

THE FIRST RECORD OF *Holothuria (Semperothuria) roseomaculata* KERR, 2013 (Echinodermata : Holothuroidea) IN INDONESIA

Ana Setyastuti*

Research Center for Oceanography, Indonesian Institute of Sciences (LIPI), Jakarta, Indonesia.

*Correspondence author: <ana.setyastuti@gmail.com>

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ABSTRACT

This paper documents the first record of *Holothuria (Semperothuria) roseomaculata* Kerr, 2013 (Echinodermata: Holothuroidea) from Indonesia. A freshly salted specimen was collected from fishers in Sumbawa, West Nusa Tenggara, Indonesia. This species was previously recorded from Yap and Chuuk States in the Federated States of Micronesia, Papua New Guinea, Palau, Okinawa-Japan, Sabah, Borneo-Malaysia, Solomon Islands, Vanuatu and New Caledonia. Reference material has been deposited in the Reference Collection of the Research Center for Oceanography, Indonesian Institute of Sciences (LIPI) in Jakarta, Indonesia.

Keywords: New record, *holothuriidae*, *aspidochirotida*, Sumbawa.

INTRODUCTION

Descriptions for subgenus *Holothuria (Semperothuria)* was made by Deichman (1958). Its ossicles are characterized by having tables in combination with rods in the body wall. Tables usually have a reduced disc and spire of moderate height, either rounded at the tip or terminating in a few spines which form a single or double Maltese cross when viewed from above, rosettes and buttons are absent (Rowe, 1969). The subgenus is distributed globally from the tropical Atlantic, eastern Pacific to the Indo-West Pacific oceans (Rowe, 1969; Kerr, 2013). Currently, this subgenus consists of six species including *Holothuria (Semperothuria) cinerascens* Brandt, 1835; *H. (S.) flavomaculata* Semper, 1868; *H. (S.) imitans* Ludwig, 1875; *H. (S.) surinamensis* Ludwig, 1875, *H. (S.) languens* Deichman, 1958; and *H. (S.) roseomaculata* Kerr, 2013.

Kerr (2013) described *Holothuria (Semperothuria) roseomaculata*, specimen type locality from O'Keefe's Island-Yap, as a

new species based on its specific characters, including rose-colored papillae, and phylogenetic distinctiveness, also supported by traditional understanding by trepang fisherman in the western Pacific that noted its distinctive appearance. However, previously this species was regarded as a variation of *H. (S.) flavomaculata* Semper, 1868, a species with a broad Indo-Pacific distribution that also includes Indonesia. *Holothuria (S.) flavomaculata* Semper, 1868 proper has been documented from Sulawesi (Massin, 1999) and Ambon (Massin, 1996).

In this paper, the specimen of *H. (S.) roseomaculata* Kerr, 2013 was collected from local trepang traders in Bungin Island, Sumbawa, West Nusa Tenggara, Indonesia in May 2017. Although Indonesia possesses more than 350 species of sea cucumbers (Wirawati and Purwati, 2012; Setyastuti and Wirawati, 2018), *Holothuria (S.) roseomaculata* Kerr, 2013 is not among the species that had been recorded from Indonesian waters. As the only specimen for this new record in Indonesia, however, this was a fortuitous finding.

Because this species was not encountered during the field survey in the intertidal and subtidal area including all habitats of seagrass, algae and coral reefs up to 20 m depth that had been explored.

According to the fishers who work during the night, the species of *H. (S.) roseomaculata* Kerr, 2013 is totally nocturnal and rarely found. However, based on Paulay (*pers. com*), this species lives exposed day and night, unlike its sister species *Holothuria (S.) flavomaculata* Semper, 1868, which is a nocturnal specialist. The survey was not conducted specifically as a night survey. We began the survey in the morning until 7-8 p.m., and we did not observe any of the specimens. Thus, cryptic organisms with a restricted microhabitat could be missed during day-time surveys (Laguarda-Figueras *et al.*, 2013).

However, local trepang fishers and traders consider this species as “*teripang talengko*” being a local name for snakefish species applied to *H. (Acanthotrapeza) coluber* Semper, 1868. Locals seldom pay attention to the morphological distinctiveness of such species because of their low value in the market. The fact that this new record was found with other low-value species indicates that locals were not aware of its specific identity or did not understand the differences between species while they were fishing as they focus more the quantity of their catches during night fishing.

MATERIALS AND METHODS

A freshly-salted specimen was collected from a trepang trader in Bungin Island, Sumbawa, West Nusa Tenggara, Indonesia on May 2017. The ossicles were isolated prior to examination following Setyastuti (2015) and photographed using Optilab[®] upgrade edition. The collected specimen was compared with the original description and ossicles by Kerr (2013). The specimen was deposited at the Reference Collection of the Research Center for Oceanography, Indonesian Institute of Sciences (LIPI) in Jakarta, Indonesia.

RESULTS

Redescription

Order Aspidochirotida Grube, 1840
Family Holothuriidae Ludwig, 1894
Genus *Holothuria* Linnaeus, 1767
Subgenus *Semperothuria* Deichmann, 1958
Holothuria (Semperothuria) roseomaculata
Kerr, 2013
(Figures. 1A-D, 2A-H)

Holothuria (Semperothuria) flavomaculata,
Cherbonnier, 1980: 634-635, Figure 10; Conand,
1989: 27; Purcell *et al.*, 2012: 50-51.

Holothuria (Semperothuria) roseomaculata
Kerr, 2013: 384-394, Figures 1-2 (complete
synonymy).

Material examined. SMB01, freshly-salted
specimen.

Description. This species has a distinctive appearance, body wall red-maroon with long red-rose papillae (2-3 mm in freshly-salted condition). The length and mid-body width 26 cm and 5 cm respectively. In ethanol specimen fading to grey-purple and the papillae alter to bright brown at the base and white at the tip. Body cylindrical, mouth and anus terminal. Tentacles 28, black-purple with yellow margins, surrounded by a crown of papillae. Papillae scattered without alignment over the body and more crowded near the anus. Integument soft; eight mm in thickness. Calcareous ring. Radial pieces wider than interradial. The radial length is twice the interradial. Posterior edge of calcareous ring undulating.

Ossicles consist of tables, rods, and plates (Figure 2). Body wall examination shows numerous tables but only a few rods (Figures 2A-B). Table ossicles without disc; spire high and composed of four pillars united by one cross beam, terminal part of the spire forming a “Maltese cross” when seen from above and composed of a bundle of spines. Rods spiny and knobby, with or without perforations, Tables from body wall papillae and anal papillae somewhat different, specifically the form of its base which is without the disc.

Tables from body wall papillae mostly with rounded or angulate base (Figure 2E). Tables from anal papillae several with flat; undulate or splitting base (Figure 2H). Rods numerous in the body wall and anal papillae. Outline rods of anal papillae more spinous with a combination of knobs than rods from body wall papillae (Figures 2D, G). Only a few rods with a straight outline which perforated at one or both ends both in the body wall and anal papillae (Figures 2D, G). End plates only observed from body wall papillae; these are with a spiny margin and with high irregular perforations (Figure 2F). Tentacles with rods only; these mostly curved, spinose and perforated at both ends, but some straight, with or without perforations (Figure 2C).

Distribution. *Holothuria (Semperothuria) roseomaculata* Kerr, 2013 is recorded only from the western Pacific, Sumbawa, Indonesia, Sabah, Borneo, Malaysia in the west, Okinawa-Japan in the north, through the Caroline Islands Palau, Yap, Chuuk, and Pohnpei, Solomon Islands, Vanuatu, to New Caledonia in the southeast.

Remarks. Regardless of morphological resemblance, the conspicuous pink body papillae is an easy and reliable field character that differentiates *Holothuria (S.) roseomaculata* Kerr, 2013 from its sister species *H. (S.) flavomaculata* Semper, 1868.

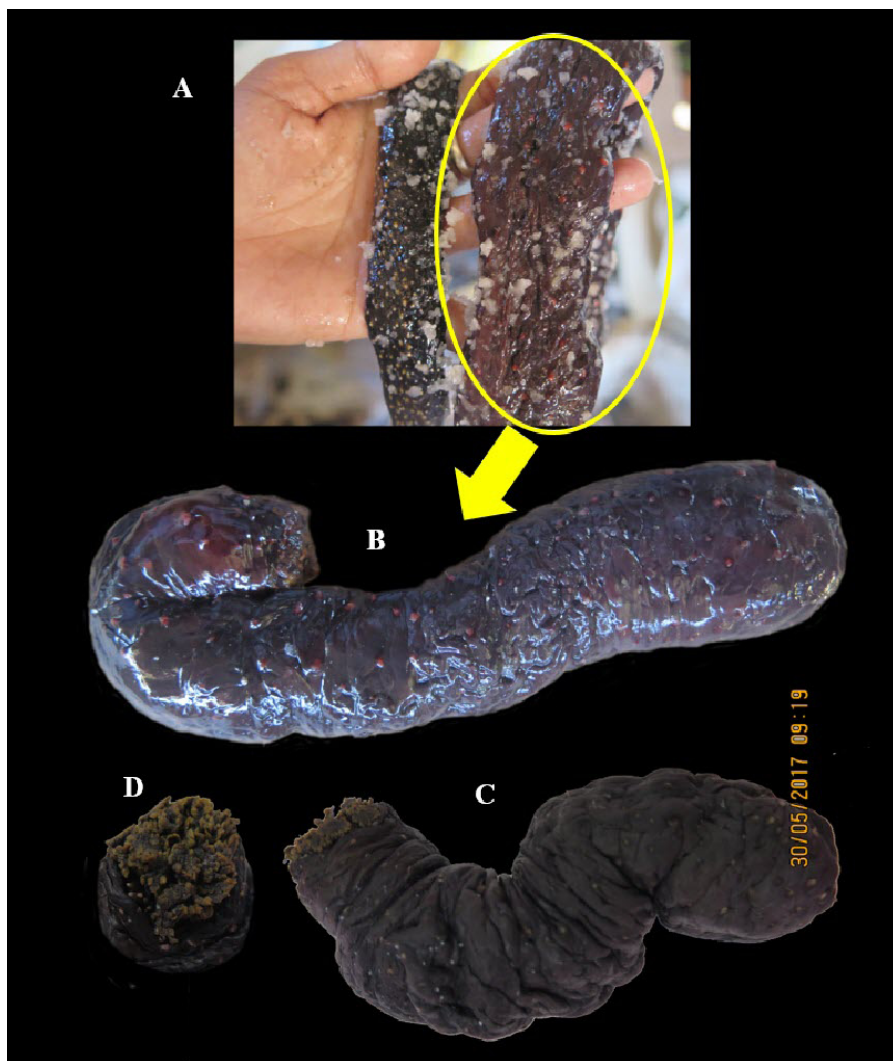


Figure 1. *Holothuria (Semperothuria) roseomaculata* Kerr, 2013. SMB01. (A) Fresh salted-form specimen. (B) Specimen after cleaning. (C) Specimen preserved in ethanol. (D) Tentacles of the specimen.

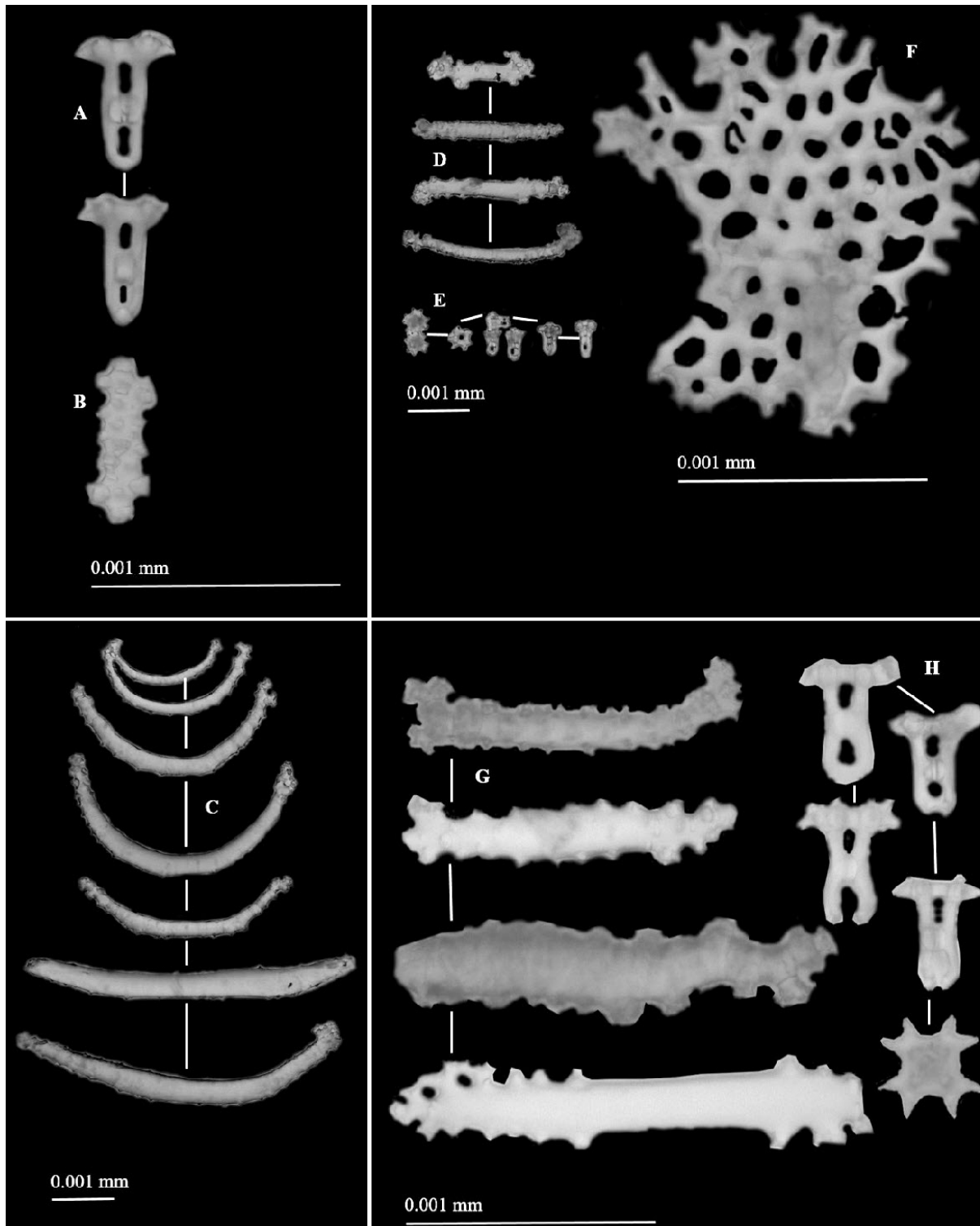


Figure 2. Ossicles of *Holothuria (Semperothuria) roseomaculata* Kerr, 2013. SMB01. (A) Body wall tables. (B) Body wall rods. (C) Tentacle rods. (D) Rods in papillae body wall. (E) Tables in papillae body wall. (F) Plate in papillae body wall. (G) Rods in anal papillae. (H) Tables in anal papillae.

The discovery of *Holothuria (S.) roseomaculata* Kerr, 2013 in Sumbawa contributes to the sea cucumber species diversity in Indonesia. At present, the information on its distribution in Indonesia is limited in Sumbawa. However, future surveys may reveal its geographical range across Indonesian waters.

Setyastuti and Purwati (2015) recorded 54 species of sea cucumber traded in Indonesia. Further, the number of the species involved in trade has increased with the addition of *Stichopus ocellatus* Massin, Zulfigar, Tan Shau Hwai and Rizal Boss, 2002 from Lampung water, West Indonesia (Setyastuti et al., 2018) and the discovery of *Holothuria (S.) roseomaculata* Kerr, 2013 in this study. To date, 56 species are now recorded as sea cucumber fished in Indonesia.

Interview with Sumbawa fishers indicate that *Holothuria (S.) roseomaculata* Kerr, 2013 is not fished as the main commodity because of its low-value category. However, as high-value species are overfished, fishing pressure on lower valued species is increasing. This has been shown in the sea cucumber fishery at Karimunjawa (Purwati et al. 2010), highlighting the need to identify sea cucumber species properly.

In Sumbawa, *Holothuria (S.) roseomaculata* Kerr, 2013 and *Holothuria (Acanthotrapeza) coluber* Semper, 1868 have the same local name as “teripang talengko” or snakefish. It indicates that high resemblance of morphological characters might mislead fishers in determining the species. Purwati et al. (2010) suggested that it is better to use a translation of the world market name as apposed to a local name to minimize confusion in field determination.

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