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A NEW SPECIES OF ALPHEUS (CRUSTACEA, CARIDEA) FROM THE PACIFIC COAST OF COLOMBIA

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ABSTRACT

Alpheus cryptodentatus sp.n., from Isla Playa Blanca (6º02'N, 77º20'W), is diagnosed, described and distinguished from morphologically similar forms in the Western Atlantic. Taxonomic difficulties resulting from the apparent variabilities of rostral-adrostral shapes in **A. armillatus** H. Milne Edwards, 1837, which in other closely related Western Atlantic and Indo-Pacific forms, including the new species, are usually assumed to be more constant and of identification value, are discussed.

Alpheus cryptodentatus sp.n.

(Fig. 1, 2)

Holotype. – Male, 21.0 mm (Coleção de Crustacea da Universidade Federal da Paraíba, UFPB 4392); Allotype. – Ovigerous female, 24.6 mm (UFPB 4393); Paratypes. – 5 males, 15.2 – 24.2 mm, 3 ovigerous females, 16.8 – 29.6 mm, 1 non-ovigerous female, 17.0 mm (Colección de Referencia de la Sección de Biologia Marina de la Universidad del Valle, CRBMUV 85201), 1 male, 1 ovigerous female (UFPB 4382), 2 males (UFPB 4394).

Type locality. – Isla Playa Blanca, Ensenada de Utría, Chocó, Pacific coast of Colombia (6°02'N, 77°20'W).

Distribution. – Known only from the type locality.

Diagnosis. – Rostrum slender, narrowly rounded dorsally to beyond posterior margin of orbital hoods. Ocular hoods inflated, unarmed. Adrostral furrows somewhat superficial and not clearly delimited posteriorly. Rudimentary pleurobranch present at base of third maxilliped. Large chela with marked compression. Proximal shoulder on large chela not overhanging dorsal notch. Fixed finger of major chela without a sharply V-shaped notch in opposable margin distal to socket. Merus of major cheliped with sharp but somewhat weakly developed distoventral tooth. Small chela not sexually dimorphic, without a "balaeniceps"-shaped dactylus. Merus of minor cheliped with vestigial distolateral tooth, which is usually represented by a small rounded projection. Carpus of second pereiopod with first article longer than second article. Movable spine present on ischium of third and fourth pereiopods, absent from ischium of fifth pereiopod. Merus of third and fourth pereiopods without inferodistal tooth. Propodus of third and fourth pereiopods with two unmatched rows of spines. Dactylus of third to fifth pereiopods simple, conical. Posterior margin of inner uropod and telson with row of spinules. Outer uropod with movable spine flanked by a triangular lateral tooth and a rounded mesial lobe.

Further descriptive notes – Rostrum acute, reaching to distal half of first antennular article. Orbitorostral margin almost straight. Second antennular article 2.0 times as long as wide and a little shorter than visible part of first antennular article. Third article 0.5 times as long as second. Stylocerite with acute tip reaching to end of first antennular article. Outer margin of scaphocerite slightly concave, lateral tooth reaching beyond end of antennular peduncle, squamous portion reaching to end of antennular penduncle. Carpocerite as long

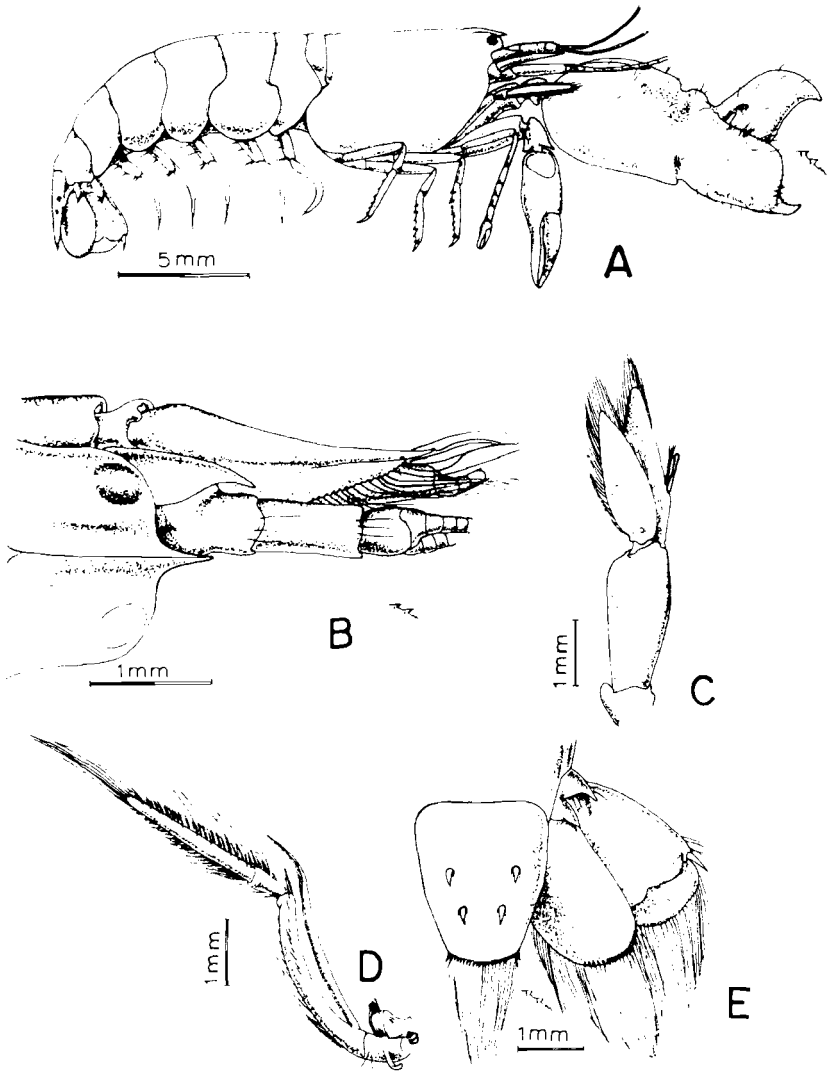

Fig. 1 – **Alpheus cryptodentatus,** holotype: A, body in lateral view; B, anterior region in dorsal view; C, second pleopod; D, third maxilliped; E, telson and uropods.

as lateral tooth of scaphocerite. Basicerite with sharp ventrolateral tooth.

Ratio of articles of third maxilliped 10: 2: 8. Third article bearing brush of short setae on superior and inferior margin, and long anteriorly directed setae on superior margin.

Large chela 2.3 times as long as broad, fingers occupying the distal 0.4. Superior notch broad and U-shaped. Lateral palmar depression quadrangular, extending to **linea impressa;** media palmar depression irregular and well marked. Inferior notch deep, with proximal shoulder rounded and not projected. Inferolateral depression well defined, extending along lateral face of palm for 0.4 of total height. Inferomedial depression similar to that of other side. Plunger of dactylus massive. Merus 2.1 times as long as broad.

Small chela 3.2 times as long as broad, with fingers almost as long as palm. Opposable surface of dactylus with a small crest near articulation. **Linea impressa** present on lateral side of palm. Palm without sculpturing, with two small teeth on lateral side and a heavy tooth on mesial side, adjacent to dactylar articulation. Carpus more massive than that of major cheliped. Merus 2.5 times as long as broad.

Ratio of carpal articles of second leg 10: 6: 2: 2: 4.

Merus of third pereiopod 4.0 times as long as broad. Carpus 0.5 times as long as merus, superodistal and inferodistal margins terminating in a small rounded projection. Propodus 0.7 times as long as merus, with 8-13 unequal spines arranged in two unmatched rows and a distal pair on inferior margin. Dactylus 0.3 times as long as propodus.

Fourth pereiopod similar to third. Fifth pereiopod more slender than third and fourth. Propodus with single row of 6-10 spines on inferior margin and with rows of short setae on distal half of posterior margin. Dactylus curved more strongly than in third and fourth pereiopods.

Second pleopod of male with **appendix masculina** 0.8 times as long as **appendix interna,** and armed with apical setae.

Telson 2.2 times as long as posterior margin is wide. Posterior margin convex, with two pairs of small posterolateral spines, the inner pair being slightly longer. Transverse suture of outer uropod scalloped.

Color in life. – Corneas black. Body and chelipeds olive green, with numerous small spots of white and red chromatophores. Pleopods translucent olive green. Antennular and antennal penduncles reddish. End of telson and long posterior setae of uropods and telson yellowish-brown. Tip of dactylus and propodus of major chela translucent brown or yellow. Eggs in ovigerous females olive green.

Habitat. – Specimens of **Alpheus cryptodentatus** sp.n. are intertidal in Isla Playa Blanca, living in burrows of coralline sand, adjacent to large and small rocks. They occur in sympatry with the hippid **Emerita** sp, the ghost shrimp **Callianassa** sp and the carideans **Alpheus leviusculus bouvieri** A. Milne Edwards, 1878, **Salmoneus ortmanni** Rankin, 1898 and **Gnathophyllum panamense** Faxon, 1893 (the latter two species representing new records for Pacific Colombian waters).

Remarks. – **Alpheus cryptodentatus** sp.n. is morphologically very similar to two Western Atlantic forms, **A. viridari** Armstrong, 1949, from the northern hemisphere, and an unnamed form from the southern hemisphere. It differs from both forms by the unique reduction of the distal tooth of the merus of the first chelipeds, particularly of the small cheliped, from which the name was derived. **A. viridari** differs further from the new species by its unique V-shaped notch on the cutting edge of the fixed finger of the large chela.

The senior author has not been successful in clearly separating the unnamed form mentioned above from **A. armillatus** H. Milne Edwards, 1837. Both forms constitute the predominant shrimps in the littoral fringe zone along the entire Brazilian coast, including

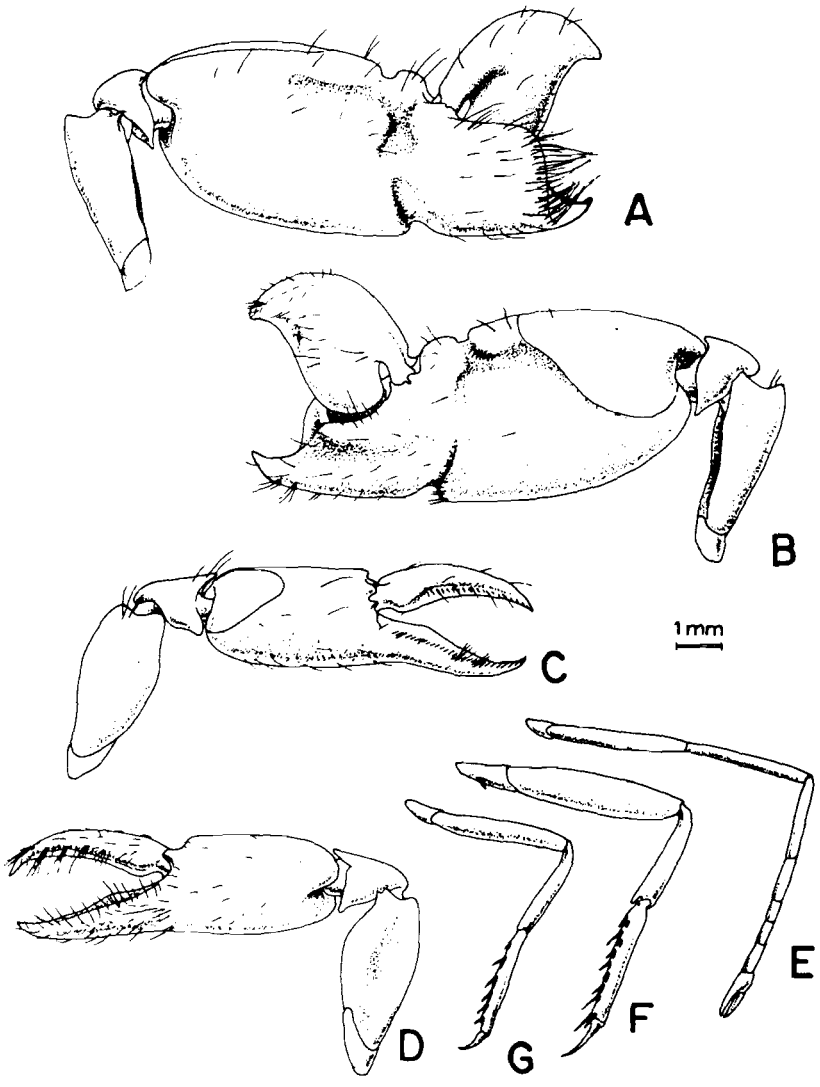

Fig. 2 – **Alpheus cryptodentatus,** holotype: A, major cheliped, mesial surface; B, major cheliped, lateral surface; C, small cheliped, lateral surface; D, small cheliped, mesial surface; E, second pereiopod; F, third pereiopod; G, fifth pereiopod.

estuarine areas. In the field these shrimps may be immediately separated into two distinct color patterns of the abdomen: 1) a uniformly colored type, usually green (sometimes with gray or yellowish-brown pigments predominanting); and 2) a banded-spotted type, that is, with these same colors concentrated into transversal bands of variable width on the posterior portion of each somite, and with a pair of conspicuous black spots on each of the second to the fourth somites. An attempt has been made to group preserved specimens according to two very striking rostral-adrostral shapes, although these appear to represent the extremes of a completely intergrading series: 1) a dorsally rounded and straight rostral carina, with shallow adrostral furrows that merge gradually with the carapace in the posterior region; and 2) a dorsally flattened rostral carina that widens posteriorly into a triangular or U-shaped area which slightly overhangs and clearly delimits posteriorly deep adrostral furrows. There does seem to be a strong correlation between the first color and the first rostral-adrostral patterns, apparently justifying the recognition of a new Brazilian taxon, and between the second color and the second rostral-adrostral patterns, which would supposedly permit a safe identification of several specimens of **A. armillatus.** However, some non banded non spotted specimens, particularly to the south of the tropic, have rostral-adrostral shapes of the second type. Furthermore, many shrimp couples occurring under the same stones along the fringing reefs of northeast Brazil, which are immediately separated in the field into the two above mentioned color patterns, have indistinguishable rostral-adrostral shapes approaching the first type. Finally, as color patterns rapidly disappear in preserved specimens, all further attempts to delimit collection specimens of these two taxa based on the above characters have proved impractical.

The above considerations appear to corroborate previous observations (e.g., ARMSTRONG, 1949) that in **A. armillatus** several morphological characters are very variable. In other closely related species (e.g., CHRISTOFFERSEN and RAMOS, 1987), including **A. cryptodentatus** sp.n., rostral-adrostral shapes have usually been assumed to be more constant and of identification value.

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