
SHORT COMMUNICATION

Redescription of *Pseudodiaptomus jonesi* (Copepoda: Calanoida) with notes on its distribution

M. Madhupratap and P. Haridas¹

National Institute of Oceanography, Dona Paula 403 004, Goa and ¹Regional
Center of NIO, PB 1913, Cochin 682 018, India

Abstract. *Pseudodiaptomus jonesi* Pillai 1970 is redescribed; several previously undescribed features are included and a few errors in the original description corrected. This species is assignable to the Ramosus group and *hickmani*-subgroup. The present record of this species from Goa shows that this species is distributed almost throughout the west coast of India.

Introduction

Recent intensive studies on the genus *Pseudodiaptomus* from the Indo-Pacific region (Walter, 1984, 1986, 1987) have resulted in the creation of several new species, clarifications on the taxonomic status of several species and successful division of the species in the genus into groups and subgroups. It is now well established that most species of *Pseudodiaptomus* are epibenthic, rising into the water column during the night. While attempting to study its ecology in the shallow bays and coastal waters of Goa, large numbers of *Pseudodiaptomus* were collected. Many specimens were *P. jonesi*, but close examination and comparison with specimens collected from the type locality (Cochin backwaters) showed that the original description (Pillai, 1970) was lacking in several important morphological details and contained a few errors. Hence it was felt that a redescription of the species was warranted.

Materials and methods

Specimens from Goa were collected by skin-diving and scraping the surface of the sandy bottom using a small hand net (mesh size 60 μm) at midday. Material from Cochin backwaters was obtained from the archives of the Regional Center of NIO, Cochin (former Indian Ocean Biological Center) and were collected in oblique tows with an HT net (mesh size 300 μm). Abbreviations used to describe the morphological features are the same as those of Walter (1987).

Description of species: *Pseudodiaptomus jonesi* Pillai 1970

Pseudodiaptomus jonesi (Pillai, 1970, 78-80, Figure 1); *P. ardjuna* (Wellershaus, 1969, Figure 24); *P. jonesi* (Wellershaus, 1970, Figures 17-28).

Material examined. Goa: long. 73°45'E, lat. 15°30'N; Dona Paula Bay, 10 females and 17 males, depth 2.5 m, salinity 34‰, January 18, 1988; Anjuna

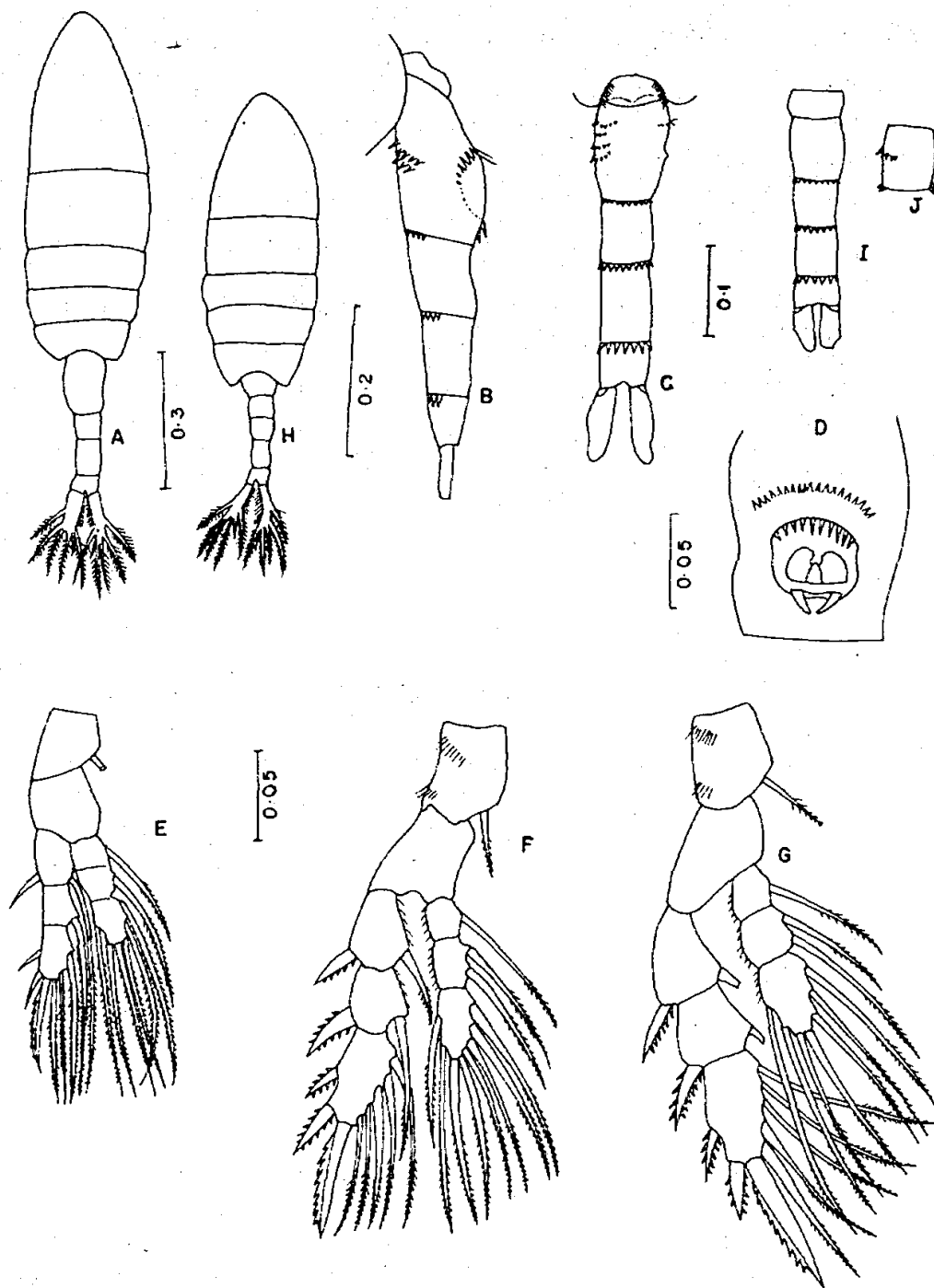


Fig. 1. *Pseudodiaptomus jonesi*. Female: (A) dorsal view; (B) Ur lateral view; (C) Ur dorsal view; (D) genital segment ventral view; (E) P1; (F) P2; (G) P4. Male: (H) dorsal view; (I) Ur dorsal view; (J) Ur2 ventral view. Measurements in mm.

cove, 20 females and 20 males, depth 2 m, salinity 34.5‰, January 30, 1988, IOBC 0395-08-46.

Cochin backwaters: long. 76°15'E, lat. 9°55'N; 10 females and 10 males, depth 15 m, salinity 33.1‰, April 7, 1972, IOBC 0395-08-47.

Female. Figures 1(A-G), 2(A-G), 3(A). Length 1.10-1.14 mm, with a mean of

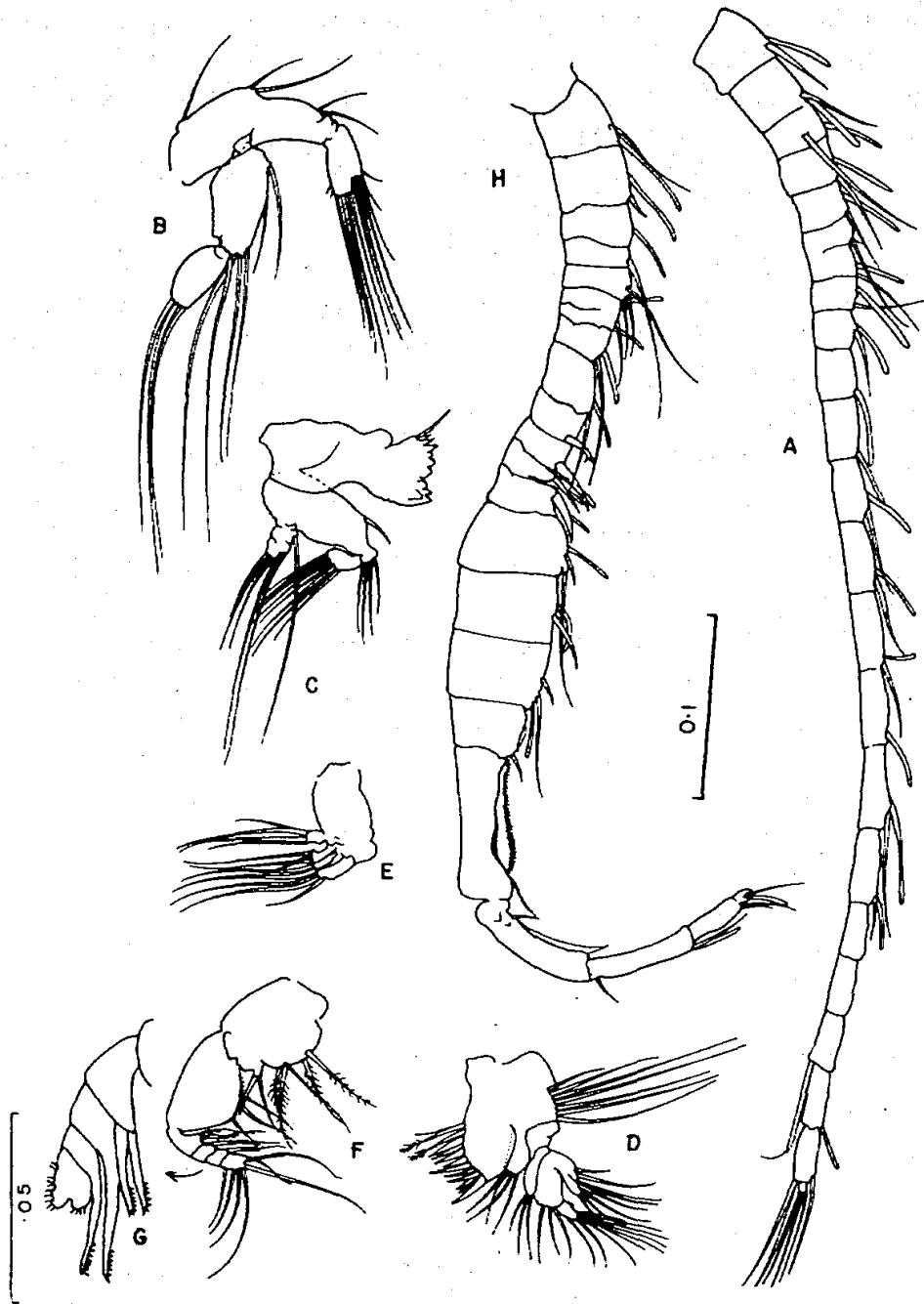


Fig. 2. *Pseudodiaptomus jonesi*. Female: (A) A1; (B) A2; (C) Mnd; (D) Mx1; (E) Mx2; (F) Mxp; (G) modified bristles on Mxp Ri lobes. Male: (H) A1. Measurements in mm.

1.12 mm. Pr-Ur ratio 1.8:1. Head and Pdg1 imperfectly fused. Pdg5 corners obtuse with fine hairs at margins of Ur insertion. Ur1 assymetrical, with rows of spinules placed dorsolaterally on the left side and a few spinules on the right side, ventrally produced, genital boss with a pair of spines and proximally with a few spinules. Genital area with a row of spines and another row proximally. Ur1-3 with posterodorsal spine rows. Ur4 distal dorsolateral angles with shields. CR three times longer than wide, with six terminal setae on each. Ur segments and CR with proportions 32:16:20:11:21 = 100.

A1 with 22 segments; details of distribution of esthetes agree with Walter (1986). Other mouth parts with segmentation and setation as in Figure 2. P1 Re2 without Se. P2 and P3 identical with Ri3 bearing eight setae; Ri3 of P4 with seven setae. P5 typical (cf. Walter, 1986), B1 with spinule row, B2 with surface seta, Re1-2 with distolateral Se, Re3 spiniform process slightly longer than Re2 spiniform process.

Male. Figures 1(H-J), 2(H), 3(B-F). Length 0.90-0.93 mm, with a mean of 0.91 mm. Pr-Ur ratio 1.9:1. Right A1 geniculate with 21 segments, details agreeing with Walter (1986). Ur2-4 with posterodorsal spine rows, Ur2 with a ventral spinule row (Figure 1J). CR 2.5 times longer than wide. Ur segments and CR with proportions 13:22:17:17:11:20 = 100.

P5 posterior view: right and left B1 with spinule rows. Right and left B2 with surface setae and spinules on the outer margin. Right leg: Ri bifid, inner branch further bifurcated, each trifid (appears bifid, third process visible if rotated, Figure 3D). Outer branch of Ri pointed, with a sub apical seta. Re1 triangular, with cluster of spinules at the oblique distolateral edge (Figure 3E) and with asymmetrically bifid Se; inner tip blunt, extending almost to the distal edge of Re2. Re2 hemispherical, with plumose Se and spinules between Se and Re3. Re3 proximally thickened and concavely produced, distal medial half plumose, outer margin with two small spinules, proximal medial margin with a blunt process with a seta and a corrugation. Left leg: Ri elongated and distally concave, bifid, outer lip with three small spine-like processes, each lip embedded in a membranous sheath (Figure 3F), sheath covering the outer lip with spinules. Re1 triangular, with Se. Re2 distally bent inwards, with Se and St, the margin between the spines having three corrugations, inner margin with three setae and a corrugation.

P5 anterior view: right and left B2 with spinule rows. Right leg: small spinules present on the oblique distolateral edge of Re1, spinules on Re2 between Se and Re3.

Remarks

Pseudodiptomus jonesi can be assigned to the *Ramosus* group (Walter, 1986) based on the presence of left Ri and further into the *hickmani*-subgroup since the right Re1 Se is bifid. The present description confirms that the female A1 and the geniculate male A1 of *P.jonesi* have 22 and 21 segments respectively (originally described as having 21 and 19), consistent with the *Ramosus* group. Other differences from the original description with regard to the male P5, whose morphological details are very important characteristics for the determination of species within *Pseudodiptomus*, are: (i) outer branch of right Ri not asymmetrically bifid; (ii) left Ri bifid, outer lip with three spine-like processes and each lip with a membranous sheath; (iii) the blunt process of the right Re3 with a seta; (iv) inner margin of left Re2 with a corrugation and outer margin with less serrations.

Additional features which were not included in the original description (Pillai, 1970) are: (i) the presence of fine hairs at the Ur insertion; (ii) rows of

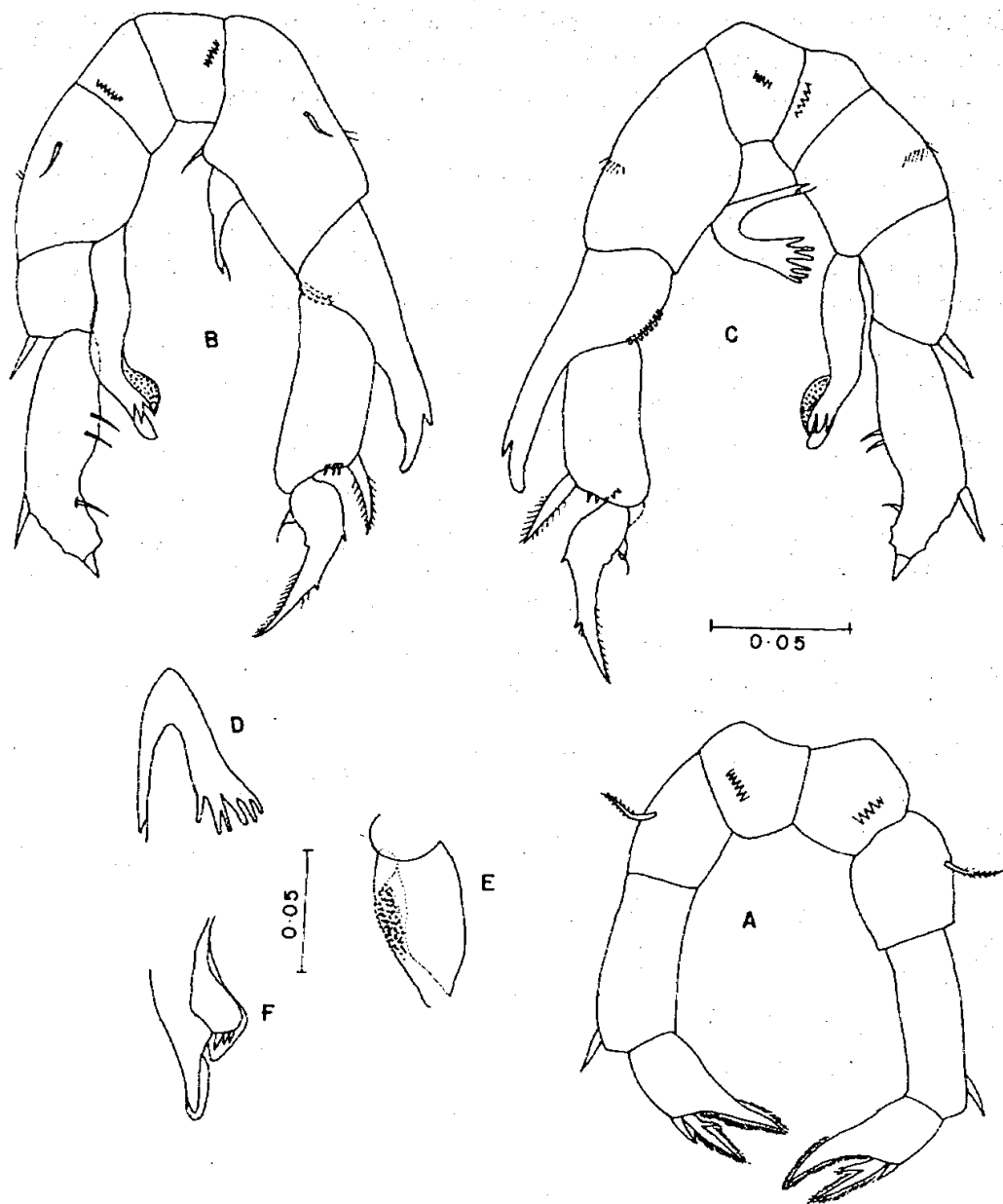


Fig. 3. *Pseudodiaptomus jonesi*. Female: (A) P5. Male: (B) P5 posterior view; (C) P5 anterior view; (D) P5 right Ri; (E) P5 right Re1 distolateral view; (F) P5 tip of left Ri. Measurements in mm.

spinules on the left side of the female Ur1; (iii) a more detailed description of female genital area; (iv) a ventral row of spinules on the male Ur2; and (v) a cluster of spinules at the oblique distolateral edge of Re1 of male right P5.

Pseudodiaptomus jonesi is found during the summer months in the Cochin backwaters (maximum density recorded = 250 m^{-3}) and is more abundant in the water column during the night in shallow areas (Madhupratap, 1979; Madhupratap and Rao, 1979). In the collections from the sandy bottoms at Goa they occurred in large numbers ($\sim 1500 \text{ m}^{-2}$), along with another pseudodiaptomid, *P. serricaudatus*. Obviously the net collections do not give true estimates of population densities of these demersal species. Apart from Cochin

backwaters, *P.jonesi* has been recorded from other estuaries along the south west coast of India (Madhupratap, 1987). The present record from Goa shows that this species probably occurs all over the west coast of India.

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