

The first record of the Apodid sea cucumber *Polycheira rufescens* (Brandt, 1835) (Holothuroidea: Chiridotidae) from the Andaman Sea, Thailand

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ABSTRACT

The holothuroid *Polycheira rufescens* (Brandt, 1835) is here reported for the first time in the Andaman Sea, Thailand and for the second time after being first recorded 120 years ago in the sea off Ko Lom, Mu Ko Chang, Trat Province, Gulf of Thailand. Its presence is recorded at Ao Sead, Ko Chang, Mu Ko Ranong National Park, Ranong Province, Andaman Sea, Thailand. Individuals were found under rocks on the rocky shore at low tide. There were 18 peltate-digitate tentacles, each with 10–15 pairs of free digits and the body wall contained rods and wheels with 6-spokes which have a finely serrated inner rim. These are the distinctive characteristics of the species.

Keywords: Holothuroidea, *Polycheira rufescens*, Ko Chang, Mu Ko Ranong National Park, Andaman Sea, Thailand.

INTRODUCTION

Polycheira rufescens was found at Ko Lom, Gulf of Thailand (Siam) (Figure 1B) for the first time in Thailand by Heding in 1928. After that, there were no reports of any further sightings in Thailand till Putchakarn, *et al.* (2017), who have recently published a checklist of the sea cucumbers of Thailand. It comprises 123 species in 4 orders and 9 families. One of the listed species is *Polycheira rufescens*, with a reference to Heding (1928). A recent survey on a rocky shore of Ko Chang, Ranong Province in Andaman Sea (Figure 1A) revealed this apodid that has not previously been recorded from the Andaman Sea, and it is the second record from Thailand in 120 years.

MATERIALS AND METHODS

Specimens were collected by hand under rocks on the rocky shore of Ao Sead, Ko Chang,

Mu Ko Ranong National Park, Andaman Sea by A. Mucharin on 20 February 2020 (Figure 2A–B). In total, 7 specimens were collected. They were anaesthetized in 10% Magnesium Chloride for 5 hours (Figure 3A), transferred to 95% buffered alcohol for two or three days and then transferred to 70% buffered alcohol for permanent storage. Ossicles were prepared by the use of household bleach (sodium hypochlorite), washed in three or five changes of distilled water, photographed with digital camera under the compound light microscope,

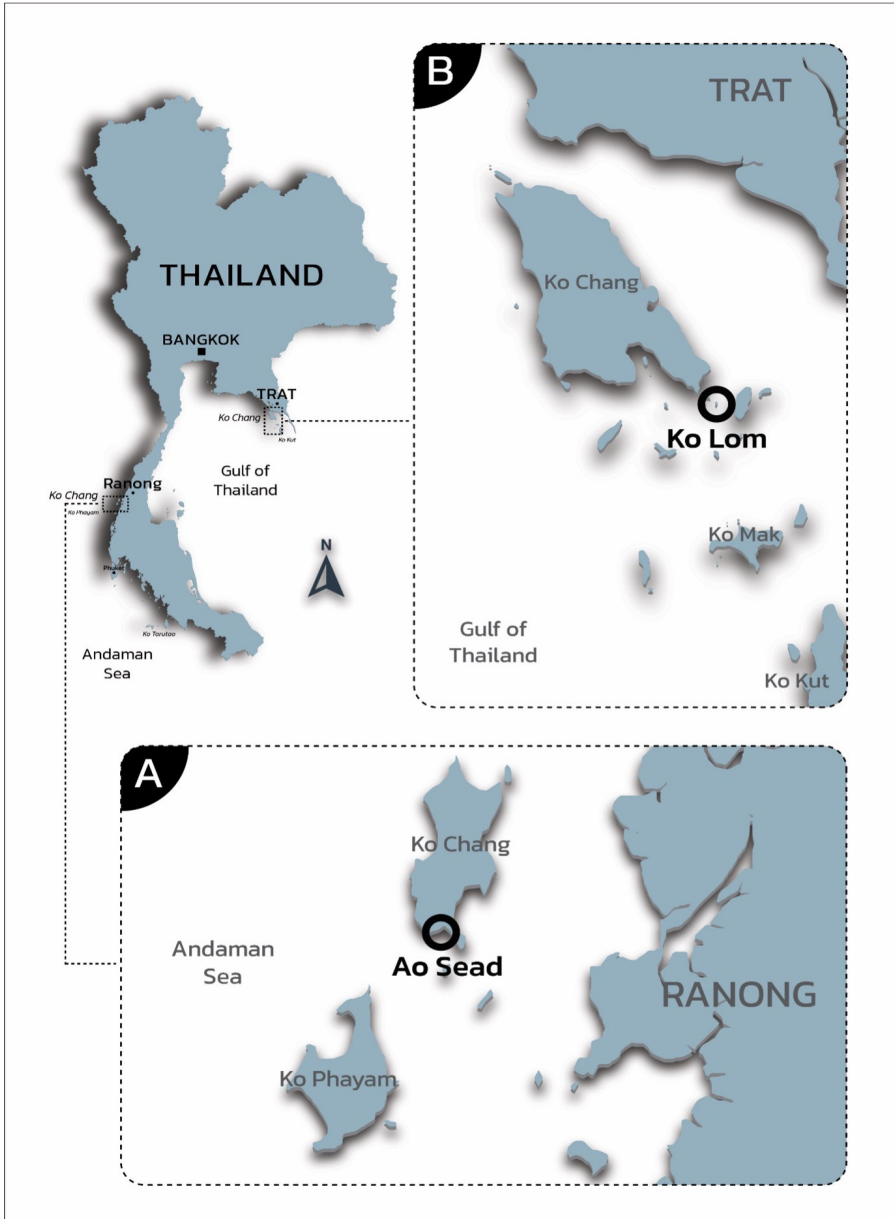


Figure 1. Sampling locality of *Polycheira rufescens* (Brandt, 1835) (Circle) in Thailand: **A.** Ao Sead, Ko Chang, Mu Ko Ranong National Park, Ranong is the first record from the Andaman Sea; **B.** Ko Lom, Mu Ko Chang, Trat is the first record from the Gulf of Thailand by Heding in 1928.

where also measurements were taken.

SYSTEMATIC ACCOUNT

Apodida Brandt, 1835

Chiridotidae Östergren, 1898

***Polycheira* H.L.Clark, 1908**

***Polycheira rufescens* (Brandt, 1835)**

Chiridota rufescens Brandt, 1835, p. 59.

Chiridota panaensis Semper, 1868, p. 19.

Chiridota vitiensis Semper, 1868, p. 19.

Chiridota variabilis Semper, 1868, p. 20.

Chiridota dubia Semper, 1868, p. 21.

Chiridota incongrua Semper, 1868, p. 22.

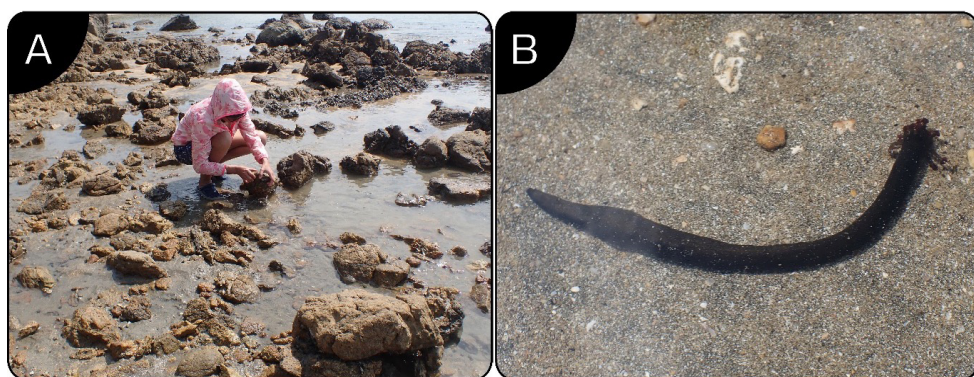


Figure 2. Habitat of *Polycheira rufescens* (Brandt, 1835): **A.** The rocky shore of Ao Sead, Ko Chang, Mu Ko Ranong National Park; **B.** A sea cucumber hiding under a rock was uncovered in situ.

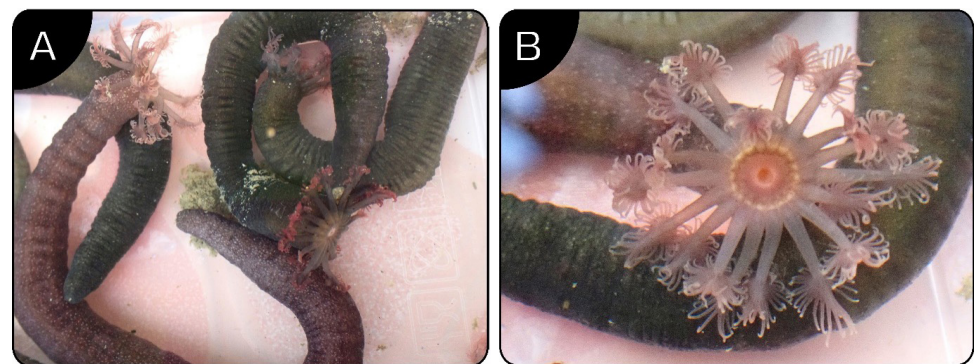


Figure 3. *Polycheira rufescens* (Brandt, 1835): **A.** Living specimens were anaesthetized in 10% magnesium chloride for 5 hours; **B.** Anterior view, the mouth is surrounded by 18 peltate-digitate tentacles.

Polycheira rufescens; Clark, 1907: 120, Plate VII, Figs. 14–18; Heding, 1928: 306, Figs. 65; Clark and Rowe, 1971: 207, Plate 31, Fig. 11.

Material: THNHM-Iv-19000 (7 individuals), Ao Sead, Ko Chang, Mu Ko Ranong National Park, Andaman Sea, Thailand, 20 February 2020, rocky shore, collection by hand, collected by Arom Mucharin.

Description: The specimens are 60–120 mm long and 7–13 mm in diameter. The entire body is blackish purple with numerous white spots and blackish longitudinal lines (Figure 3A). The skin is thin, not translucent, and not sticky to the touch. There are 18 reddish pelate-digitate tentacles with 10–15 pairs of free digits (Figure 3B).

The calcareous ring is small and clear white, consists of 18 pieces with 5 perforated radial pieces, about half a millimeter high. There are 10–12 polian vesicles and single stone canal.

Vestigial ossicles are scattered everywhere in the skin. It contains rods and wheels with 6-spokes (Figure 4 A). The wheels are ca. 45–120 μm in diameter and their inner rim is finely serrated (Figure 4 B). The rods are more or less regularly C-shaped bodies with enlarged ends that occasionally are serrated, and measure 3–77 μm in length (Figure 4 C). Ossicles in

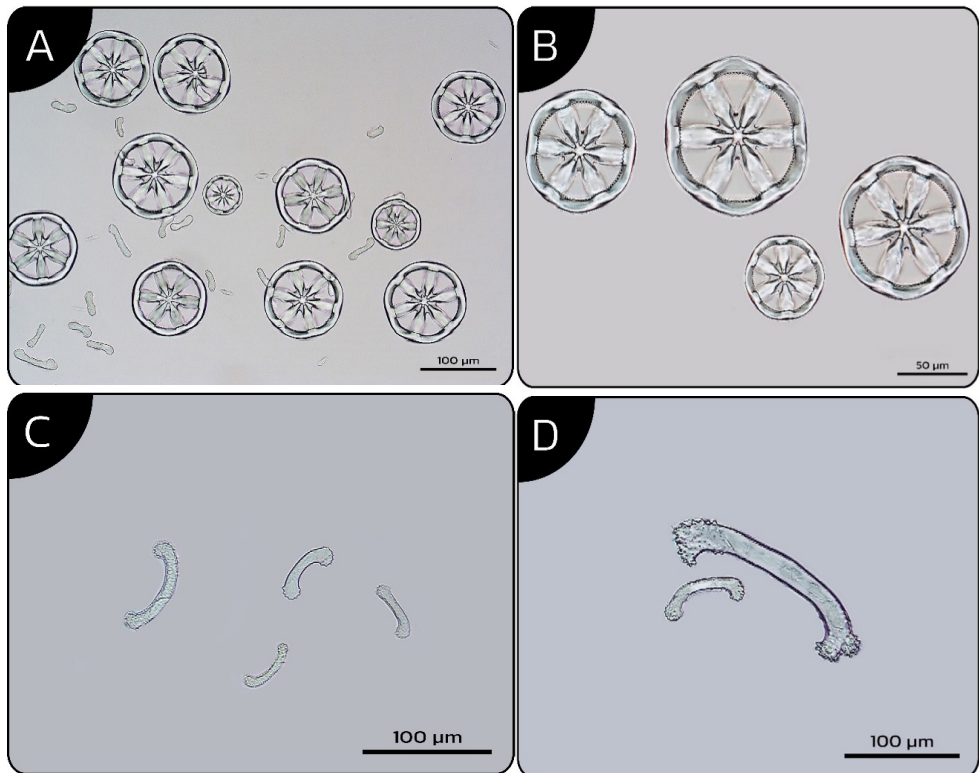


Figure 4. Ossicles of *Polycheira rufescens* (Brandt, 1835): **A.** Wheels and rods of body wall; **B.** Wheels with 6-spokes of body wall; **C.** Rods with enlarged ends of body wall; **D.** Big and small C-shaped rods of tentacle.

tentacles are of 2 sizes: big and small ones (Figure 4 D). The small ones are usually C-shaped with serrated ends, measuring 39–96 μm in length. The big ones are stout, large and blunt with spines, sometimes they are branched at the ends and measure 130–193 μm in length.

Type locality: Bonin Islands, Japan (In Insulis Boninsimensibus according to Brandt, 1835).

Habitat: They were found hiding under rocks on the shore during daytime and at low tide.

Geographic distribution: Islands of West Indian Ocean, East Africa and Madagascar, Sri Lanka, Bay of Bengal, East Indies, North Australia, Philippine Islands, China, South Japan, and South Pacific Islands (Clark and Rowe, 1977).

Remarks: See Heding (1928).

DISCUSSION

This is a new record in the Andaman Sea of Thailand, and it is the second report in Thailand to be found, after it was found 120 years ago at Ko Lom, Gulf of Siam (Thailand) (Heding, 1928). It shows conclusively that the holothuroid fauna of Thailand remains poorly studied, especially in habitats such as rocky shores, which are not always easily accessible for sampling.

In the original description of the species, it was named *Chiridota rufescens* Brandt, 1835; afterwards, the genus was changed to *Polycheira*, because the number of tentacles varies, namely *Chiridota* having 12 (10–14) while *Polycheira* has 18 (16–20) (Clark H. L., 1907). The species was found in the Gulf of Thailand on 9 March 1900 for the first time. Sixty individuals were collected and deposited at the University of Copenhagen Zoological Museum under the collection number is ZMUC-HOL-306 (Heding, 1928).

Even though we have not had the opportunity to examine the holotype, we did, however, examine all Heding's specimens found in Thailand, and all specimens found from the Andaman Sea are morphologically identical.

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