

STOMATOPOD CRUSTACEA COLLECTED BY THE MISSION CORINDON II IN THE MAKASSAR STRAIT, INDONESIA

by

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ABSTRACT

Seventeen species of Stomatopoda belonging to five families have been collected in the Strait of Makassar, Indonesia during the Franco-Indonesian mission "CORINDON II". Four species of the family Squillidae: *Kempina mikado*, *Lenisquilla spinosa*, *Oratosquilla imperialis*, and *O. ornata* are for the first time reported to exist in the Indonesian waters.

INTRODUCTION

Five families of stomatopod Crustacea comprising of seventeen species have recently been collected in the Makassar Strait, Indonesia. Two species which were described by HANSEN (1926) collected during the Siboga Expedition have been rediscovered, they are: *Coronidopsis bicuspis* which was collected in the northern entrance of Buton Strait, southeast Sulawesi, and *Eurysquilloides sibogae* which was collected in the Timor Sea, south of Timor Island. The presence of four species which so far have never been reported from Indonesian waters enriched the number of the Indonesian stomatopod species. All the four newly recorded species belong to the family Squillidae, they are: *Kempina mikado*, *Lenisquilla spinosa*, *Oratosquilla imperialis* and *O. ornata*. These species were known only from the northern part of Indonesian waters with the exception of *K. mikado* which was also known from western Indian Ocean.

All the measurements in this work are given in millimeters, indices following MANNING (1969).

The study of this material was carried out in the Laboratoire de Zoologie (Arthropodes), Museum National d'Histoire Naturelle, Paris.

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The authors would like to express their gratitude to Prof. J. Forest for giving access to study the collection and to Drs A. Crosnier, D. Guinot, and M. de St-Laurent for giving freedom to use their personal libraries, and to Mme J. Semblat for her help in the literatures. The present study was made into reality through the fellowship awarded to the first author (M.K.M.) by the French government in relation with the Cooperation Franco-Indonesian in Oceanology.

Family EURYSQUILLIDAE Manning 1977

Coronidopsis bicuspis Hansen 1926

Coronidopsis bicuspis Hansen, 1926: 19 - 21, pl. 1, figs. 7a - g. - Manning & Garcia, 1982: 595, fig. 1c, d.

Material — CORIDON II, Station 216, 96 m: 1 ♀ 34 mm (both claws missing) (LON. Cat. no. S 2526).

Remarks. — The present specimen could be identified as *Coronidopsis bicuspis* Hansen, 1926 sharing all characters except that the carinae on anteroventral surface of telson do not terminate into spine. MANNING & GARCIA (1982) separate *C. bicuspis* from *C. andamanensis* Makarov, 1976 by the absence of spined anteroventral carinae on telson. We do not see any other character distinguishing the present specimen from *C. bicuspis* and therefore we incline to regard it as *bicuspis*. As mentioned by MANNING & GARCIA (1982) that possibly the genus *Coronidopsis* comprising only of two species, one with pairs of carinae and spines on anteroventral surface of telson and the other with only pairs of carinae. Probably, *C. andamanensis* Makarov, 1976 is conspecific with *C. bicuspis*.

Previous Indonesian records. — *C. bicuspis* was firstly recorded at northern entrance of Buton Strait in 94 m depth (HANSEN 1926). The species reported by BLUMSTEIN (1974) from Tonkin Bay, Vietnam as *C. bicuspis* was synonymized by MANNING & GARCIA (1982) with *C. serenei* Moosa, 1973.

Eurysquilloides sibogae (Hansen 1926)

Squilla sibogae Hansen, 1926: 15-17, figs. 6a - e.

Eurysquittoides sibogae, Makarov, 1978: 185.

Material — CORINDON II, Station 267, 186 -134 m : 1 ♂ 55 mm (MNHNP St 918).

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Remarks. — Hansen's specimen, a male of 47 mm, has eight and nine teeth on each raptorial dactylus, the present specimens bear nine teeth. *Previous Indonesian records.* — *E. sibogae* has been previously recorded from Timor Sea, the type locality (HANSEN, 1926). The species so far was only known from two other localities: Tonkin Bay, Vietnam (MAKAROV, 1976) and off Philippines (in preparation by the first author).

Family GONODACTYLIDAE Giesbrecht 1910

Gonodactylus affinis de Man 1902

Gonodactylus chiragra var. *affinis* de Man, 1902: 912.

Gonodactylus segregates, Moosa, 1973: 8 - 9.

Gonodactylus affinis, Manning, 1978a: 2 - 4 fig. 1 (synonymy).

Material — CORINDON II, Station 294, 57 - 46 m: 1 Juv. 12 mm (MNHN-P St. 922).

Previous Indonesian records. — *G. affinis* has been previously reported from various localities in the Moluccas (MOOSA 1973, KASTORO *et al.* 1980). The type was collected from Ternate, northern part of Moluccas (DE MAN 1902).

Family ODONTODACTYLIDAE Manning 1980

Odontodactylus brevirostris (Miers 1884)

Odontodactylus brevirostris, Manning, 1967: 22-29, figs. 6-8 (synonymy). — Moosa, 1973: 12-13.

Material. — CORINDON II, Station 294, 57 - 46 m: 1 ♂ 63 mm (MNHN-P St. 916).

Previous Indonesian records. — *O. brevirostris* has been previously reported from Indonesia. It was recorded from Saleh Bay, Sumbawa; Mamoedjoe, west coast of Sulawesi; Lembeh Strait, Sulawesi; southwest and north of New Guinea (Irian Jaya) (all data from HANSEN, 1926 and MANNING 1976); Piru Bay, Ceram (MOOSA 1973, KASTORO *et al.* 1980).

Family HARPIOSQUILLIDAE Manning 1980

Harpiosquilla annandalei (Kemp 1911)

Squilla annandalei Kemp, 1911: 99-100. — 1913: 92-93, pi. 7, figs. 78 - 80.

Harpiosquilla annandalei, Manning, 1969b: 6-9, figs. 1-3 (synonymy).

Material. — CORINDON II, Station 205, 49 m: 3 ♂♂ 59 - 114 mm (MNHN-P St 908).

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Previous Indonesian records. — *H. annandalei* has been previously reported from Indonesia. It was recorded from Java Sea, 54 - 63 m (SUNIER 1918); East Java and Madura Strait (KASTORO *et al.* 1980).

Family SQUILLIDAE Latreille 1803

Anchisquilla fasciata (de Haan 1844)

Squilla fasciata de Haan, 1844, atlas, pi. 51, fig. 4. — 1849, text: 224. — Hansen, 1926: 5-6. — Holthuis, 1941: 242-243.

Anchisquilla fasciata, Moosa, 1973: 17. — 1975: 9-10.

Material. — CORINDON II, Station 295, 54 - 51 m: 1 ♂ 55 mm (MNHN-P St 920).

Previous Indonesian records. — East Java, 15 m, coral and stones; Molo Strait, 54-90 m; Borneo-Bank, 59 m, fine grey coral sand; Donggala, Palos Bay, Sulawesi, 36 m, fine grey mud; Kwandang Bay, Sulawesi, 75 m, hard sand; north of Bali, 88 m, fine yellowish grey mud (all data from HANSEN 1926); Moluccas (HOLTHUIS 1941); west of Toba Island, Aru Islands, Moluccas, 54-63 m (MOOSA 193); Ayer Island, off Jakarta (MOOSA 1975, KASTORO *et al.* 1980), Jakarta Bay KASTORO *et al.* 1980), East Java and Madura Strait (KASTORO *et al.* 1980).

Clorida chlorida (Brooks 1886)

Squilla chlorida Brooks, 1886: 40 - 44, pi. 2, figs. 1 - 5. *Clorida chlorida*, Manning, 1968: 5 - 8, fig. 1. — Moosa, 1973: 17 - 19.

Material — CORINDON II, Station 259, 64 m: 1 ♂ 61 mm (MNHN-P St 1095).

Previous Indonesian records. — *C. chlorida* has been previously reported from Indonesian waters. This species was recorded from various localities in the Moluccas in the depths of 27 of to 108 m (BROOKS 1886, MOOSA 1973, KASTORO *et al.* 1980).

Clorida latreillei Eydoux & Souleyet 1841

Clorida latreillei Eydoux & Souleyet, 1841: 265 - 266, pl. 5, figs. 2-5. — Manning, 1969: 7-8. — Moosa, 1975: 11.

Chloridella latreillei, Wood-Mason, 1895: 7-8, pl. 4, figs. 6-13.

Squilla latreillei, Kemp, 1913: 24-27, pi. 1, figs. 1-4.

Material. — CORINDON II, Station 205, 49 m: 1 ♀ 35 mm (both raptorial claws missing) (MNHN-P St 939).

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Remarks. — The present specimen could be identified as *C. latreillei* following Manning's key for the species (MANNING 1968). It differs with *C. latreillei* in: 1. lateral process of fifth thoracic somite forming a large spine directed anterolaterally instead of a sharp laterally directed spine; 2. more spines on the abdominal carinae.

Previous Indonesian records. — *C. latreillei* has been previously recorded from Jakarta Bay (MOOSA 1975, KASTORO *et al.* 1980); Thousand Islands, off Jakarta; East Java, Madura Strait, and several localities in the Moluccas (KASTORO *et al.* 1980).

Clorida miersi Manning 1968

Clorida miersi Manning, 1968: 11-14, fig. 3. — Moosa, 1973: 22. — 1974: 16.

Material — CORINDON II, Station 205, 49 m: 1 ♀ 55 mm (MNHN-P St 1084).

Remarks. — Following Manning's key for the species (MANNING 1968) the present specimen can be identified as *C. miersi* with several modifications: 1. the fifth thoracic somite with a sharp ventral spine which is as a ventral tubercle in the type specimen; 2. fifth abdominal somite with a clear trace of submedian carinae, this is not mentioned in the type description but is considered as lacking in the key; 3. abdominal carinae spined as follows: submedian 6, intermediate 4-6, lateral 5-6, marginal (4) - 5; 4. denticle formulation of telson is: 3-4, 8, 1. The abdominal spinulation of the present specimen shows that it has more spines than the type and also has wider cornea (cornea Width about three-fourths of eye length).

Previous Indonesian records. — *C. miersi* has been previously reported from Indonesia, it was recorded from several localities in the Moluccas (ANONYMOUS 1972, MOOSA 1973, 1974; KASTORO *et al.* 1980).

Kempina mikado Kemp & Ohopra 1921)

Squilla stridulans, Kep, 1913: 78-80 (part, Japanese specimen only) (non *Squilla stridulans* Wood-Mason, 1894).

Squilla mikado Kemp & Chopra, 1921: 301 - 303, fig. 2. — Manning, 1965: 257-259, pi. 12, fig. a.

Material. — CORINDON II, Station 273, 220 - 180 m: 1 ♀ 61 mm (MNHN-P St 909), 19 64 mm (LON. Cat. no. S 2522).

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Remarks. — MANNING (1981) separated *K. mikado* from *K. zanzibarica*, two closely related species by the form of rostral apex which is rounded in the latter and subtrincate in the first species. The present specimens have rostral plate with subtrincate apex.

Previous Indonesian records. — None. The present record is a new record for Indonesia.

LopkosquMa tiwarii Blumstein 1974

Squilla lata, Kep, 1913: 37 - 39, pi. 2, fig. 24 (non *Squilla lata* Brooks, 1886).

Squilloides lotus spkiosics Blumstein, 1970: 223 - 224. figs. 4-5.

Material. — CORINDON II, Station 208, 150 m: 2 ♀♀ 45-69 mm (MNHN-P St 917), 1♂ 62 mm (LON. Cat. no. S 2525).

Remarks. — The specimens agree in almost every detail with the description of BLUMSTEIN (1970) differing only in the number of submedian denticles of telson which is only one at each side of median fissure in the large specimens and in the small specimen one side with one denticle and the other side with two denticles. In the smallest specimen an indication of median elevation exists on the rostral plate resembling an obsolete carina.

Previous Indonesian records. — None. The present record is a new Indonesian record.

Loposquilla tiwarii Blumstein 1974

Squilla costata, Kemp, 1913: 84-86, pl. 4, figs. 70-72 (specimen from Burmese coast, non *Squilla costata* de Haan, 1844).

Squilla sp. prox. *costata*, Tiwari & Biswas, 1952: 354-355, fig 2b, e, g, j.

Lophosquilla tiwarii Blumstein, 1974: 123-124, fig. 8.

Material — CORINDON II, Station 205, 49 m; 2 ♂♂ 46-48 mm, 3 ♀♀ 32-47 mm (MNHN-P St 921).

Previous Indonesian records. — *Lophosquilla tiwarii* has been reported from several localities in the Java Sea (KASTORO *et al.* 1980).

Oratosquilla asiatica Manning, 1978

Oratosquilla asiatica Manning, 1978b: 10 - 12, fig. 4.

Material — CORINDON II, Station 205, 49: 1 ♀ 45 mm (MNHN-P St 1035).

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Remarks. — The specimen has less spines on the submedian carinae which are armed only on the fifth and abdominal somites. Other characters agree with the description of MANNING (1978b).

Previous Indonesian records. — Known only from Teluk Jos Sudarso, Irian Jaya (MANNING 1978b).

Oratosquilla imperialis (Manning 1965)

Squilla imperialis Manning, 1965: 253 - 255, fig. 1, pi. 13, fig. b.

Material. — CORINDON II, Station 216, 96 m: 1 ♂ 50 mm (MNHN-P St 913).

Previous Indonesian records. — None. *O. imperialis* was known from Japan, its presence in Indonesian waters extends its distribution southwardly.

Oratosquilla ornata Manning 1971

Oratosquilla ornata Manning, 1971: 9-11, fig. 3

Material. — CORINDON II, Station 273, 220-180 m: 1 ♂ 57.5 mm (MNHN-P St 914).

Remarks. — *Oratosquilla ornata* Manning, 1971 was described from a single female specimen collected in the South China Sea. The species belongs to the *gonypetes-group* of the *imperialis* complex in having six teeth on the raptorial dactylus and the absence of spine on inferodistal angle on outer face of merus of raptorial claw. The present specimen has six and seven teeth at each raptorial dactylus; smaller cornea (CI 492); and more spines on abdominal carinae (formulation is as follows: 5-6, 3-6, 1-6, 1-5),

Previous Indonesian records. — None. The species was only known from its type locality, the South China Sea, off Hongkong in 112 m depth, in sand, green mud bottom (MANNING 1971). The present record is new for Indonesia showing the species southward geographical distribution.

Oratosquilla subtilis Manning 1978

Oratosquilla subtilis Manning, 1978b: 33-34, fig. 19.

Material. — CORINDON II, Station 205, 49 m: 1 ♂ 67.5 mm (MNHN-P St 915).

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Remarks. — *Oratosquilla subtilis* Manning, 1978 belongs to the *gomjpetes*-group of the *gonypetes-comiplex*. The present specimen agree in most detail with Manning's description but having relatively smaller cornea (CI 452) which is due to its larger size.

Previous Indonesian records. — *Oratosquilla subtilis* has been previously reported from Indonesia (MANNING 1978b).

Squilloides leptosquilla (Brooks 1886)

Squilla leptosquilla Brooks, 1886: 30 - 34, pi. 1, figs. 1-2. — Jurich, 1904: 370 - 372, pi. 25 (1), fig. 1 - lb. — Kemp, 1913: 46 - 48. — Hansen, 1926: 10.

Squilla leptosquilla var. *dentata* Jurich, 1904: 372, pi. 25 (1), fig. 2.

Material. — CORINDON II, Station 271, 215 m: 3 ♂♂ 47 - 90 mm, 2 ♀♀ 39-108 mm (MNHN-P St 910), 2 ♂♂ 59-82 mm, 1♀ 113 mm (LON. Cat. no. S 2523). — Station 273, 220 -180 m: 2 ♂♂ 51 -106 mm (MNHN-P St 911).

Remarks. — The present specimens have two different types of telson. One large male (TL 106 mm) has very short lateral teeth of telson with enlarged dorsal carina which correspond to the figure of BROOKS (1884, pi. 1, fig. 1) and JURICH (1904, pl. 25 (1), fig. 1). Two smaller males have sharp lateral teeth as those of the females thus resembling var. *dentata* of JURICH (1904, pl. 25 (1), fig. 2). KEMP (1913) after studying materials from Andamans concluded that var. *dentata* does not deserve distinction as a variety. The presence of the two forms of telson types in the present specimens support Kemp's conclusion.

Previous Indonesian records. — *Squilloides leptosquilla* has been reported from Indonesia where it was recorded from Banda Sea, 310 m, in fine, grey mud bottom (HANSEN 1926).

REFERENCES

- ANONYMOUS 1972. Biological and hydrological observations in the Piru Bay, Ambon Bay, and Buton Strait by R.V. S'amudera. *Oceanogr. Cruise Rep. Inst. Mar. Res.*, Jakarta T: 1 - 27.
- BLUMSTBIN, R. 1970. New stomatopod crustaceans from the Gulf or Tonkin, South China Sea. *Crustaceana* 18 (2.): 2,18 - 224, figs. 1-5.
- BLUMSTBIN, R. 1974. Stomatopod crustaceans from the Gulf of Tonkin with description of a new species. *Crustaceana* 26 (2) : US -126, figs. 1 -10.

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- BROOKS, W.K. 1886. Report on the Stomatopoda collected by HJVLS, Challenger during the years 1870-1876. *Rep. Set. Res. Challenger (Zool.) W*: 1-116, pis, i-ie.
- EYDOUX, A.M. and I.F.A. SOULEYET 1841. Crustacea. Voyage autour du monde execute pendant les annees 1836 et 1837 sur la corvette La Bonite commandee par M. Vaillant, capitaine de vaisseau. *Zool.* 1: 219-272. Paris, Arthur Bertrand.
- DE HAAN, W. 1833 - 1850. Crustacea. *In*: von Siebold, Ph.Fr. (ed.) Fauna Japonica sive Descriptio Animalium, Quae in Itinere per Japoniam, Jussu et Auspicijs Superiorum, qui Summum in India Batavia Imperium Tenent, Sliscepto, Annis 1823 - 1830 Collegit, notis Observationibus et Adumbrationibus Illustravit: 243 pp., Atlas (1844), text (1849).
- HANSEN, H.J. 1926. The Stomatopoda of the Siboga Expedition. *Siboga Exped., monogr.* 35: 1-48, pls. 1-2.
- HOLTHUIS, L.B. 1941. Biological Results of the Snellius Expedition. XII. The Stomatopoda of the Snellius Expedition. *Temminckia* 6: 241—294, figs. 1 - 9.
- JURICH, B. 1904. Die Stomatopoden der Deutsche Tiefsee-Expedition. *Wiss. Ergeb. Deutsch. Tiefsee-Exped. "Valdivia"* 7: 361-406., pi. 26' (1), pi. 26 (2).
- KASTORO, W.; M.K. MOOSA; SUKARNO; K. ROMIMOHTARTO; A. Aziz; W.S. ATMADJA; SULISTIJO; P. DARSONO and B. SOEDJOKO 1980. *Peta sebaran geografik be-beberapa biota laut di peradran Indonesia*. Lembaga Oseanologi Nasional, Lembaga Ilmu Pengetahuan Indonesia: lilS pp. (in Indonesian).
- KEMP, S. 1911. Preliminary descriptions of new species and varieties of Crustacea Stomatopoda in the Indian Museum *Rec. Indian Mus.* (2) 6 (9): 93-100.
- KEMP, S. 1913. An account of the Crustacea Stomatopoda of the Indo-Pacific region based on the collection in the Indian Museum. *Mem. Indian Mts.* 4 (1): 1-217, text-figs. 1-5, figs. 1-2, pls. 1-10.
- KEMP, S. and B. CHOPRA 1921. Notes on Stomatopoda *Rec. Indian Mus.* 4 (23): 217-311, text-figs. 1-4.
- MAKAROV, R.R. 1976. A new species of the rare genus of mantis shrimps *Coronidopsis andamanensis* sp.n. (Crustacea, Stomatopoda). *Zool. Zhur.* 55: 1908-1912, 1 fig. (in Russian with English summary).
- MAKAROV, R.R. 1978. New data on crustaceans of the families Lysiosquillidae and Gonodactylidae (Crustacea, Stomatopoda) from the Tonkin Bay (Vietnam). *Zool. Zhur.* 57 (2): 176-189, 6 figs, (in Russian with English summary).
- DE MAN, J.G. 1902. Die von Herrn Professor Kiikenthal im Indischen Archipel gesammelten Decapoden und Stomatopoden. *Abh. Senckenb. Natuf. Ges.* 25: 467-929, pis. 19-27.
- MANNING, R.B. 1965. Stomatopoda from the collection of His Majesty the Emperor of Japan. *Crustaceana* 9 (3) fi 249 - 262, 2 figs, pis. 11 - 12.
- MANNING, R.B. 1967. Review of the genus *Odontodactylus* (Crustacea: Stomatopoda). *Proc. U.S. Nat. Mus.* 103 (3606) : 1 - 35, 8 figs.

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- MANNING, R.B. 1968. Stomatopod Crustacea from Madagascar. *Proc. U.S. Nat. Mus.* 124 (3641): 1-61
- MANNING, R.B. 1969. Notes on some stomatopod Crustacea from Southern Africa. *Smithson. Contr. Zool* 1: 1-17, figs.
- MANNING, R.B. 1969. A review of the genus *Harpiosquilla* (Crustacea, Stomatopoda), with descriptions of three new species. *Smithson. Contr. Zool.* 36: 1-41, 43 figs.
- MANNING, R.B. 1969. A review of the genus *Harpiosquilla* (Crustacea, Stomatopoda), with descriptions of two new species. *Smithson Contr. Zool.* 711: 1 - 11, 4 figs.
- MANNING, R.B. 1978a. New and rare stomatopod Crustacea from the Indo-West-Pacific Region. *Smithson. Contr. Zool* 264: 1 - 36, 16 figs.
- MANNING, R.B. 1978b. Further observations on *Oratosquilla*, with accounts of two new genera and nine new species (Crustacea: Stomatopoda: Squillidae). *Smithson. Contr. Zool* 275: 1 - 44, 26 figs.
- MANNING, R.B. and R.G. GARCIA 1982. Notes on species of the genus *Coronidopsis* Crustacea, Stomatopoda, Eurysquillidae), *J. Crust. Biol.* 2 (4): 593- 599, 3 figs
- MOOSA, M.K. 1973. The stomatopod Crustacea collected by the Mariel King Memorial Expedition in Maluku waters in 1971. *Mar. Res. Indonesia* 18: 3-30, 4 figs.
- MOOSA, M.K. 1974. Stomatopoda of the Rumphius Expedition I. *Oceanol Indonesia* 1: 16.
- MOOSA, M.K. 1975. Notes on stomatopod Crustacea from Seribu Islands and adjacent waters with a description of a new species. *Mar. Res, Indonesia* 15: 1 -20, 1 fig.
- SUNIER, A.L.J. 1018. The Stomatopoda on the collection of the "Visscherij Station" at Batavia. *Contr. Fauna Indes Neerld.* 4: 1-14.
- TIWARI, K.K. and S. BISWAS 1952. On two new species of the genus *Squilla* Fabr., notes on other stomatopods in the collections of the Zoological Survey of India. *Rec. India Mus.* 49 (a & 4): 349 - 363, text-figs. 1-5,
- WOOL-MASON, J. 1895. Figures and descriptions of nine species of Squillidae from the collection in the Indian Museum. Calcutta, 1895: 1 - 11, pis. 1-4.