

***Lonchodactylus messingi*, a new genus and species of
Cyclodorippidae (Crustacea: Decapoda: Brachyura) from the
Bahamas**

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Abstract.—A new genus and species of the family Cyclodorippidae, *Lonchodactylus messingi*, is described from specimens collected in the Bahamas using a research submersible. The new genus is more closely related to two Indo-West Pacific genera (*Genkaia* Miyake & Takeda and *Phyllotymolinum* Tavares) than to any other cyclodorippid from the coasts of America. Morphological similarities and differences between these genera are discussed.

Six genera and twenty species of the family Cyclodorippidae Ortmann, 1892, are known from the western Atlantic and eastern Pacific of the Americas (Tavares 1993a). Five of these genera are restricted to the New World waters, while *Corycodus* A. Milne Edwards, 1880, has one species in the western Atlantic and four in the Indo-West Pacific (Tavares 1993b). With the present discovery in the Bahamas of a new genus and species of this family, knowledge of the western Atlantic cyclodorippid fauna is now broadened.

The description presented herein is based on two specimens collected during dives in the Bahamas of the research submersible *Johnson Sea Link I* (JSL I) in 1993. The specimens were obtained while conducting studies on the ecology and taphonomy of stalked crinoids.

The specimens have been deposited in the collections of the National Museum of Natural History, Washington, D.C. (USNM). Descriptive terminology follows that used by Tavares (1991). Measurements of carapace length $\times$ carapace width are given in millimeters (mm). Abbreviations: MXP1–3, first to third maxillipeds; P2–P5, second to fifth pereopods.

Lonchodactylus, new genus

Type-species.—*Lonchodactylus messingi*, new species, by present designation and monotypy.

Diagnosis.—Carapace longer than wide, slightly narrowing in width posteriorly. Fronto-orbital width more than half carapace width. Lateral margin between branchial tooth and posterior margin well defined. Dorsal surface weakly sculptured, frontal and hepatic regions depressed. Front bluntly subtriangular, with 1 low rounded tooth on each side. Lateral branchial tooth well developed. Lateral protogastric nodosity distinct. Mesial protogastric nodosity inconspicuous. Gastric pits well marked. Gastric and cardiac regions outlined laterally by shallow, smooth furrows.

Exorbital tooth prominent, directed anterolaterally. Orbit shallow, dorsal margin well defined, interrupted by shallow notch; ventral margin poorly defined. Lateral infraorbital tooth well developed. Eyestalk mobile, transverse in position relative to carapace axis. Antenna with article 1 mobile; articles 2, 3 fused in form of broad plate; articles 4, 5 broad.

Prostomial chamber short, shallow. Palp

of MXP3 visible in ventral view, inserted just below inner angle of merus; segments 2, 3 compressed dorsoventrally. Exopod of MXP1-3 with long flagellum.

Chelipeds similar in size and shape. P2 and P3 similar, dactyls lanceolate, laterally compressed; carpi each with 2 obtuse lobes on dorsodistal angle. P4 and P5 short, subdorsal in position; dactyls hook-like, simple; carpi each with acute lobe on dorso-distal angle.

Thoracic sternites 6–8 nearly perpendicular to plane formed by sternite 5; thoracic sternites 6, 7 contiguous. Sternal suture between sternites 7 and 8 very long, openings of spermathecae almost contiguous. Female abdomen with 7 broad segments entirely covering thoracic sternites 5–8 leaving no exposed sternal portions between lateral margins of abdomen and coxae of P2–P5. Females with first pleopod vestigial, uniramous, and inserted on ventral face of abdominal somite; pleopods 2–5 biramous; pleopod 5 shorter than pleopods 2–4, not carrying eggs.

Gender.—Masculine.

Etymology.—The generic name is formed by the combination of two Greek words, *lonche*, spear, and *daktylos*, finger, and refer to the spear-like dactyls of P2 and P3.

Remarks.—This new genus shares more characters with two Indo-West Pacific genera, *Genkaia* Miyake & Takeda, 1970, and *Phyllotymolinum* Tavares, 1993b, than with any other cyclodorippid genera from the western Atlantic or eastern Pacific. The three genera share the following characters which distinguish them from all others in the family: 1) endostome short and shallow, whereas in other genera in the family the endostome is long and deep; 2) exopod of MXP3 with a well developed flagellum, whereas all other genera in the family lack a flagellum; 3) palp of MXP3 inserted near inner angle of merus and visible in ventral view, with segments 2 and 3 compressed dorsoventrally, whereas in all other genera in the

family the palp is inserted on the inner face of the merus, hidden in ventral view, with articles 2 and 3 subcylindrical; 4) abdomen in both sexes with seven segments (number of segments in male of *L. messingi* not known), whereas in all other genera the abdomen in both sexes has less than seven segments, usually five in males (5–7 fused), and six in females (6, 7 fused), except for *Corycodus* with seven segments in the female; 5) in males, the abdominal somites cover thoracic sternites 5–8 so that no sternal portions are exposed between the lateral margins of the abdomen and coxae of P2–P5; in males of all other genera in the family the abdomen is narrow, leaving exposed the sternal portions between the lateral margins of the abdomen and coxae of P2–P5.

Lonchodactylus can be differentiated from both *Genkaia* and *Phyllotymolinum* by the spermathecae (sensu Tavares & Secretan 1993) and thoracic sternites. In *Lonchodactylus*, sternal sutures 7/8 are very long, and the openings of the spermathecae, located at the end of these grooves, are almost contiguous; in *Genkaia* and *Phyllotymolinum*, the openings of the spermathecae are well separated. In *Lonchodactylus*, the openings of the spermathecae are not indicated by a distinct bulge as in *Genkaia* and *Phyllotymolinum*. In *Lonchodactylus*, sternites 6–8 are nearly perpendicular relative to the preceding sternites; in *Genkaia* and *Phyllotymolinum* the sternites are at about 50°.

Lonchodactylus can be readily separated from *Genkaia* by the shape of the plate resulting from the fusion of antennal articles 2 and 3. In *Lonchodactylus*, the plate is not expanded anteriorly (Fig. 2b); in *Genkaia* the plate is expanded, and distinctly overreaches antennal article 5 (see Tavares 1993b, fig. 11b). In *Lonchodactylus*, the epistome is twice as long (Fig. 2b) as in *Genkaia* (see Tavares 1993b, fig. 11b). In *Lonchodactylus*, the dactyls of P2 and P3 are broad, spear-like (Figs. 1, 2d); in *Genkaia* the dactyls of P2–P4 are slender (see

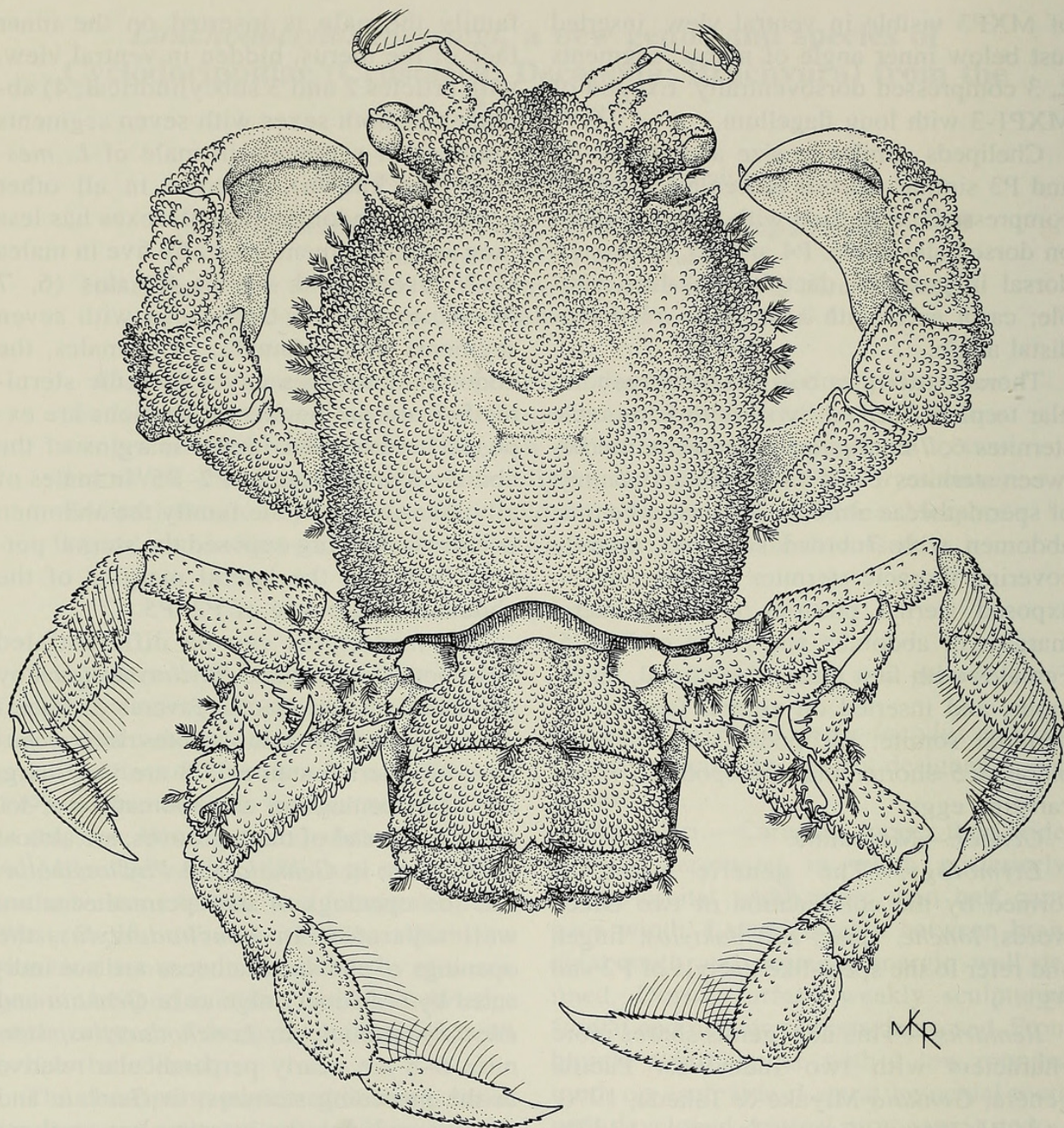


Fig. 1. *Lonchodactylus messingi*, new genus and species. Holotype, dorsal view: ovigerous female, 6.8×6.3 mm, Bahamas, $26^{\circ}38'N$, $78^{\circ}58'133''W$, 262 m, USNM 275920.

Tavares 1993b, figs. 10b, 11e). In females of *Lonchodactylus*, thoracic sternite 7 does not overlap sternite 6; in females of *Genkaia*, sternite 7 partially overlaps sternite 6.

Lonchodactylus differs from *Phyllotymolium* by the presence in the former, of vestigial, uniramous pleopods on the first abdominal somite in females. First pleopods are absent in females of *Phyllotymolium*.

Lonchodactylus messingi, new species
Figs. 1, 2

Material examined.—South of western end of Grand Bahama Island, Bahamas: holotype, ovigerous female, 6.8×6.3 mm, JSL I Dive 3476, $26^{\circ}38'N$, $78^{\circ}58'133''W$, 262 m, 16 May 1993, coll. C. G. Messing, USNM 275920; paratype, immature female, 3.7×3.2 mm, JSL I Dive 3635, $26^{\circ}38.6'N$,

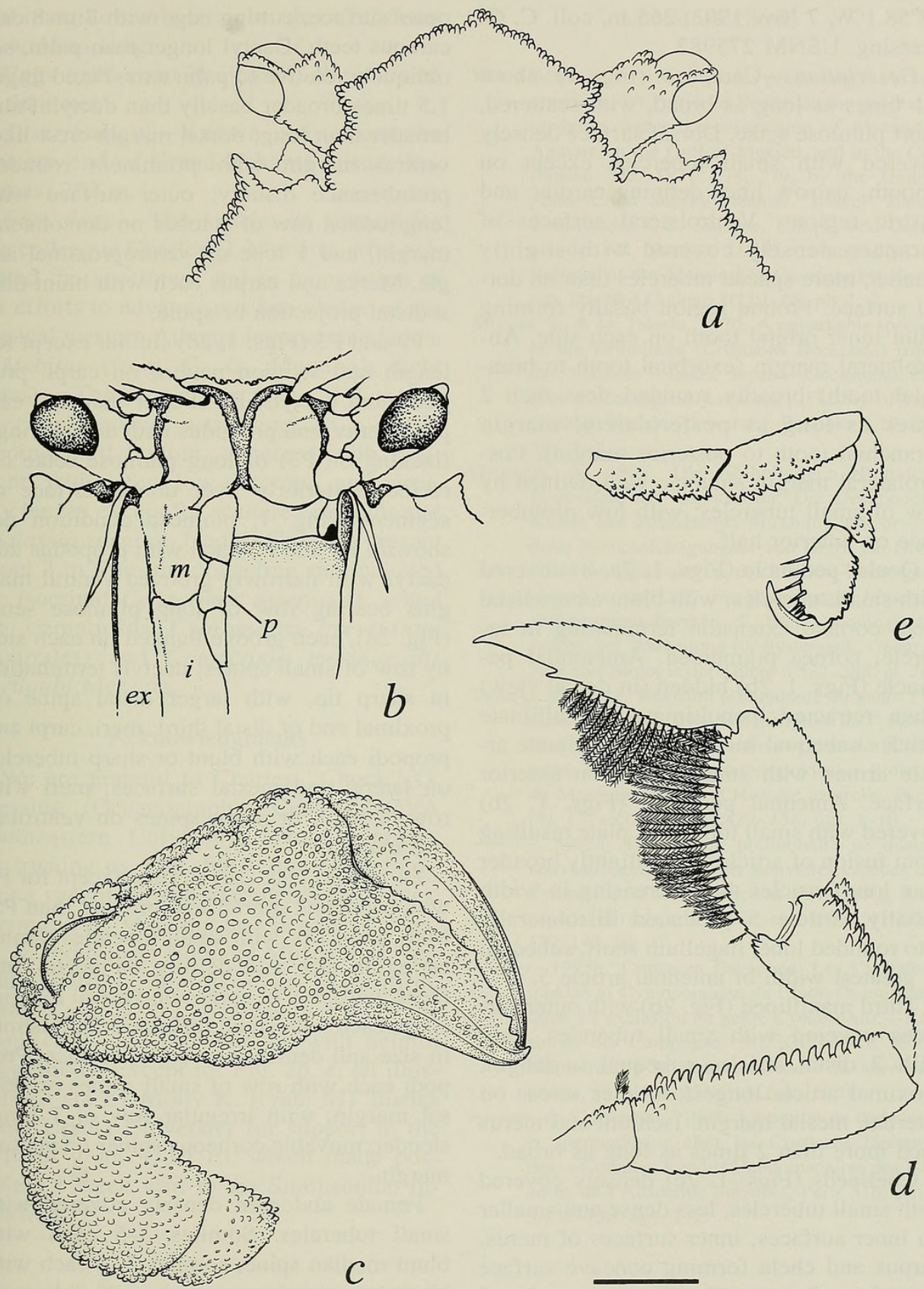


Fig. 2. *Lonchodactylus messingi*, new genus and species. Holotype, Bahamas, 26°38'N, 78°58'133"W, 262 m, USNM 275920: a, anterior region of carapace and ocular peduncles, dorsal view; b, anterior region of carapace and buccal frame with left mouthparts removed, ventral view (for right MXP3: ex, exopod, i, ischium; m, merus; p, palp); c, right cheliped, external face; d, left P3, dorsal view (not all tubercles shown, see Fig. 1); e, right P5, dorsal view. Scale equals 1 mm.

78°58.1'W, 7 Nov 1993, 265 m, coll. C. G. Messing, USNM 275982.

Description.—Carapace (Fig. 1) about 1.1 times as long as broad, with scattered, short plumose setae. Dorsal surface densely covered with small tubercles except on smooth, narrow lines defining cardiac and gastric regions. Ventrolateral surfaces of carapace densely covered with slightly smaller, more spaced tubercles than on dorsal surface. Frontal region basally forming blunt inner orbital tooth on each side. Anterolateral margin (exorbital tooth to branchial tooth) broadly rounded, less than 2 times as long as posterolateral margin (branchial tooth to posterior margin). Posterolateral margin sinuous, well defined by row of small tubercles; with low protuberance on anterior half.

Ocular peduncle (Figs. 1, 2a, b) covered with small tubercles; with blunt anterodistal lobe; corneal extension terminating in tubercle; cornea pigmented. Antennular peduncle (Figs. 1, 2b) hidden (in dorsal view) when retracted, penultimate and ultimate articles subequal in length; penultimate article armed with small spines on anterior surface. Antennal peduncle (Figs. 1, 2b) covered with small tubercles; plate resulting from fusion of articles 2, 3, slightly broader than long; articles 4, 5 increasing in width distally; article 5 produced distolaterally into rounded lobe; flagellum short, subequal to greatest width of antennal article 5.

Third maxilliped (Fig. 2b) with outer surfaces covered with small tubercles. Palp with 2 distal articles subequal in length, proximal article longest; articles setose on internal, mesial margin. Ischium and merus each more than 2 times as long as broad.

Chelipeds (Figs. 1, 2c) densely covered with small tubercles, less dense and smaller on inner surfaces; inner surfaces of merus, carpus and chela forming concave surface fitting closely to walls of carapace; dorsal and ventral margins of merus, carpus, palm, and fingers, well defined. Fingers terminating in sharp calcareous tips crossed when closed; each with 2 longitudinal ridges on

outer surface; cutting edge with 7 or 8 calcareous teeth. Dactyl longer than palm, set obliquely relative to palm axis. Fixed finger 1.5 times broader basally than dactyl. Palm broader than long; dorsal margin crest-like; ventral margin with prominent rounded protuberance distally; outer surface with longitudinal row of 3 lobes on dorsolateral margin, and 1 lobe on ventroproximal angle. Merus and carpus each with blunt dorsodistal projection or spine.

P2 and P3 (Figs. 1, 2d) similar except for length and setation pattern on carpi, propodi, and dactyls. P2 shorter than P3; carpus, merus, and propodus with dorsal fringe (lacking on P3) of long plumose setae directed posteriorly over dorsal surface of segments (Fig. 1, plumose condition not shown). P2 and P3 each with propodus and dactyl with narrowly grooved ventral margins bearing row of long plumose setae (Fig. 2d), each groove flanked on each side by row of small spines; dactyls terminating in sharp tip, with larger distal spine on proximal end of distal third; meri, carpi and propodi each with blunt or sharp tubercles on lateral and mesial surfaces; meri with row of blunt or sharp spines on ventrolateral margin.

P4 and P5 (Fig. 2e) similar except for P4 with segments shorter and broader than P5. Meri and carpi with small tubercles diminishing in size and density on dorsal surfaces; with row of spines on ventral margin. Carpi each with small tubercles diminishing in size and density on ventral surface. Propodi each with row of small spines on dorsal margin; with irregular row of 7 long, slender, movable corneous spines on ventral margin.

Female abdomen densely covered with small tubercles. Somites 3–5 each with blunt median spine; somites 3, 4 each with blunt lateral spine on each side. Telson of holotype triangular with lateral margins broadly rounded; about 1.6 times as wide as long. Telson of immature paratype narrower than in holotype, triangular with lat-

eral margins nearly straight; about 1.2 times as wide as long.

Eggs (preserved in alcohol) about 1 mm in diameter.

Distribution.—Known only from the western end of Grand Bahama Island, Bahamas; 262 m.

Etymology.—The species is named for our colleague Charles G. Messing, who collected the specimen, and in recognition of his efforts to advance our knowledge of the tropical western Atlantic invertebrate fauna.

Habitat (from C. G. Messing's field notes).—The single specimen of *Lonchodactylus messingi* was found on a gently sloping hard bottom, veneered with sediment, with a few low outcrops, and virtually barren except for scattered crinoids and *Thalassia* seagrass blades. Crinoids present about 3 m from the collecting site included the isocrinid *Cenocrinus asterius* (L.), and the comatulids *Crinometra brevipinna* (Pourtales) and *Comactinia meridionalis hartlaubi* Messing.

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