Sphaeromatidae from Réunion Island, southern Indian Ocean, with description of a new species of *Paraleptosphaeroma* Buss & Iverson, 1981 (Crustacea: Isopoda)

by

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With 7 figures

ABSTRACT

Paraleptosphaeroma indica n. sp. is described as the first member of the genus from the Indian Ocean. It was found together with *Paraciliacea mossambica* Barnard, 1914 on coral reefs at Réunion Island and is closely related to *Paraleptosphaeroma glynni* Buss & Iverson, 1981 from Panamá Pacific and the island Dominica in the Caribbean.

INTRODUCTION

Up to now there has been no report on marine isopods from the volcanic island La Réunion in the tropical southern Indian Ocean. While working there on the small fringing reefs along the west-coast in January-February 1989 only two species of Sphaeromatidae could be found in the reef-lagoons and on the reef-flats by the author. One of these belongs to an unknown species, as the second member of the genus *Paraleptosphaeroma* Buss & Iverson, 1981. The presence of that genus in the Indian Ocean greatly expands its known range from Panamá Pacific and the Caribbean.

Specimens are deposited in the Senckenberg-Museum, Frankfurt a. M., Germany (SMF), Muséum d'Histoire naturelle, Genève, Suisse (MHNG), Muséum national

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d'Histoire naturelle, Paris, France (MNHN) and the Seto Marine Biological Laboratory, Kyoto University, Japan (SMBL).

Paraciliacea mossambica Barnard, 1914

Material: 1♂, 1♀, 11 immature specimens (SMF 18603); seagrass-bed *(Syringodium isoetifolium)* near la Saline-les-Bains, 1-1.5 m, 26 January 1989.

P. mossambica apparently has a wide distribution in the south-west Indian Ocean. Up to now it was known from the south-eastern coast of Africa, Madagascar and Aldabra Atoll, Seychelles (see KENSLEY 1988: 41; MONOD 1971: 176). A redescription of the ♂ has been given by Monod.

Paraleptosphaeroma indica n. sp. (Figs 1-7)

Material: Holotype — ♂ (SMF 18599). Type locality: La Réunion, reef-flat near la Saline-les-Bains, from dead corals in 0.5-1 m; 18-20 January 1989. Paratypes — 1♂, 6♀♀ 4 ovigerous, 2 larvigerous), 1 immature specimen (SMBL); together with holotype. 3♂♂, 3♀♀ (2 ovigerous, 1 larvigerous), 3 immature specimens, 1 postmanca (2♂♂, 2 ovigerous ♀♀ in MHNG, others in MNHN); reef-flat near la Saline-les-Bains, from dead corals in 0.5-1 m, shortly after cyclon "Firinga"; 3 and 5 February 1989. 2♂♂, 7 ovigerous ♀♀, 4 immature specimens (SMF 18600); reef-lagoon near la Saline-les-Bains, from dead corals covered with algae, 0.5-1.5 m; 21-22 January 1989. 26♂♂, 35♀♀ (27 ovigerous, 7 larvigerous), 16 immature specimens, 1 manca (SMF 18601); reef-lagoon near la Saline-les-Bains, from mainly dead corals, shortly after cyclon "Firinga", 0.5-1 m; 30 January-4 February 1989. 1 ovigerous female (SMF 18602); seagrass-bed *(Syringodium isoetifolium)* in reef-lagoon near la Saline-les-Bains, 1-1.5 m, 26 January 1989.

Etymology. The specific name refers to the geographic area of the type locality, the Indian Ocean.

Description of male. Total length (frontal margin of cephalon to tip of pleotelson) about 1.8 mm, maximum width (at pereonite V) about 1.4 mm. Body extremely flattened, oval in outline (Fig. 1A). Cephalon 2.4 times wider than long, with large, posterolateral eyes consisting of about twenty, well pigmented ocellae; anterior margin of cephalon slightly concave. Pereonite I longest, others being subequal in length and increasing in width from pereonite II to V; lateral margins of all pereonites smooth with well developed membrana cingula (for explanation of this term see BUSS & IVERSON 1981: 4). Pleotelson slightly domed, sub-triangular with apex truncated. The whole body inclusive of first antennae and uropods dorsally provided with many small pigment patches; in most specimens observed, two larger, half-moon-like pigmentations on the dorsolateral surface of pereonite IV can be found.

First and second peduncle articles of antenna I strongly flattened and expanded anteriorly, bearing membrana cingula (Fig. 2A); third peduncular article unmodified, 4.5 times longer than broad; flagellum of four articles of which the first one is shortest and broadest, bearing three feathered sensory setae; articles 2-4 decreasing in length and width distally; penultimate and terminal article each with one aesthetasc. Peduncle of second antenna of four articles, none modified; second article shortest, third and fourth longest and subequal in length, bearing two feathered sensory setae; flagellum of nine setose articles (Fig. 2B). Incisor of left mandible and small lacinia mobilis with three coupling hooks; setal row of 3 setae with terminal serrations; molar strongly developed with many tubercles and some short setae; palp of mandible three-segmented; two

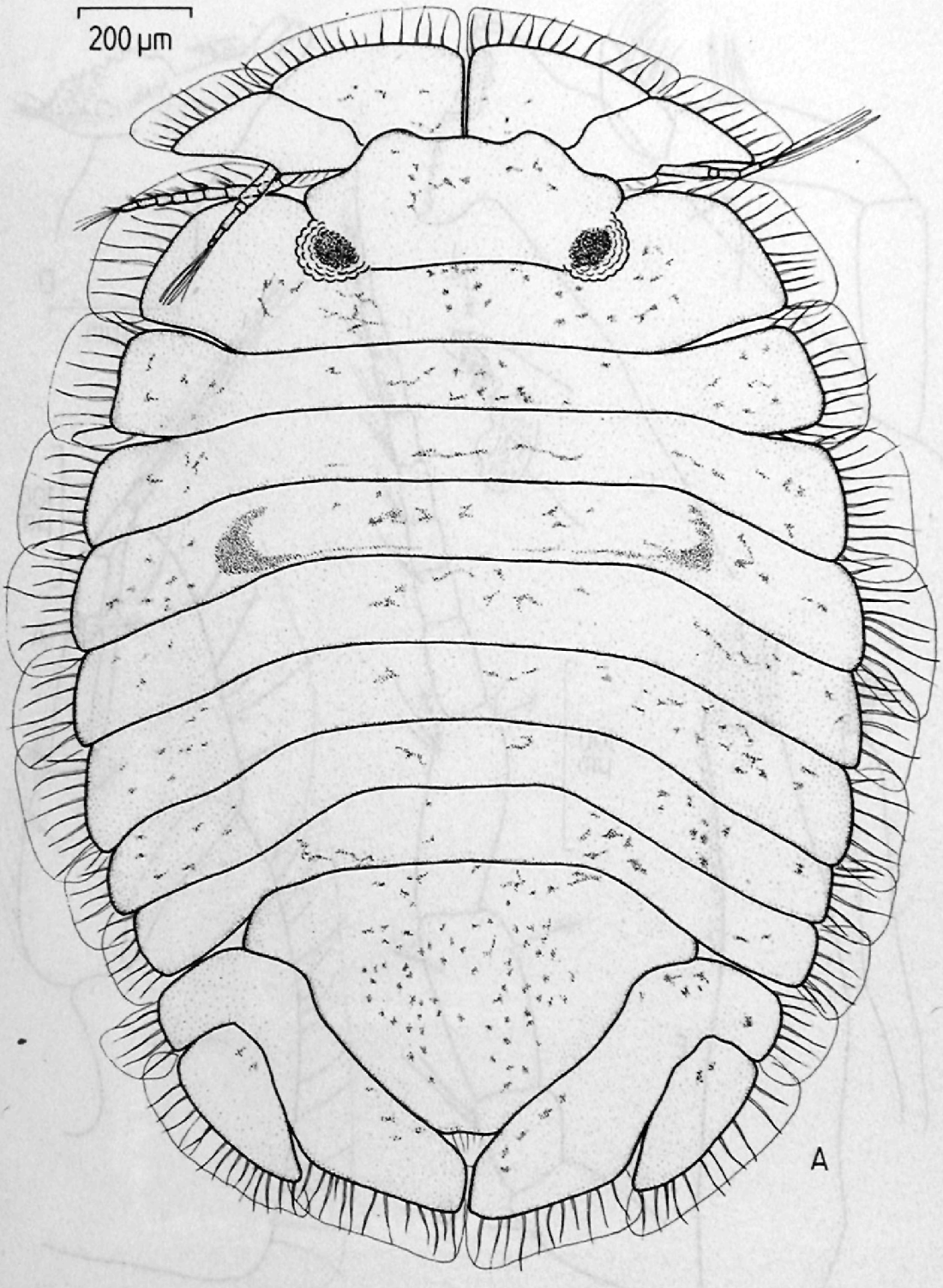

FIG. 1.

Paraleptosphaeroma indica sp. nov., male. A. habitus, dorsal.

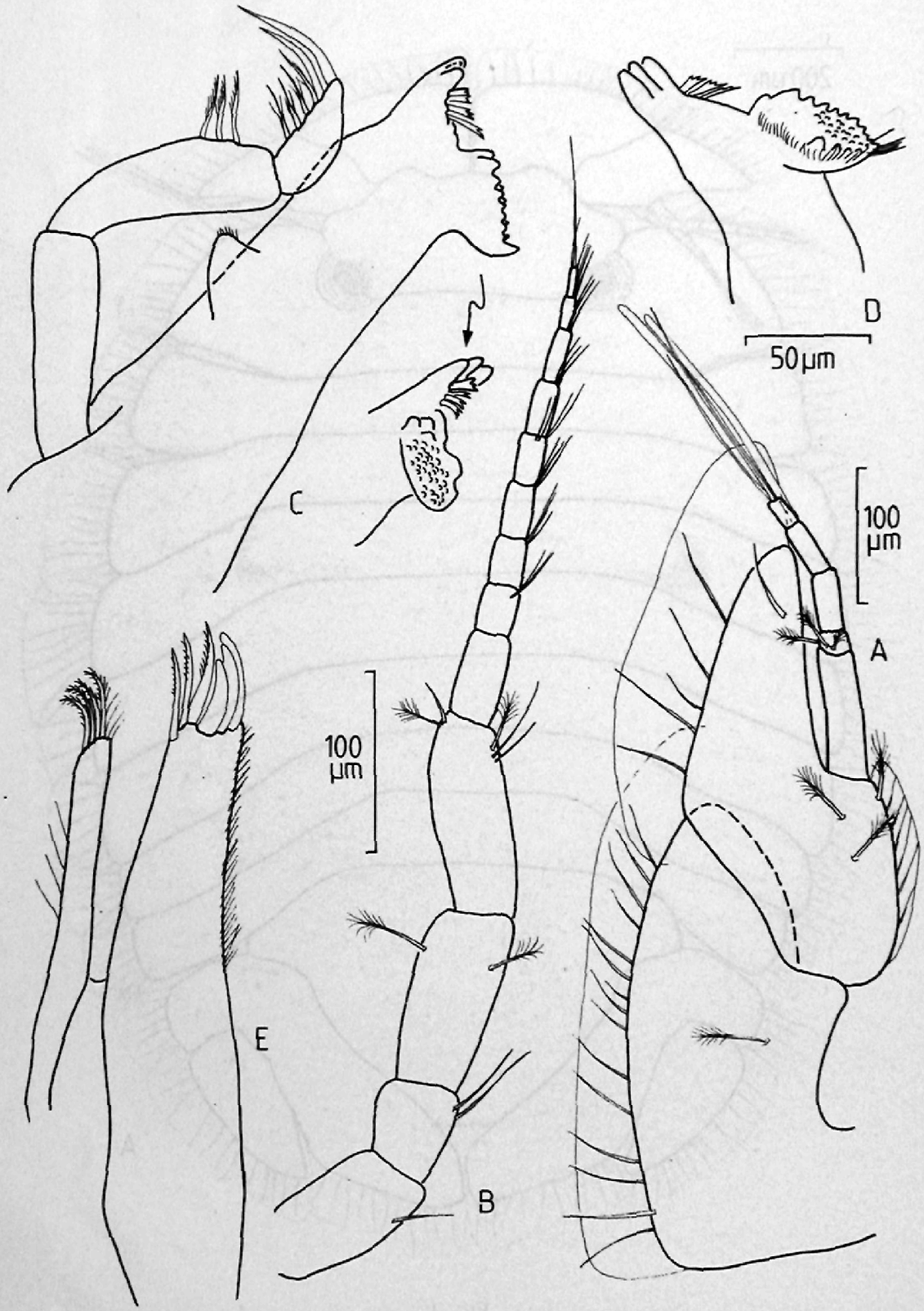

FIG. 2.

Paraleptosphaeroma indica sp. nov., male. A. antenna I; B. antenna II; C. left mandible; D. incisor and molar process of right mandible; E. maxilla I.

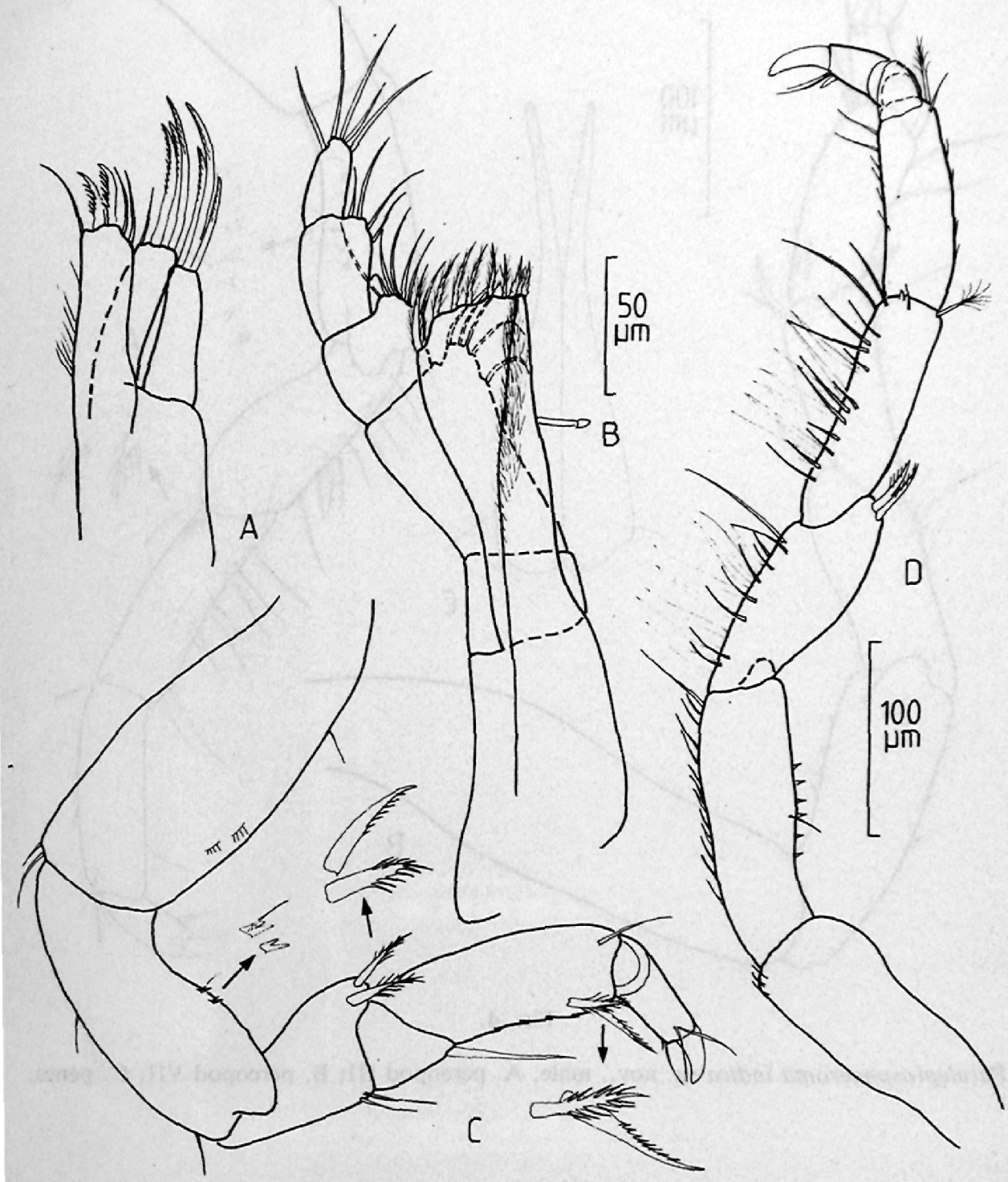

FIG. 3.

Paraleptosphaeroma indica sp. nov., male. A. maxilla II; B. maxilliped; C. pereopod I; D. pereopod II.

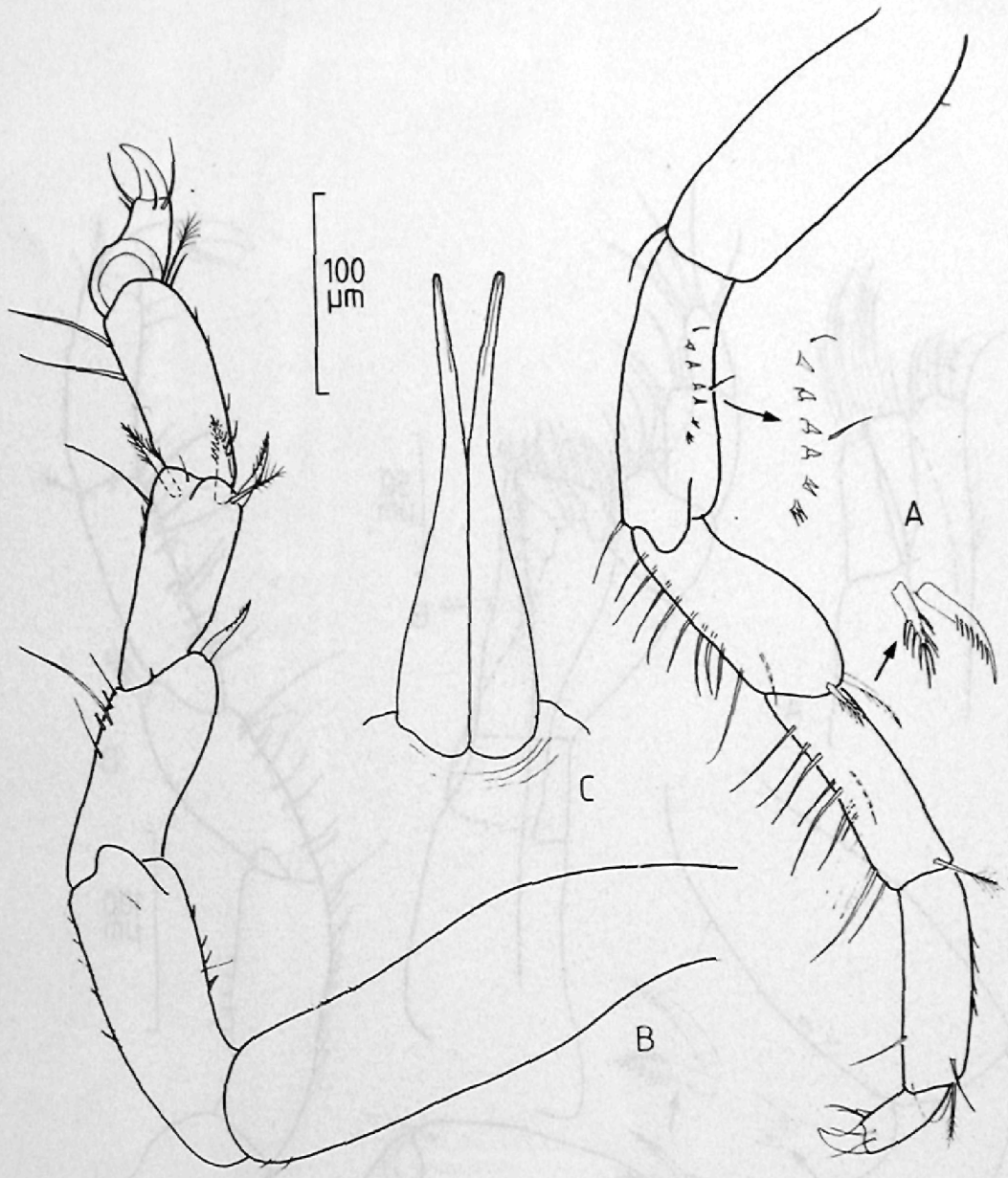

FIG. 4.

Paraleptosphaeroma indica sp. nov., male. A. pereopod III; B. pereopod VII; C. penes.

proximal segments longest and subequal in length, distal one only half the length of first and second; second segment with three, third segment with 6 setae, shape as figured (Fig. 2C). Right mandible without lacinia mobilis, otherwise as left mandible (Fig. 2D). First maxilla with 3 serrated and 3 strong simple spines on outer lobe; inner lobe with 4 distal fringed spines (Fig. 2E). Maxilla II with four long, curved spines on inner and outer lobe of outer ramus; additionally, inner lobe of outer ramus with distal simple seta; inner ramus with 3 distal simple setae and 2 robust, serrated spines (Fig. 3A). Maxilliped with narrow endite, bearing eight distal plumose setae and one coupling-hook on medial

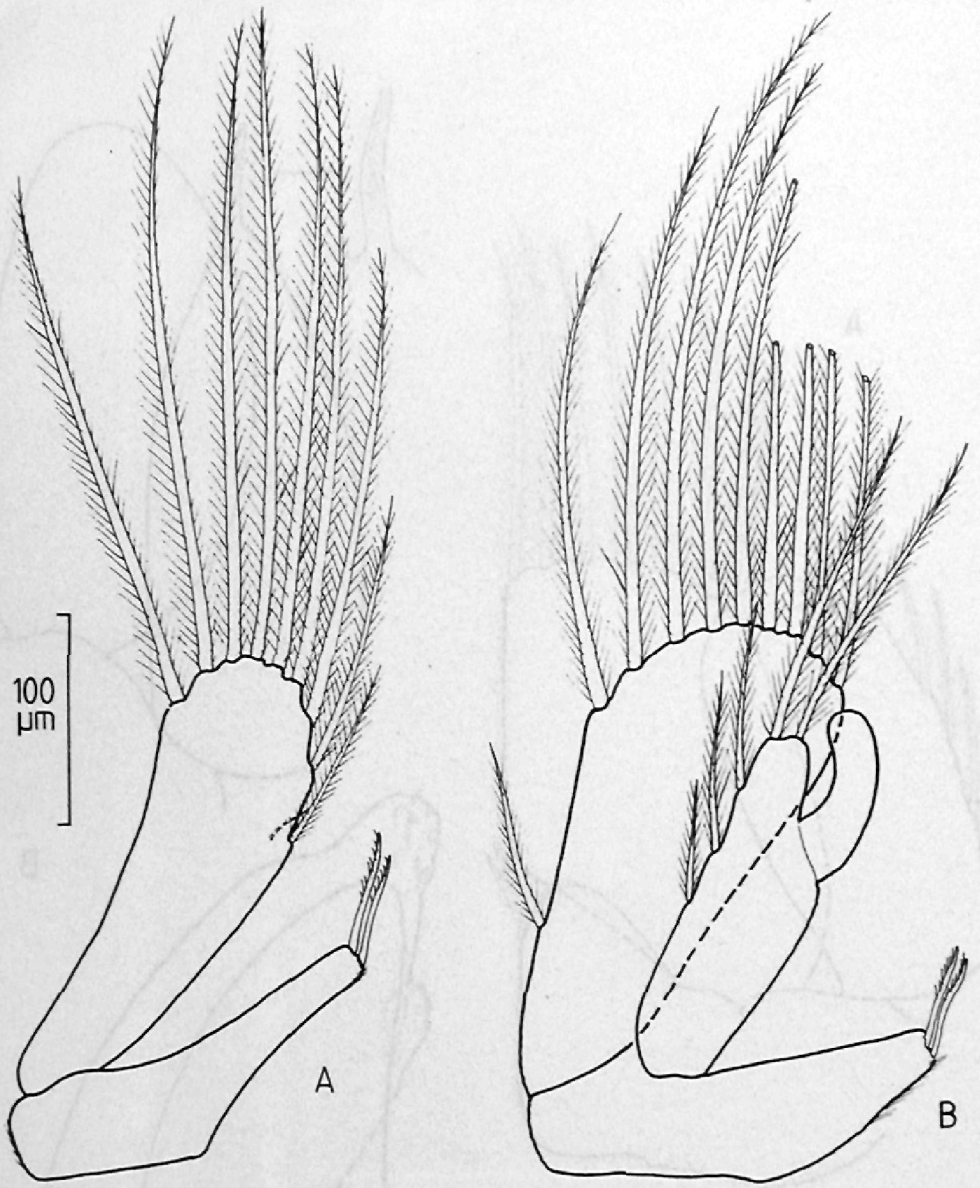

FIG. 5.

Paraleptosphaeroma indica sp. nov., male. A. pleopod I; B. pleopod II.

margin; five-segmented palp with second segment longest, about two times longer than first palp segment (Fig. 3B). Pereopod I with triangular carpus, bearing posterodistal, elongate spine; posterodistal margin of propodus and anterodistal corner of merus with two strong, serrated spines; anterior margin of ischium with two short bifid spines and small simple seta; unguis short, less than half the length of dactylus (Fig. 3C). Pereopod II, carpus about three times longer than wide; posterior margin of carpus and merus with several simple setae of different lengths and 7-8 spine-like membranous structures which are difficult to observe and have not been mentioned in the description of the other

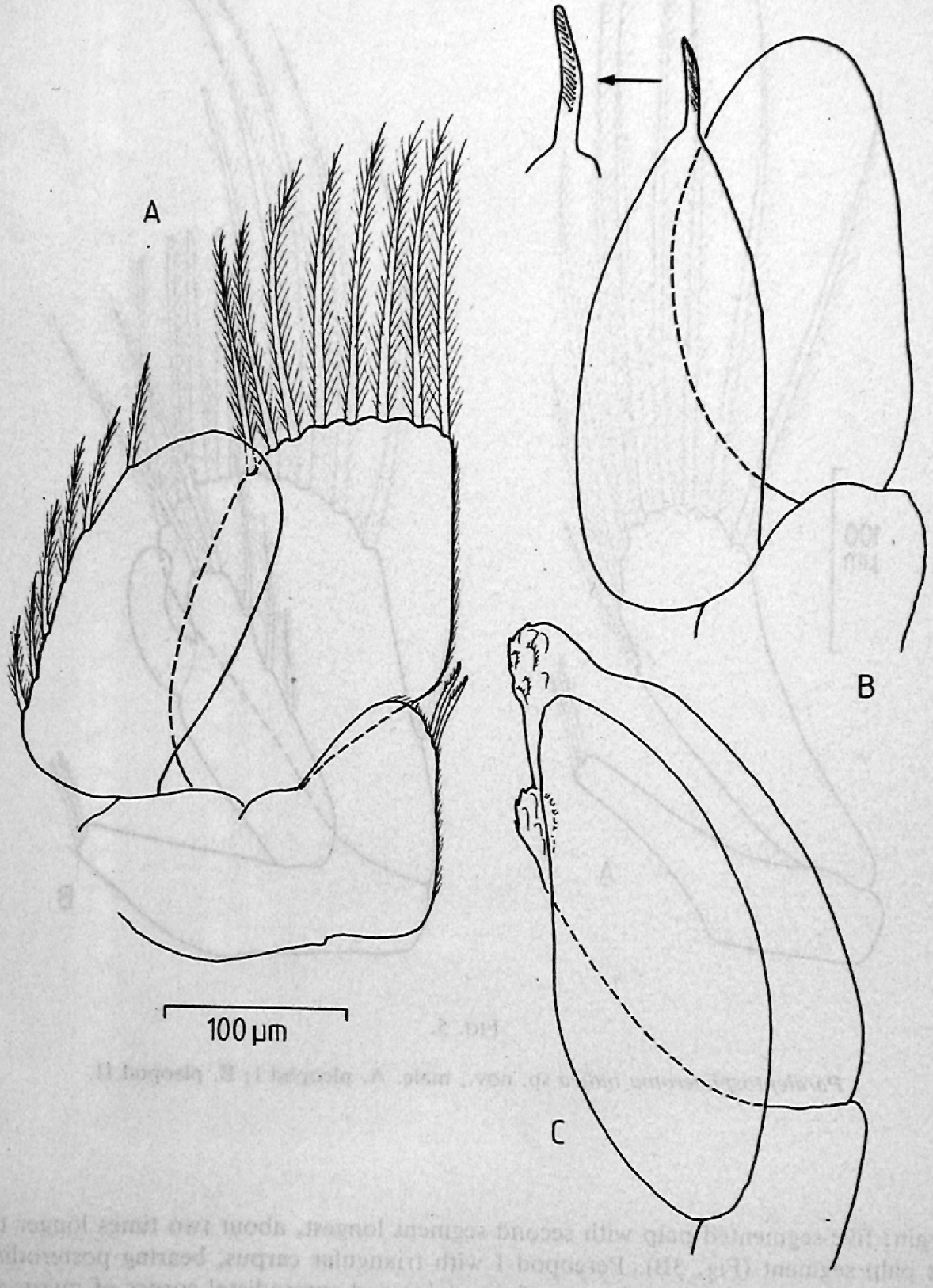

FIG. 6.

Paraleptosphaeroma indica sp. nov., male. A. pleopod III; B. pleopod IV; C. pleopod V.

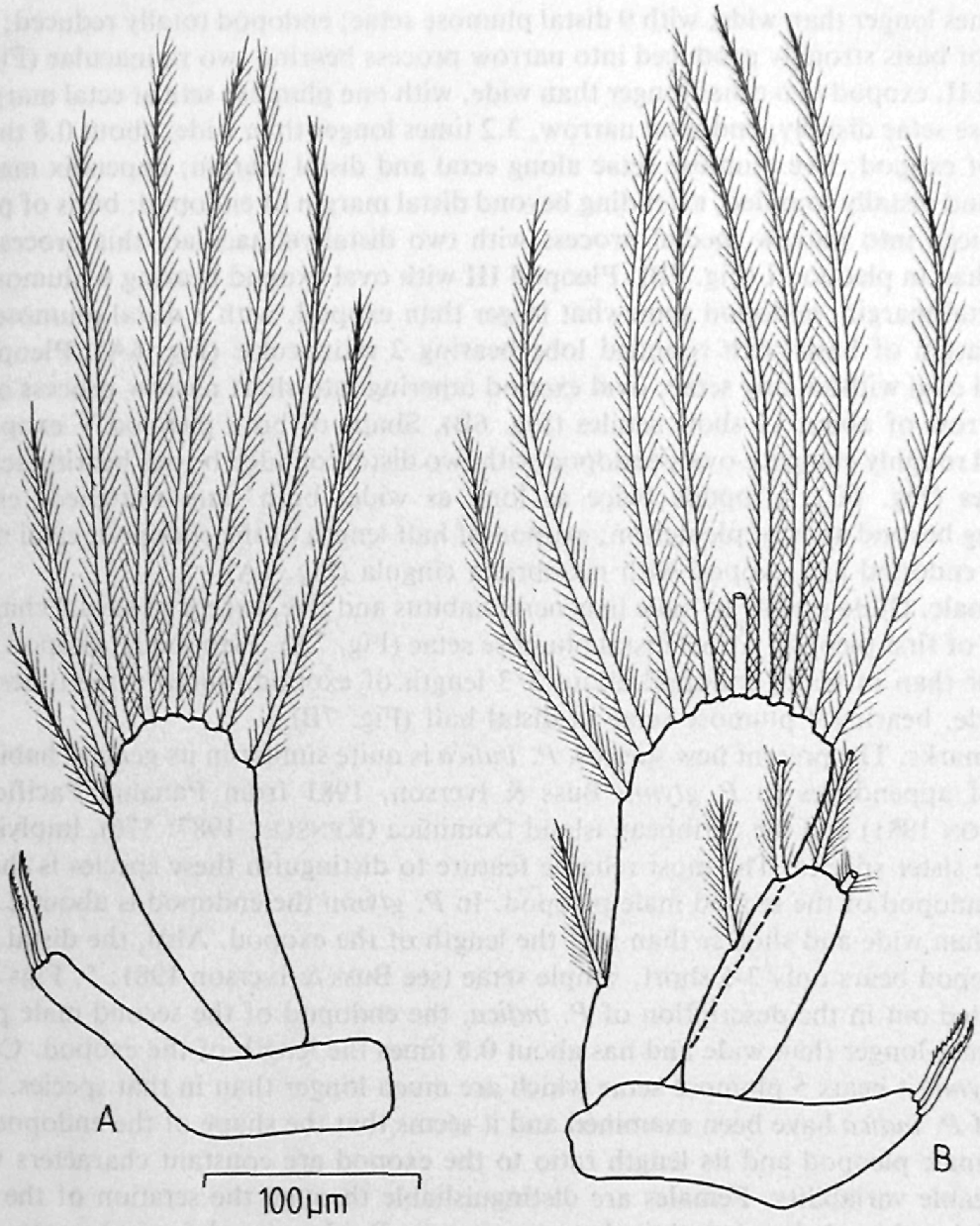

FIG. 7.

Paraleptosphaeroma indica sp. nov., female. A. pleopod I; B. pleopod II.

member of the genus, *Paraleptosphaeroma glynni* Buss & Iverson, 1981; anterodistal corner of merus with two short, serrated spines; posterior margin of ischium with row of short simple setae; anterior margin of ischium with 6 very short spines and a simple seta (Fig. 3D); pereopod III similar to pereopod II; however, only distal third of posterior margin of carpus bearing three membranous, spine-like structures (Fig. 4A). Pereopod VII, carpus distally with 3 strong, plumose and serrated spines, together with one feathered sensory seta; anterodistal corner of merus with single serrated spine (Fig. 4B). Pereopods IV-VII quite similar to each others. Penes about 6.9 times longer than width at base, tapering to narrow rounded apex in distal half (Fig. 4C). Pleopod I, exopod about

three times longer than wide, with 9 distal plumose setae; endopod totally reduced; medial margin of basis strongly produced into narrow process bearing two retinaculae (Fig. 5A). Pleopod II, exopod two times longer than wide, with one plumose seta at ectal margin and 9 plumose setae distally; endopod narrow, 3.2 times longer than wide, about 0.8 times the length of exopod; five plumose setae along ectal and distal margin; appendix masculina curved and distally rounded, extending beyond distal margin of endopod; basis of pleopod II produced into narrow medial process with two distal retinaculae; this process more robust than in pleopod I (Fig. 5B). Pleopod III with oval exopod bearing 6 plumose setae along ectal margin; endopod somewhat larger than exopod, with 8 distal plumose setae; inner margin of basis with rounded lobe bearing 2 retinaculae (Fig. 6A). Pleopod IV, endopod oval without any setae; oval exopod tapering into short narrow process at apex, bearing row of about 15 short setules (Fig. 6B). Shape of both pleopod V exopod and endopod roughly elongate-oval; endopod with two distal rounded bosses bearing scale-like structures (Fig. 6C). Uropods twice as long as wide, both rami flattened; endopod extending beyond apex of pleotelson; exopod of half length of the endopod; ectal margins of both endopod and exopod with membrana cingula (Fig. 1A).

Female. Quite similar to male in general habitus and size, except of sexual characters. Exopod of first pleopod with 8 distal plumose setae (Fig. 7A). Pleopod II, exopod slightly narrower than in male; endopod about 2/3 length of exopod, about three times longer than wide, bearing 4 plumose setae in distal half (Fig. 7B).

Remarks. The present new species, *P. indica* is quite similar in its general habitus and shape of appendages to *P. glynni* Buss & Iverson, 1981 from Panamá Pacific (BUSS & IVERSON 1981) and the caribbean island Dominica (KENSLEY 1987: 576), implying that both are sister species. The most reliable feature to distinguish these species is the shape of the endopod of the second male pleopod. In *P. glynni* the endopod is about 2.3 times longer than wide and shorter than half the length of the exopod. Also, the distal lobe of the endopod bears only 3-5 short, simple setae (see Buss & Iverson 1981: 5, Figs 2H, J). As pointed out in the description of *P. indica,* the endopod of the second male pleopod is 3.2 times longer than wide and has about 0.8 times the length of the exopod. Contrary to *P. glynni* it bears 5 plumose setae which are much longer than in that species. Several males of *P. indica* have been examined and it seems that the shape of the endopod of the second male pleopod and its length ratio to the exopod are constant characters without recognizable variability. Females are distinguishable through the setation of the second pleopodal endopod, bearing two plumose setae in *P. glynni* and four plumose setae in *P. indica.*

The new species is a common member of the reef community at Réunion island where it has been found more numerous in the reef-lagoon near la Saline-les-Bains shortly after the strong cyclon "Firinga". Nearly all of the specimens have been found associated with dead coral substratum.

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