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A NEW CUMACEA GENUS (CRUSTACEA: PERACARIDA: DIASTYLIDAE) FROM THE DEEP-SEA EXPEDITION DIVA-1 WITH RV 'METEOR' TO THE ANGOLA BASIN

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ABSTRACT

A new deep-sea genus and species *Divacuma tuerkayi* n. gen., n. sp. of the family Diastylidae from the Angola Basin is described. The similarity between the new genus and *Leptostylis/Leptostyloides* is mentioned, the most striking character of the new genus is the male having only one pair of pleopods.

INTRODUCTION

The family Diastylidae Bate, 1856 contains 21 genera (Jones, 1969; Vassilenko, 1990; Bacescu, 1992; McLelland & Meyer, 1998; Gerken et al., 2000). For the South East Atlantic only the genera *Leptostyloides*, *Diastyloides*, and *Makrokylindrus* are reported for more than 1000 m water depth.

Jones (1969) erected the new genus *Leptostyloides* for a new species of cumaceans from the Kermadec Trench on the basis of two females, one of them badly damaged. He stated the genus as "similar to *Leptostylis* Sars, 1869 but with the exopods of the uropods longer than the endopods" (Jones, 1969). Bacescu (1992) considered this genus to be ill-defined and synonymised it with *Leptostylis*. Ledoyer (1997) described a new species *Leptostyloides longiappendiculata* for the tropical North Atlantic without mentioning the doubtful taxonomical state of the genus or improving the ill-defined generic diagnosis. As the males are

unknown for the two species mentioned, the taxonomical position of the genus *Leptostyloides* must remain doubtful. The Angola Basin specimens are closely related to *Leptostylis/Leptostyloides*, but as the male has only one pair of pleopods, a rare character within the family Diastylidae, only known for the genus *Ektonodistylis* (Gerken et al., 2000), the erection of a new genus seems to be reasonable.

MATERIALS AND METHODS

The specimens were collected during the DIVA expedition with RV 'Meteor' from 6th July to 2nd August 2000 to the Angola Basin (Me 48-1). Sampling took place on a 700 km long transect across the eastern margin of the Angola Basin. The material was fixed and preserved in ethanol after a quick dip in freshwater. The type series of the new species are deposited in the Zoological Museum, Hamburg (ZMH) and the Zoologisch

Museum, Universiteit van Amsterdam (ZMA).

Length measurements, if not indicated otherwise, from tip of pseudorostrum to tip of telson.

TAXONOMIC PART

Family Diastylidae

Divacuma n. gen.

DIAGNOSIS. - Diastylidae with short, globose carapace, long pedigerous extremities, very long pleon, last abdominal segment extraordinary long, as long as fifth segment, short telson, male with one pair of pleopods.

ETYMOLOGY. - The new genus is named after the expedition (DIVA), *cuma* for Cumacea.

TYPE SPECIES. - *Divacuma tuerkayi* n. gen., n. sp.

Divacuma tuerkayi n. gen., n. sp.

Figs. 1-3

MATERIAL. - Holotype: subadult male, ZMH K 40517, leg. A. Brandt and J.-W. Wägele, 29-VII-2000. Type locality: Angola Basin, station 350, epibenthic sledge, supranet, 16°14.3'S 005°26.8'E (5389 m) to 16°14.9'S 005°26.7'E, (5389 m). Paratypes: ZMA Cu. 204587, station 340, epibenthic sledge, epinet and supranet, 18°18.3'S 004° 41.3'E (5395 m) to 18°19.4'S 004° 41.9'E (5395 m), 22-VII-2000, 1 subadult female, 1 juvenile male, 1 juvenile; station 344, epibenthic sledge, epinet and supranet, 17°06.2'S 004°41.7'E (5415 m) to 17°07.5'S 004°42.3'E (5415 m), 25-VII-2000, 1 subadult female, 1 nonovigerous female with fully developed marsupial plates; station 348 (epibenthic sledge, epinet and supranet, 16°18.1'S 005°27.2'E (5390 m) to 16°19.3'S 005°27.2'E (5387 m), 28-VII-2000, lot 206, 1 subadult female, 1 juvenile female; ZMH K 40518, station 350, lot 217, epibenthic sledge, supranet, 1 subadult female. Dissected paratypes: ZMH K 40519, station 350, epibenthic sledge, epinet and supranet, 16°14.3'S 005° 26.8' E (5389 m) to 16°14.9' S 005°26.7' E (5389 m), lot 217, 29-VII-2000, 1 non ovigerous female with fully developed marsupial plates, 1 subadult male.

DIAGNOSIS. - Fifth pereopod very short, shorter than basis of preceding appendage, female with exopods at pereopod 1 and 2 fully developed, rudimentary at pereopods 3 and 4.

DESCRIPTION BASED ON SUBADULT MALE HOLOTYPE, 8.8 MM LONG. - Carapace tumescent posteriorly, with one short and three to four longer

hair-like setae, but no tubercles or ridges, ventral margin serrated; pseudorostrum and siphonal tube short; ocular lobe absent, antennal notch obsolete; integument calcified; no eyes; second antenna reaching the end of free thoracic segments.

Five thoracic segments visible, fifth pedigerous somite produced posteriorly. Pleon very long, 2.8 times longer than carapace and free thoracic segments combined, elongated segments, with few hair-like setae and numerous short spines, first segment shortest, abdominal segments 4-6 similar in length; telson short compared to both last abdominal segment and uropod peduncle; postanal part of telson shorter than preanal, two strong terminal setae and a pair of shorter distal ones, length proportion telson to pleonite 6 is 0.3.

DESCRIPTION OF APPENDAGES BASED ON MALE PARATYPE (ZMH K 40519). - Antenna 1 peduncle stout, second article longest, main flagellum with six articles, two aesthetascs inserting at the second last article, accessory flagellum with four articles, reaching the distal margin of article 3 of the main flagellum; antenna 2 not fully developed, reaching beyond carapace for a short distance; maxilliped 2 slender, ischium short, carpus second longest article after basis; maxilliped 3 basis longer than rest of appendage, with four spines at distal inner margin, inner margin with plumose setae, outer margin with hair-like setae and distally with two long plumose setae; carpus second longest article, exopod present (not illustrated).

Pereopod 1 very long in holotype, with hair-like setae at merus, carpus and propodus; ischium and merus very short, carpus and propodus very long (Fig. 1H); pereopod 1 broken in dissected paratype, only basis present, basis with five spines and distally four plumose setae, exopod present; pereopod 2 long and slender, basis much shorter than rest of appendage, shorter than carpus, the latter as long as dactylus, exopod present; pereopod 3 long and slender, basis longest, carpus second longest article, propodus and dactylus short, exopod present; pereopod 4 similar to pereopod 3 but shorter, exopod present; pereopod 5 very short, shorter than basis of fourth pereopod.

Uropods peduncle shorter than last abdominal segment (ratio 0.7), but longer than telson (ratio 2.6), inner margin with six strong setae, outer

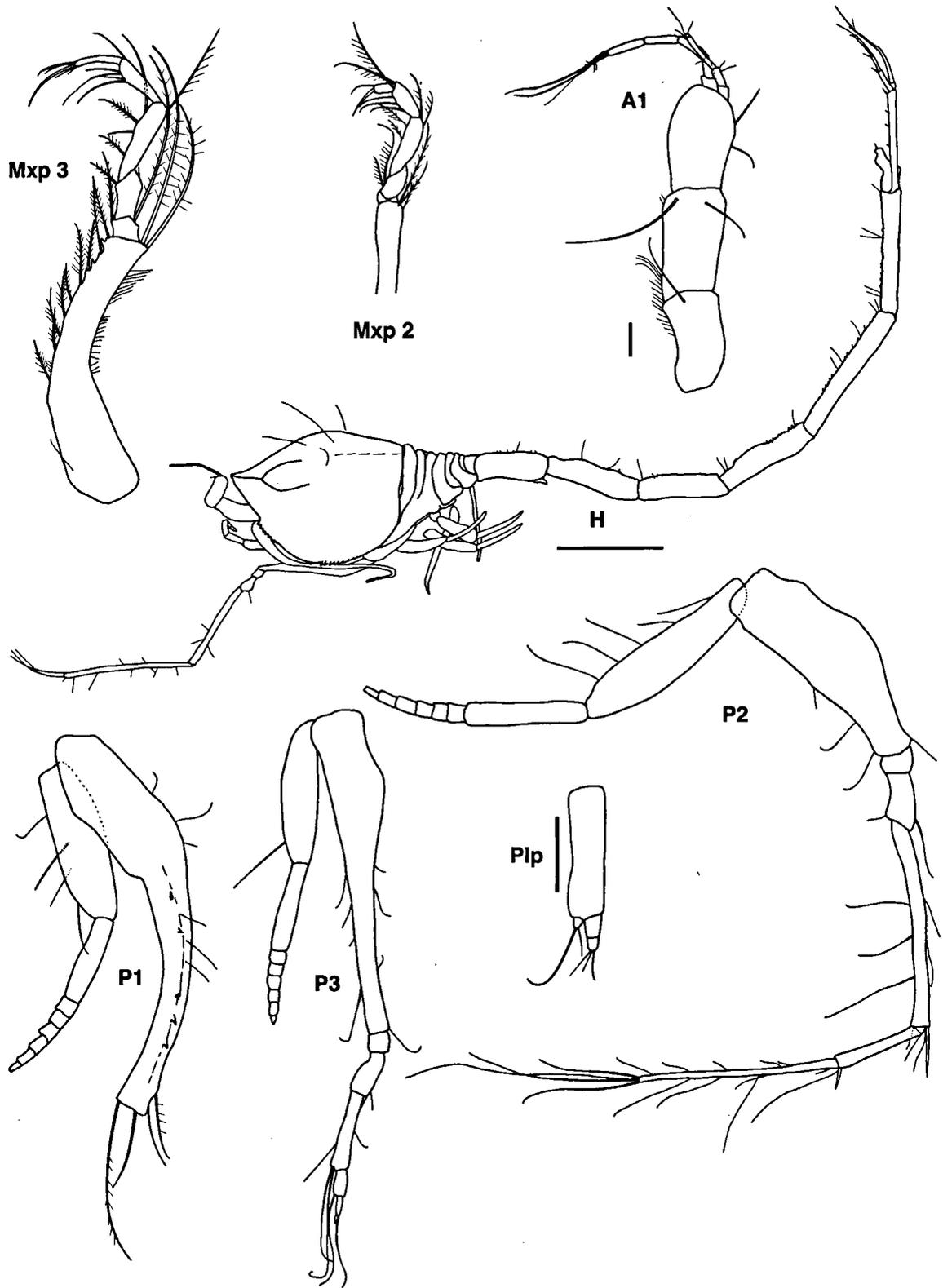


Fig. 1. *Divacuma tuerkayi* n. gen., n. sp., male. H, habitus (scale bar = 1 mm). A1, antenna 1 (scale bar = 0.1 mm). Mxp 2, maxilliped 2. Mxp 3, maxilliped 3. P1, pereopod 1, broken. P2, pereopod 2. P3, pereopod 3. Plp, pleopod (scale bar = 0.1 mm).

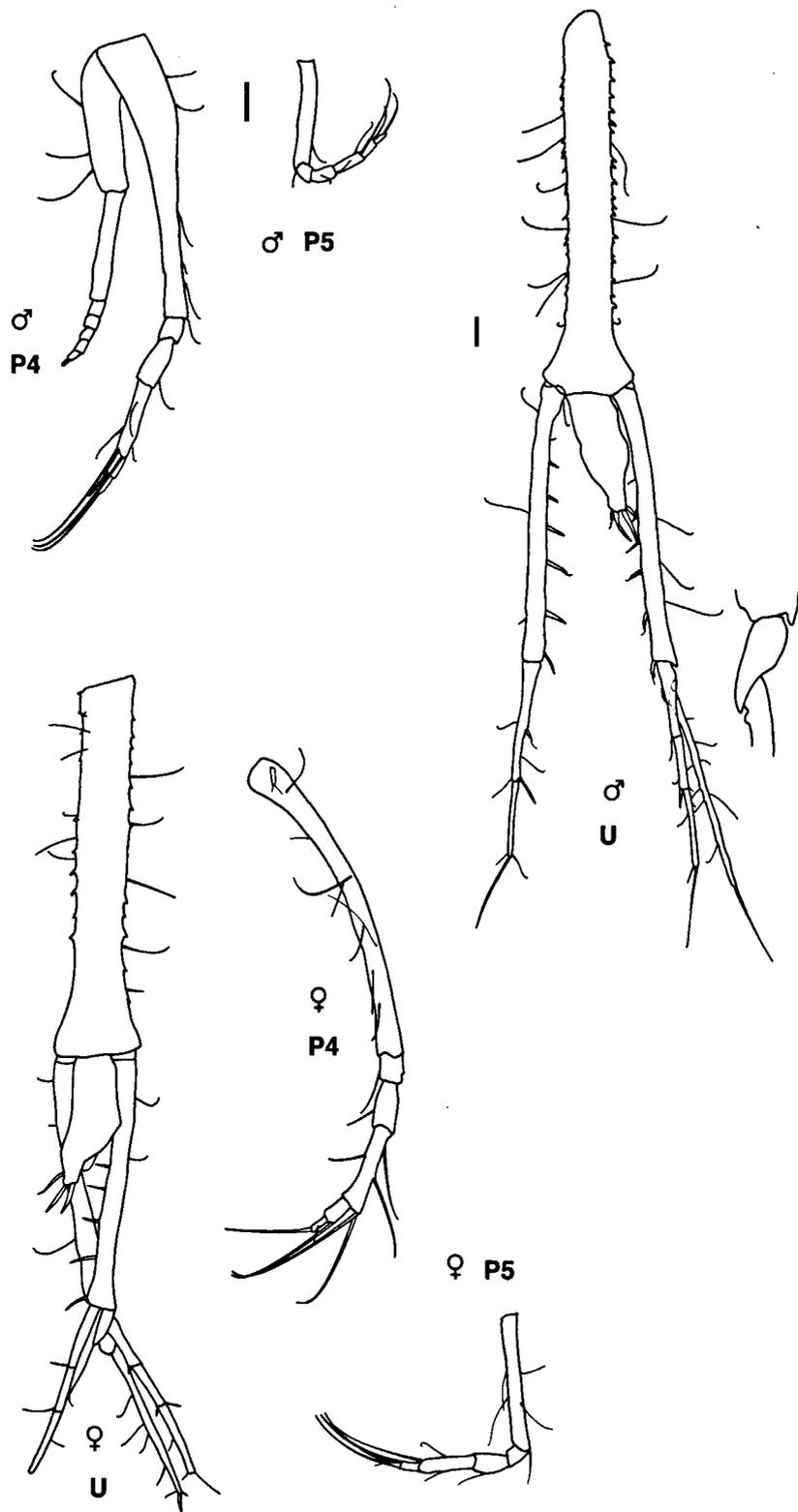


Fig. 2. *Divacuma tuerkayi* n. gen., n. sp., male and female. P4, pereopod 4. P5, pereopod 5. U, pleonite 6 and uropods (scale bars = 0.1 mm).

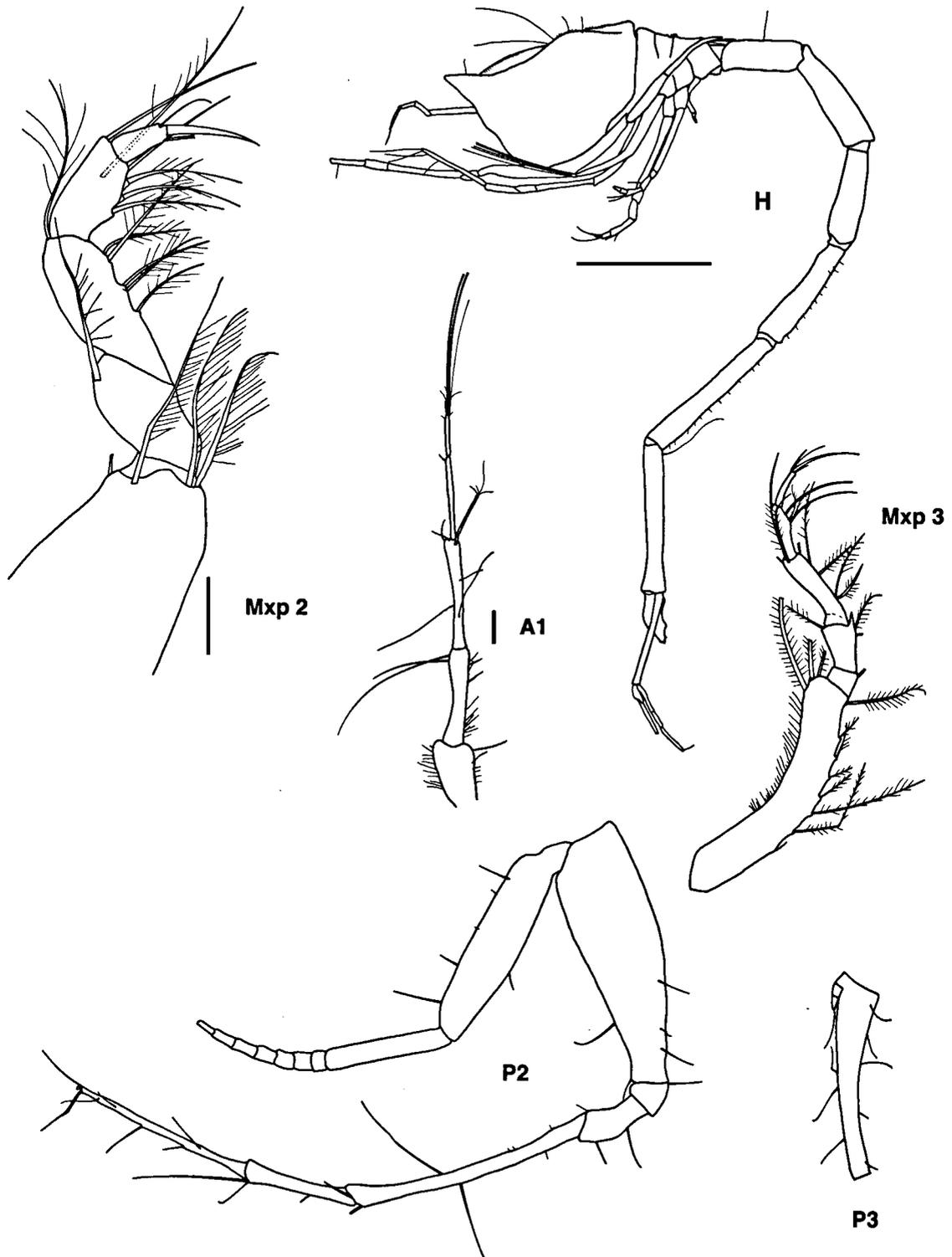


Fig. 3. *Divacuma tuerkayi* n. gen., n. sp., female. H, habitus (scale bar = 1 mm). A1, antenna 1 (scale bar = 0.1 mm). Mxp 2, maxilliped 2 (scale bar = 0.1 mm). Mxp 3, maxilliped 3. P2, pereopod 2. P3, pereopod 3, broken.

margin with three long hair-like setae.

Exopod with oblique joint between both articles as in *Ekleptostylis*, longer than endopod; endopod with three articles, each with strong distal seta, terminal seta long, length proportion endopod to peduncle 0.8.

Subadult male with one pair of pleopods.

FEMALE. - DESCRIPTION BASED ON PARATYPE, NON OVIGEROUS WITH FULLY DEVELOPED MARSUPIAL PLATES, 8 MM LONG. - Carapace slightly tumescent posteriorly, with one short and two long and three to four medium long hair-like setae, no tubercles or ridges, ventral margin smooth, length proportion carapace to total body length: 5.5; pseudorostrum and siphonal tube short; ocular lobe reduced, eyes missing, antennal notch missing, no anterolateral tooth; anteroventral margin of carapace serrated; integument weakly calcified. Only four thoracic segments visible, fifth pedigerous somite produced posteriorly. Pleon very long, 2.9 times longer than carapace and free thoracic segments combined, segments with short thorns and hair-like setae; telsonic segment as long as pleonite 5; telson short, half as long as peduncle, postanal part shorter than preanal, two terminal and one pair of disterolateral setae, length proportion telson to pleonite 6 is 0.3.

DESCRIPTION OF APPENDAGES BASED ON PARATYPE FEMALE (ZMH K 40519). - Antenna 1 slender, basal article of peduncle shortest, with numerous hair-like setae, second article longer, with two long setae at distal margin, third article longest, accessory flagellum with one long and one short article, shorter than main flagellum's basal article, main flagellum three-segmented, two aesthetascs and one long seta terminally; maxilliped 2 basis with four plumose setae at distal margin, ischium present, merus with one plumose seta at outer distal margin, carpus second longest article, with three pairs of plumose setae at inner and a single at outer distal margin, propodus similar in length to merus, three plumose setae at inner, three at distal margin, dactylus shortest article, terminal seta strong, longer than article; maxilliped 3 basis as long as rest of appendage, inner margin with plumose setae, outer margin with hair-like setae, three long, plumose setae at distal outer margin, ischium present, merus with tooth at distal inner

margin, one plumose seta at distal inner and outer margin respectively, carpus second longest article with four plumose setae at inner margin, three plumose setae at distal margin, propodus 0.7 times as long as propodus, one plumose and three simple setae, dactylus 0.6 times as long as propodus, one strong terminal seta and three subterminal simple setae; exopod present; pereopod 1 in this particular paratype broken; pereopod 2 very long and slender, basis much shorter than rest of appendage, ischium present, merus slightly more than 2 times as long as ischium, carpus second longest article, 0.9 times as long as basis, propodus half as long as carpus, dactylus 0.7 times as long as carpus; exopod present; pereopod 3 broken in basis, rudimentary exopod present; pereopod 4 slender, basis longer than rest of appendage, ischium present, merus 1.7 times as long as ischium, carpus second longest article, 1.7 times as long as merus, distally with two long setae, propodus shorter than ischium (0.9 x), distally with one long seta, dactylus 0.7 times as long as propodus, terminal seta nearly five times as long as dactylus, minute rudimentary exopod present; pereopod 5 shorter than basis of pereopod 4, basis as long as rest of appendage, carpus second longest article.

Uropods peduncle 0.7 times as long as pleonite 6 and 1.9 times as long as telson, five setae at inner, two at outer margin; exopod with oblique joint between both articles, longer than endopod; endopod three-articulate, distal longest, middle shortest article, each with short, strong distal seta, length proportion endopod to peduncle 0.8.

ETYMOLOGY. - The species is dedicated to Dr. Michael Türkay, the chief scientist of the expedition.

REMARKS. - The female is similar to the male, but the first antenna is more slender, the accessory flagellum is only three instead of four jointed, with the second one being the longest article; maxilliped 3 merus with distal tooth; exopods in female are fully developed in pereopods 1 and 2, but rudimentary in pereopods 3 and 4.

The new genus and species from the Angola Basin have the exopod of the uropods longer than the endopods, and very long pereopod 2 as in *Leptostyloides*.

The form of carapace and telson of the new genus resembles that of both *Leptostylis* and *Leptostyloides*, it differs from *Leptostylis* (and *Leptostyloides*?) in having one pair of pleopods in the male, the short pereon compared to the pleon, and the long pleonite 6 .

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