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## A new species of false spider crab of the genus *Elamena* H. Milne Edwards, 1837 (Crustacea: Decapoda: Brachyura: Hymenosomatidae), from Davao Gulf, Philippines

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### Abstract

A new species of hymenosomatid crab of the genus *Elamena* H. Milne Edwards, 1837, is described from the island of Samal, in the Davao Gulf, Mindanao, southern Philippines. *Elamena samalensis* sp. nov. belongs to the *Elamena truncata* species-group and is most similar to *E. simplidentata* Ng & Chuang, 1996, in the general form of the carapace and in the presence of only one subdistal tooth on the ambulatory dactyli. It can be distinguished from this species, however, by its more projecting rostrum, relatively longer and more slender ambulatory legs, and by the pointed apex of the female pleotelson.

**Key words:** Brachyura, Hymenosomatidae, *Elamena*, *Elamena samalensis*, Samal Island, Davao Gulf, Mindanao, Philippines

### Introduction

Ten species, distributed among five genera, of false spider crab (Crustacea: Hymenosomatidae) are presently known from the Philippines (see Ng & Chuang 1996; Naruse *et al.* 2008; Husana *et al.* 2011): *Amarinus wolterecki* (Balss, 1934) [Mindanao: Lake Mainit], *A. pumilus* Ng & Chuang, 1996 [southeastern Luzon: Bicol River, Camarines Norte], *A. abatan* Naruse, Mendoza & Ng, 2008 [Bohol: Abatan River], *Crustaenia palawanensis* (Serène, 1971) [Palawan: Quezon]; *Elamena castanea* Naruse, Mendoza & Ng 2008 [Bohol: Panglao Is.], *E. panglao* Naruse, Mendoza & Ng, 2008 [Bohol: Panglao Is.]; *Elamenopsis lineata* A. Milne-Edwards, 1873 [southern Luzon: Dagat-dagatan, Navotas]; *Neorhynchoplax bai* Naruse, Mendoza & Ng, 2008 [Bohol: Tagbilaran-Dauis Channel], *N. falcifera* Naruse, Mendoza & Ng, 2008 [Bohol: Tagbilaran-Dauis Channel], and *Samarplax principe* Husana, Tan & Kase, 2011 [Samar: Principe Cave, Guiuan]. Described herein as a new species of *Elamena* H. Milne Edwards, 1837, is the eleventh species. The new species was collected from the intertidal zone on Samal Island situated in the Davao Gulf of the island of Mindanao.

The terminology used here follows that of Lucas (1980) and Ng & Chuang (1996) with the following abbreviations: G1 for the male first pleopods and P2 to P5 for pereopods 2 to 5 (first to fourth ambulatory legs), respectively. Measurements provided are for the carapace width and the carapace length, in millimeters. Material examined is deposited in the Crustacean Reference Collection, National Museum of the Philippines, Manila (NMCR) and the Zoological Reference Collection, Raffles Museum of Biodiversity Research, National University of Singapore (ZRC).

## Systematic account

### Hymenosomatidae MacLeay, 1838

#### *Elamena* H. Milne Edwards, 1837

##### *Elamena samalensis* sp. nov.

(Figs. 1–3)

**Material examined.** Holotype, ♂, 4.7 × 4.2 mm (NMCR 39074), Samal Is., Davao Gulf, Mindanao, Philippines, 6° 58.453' N, 125° 43.470' E, intertidal zone, coll. T. Haga & Walter, 14 March 2007. Paratype, ♀, 5.5 × 4.8 mm (ZRC 2013.0095), same data as holotype.

**Comparative material.** *Elamena simplidenta* Ng & Chuang, 1996: paratype, ♀, 7.6 × 6.3 mm (ZRC 1994.4231), Ambon, Moluccas, Indonesia, coll. Snellius Expedition, 10–17 Sep. 1930. *Elamena cristatipes* Gravely, 1927: 2 ♀, 4.0 × 4.7 mm, 4.0 × 4.5 mm (ZRC 1969.11.212-3), Batu Ferringhi, Penang, Malaysia, coll. University of Kuala Lumpur, 1966. *Elamena truncata* (Stimpson, 1858): 2 ♂, 7.7 × 6.9 mm, 8.1 × 7.0 mm, 2 ovigerous ♀, 9.6 × 8.0 mm, 8.4 × 6.8 mm (ZRC 1999.0048), Sumiyoshi, Tanegashima, Japan, coll. M. Takeda, 13 June 1975. *Elamena vesca* Ng & Richer de Forges, 1996: paratypes, 1 ♀, 4.9 × 4.5 mm, 1 ovigerous ♀, 6.9 × 6.2 mm (ZRC 1994.4285), Marè à Ouémo, Nouméa, New Caledonia, coll. B. Richer de Forges, 1992.

**Description.** Carapace (Fig. 1A) subpentagonal, broader than long; dorsal surface deeply concave, gastrocardiac groove present but faint, with fine granules covering entire surface. Rostrum truncated, continuous with carapace; anterior margin medially convex; ventral keel partially visible from dorsal view, deep, triangular in lateral view, continuous with prominent interantennular septum; lateral margin of rostrum continuous with anterolateral margin of carapace. Anterolateral margin cristate, dorsally projecting, slightly sinuous, slightly concave near base of rostrum; first anterolateral tooth replaced by slight convexity; second anterolateral tooth moderately produced, angular. Posterolateral margin similarly cristate, dorsally projecting, generally convex, not well demarcated from posterior margin. Posterior carapace margin convex, similarly cristate, dorsally projecting. Postocular tooth distinct, triangular; suborbital region slightly swollen. Pterygostomial regions with 3 prominent lobiform crests, one anterior to base of cheliped coxa, one at anterolateral angle of buccal cavity, one in between largest. Subhepatic area swollen.

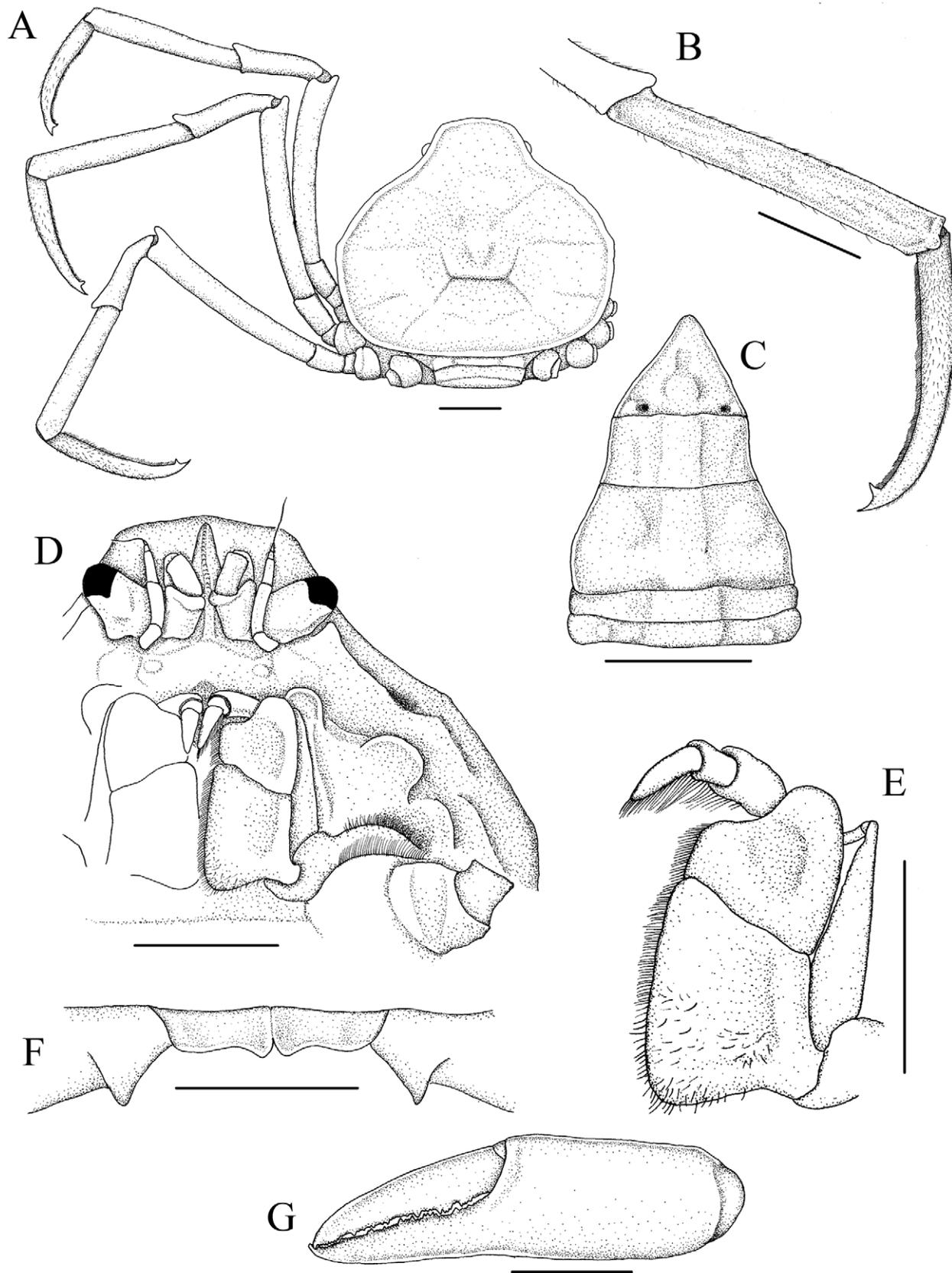
Epistome length subequal to breadth, posterior margin thinly crested, sinuous, with median notch. Antennule developed, basal antennular segment with short, rounded antero-external protuberance; interantennular septum strong. Antennae directed anteriorly, antennal spines absent. Eyes well developed, eyestalks short, partially visible at anterolateral margin from dorsal view.

Third maxillipeds (Fig. 1E) covering entire buccal cavity when closed; exopod narrow, distal end almost reaching the distal external angle of merus, with distinct flagellum; ischium subquadrate, external margin shorter than internal margin, subequal to length of merus, forming continuous ridged external border with merus; merus subtriangular, with longitudinal ridge along submedian surface, inner margin filled by palp *in situ*.

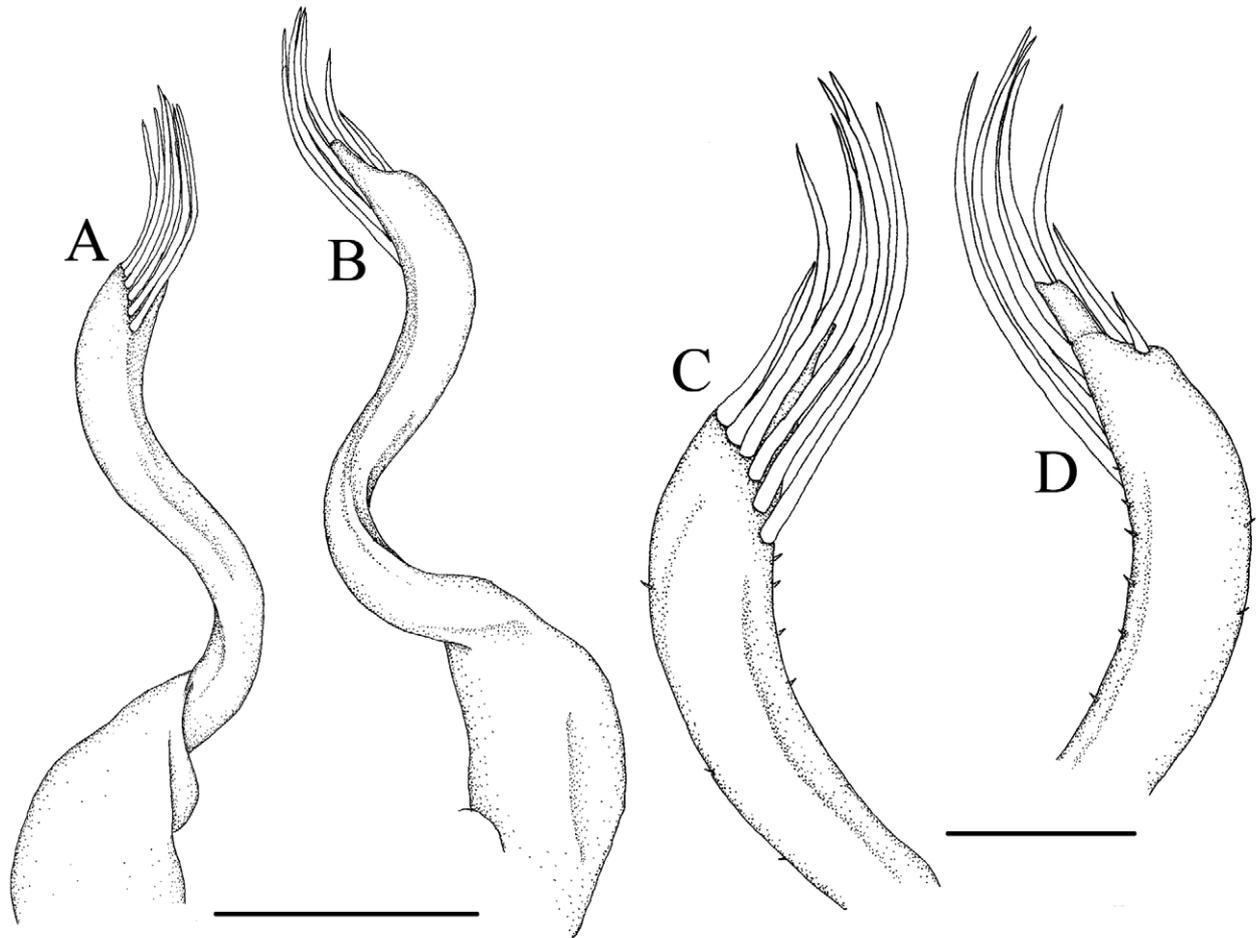
Male thoracic sternum wide, finely granular; sternites 1–3 fused, hidden by third maxillipeds, sunken toward buccal cavity; strong transverse ridge at junction of sternites 3, 4; border of sternite 4 with Milne Edwards aperture, distinctly convex; succeeding sternites triangular, slightly inflated; sternoabdominal cavity moderately deep, anterior tip reaching anterior border of sternite 4, without sutures, prominent press-button situated at level between sternites 5, 6.

Male chelipeds (Fig. 1G) almost symmetrical, robust; merus rounded in cross-section, with small tooth on dorso-distal end and protrusion on inner distal end; carpus rounded, distal inner angle blunt; chela with swollen palm, fingers equal in length, with pointed tips, distally curving inwards, no wide gape when closed, cutting edges lined with small teeth interspersed with much smaller teeth, with larger subproximal tooth on dactylus.

P2–P5 (Fig. 1A & B) relatively slender, rounded except flattened dactyli, P3 longest, P5 shortest; meri, carpi of all legs with acute extension on distal end of anterior margins, surfaces lined with short, bristly setae; dactyli shorter than propodi, distal one-third gently curving inward, terminating in pointed claw; dorsal, ventral margins lined with long setae, with subdistal conical tooth on flexor margin.



**FIGURE 1.** *Elamena samalensis* sp. nov., holotype, ♂, 4.7 x 4.2 mm (NMCR 39074), Samal Is. A, habitus, dorsal view; B, propodus and dactylus of right P4, dorsal view; C, abdomen (pleotelson and somites 1–5); D, anterior region, ventral view; E, left third maxilliped, external view; F, epistome, anterior view; and G, left chela, external view. Scale bars: A–G = 1.0 mm .



**FIGURE 2.** *Elamena samalensis* sp. nov., holotype, ♂, 4.7 x 4.2 mm (NMCR 39074), Samal Is. Right G1, A, external (ventral) view; B, internal (dorsal) view; C, distal end, external view; and D, distal end, internal view. Scale bars: A, B = 1.0 mm; C, D = 0.2 mm.

Male abdomen 5-segmented, including pleotelson (Fig. 1C). Third, fourth abdominal somites fused, gradually narrowed over distal half with convex lateral margins; lateral margin of fifth abdominal somite concave; pleotelson triangular, apex acute, distinctly longer than fifth somite, with depressions on either side just above suture with fifth abdominal somite.

G1 (Fig. 2) with long, twisted shaft; proximal half directed medially then turning laterally, outwardly in winding S-shaped manner; with row of 7 stiff, subterminal setae on dorsal surface.

**Female paratype.** Carapace with swollen gastric region; second anterolateral teeth more distinct than in holotype. Chelae not swollen and more slender, slight gap between finger, pollex present when closed. Thoracic sternum completely covering ventral area; small vulvae on medial fused plate of thoracic sternum, at level of sternite 4. Female abdomen wide, subcircular, covering entire thoracic sternum; abdomen 6-segmented, pleotelson triangular, apex convex, pleopods present.

**Coloration.** Carapace color of *Elamena samalensis* sp. nov. is dark brown while ambulatory legs of male are darker brown and yellowish brown in female (Fig. 3). Both sexes have white spots on the surface of legs in fresh material.

**Habitat and geographical distribution.** Intertidal to shallow subtidal, depth 0–3 m, under rocks in rocky and sandy substrate. *Elamena samalensis* sp. nov. is currently known only from its type locality, Samal Island, in the Davao Gulf, Mindanao, Philippines.

**Etymology.** This species is named after the type locality, Samal Island.

**Remarks.** *Elamena samalensis* sp. nov. is morphologically similar to members of the *Elamena truncata* species-group (viz. Ng & Chuang 1996), such as *E. mathoei* (Desmarest, 1823), *E. truncata* (Stimpson, 1858), *E.*

*abrohlensis* Gordon, 1940, and *E. panglao* Naruse, Mendoza & Ng, 2008, in the general form of the carapace, where the rostrum is truncated rather than tapering, the carapace is subpentagonal, and the anterolateral margin of the carapace is slightly convex, and the junction of the anterolateral and posterolateral margins of the carapace (“posterior lateral angle” of Lucas 1980) is angular (see Gordon 1940; Lucas 1980; Ng & Chuang 1996; Naruse *et al.* 2008). It can be easily distinguished from these congeners, however, by the presence of only one subdistal tooth, rather than two, on the ambulatory dactyli.



**FIGURE 3.** *Elamena samalensis* sp. nov., paratype, ♀, 5.5 × 4.8 mm (ZRC 2013.0095), Samal Is. Freshly-preserved coloration.

*Elamena samalensis* sp. nov. is most similar to *E. simplidenta* Ng & Chuang, 1996, in the general form of the carapace, by having a small portion of the rostral keel visible in dorsal view, and in having only one subdistal tooth on the ambulatory dactylus. The latter condition is shared by only one other species, *E. cristatipes* Gravely, 1927, although this species can easily be separated from the other two by the shape of its carapace and by the cristate anterior border of its ambulatory propodi (see Gravely 1927: pl. 21 fig. 24; Ng & Chuang 1996: fig. 7). The new species can be distinguished from *E. simplidenta* by the following morphological features: 1) the rostrum is more projecting and more distinctly separated from the carapace anterolateral margin (Fig. 1A) (rostrum less projecting in *E. simplidenta*; cf. Ng & Chuang 1996: fig. 11A); 2) the anterior margin of the rostrum is slightly convex medially (Fig. 1A) (straight in *E. simplidenta*; cf. Ng & Chuang 1996: fig. 11B); 3) the anterior region of the epistome is relatively flat and the posterior region is more produced ventrally, i.e., thicker (Fig. 1F) (anterior region forms a transverse ridge, posterior region less produced, i.e., thinner, in *E. simplidenta*); 4) the finger tips of the chelae are simple, not bifurcate (Fig. 1G) (bifurcate in *E. simplidenta*; cf. Ng & Chuang 1996: fig. 11I); 5) the ambulatory legs are relatively longer and more slender, with merus length : carapace length ratio = 0.7, merus length : width ratio = 8.1 (Fig. 1A) (relatively shorter and less slender in *E. simplidenta*, with merus length : carapace length ratio = 0.6, merus length : width ratio = 5.0; cf. Ng & Chuang 1996: fig. 11G); and 6) the apex of the female pleotelson is convex (concave in *E. simplidenta*; cf. Ng & Chuang 1996: fig. 11J). The male characters for *E. simplidenta* are not known. The shape of the male abdomen of *E. samalensis* sp. nov. is perhaps most similar to that of *E. abrohlensis* Gordon, 1940, but the apex of the pleotelson of the former is more pointed and has two

hollow depressions on either side just above the suture with the fifth abdominal somite, whereas the latter has a more rounded apex. Furthermore, the lateral margins of abdominal somites 3 and 4 are also convex in the new species, and those of the fifth abdominal somite are concave (lateral margins distally concave for abdominal somites 3 and 4 and convex for abdominal somite 5 in *E. abrolhensis*) (cf. Gordon 1940: fig. 7c; Lucas 1980: fig. 8g).

The shape of the G1 of *Elamena samalensis* **sp. nov.** (Fig. 2) is closest to that of *E. abrolhensis*. Both of them are twisted forming an S-shape, but the twisting and curvature of the G1 of *E. samalensis* **sp. nov.** is tighter and more pronounced than that of *E. abrolhensis* (cf. Gordon 1940: fig. 7a; Lucas 1980: fig. 10I). In addition, the distal tip of the G1 of the new species has fewer subterminal setae (cf. Gordon 1940: fig. 7a; Lucas 1980: fig. 10I).

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## References

- Balss, H. (1934) Mitteilungen von der Wallace - Expedition Woltereck. Mitteilung XI: Die Dekapoden. *Zoologischer Anzeiger*, 106(7/8), 177–184.
- Chuang, C.T.N. & Ng, P.K.L. (1994) The ecology and biology of Southeast Asian false spider crabs (Crustacea: Decapoda: Brachyura: Hymenosomatidae). *Hydrobiologia*, 285, 85–92. <http://dx.doi.org/10.1007/BF00005656>
- Desmarest, A.G. (1823) Malacostracés (Crust.). In: Cuvier, F. (Ed.) *Dictionnaire des Sciences Naturelles, dans lequel on trait Méthodiquement des Différens êtres de la Nature, considérés soit en eux-mêmes, d'après l'état actuel de nos connoissances, soit relativement à l'utilité qu'en peuvent retirer la Médecine, l'Agriculture, le Commerce et les Arts. Suivi d'une biographie des plus Célèbres Naturalistes. Ouvrage destiné aux médecins, aux agriculteurs, aux commerçans, aux artistes, aux manufacturiers, et à tous ceux qui ont intérêt à connoître les productions de la nature, leurs caractères génériques et spécifiques, leur lieu natal, leurs propriétés et leurs usages.* Vol. 28. Strasbourg et Paris: F.G. Levrault et Le Normant. pp. 138–425 [Malacostracés 211–285], Atlas, vol. 4, pls. 1–58.
- Gravely, G.H. (1927) The littoral fauna of Krusadai Island in the Gulf of Mannar, orders Decapoda (except Paguridae) and Stomatopoda. *Bulletin of the Madras Government Museum*, 1, 135–155.
- Gordon, I. (1940) On some species of the genus *Elamena* (s.s.) (Crustacea, Decapoda). *Proceedings of the Linnean Society of London*, 152(1), 60–78. <http://dx.doi.org/10.1111/j.1095-8312.1940.tb00248.x>
- Husana, D.E.M., Tan, S.H. & Kase, T. (2011) A new genus and species of anchialine Hymenosomatidae (Crustacea: Decapoda: Brachyura) from Samar, Philippines. *Zootaxa*, 3109, 49–59.
- Lucas, J.S. (1980) Spider crabs of the family Hymenosomatidae (Crustacea; Brachyura) with particular reference to Australian species: systematics and biology. *Records of the Australian Museum*, 33, 148–247. <http://dx.doi.org/10.3853/j.0067-1975.33.1980.199>
- Milne-Edwards, A. (1873) Recherches sur la faune carcinologique de la Nouvelle-Calédonie. *Nouvelles archives du Muséum d'histoire naturelle*, 9, 155–322, pls. 4–18.
- Milne Edwards, H. (1837) *Histoire naturelle des Crustacés, comprenant l'anatomie, la physiologie et la classification de ces animaux.* Vol. 2. Paris: Librairie Encyclopédique de Roret, 458 pp.
- Naruse, T., Mendoza, J.C.E & Ng, P.K.L. (2008) Descriptions of five new species of false spider crabs (Decapoda: Brachyura: Hymenosomatidae) from the Philippines. *Marine Biology Research*, 4, 429–441. <http://dx.doi.org/10.1080/17451000802232866>
- Ng, P.K.L. & Chuang, C.T.N. (1996) The Hymenosomatidae (Crustacea: Decapoda: Brachyura) of Southeast Asia, with notes on other species. *Raffles Bulletin of Zoology*, Suppl. No. 3, 1–82.
- Serène, R. (1971) Observations préliminaires sur des brachyours nouveaux ou mal connus du sud-est asiatique (Crustacea Decapoda). *Bulletin du Muséum national d'Histoire naturelle*, 2<sup>e</sup> série, 42(5), 903–918, pls. 1–6.
- Stimpson, W. (1858) Prodromus descriptionis animalium evertibratorum, quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federate missa, Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observavit et descripsit. Pars V. Crustacea Ocypodoidea. *Proceedings of the Academy of Natural Science of Philadelphia*, 10, 93–110.