointing spinules situated in level with distal end of *e*-seta armature; *c*-seta short; *e*-seta armature consists of 37-40 spines, with distal spines forming 14-18 pairs and others alternate.

Second antenna (Fig. 1 h, j): Protopodite and exopodite typical without any additional armature; endopodite *a*-seta more than half length of *b*-seta; processus mamillaris blunt; *c* and *d*-setae slender and bare; *e*-seta absent; *f*-seta shorter than *g*-seta, but both terminally thin walled, transparent and bare; *h*, *i* and *j*-setae short with well developed shafts; left hook appendage with almost straight base and then recurves gently (about 30° or so) terminating with a swollen blunt tip; right hook appendage longer beyond basal angle, and curves to terminate in a swollen bulb with subterminal ridges.

Mandible (Fig. 2 a, b and c): Toothed edge of basale consists of typically 2 tubiform teeth followed by 6 wedge-shaped teeth with a single broad outer tooth (Fig. 2 a); groups of hairs present near bases of tubiform teeth; outer setae project just beyond level of teeth; a patch of fine hairs present inbetween toothed edge and articulation with endopodite segment; inner edge of first endopodite segment with a single long seta which extends to tip of short setae at end joint; towards base of segment, one long and 2 short setae arranged in a line; distal half of external margin of outer segment with a patch of fine hairs.

Toothed edge of coxale with 10 blunt teeth; distal tooth-list consists of 2 large teeth followed by about 14-16 smaller teeth; proximal tooth-list with a large tooth followed by 3 smaller teeth besides having a series of minute teeth unlike in female which has 3 larger teeth alternated by about 17 smaller teeth.

Maxilla (Fig. 2 e): Basal seta present; first endopodite segment with 6 anterior, one lateral and 3 posterior setae; distal edge of segment with about 6 spinules near its articulation with second segment; end-joint with 5 bristles of which 3 bristles claw-like, posterior one relatively longer and distal 2 bristles subequal.

Fifth limb (Fig. 2 f): Unjointed protopodite with 2 low bulges; proximal bulge with one short bare and another long, plumose bristle while distal bulge has 2 plumose and one short bare bristle; endopodite with 7 bristles of which 2 claw-like; first exopodite joint distally on its dorsal surface, a long bristle reaching beyond terminal joint; proximally along ventral margin are present 2 short, bare bristles and distally

one shorter and 4 longer bristles; second joint with a long, bare bristle at middle of dorsal margin and ventrally one short and one long, bare bristles; end-joint with 3 long, curved, claw-like bristles; epipodial appendage with 4 + 5 + 4 plumose bristles.

Sixth limb (Fig. 2 g): Sexually dimorphic; male epipodial appendage has 5 + 5 + 5 bristles; wedge-shaped endopodite with one plumose bristle; first exopodite joint has on its dorsal surface distally one long, bare bristle, 3 short, bare bristles distally along ventral margin and 2 longer plumose bristles proximally; 2nd joint has one bare ventral bristle; 3rd joint has 2 short bare bristles and end-joint has 3 long plumose bristles, as long as length of limb; female epipodial appendage has 5 + 4 + 6 bristles and end-joint has one long claw-like and 2 short bare bristles.

Copulatory limb (Fig. 2 h): Proximally broader and tapers distally; tip obliquely rounded; 6 transverse muscle bands present.

Description of female: (Fig. 3 a-g)

Carapace (Fig. 3 a, b): Length 1.45 to 1.55 mm (mean 1.48 mm); relative height more than half carapace length; hair-like spinules present along selvage of ventral and posterior shell margin; postero-dorsal corner of right valve with a small spine; striations faint.

Frontal organ (Fig. 3 c): Extends beyond limb of first antenna; stalk and capitulum indistinct; capitulum broader, swollen distally, slightly recurved at tip ending in a pointed tip with a second subterminal spine and with spinules especially along dorsal and ventral margins.

First antenna (Fig. 3 c): Second segment with a short, bare, dorsal seta; e-seta over twice length of a to d-setae; distally to sensory filaments e-seta has short hairs along distal third of its trailing edge.

Second antenna (Fig. 3 e): a and b-setae of endopodite bare; a-seta more than half the length of b-seta; second segment bare; c, d and e-setae absent; g-seta longer flattened terminally and with fine spinules along edge of flattened part; other setae long, sub-equal, thin-walled and without shafts.

Labrum (Fig. 2 d): Hyaline membrane anteriorly emarginate.

Caudal furca (Fig. 3 g): First pair of hook spines just fail to reach level with ends of second pair; an unpaired seta present dorsal to hook spines; a covering of fine hairs present between lamellae.

Measurement: On the basis of the length and height of the carapace it has been possible to separate developmental Stages III, IV and V (Fig. 4) of the species as follows:

No. of Specimens	Length (mm)		Height (mm)		Stage
	Range	Mean	Range	Mean	
20	0.6-0.7	0.67	0.35-0.37	0.36	III
58	0.8-0.91	0.87	0.45-0.51	0.48	IV
13	1.1-1.2	1.13	0.63-0.65	0.64	Male } Female }
39	1.1-1.23	1.12	0.60-0.65	0.61	

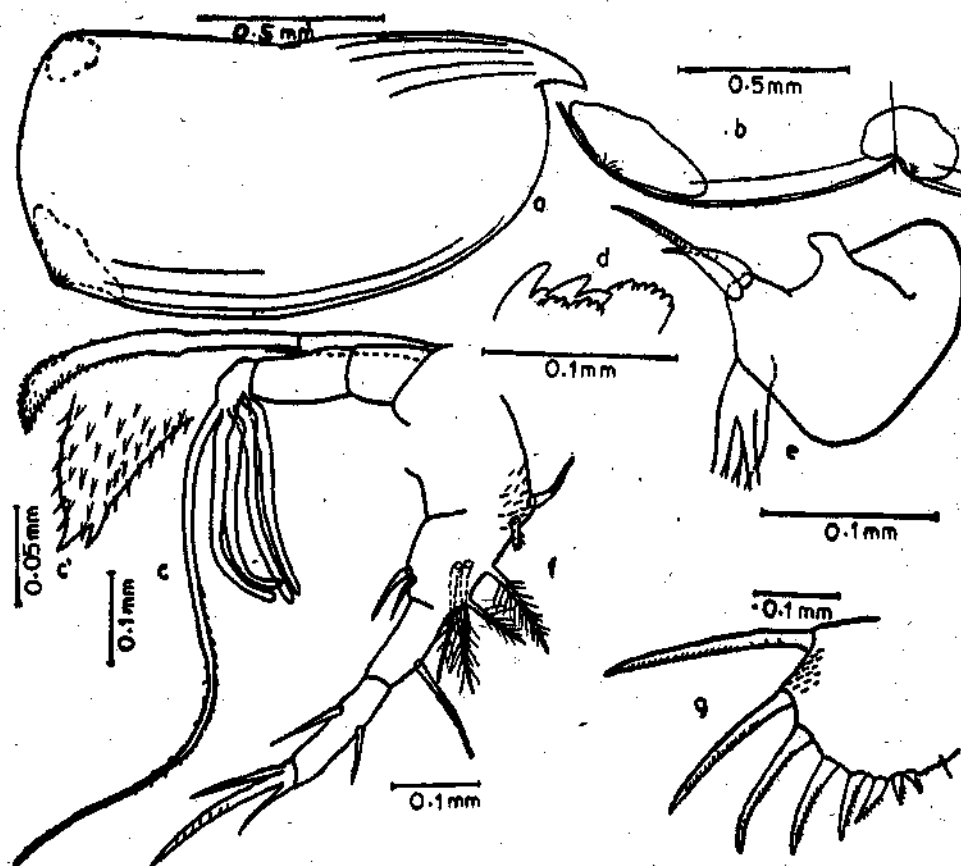


Fig. 3. *Conchoecia indica* sp. nov. Female. a. lateral view of carapace; b. posterior view of carapace, from inside; c. frontal organ and first antenna; c. tip of frontal organ; d. toothed edge of coxale; e. endopodite of second antenna; f. sixth limb; and g. furca.

Stage I and II were not represented in the samples. Figure 4 shows that the growth is linear and the growth rate from stage to stage is about the same. The gaps in between the stages show the rate of increment in size between different moults.

REMARKS

Müller (1906) described and listed 96 species of *Conchoecia* which he relegated under what he considered 15 natural species groups. The differences between the species groups are not sufficiently significant to justify creating higher categories for them and as such Skogsberg (1920) also adopted Müller's system without modifications. The new species described here shows resemblance to the *magna*-group of species which includes *C. magna* Claus, *C. lophura* Müller, *C. parvidentata* Müller, *C. hyalophyllum* Claus, *C. spinirostris* Claus, *C. porrecta* Claus, *C. macrocheira* Müller, *C. subarcuata* Claus and *C. parthenada* Müller. The *magna*-group by itself consists of a heterogeneous assemblage of species though broadly agreeing in the shape

of the carapace which is more or less similar in all the species with the male shell moderately elongated, not tapered anteriorly and postero-ventral corner moderately rounded. The female shell in some species is tapered anteriorly, postero-dorsal

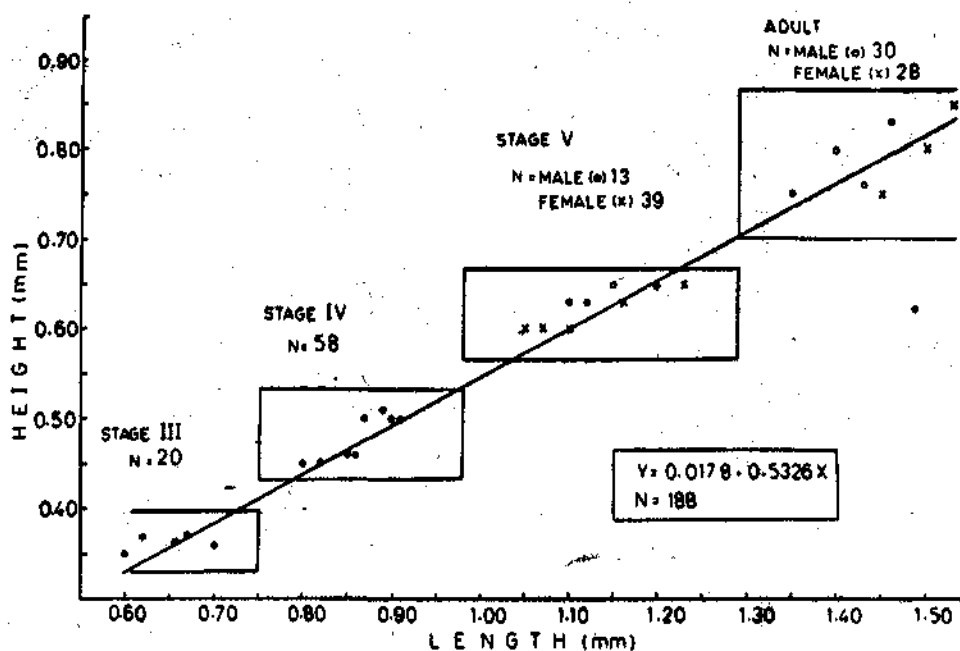


Fig. 4. Developmental stages III, IV and V and growth rate of *Conchoecia indica* sp. nov.

corner rounded and ventral margin shallowly concave. The shell has striations or sculpturing in all the species, though not always noticeable. The asymmetrical glands are present in the usual positions. Among the *magna*-group of species *C. indica* sp. nov. shows closer affinities to *C. parvidentata* Müller, but differs from it in the general shell structure, shape and disposition of male and female first antenna and in the structure of the endopodite of the second antenna.

The female specimens of *C. indica* sp. nov., however, show some affinities to *C. vitjazi* Rudjakov (1962) in characters such as the general shape of the carapace, in the structure and disposition of the frontal organ, but differs in size (1.45-1.55 versus 2.20-2.30 mm), absence of 'V'-shaped sculpturing; presence of a dorsal seta on second segment of female first antenna; absence of a group of long hairs on *b*-seta of the endopodite of the second antenna; and in the presence of spines on the outer edge of the first segment of the maxilla. Since the male of *C. vitjazi* is unknown it is not possible to assign the species definitely to any one of the species groups of the genus. Thus in the diagnostic characters the species differs markedly from the other known species of the genus.

From the above description and the comparison of the characters it is clear that the morphological and meristic differences between the new species and the other species of the genus *Conchoecia* are sufficiently great to warrant its being considered new to Science.

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