

Remarks on some Holothuroidea described by Heller from the eastern Adriatic Sea

J.M. Bohn

Biology Department I, Ludwig-Maximilians University Munich, Germany

ABSTRACT: In 1868, Camil Heller described five new Holothuroidea from the eastern Adriatic Sea. Two of these species – *Thyonidium ehlersi* Heller and *Synapta hispida* Heller – are still only known from the original description. Recently, some of Heller's specimens were rediscovered in the collection of the Institute of Zoology and Limnology in Innsbruck, Austria. From these specimens, *Thyonidium ehlersi* Heller, *Thyone inermis* Heller, *Stereoderma kirchsbergii* (Heller) and *Synapta hispida* Heller are briefly redescribed and their current taxonomic status is discussed. This is the first record of a *Synapta* species outside the Indo-west Pacific.

1 INTRODUCTION

In 1868, Camil Heller described several new Echinodermata species that he had collected during a field trip to the island of Lissa (Vis), the island of Lesina (Hvar) and the coast of Ragusa (Dubrovnik) in the eastern Adriatic sea. The majority of these species are nowadays well established and accepted as valid. Nevertheless, two of the five new holothurian species, namely *Thyonidium ehlersi* Heller and *Synapta hispida* Heller have never been found again and are only known from their original description.

Recently, some of Heller's holothurian specimens – *Thyonidium ehlersi* Heller, *Thyone inermis* Heller, *Stereoderma kirchsbergii* (Heller) and *Synapta hispida* Heller – have been rediscovered in the collection of the Institute of Zoology and Limnology in Innsbruck (IZL), where Heller was Professor for Zoology. The registration numbers (IZL), together with specimen numbers (JMB-) are given in the descriptions below.

2 TAXONOMY

2.1 *Thyonidium ehlersi* Heller, 1868 (*Dendrochirotida: incertae sedis*)

Thyonidium ehlersi Heller, 1868: 77, pl. 3, Fig. 11.

Material: Syntype, 1 specimen, IZL 9383 (1413), Lesina, 10–20 fathoms, probably summer 1862, leg. C. Heller.

Characteristics: Specimen fragmented and decalcified. According to Heller (1868: p. 50, in key), 20 tentacles arranged in pairs. Prominent tube feet with

conspicuous sucker disc in double radial rows, few also present in interradial areas. Heller (1868) found two types of deposits – four pillared tables in body wall (Fig. A) and curved rods in tube feet. Tables have rounded disc with circle of eight holes and sometimes additional smaller holes. Margin of disc curved, with outwards-directed projections. A four pillared central spire arises from disc. Curved rods of tube feet have a central process which is perforated by a hole. Terminal plates in tube feet seem to be missing.

Remarks: Only three genera (*Thyonidium*, *Neopentadactyla* and *Phyllophorus*) with altogether six species are known from the Mediterranean and neighboring Atlantic region which have four pillared tables and 20 tentacles. An important character separating these genera is the arrangement of the tentacles (e.g. McKenzie, 1991), which is unknown for *T. ehlersi*. Therefore it is not possible to decide to which of these genera *T. ehlersi* belongs.

Only three of these species occur in the Mediterranean sea: *Phyllophorus granulatus* (Grube, 1840), *P. urna* Grube, 1840 and *P. drachi* Cherbonnier & Guille, 1968.

Phyllophorus drachi is the species which resembles *T. ehlersi* in many details (for a detailed description of *P. drachi* see Cherbonnier & Guille, 1968). Both have the tube feet restricted to the radii, with the exception of few interradially scattered. Furthermore, both have four pillared tables with an irregularly rounded and scalloped disc with eight peripheral holes and sometimes additional smaller holes. But there are also several differences. While the tube feet in *T. ehlersi* are arranged in double radial rows, *P. drachi* has up to four rows of tube feet per radius near the

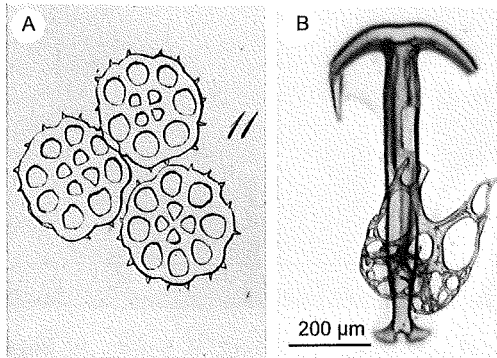


Figure A. *Thyonidium ehlersi*, tables of body wall (from Heller, 1868: pl. 3, Fig. 11, "magnified"). B. *Synapta hispida*, holotype, anchor with anchor plate.

middle part of the body. *Phyllophorus drachi* has terminal plates and irregular perforated plates in the distal part of the tube feet, missing in *T. ehlersi*. Curved rods with a central projection perforated by a hole are present in the tube feet of *T. ehlersi* but are absent in *P. drachi*.

Although there are some affinities of *T. ehlersi* to *P. drachi*, present knowledge does not allow any conclusions concerning its generic or specific position.

2.2 *Thyone inermis* Heller, 1868 (*Dendrochirotida*: *Phyllophoridae*)

Thyone inermis Heller, 1868: 78, pl. 3, Fig. 12. *Havelockia inermis*. – Panning, 1949: 466.

Material: Syntype, 1 specimen, IZL 9384 (150), Lesina, 10–20 fathoms, probably summer 1862, leg. C. Heller. One specimen, IZL 1409 [JMB-00541], labeled as "*Thyone*", Lesina, probably summer 1862, leg. C. Heller.

Characteristics: Syntype decalcified and fragmented. Body U-shaped, tapering towards both ends, length 23 mm, diameter 4 mm. Tube feet scattered all over the body, in radial areas they often form 2–3 dense rows, in interradial areas they are more irregularly arranged. Tube feet conical and retractile without prominent sucker disc.

Second specimen [JMB-00541] not decalcified. Body fusiform, with blunt anterior and tapering posterior end, length 32 mm, diameter 13 mm. Tube feet regularly scattered all over the body. Tube feet cylindrical, with small terminal disc. Body wall without deposits except for tube feet terminal plates. Two pillared tables and plate-like rods only present in introvert, tentacles and around anus. Rosettes are only found in introvert and tentacles.

Remarks: In of his revision of the family Cucumariidae, Panning erroneously transferred *T. inermis* and

some other species to this genus to the genus *Havelockia* Pearson, 1903 (Panning 1949: p. 466), due to a misinterpretation of morphological features of the type species *H. herdmani* Pearson, 1903 (Panning, 1949: p. 468, addendum). He later corrected his mistaken (Panning, 1949: p. 468, addendum) and transferred the species back to the genus *Thyone*. This fact has often been overlooked by subsequent authors who still use the name *Havelockia inermis* (e.g. Cherbonnier, 1958; Tortonese, 1965; Pancucci-Papadopoulou, 1996).

This species is well established and is known from the Mediterranean (Gulf of Lion, Tyrrhenian Sea, Adriatic Sea, Aegean Sea) and from the north-eastern Atlantic Ocean (Shetland Islands?, English Channel, Bay of Biscay, Azores).

2.3 *Stereoderma kirchsbergii* (Heller, 1868) (*Dendrochirotida*: *Cucumariidae*)

Cucumaria kirchsbergii Heller, 1868: 75, pl. 3, Figs 8–10. *Stereoderma kirchsbergii*. – Panning, 1949: 422.

Material: Syntypes, 2 specimen, IZL 9380 (1402), Lesina, 20–35 fathoms, probably summer 1862, leg. C. Heller.

Characteristics: Tube feet prominent in single radial rows in zig-zag arrangement. Body wall thick from densely arranged calcareous deposits. Two types are found, an outer layer of small irregular rosettes and a deeper layer of knobbed plates of an elongated outline. Tube feet are supported by smooth curved rods with a central perforated process and a circular terminal plate.

Remarks: This is a well established species known from the Mediterranean (Gulf of Lion, Balearic Sea, Algeria, Adriatic Sea, Aegean Sea, Sea of Marmara), the Black Sea (Bosporus and vicinity), and the north-eastern Atlantic Ocean (Morocco).

2.4 *Synapta hispida* Heller, 1868 (*Apodida*: *Synaptidae*)

Synapta hispida Heller, 1868: 71, pl. 3, figs 5, 6. *Leptosynapta hispida*. – Cherbonnier, 1967: 1215, Fig. i. *Synapta thomsonii* Herapath, 1865. – Ludwig, 1898: 8, [partim]. *Labidoplax thomsonii*. – Clark, 1908: 97, [partim]. (?) *Leptosynapta galliennei* (Herapath, 1865). – Mayer, 1937: 5, 14, [partim]. [non *Synapta hispida*. – Semon, 1887: 5–7, pl. 9, Fig. 5. probably *Leptosynapta macrankyra* (Ludwig, 1898)].

Material: Holotype (by monotypy), IZL 9732 (1420), Lesina, 2–10 fathoms, probably summer 1862, leg. C. Heller.

Characteristics: Specimen in poor condition, lacking anterior and posterior end and according to Heller (1868) 40 mm long. Deposits are characteristic anchors and anchor plates (Fig. B), though partly dissolved.

Anchors large, with smooth flukes and slightly concave vertex lacking minute knobs, stock of anchor is finely toothed. Anchor plates of irregular oval to rectangular outline, with smooth margin. Centrally, plates perforated by big holes, several smaller holes present near anterior and posterior end. All holes are smooth. Well developed bridge, often with prominent spine present at articular end of plate.

Remarks: Due to the inadequate description and figures given by Heller (1868) for this species, subsequent authors have transferred it to different genera or have synonymized it with several other Mediterranean Synaptidae (see list of synonyms).

Now there is little doubt that the current specimen belongs to the genus *Synapta* Eschscholtz, 1829. Currently, two species are recognized within this genus – *S. maculata* (Chamisso and Eysenhardt, 1821) and *S. oceanica* (Lesson, 1830) which differ from *S. hispida* by the presence of minute knobs on the vertex of the anchors. Because of the poor condition of the current material it is difficult to ascertain further characters separating the three species. With present knowledge it seems appropriate to keep *S. hispida* as a separate species.

This is the first record of this genus outside the Indo-west Pacific and therefore of high interest for zoogeography (Tethyan relict?).

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REFERENCES

- Cherbonnier, G. 1958. Échinodermes. *Faune marine des Pyrénées-Orientales*. 2: 67 pp.
- Cherbonnier, G. 1967. Considérations sur l'holothurie apode *Leptosynapta macrankyra* (Ludwig). *Bulletin du Muséum National d'Histoire Naturelle. 2e série. Paris*. 39(6): 1214–1218.
- Cherbonnier, G. & Guille, A. 1968. Sur une nouvelle Holothurie Dendrochirote de Méditerranée: *Phyllophorus drachi* nov. sp. *Bulletin du Muséum National d'Histoire Naturelle. 2e série. Paris*. 40(3): 630–633.
- Clark, H.L. 1908. The Apodous Holothurians. A monograph of the Synaptidae and Molpadiidae. *Smithsonian Contributions to Knowledge*. 35: 231 pp., 13 pls.
- Heller, C. 1868. Die Zoophyten und Echinodermen des Adriatischen Meeres. Wien: *Kaiserlich königliche zoologisch-botanische Gesellschaft*. 88 pp.
- Ludwig, H. 1898. Einige Bemerkungen über die Mittelmeerischen *Synapta*-Arten. *Zoologischer Anzeiger*. 21: 1–9.
- Mayer, B. 1937. Die Holothurien der Adria, insbesondere der Küste von Rovigno. *Thalassia*. 2(9): 55 pp.
- McKenzie, J.D. 1991. The taxonomy and natural history of north European dendrochirote holothurians (Echinodermata). *Journal of Natural History*. 25(1): 123–171.
- Pancucci-Papadopoulou, M.A. 1996. The Echinodermata of Greece. *Fauna Graeciae*. Athens: Hellenic Zoological Society. Vol. 6. 162 pp.
- Panning, A. 1949. Versuch einer Neuordnung der Familie Cucumariidae. *Zoologische Jahrbücher. Abteilung für Systematik, Ökologie und Geographie der Tiere*. 78(4): 404–470.
- Semon, R. 1887. Beiträge zur Naturgeschichte der Synaptiden des Mittelmeeres. 1 Mittheilung. *Mittheilungen aus der zoologischen Station zu Neapel*. 7(2): 1–31.
- Tortonese, E. 1965. Echinodermata. *Fauna d'Italia*. Bologna: Edizioni Calderini. Vol. 6. xv, 422 pp.