An annotated catalogue of Echinodermata types in the Museu de Zoologia, Universidade de São Paulo, Brazil

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Abstract. The types of nominal species of Echinodermata in the collection of the Museu de Zoologia, Universidade de São Paulo are catalogued: Holothuroidea (19 species – 16 holotypes, 1 paratype and 2 neotypes) and Ophiuroidea (4 species – 1 neotype and 3 paratypes). Photographs of all the type specimens are given. A brief account of the history of the MZUSP's echinoderm collections is presented.

Keywords. Nomenclature; Scientific collections; Systematics; Type material; Museum studies.

INTRODUCTION

Natural history museums are entrusted to collect and interpret material evidence of our biological heritage, and to impart education and promote awareness of key issues through exhibits to all people irrespective of educational background.

This privileged position comes with the responsibility to organize, preserve, and make natural history specimens and information accessible as a public good. Museum collections are held in trust and it is institutional responsibility “… publish lists of name-bearing types in its possession or custody; and so far, as possible, communicate information concerning name-bearing types when requested.” (ICZN, 1999: Recommendation 72F).

Type catalogues are fundamental building blocks for solid taxonomic information, which in turn underpin research programs and conservation projections and programs.

Accordingly, the present catalogue is intended to compile and make available a list of all name-bearing types of Echinodermata in the collections of the Museu de Zoologia, Universidade de São Paulo (MZUSP), scattered over several publications, spanning from 1989 to 2021.

The Echinodermata collection

Taxonomic, temporal, and geographic coverage of collection

The five classes of Echinodermata are represented in the MZUSP’s collections (Table 1), but this make up only a fraction of the collections, since there is a growing backlog of yet-to-be-identified specimens.

Most lots in the collection are from Brazil (continental shelf, oceanic islands, and deep waters down to about 1,500 m), although there are collections from other localities, such as the Atlantic coast of North-, Central- and South America, and Africa as well as the Antarctic region.

Physical structure and informatization of records

The material in the collection is stored in sliding steel cabinets (Fig. 1A-B), separated by classes, families, genera, and species arranged in alphabetical order. The specimens are preserved in ethanol (70%) (Fig. 1C). Dry-preserved lots of Asteroidea, Echinoidea and Ophiuroidea are stored in polypropylene (PP) boxes (Fig. 1D). The type collection (Fig. 1E) is separated from the general collection of Echinodermata. Type specimens...
are marked with red ribbon. The type collection includes Holothuroidea (80%) and Ophiuroidea (20%). Around 30% of the lots are digitized in electronic sheets (MS Excel® standard) and progressively exported to the software Specify (https://www.specifysoftware.org, Access: 08/05/2021). Currently, the collection is under integration with the Brazilian Biodiversity Information System (SIBBr – https://www.sibbr.gov.br, Access: 08/05/2021), a federal initiative aiming to make available online the biodiversity information stored in the collections.

**Collections and collectors**

Scientists and research programs from various laboratories and institutions have contributed specimens to the collection of Echinodermata of MZUSP, which resulted in broad geographical coverage along the Brazilian tropical and subtropical coasts (bays, estuaries, continental shelf, and oceanic islands) and deep waters.

Luís Roberto Tommasi. Tommasi served for many years at the Instituto Oceanográfico, Universidade de São Paulo (IOUSP). He was the most prolific researcher in Echinodermata in Brazil for many years. After his re-

**Table 1.** Number of orders, families, genera, species, and specimens per classes of Echinodermata in the collections of the Museu de Zoologia, Universidade de São Paulo.

| Class       | Asteroida | Crinoidea | Echinoidea | Holothuroidea | Ophiuroidea | Total |
|-------------|-----------|-----------|------------|---------------|-------------|-------|
| Order       | 5         | 1         | 9          | 5             | 5           | 25    |
| Family      | 10        | 1         | 13         | 14            | 22          | 60    |
| Genera      | 25        | 1         | 21         | 38            | 57          | 142   |
| Species     | 25        | 1         | 21         | 65            | 118         | 230   |
| Specimens   | 728       | 24        | 1,102      | 1,408         | 5,884       | 9,146 |

**Figure 1.** Physical structure of MZUSP’s echinoderm collection: (A-C) Sliding cabinets modules with specimens organized by families, genera, and species in steel drawers; (D-F) Aspects of the non-type dry collection and wet type collection, respectively.
tirement most of his collections (in various states of conservation and management) were transferred to MZUSP, many of his collections were from southeastern Brazil. Many type specimens of the species described by Tommasi were not clearly marked as such, so that unwelcome taxonomic impediments still exist (e.g., Alitto et al., 2019; Martins & Tavares, 2019a).

Maria da Natividade Albuquerque (1937-1995). Nati, as many of her friends knew her, was a professor and researcher at Universidade Santa Úrsula, Rio de Janeiro, and a former PhD student under L.R. Tommasi. She specialized herself in ophiuroids and worked in collaboration with Alain Guille (1937-2001), Muséum national d’Histoire naturelle, Paris. Nati took part in the French-Brazilian oceanographic cruise of the R/V Marion Dufresne to Brazil (Tavares, 1999). After her death, the collections of shallow water ophiuroids (mostly) amassed by the Marion Dufresne, as well as large collections from northeastern Brazilian coast were transferred to MZUSP.

Claudio Gonçalves Tiago. Claudio Tiago is currently a researcher at the Center for Marine Biology, Universidade de São Paulo (CEBIMar). Along his career he has contributed specimens to the collection of Echinodermata of MZUSP, mostly from the north coast of the State of São Paulo.

Other collections, too small individually to merit a separate listing of their own, were provided by other scientists and occasional collectors.

**Research Programs and Projects**

Several Research Programs and Projects contributed collections to MZUSP, including:

— **BIOPLAT** (Van Der Vem et al., 2006; Mendes et al., 2007; Silva et al., 2008; Santi & Tavares, 2009, and references therein): This program aimed at exploring the biodiversity of benthic macrofauna on the southeastern Brazilian coast, with special reference to Guanabara, Sepetiba and Ilha Grande coastal bays. This Research Program is no longer active.

— **GEOMAR**: The Marine Geology and Geophysics GEOMAR Program, which began in 1969, aimed at exploring the geology and geophysics of the Brazilian continental margin. During the dredging operations a wealth of marine organisms were obtained. The study of the GEOMAR collections is scattered over numerous of publications (see for instance Grohmann et al., 2003 and references therein). This Research Program is no longer active.

— **REVIZEE** (Program of Evaluation of the Sustainable Potential of Living Resources in the Economic Exclusive Zone): The REVIZEE was carried out by the Ministry of the Environment and Brazilian Navy with the support of some Brazilian universities, aiming at the survey of the marine biota and its economic potential (Brasil, 2006). This Research Program is no longer active.

— **PROARQUIPELAGO**: This Research Program was begun in June 1996 by the Interministerial Comission for Marine Resources (CIRM) to study the São Pedro and São Paulo Archipelago, a remote group of islets in the equatorial mid-Atlantic, about 1,100 km from the northeast coast of Brazil. This Research Program is still in progress (Oliveira et al., 2018).

— **PROANTAR**: This is a Brazilian inter-institutional program (Andrade et al., 2018). The research activities carried out by the Instituto Oceanográfico, Universidade de São Paulo, in the PROANTAR started in 1982 (Nonato et al., 1992) and is still in progress.

— **PROTRINDADE**: This Research Program has been carried out in the Trindade and Martin Vaz, a remote archipelago in the southeastern Atlantic, about 1,200 km off the Brazilian coast. The PROTRINDADE Research Program is still in progress (SECIRM, 2017).

— **USARP**: The United States Antarctic Research Program (USARP, currently USAP), which began in 1955, collected marine samples in the vicinity of Antarctica over nearly two decades (Moser & Nicol, 1997, and references therein).

**MATERIAL AND METHODS**

The list of types of Echinodermata housed at the MZUSP is herein presented according to the systematic

| Class | Order | Family | Species | Holotype | Paratype | Neotype |
|-------|-------|--------|---------|----------|----------|---------|
| **Aphrodisia** | **Chiridotidae** | Chantalia conandae | + | 10 | - |
| | | Gymnopipina ikaniba | + | 5 | - |
| | **Synaptidae** | Yemoga braziliensis | + | 4 | - |
| | | Cucumaria solangense | - | 5 | - |
| | **Cucumariidae** | Parathyone tatuaensis | + | 6 | - |
| | | Euthyoneola occidentalis | - | - | + |
| | **Haliclinidae** | Haeckelia manuoa | + | - | - |
| | | Haeckelia orangea | + | 2 | - |
| | | Haeckelia sminni | + | - | - |
| | **Asteractidae** | Psolidium laurensi | + | - | - |
| | | Scleracthyone aequitorialis | + | 9 | - |
| | | Scleracthyone reich | + | - | - |
| | | Thyone walentinii | + | - | - |
| | **Phyllophoridae** | Thyone floriani | + | 2 | - |
| | | Posidonia vittata | - | - | + |
| | **Psolidae** | Psolus thandari | + | - | - |
| | | Psolus tammasi | + | - | - |
| | | Psolium lonicostum | + | 15 | - |
| | | Psolium nanoplax | + | 1 | - |

| **Ophiuroidea** | **Amphilepididae** | Ophiuroidea | Ophiuroidea | Ophiuroidea | Ophiuroidea |
| | | | | | |
| | Ophiophanes tridens | - | - | + |
| | Ophiophaea spinifera | - | 1 | - |
| | Ophiophaea traucheli | - | 2 | - |
arrangement proposed by Pawson & Fell (1965) to the Holothuroidea and Stöhr et al. (2021) to the Ophiuroidea, followed by the alphabetical order, with detailed information on registration numbers, number of specimens originally available, dimensions of the type specimens and localities data.

Museum abbreviations are as follows: Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZUSP); Museu de Diversidade Biológica – Zoologia, Universidade Estadual de Campinas, Brazil (ZUEC); Museu de Zoologia, Universidade Federal da Bahia, Salvador, Brazil (UFBA), and UFPB ECH Coleção de Echinodermata da Universidade Federal da Paraíba.

RESULTS

The following list comprises a total of 22 types, 19 of which from Holothuroidea (16 holotypes, 1 paratype and 2 neotypes) distributed in two orders, 6 families and 12 genera, and 3 of Ophiuroidea (1 neotype and 2 paratypes), from one order, one family and one genus (Table 2).

Within the family, genera and species are presented in alphabetical order.

Systematic list

HOLOTHUROIDEA

Order Apodida Brandt, 1835
Family Chiridotidae Östergren, 1898
Chantalia conandae Martins & Souto, 2020
Gymnopipina ikamiaba Souto & Martins in Souto et al. (2018)
Family Synaptidae Burmeister, 1837
Yemoja brasiliensis (Freire & Grohmann, 1989)

Order Dendrochirotida Grube, 1840
Family Cucumariidae Ludwig, 1894
Cucumaria solangeae Martins & Souto, 2015
Parathyone itapuaensis Martins & Tavares, 2021

Family Sclerodactylidae Panning, 1949
Euthyonidiella occidentalis (Ludwig, 1875)
Havelockia mansoae Martins & Tavares, 2018
Havelockia oraneae Martins & Souto, 2018
Havelockia smirnovi Martins, 2019
Paulayellus gustavi Martins & Tavares, 2018
Sclerothyone oloughlini Martins & Tavares, 2019
Sclerothyone reichi Martins & Tavares, 2019

Family Phyllophoridae Östergren, 1907
Thyone wiltinho Martins & Souto, 2018
Thyone floriano Martins & Tavares, 2018

Family Psolidae Burmeister, 1837
Psolus vitioriae Tommasi, 1971
Psolus thandari Martins & Tavares, 2019
Psolus tommasi Martins & Tavares, 2019
Psolidium lonchostinum Martins & Tavares, 2020
Psolidium nanoplax Martins & Tavares, 2020

Ophiuroidea

Order Amphilepidida O’Hara, Hugall, Thuy, Stöhr & Martynov, 2017
Family Ophiotrichidae Ljungman, 1867
Ophiothrix trindadensis Tommasi, 1970
Ophiothrix spiniformis Santana, Manso, Almeida & Alves, 2020
Ophiothrix troscheli Santana, Manso, Almeida & Alves, 2020

Alphabetic list of taxa

HOLOTHUROIDEA

Chantalia conandae Martins & Souto, 2020

Fig. 2A

Chantalia conandae Martins & Souto, 2020: 5-7, figs. 1-2.

Type locality: Ubatuba, São Paulo, Brazil.

Type material: Holotype – MZUSP 1896: 40 mm long, Ubatuba, São Paulo, Brazil, iii.1987.

Paratypes – MZUSP 697: 8 specimens, 25-40 mm long, same collection data as holotype; MZUSP 698: 2 specimens, 40-50 mm long, Baleeiro beach (23°49’S, 45°25’W), São Sebastião, São Paulo, Brazil, 21.vii.1995.

Distribution: Ubatuba and São Sebastião, São Paulo, Brazil.

Cucumaria solangeae Martins & Souto, 2015

Fig. 2B

Cucumaria solangeae Martins & Souto, 2015: 370-373, figs. 7-8.

Type locality: Pituba beach (13°00’S, 38°27’W), Salvador, Bahia, Brazil, intertidal.

Type material: Holotype – UFBA 650: 40 mm long, Pituba beach (13°00’S, 38°27’W), Salvador, Bahia, Brazil, intertidal, 01.ii.1994.

Paratypes – UFBA 1750: 1 specimen, 20 mm long; ZUEC-HOL 21-22: 2 specimens, 20-30 mm long. Paratypes with same collection data as holotype.

Distribution: Pituba beach, Salvador, Bahia, Brazil.

Parathyone itapuaensis Martins & Tavares, 2021

Fig. 2C

Parathyone itapuaensis Martins & Tavares, 2021: 246-248, figs. 1-4.

Type locality: Itapuã beach (12°57’S, 38°21’W), Salvador, Bahia, Brazil, intertidal.
Figure 2. Type specimens. (A) Chantalia conandae (MZUSP 1896, holotype); (B) Cucumaria solangeae (MZUSP 286, paratype); (C) Parathyone itapuensis (MZUSP 2089); (D) Euthyonidiella occidentalis (MZUSP 1139, neotype); (E) Gymnopipina ikamiha (MZUSP 1514, holotype); (F) Havelockia mansoae (MZUSP 1525, holotype); (G) Havelockia oraneae (MZUSP 1636, holotype) and (H) Havelockia smirnovi (MZUSP 1352, holotype).
**Type material:** Holotype – MZUSP 2089: 40 mm long, Itapuã beach (12°57′S, 38°21′W), Salvador, Bahia, Brazil, intertidal, 21.iv.2011. *Paratype* – UFBA 631: 1 specimen, 40 mm long, same collection data as holotype; UFPB ECH 438: 1 specimen, 40 mm long, (07°04′S; 34°49′W), João Pessoa, Paraíba, Brazil; MZUSP 2103: 5 specimens, 10-25 mm long, Ubatuba, São Paulo, Brazil.

**Distribution:** Paraíba, Bahia and São Paulo (Brazil).

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**Euthyonidiella occidentalis** (Ludwig, 1875)  
*Fig. 2D*

*Thyonidium occidentale* Ludwig, 1875: 119-120.  
*Phyllophorus occidentalis* – Deichmann, 1930: 148, pl. 18.  
*Phyllophorus (Urodemella) occidentalis* – Heding & Panning, 1954: 164, fig. 76.  
*Euthyonidiella dentata* – Cherbonnier, 1961: 611-613, fig. 1.  
*Euthyonidiella occidentalis* – Martins & Souto, 2015: 363-368, figs. 1-4 (neotype designation).

**Type locality:** Suriname (*Thyonidium occidentale*) and Bahia, Brazil (*Euthyonidiella occidentalis*).

**Type material:** Neotype – MZUSP 1139: 80 mm long, Itapuã beach (12°57′S, 38°21′W), Salvador, Bahia, Brazil, intertidal, 12.i.2014.

**Distribution:** U.S.A. (Florida), Caribbean Sea (Antigua, Aruba, Barbados, Puerto Rico, Trinidad and Tobago), Suriname and Brazil (Paraíba to Rio de Janeiro).

**Remarks:** In a taxonomic review of the dendrochirotids, Martins & Souto (2015) considered the taxon *Phyllophorus occidentalis* as more properly fitting the diagnosis of the genus *Euthyonidiella*, proposing the reassignment of the species. Concurrently, *Euthyonidiella dentata* Cherbonnier, 1961 was recognized as a junior synonym of *E. occidentalis*.

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**Gymnopipina ikamiaba** Souto & Martins, 2018  
*Fig. 2E*

*Gymnopipina ikamiaba* Souto & Martins, 2018: 2, figs. 1-2.

**Type locality:** São Sebastião, São Paulo, Brazil.

**Type material:** Holotype – MZUSP 1514: 65 mm long, São Sebastião, São Paulo, Brazil, iii.1956. *Paratypes* – MZUSP 1515: 5 specimens, 20-25 mm long, same collection data as holotype.

**Distribution:** São Sebastião, São Paulo, Brazil.

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**Havelockia mansoae** Martins & Tavares, 2018  
*Fig. 2F*

*Havelockia mansoae* Martins & Tavares, 2018: 539-540, figs. 5-6.

**Type locality:** Santos, São Paulo, Brazil.

**Type material:** Holotype – MZUSP 1525: 30 mm long, Santos, São Paulo, Brazil, 03.x.1967.

**Distribution:** Santos, São Paulo, Brazil.

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**Havelockia oraneae** Martins & Souto, 2019  
*Fig. 2G*

*Havelockia oraneae* Martins & Souto, 2019: 1128-1130, figs. 1-2, Table 1.

**Type locality:** Todos os Santos Bay (13°02′S, 38°37′W), Salvador, Bahia, Brazil.

**Type material:** Holotype – MZUSP 1636: 12 mm long, Todos os Santos Bay (13°02′S, 38°37′W), Salvador, Bahia, Brazil, 16 m, 05.iv.1997. *Paratypes* – MZUSP 1637: 1 specimen, 70 mm long, same collection data as holotype. UFBA 1641: 1 specimen, 10 mm long, Guarajuba beach (12°45′S, 38°05′W), Camaçari, Bahia, Brazil, 26 m, 20.vii.2005.

**Distribution:** Todos os Santos Bay, Salvador, Bahia, Brazil.

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**Havelockia smirnovi** Martins, 2019  
*Fig. 2H*

*Havelockia smirnovi* Martins, 2019: 7-9, figs. 4-5.

**Type locality:** Ilha Anchieta, Ubatuba, São Paulo, Brazil.

**Type material:** Holotype – MZUSP 1352: 12 mm long, Ilha Anchieta (23°33′S, 45°04′W), Ubatuba, São Paulo, Brazil, 05.ii.1964. *Paratypes* – MZUSP 1885: 1 specimen, 15 mm long, Itapuã beach (12°57′S, 38°21′W), Salvador, Bahia, intertidal, 05.iv.2011.

**Distribution:** Northeast to Southeast coast of Brazil (Bahia to São Paulo).

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**Paulayellus gustavi** Martins & Tavares, 2018  
*Fig. 3A*

*Paulayellus gustavi* Martins & Tavares, 2018: 161-163, figs. 3-4.

**Type locality:** Gulf of Panama, Panama.
Figure 3. Type specimens. (A) *Paulayella gustavi* (MZUSP 1619, holotype); (B) *Psolus vitoriae* (MZUSP 1632, holotype); (C) *Psolus thandari* (MZUSP 593, holotype); (D) *Psolus tommasi* (MZUSP 583, holotype); (E) *Psolidium lanchestinum* (MZUSP 744, holotype); (F) *Psolidium nanoplax* (MZUSP 589, holotype); (G) *Sclerothyone olaughlini* (MZUSP 1884, holotype); (H) *Sclerothyone reichi* (MZUSP 1644, holotype).
Type material: **Holotype** – FLMNH 4550: 50 mm long, Gulf of Panama, Panama. **Paratype** – MZUSP 1619: permanent slides of body wall ossicles, same collection data as holotype.

**Distribution**: Gulf of Panama, Panama.

*Psolus vitoriae* Tommasi, 1971

*Psolus vitoriae* Fig. 3B

*Psolus vitoriae* Tommasi, 1971: 4, figs. 11-12. *Psolus vitoriae* – Martins & Tavares, 2019a: 533-536, figs. 1-2, Table 1 [neotype designation].

**Type locality**: Ilha da Vitória, São Paulo, Brazil.

**Type material**: **Neotype** – MZUSP 1632: 8 mm long, Ilha da Vitória, São Paulo, Brazil, 50-100 m, 01.ii.1968.

**Distribution**: Southeastern coast of Brazil (São Paulo and Rio Grande do Sul).

*Psolus thandari* Martins & Tavares, 2019

*Psolus thandari* Fig. 3C

*Psolus thandari* Martins & Tavares, 2019a: 538-542, figs. 5-6, Table 1.

**Type locality**: Campos Basin, Rio de Janeiro, Brazil.

**Type material**: **Holotype** – MZUSP 593: 5.7 mm long. Campos Basin (21°41′S, 40°20′W), Rio de Janeiro, Brazil, 44 m, xii.1991 to i.1992. **Paratypes** – MZUSP 1634: 3 specimens, 4.5-5 mm long, same collection data as holotype.

**Distribution**: Campos Basin, Rio de Janeiro, Brazil.

*Psolus tommasi* Martins & Tavares, 2019

*Psolus tommasi* Fig. 3D

*Psolus tommasi* Martins & Tavares, 2019a: 536-538, figs. 3-4, Table 1.

**Type locality**: São Paulo, Brazil.

**Type material**: **Holotype** – MZUSP 744: 8.3 mm long, Rio Grande do Sul (33°41′S, 51°32′W), Brazil, 230 m, 02.iv.1998. **Paratypes** – MZUSP 743: 7 specimens, 7-7.5 mm long, São Paulo (24°20′S, 44°09′W), Brazil, 258 m, 10.i.1998; MZUSP 591: 8 specimens, 6-8.2 mm long, São Paulo (24°20′S, 44°09′W), Brazil, 258 m, 10.i.1998.

**Distribution**: São Paulo and Rio de Janeiro, Brazil.
**Figure 4.** (A) *Thyone waltinhoi* (MZUSP 1635, holotype); (B) *Thyone florianoi* (MZUSP 1351, holotype); (C) *Yemoja brasiliensis* (MZUSP 1025, holotype); (D) *Ophiothrix trindadensis* (MZUSP 1425, neotype); (E) *Ophiothrix spiniformis* (MZUSP 2709, paratype) and (F) *Ophiothrix troscheli* (MZUSP 2708, paratype). Photographs: D, by R. Alitto; E, F by A. Santana.

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**Thyone waltinhoi** Martins & Souto, 2019  
*Fig. 4A*

*Thyone waltinhoi* Martins & Souto, 2019: 1128-1133, figs. 3-5, Table 2.

**Type locality:** Itapuã beach, Salvador, Bahia, Brazil.

**Type material:** Holotype – MZUSP 1635: 30 mm long, Itapuã beach (12°57′S, 38°21′W), Salvador, Bahia, Brazil, intertidal, under rocks, 15.v.1991.

**Distribution:** Itapuã beach, Salvador, Bahia, Brazil.

**Remarks:**

Based on the examinations of the type material Martins & Souto (2020) described a new genus to allocate the species *Leptosynapta brasiliensis.* The monotypic genus includes the species *Yemoja brasiliensis* (Freire & Grohmann, 1989).

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**Thyone florianoi** Martins & Tavares, 2018  
*Fig. 4B*

*Thyone florianoi* Martins & Tavares, 2018: 535-538, figs. 3-4.

**Type locality:** São Sebastião, São Paulo, Brazil.

**Type material:** Holotype – MZUSP 1351: 15 mm long, São Sebastião, São Paulo, Brazil, 01.ii.1986. Paratype – MZUSP 1529: 2 specimens, 100 mm long, same collection data as holotype; MZUSP 1516: 2 specimens, 20-25 mm long, Ilha Anchieta, Ubatuba, São Paulo, Brazil, 11 m, 15.ii.1964.

**Distribution:** São Paulo, Brazil.

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**Yemoja brasiliensis** (Freire & Grohmann, 1989)  
*Fig. 4C*

*Leptosynapta brasiliensis* Freire & Grohmann, 1989: 720, figs. 1-6.

*Yemoja brasiliensis* – Martins & Souto, 2020: 15-18, figs. 9-10.

**Type locality:** Praia Vermelha beach, Rio de Janeiro, Rio de Janeiro, Brazil.

**Type material:** Holotype – MZUSP 1025: 20 mm long, Praia Vermelha beach (22°57′S, 43°9′W), Rio de Janeiro, Rio de Janeiro, Brazil, 1-4 m, 26.xii.1988. Paratype – MZUSP 1022-1024: 5 specimens, 15-30 mm long, same collection data as holotype.

**Distribution:** Rio de Janeiro, Brazil.

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**Remarks:** Based on the examinations of the type material Martins & Souto (2020) described a new genus to allocate the species *Leptosynapta brasiliensis.* The monotypic genus includes the species *Yemoja brasiliensis* (Freire & Grohmann, 1989).

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**Ophiuroidea**

**Ophiothrix trindadensis** Tommasi, 1970  
*Fig. 4D*

*Ophiothrix trindadensis* Tommasi, 1970: 61-62, figs. 60-61.
Ophiothrix trinadensis – Alitto et al., 2019: 13-18, figs. 7-8 [neotype designation]; Santana et al., 2020: 57-58, figs. 5.

**Type locality:** Trindade Island, Espirito Santo, Brazil.

**Type material:** Neotype – MZUSP 1425: 5.8 dd (disc diameter), Enseada dos Portugueses (20°29’5”S, 29°19’15”W), Trindade Island, Espirito Santo, Brazil, 12 m, 15.iii.2013.

**Distribution:** Brazilian oceanic islands: São Pedro and São Paulo and Trindade and Martin Vaz Islands. Northeastern to Eastern Brazil.

Ophiothrix spiniformis

Santana, Manso, Almeida & Alves, 2020

Fig. 4E

Ophiothrix spiniformis Santana, Manso, Almeida & Alves, 2020: 63-64, figs. 8-9.

**Type locality:** Paranaguá, Paraná, Brazil.

**Type material:** Paratype – MZUSP 02709: 1 specimen. Paranaguá (23°49’S, 45°24’W), Paraná, Brazil, 1 m, 20.xii.2014.

**Distribution:** Paraná, Brazil.

Ophiothrix troscheli

Santana, Manso, Almeida & Alves, 2020

Fig. 4F

Ophiothrix troscheli Santana, Manso, Almeida & Alves, 2020: 67-69, figs. 12-13.

**Type locality:** Cananéia, São Paulo, Brazil.

**Type material:** Paratypes – MZUSP 1521: 1 specimen; MZUSP 02708: 1 specimen. Cananéia (25°11’S, 44°57’W), São Paulo, Brazil, 168 m, 2000.

**Distribution:** Rio de Janeiro, São Paulo and Santa Catarina, Brazil.

**AUTHORS’ CONTRIBUTIONS:** LM: Writing – original draft; AOM: Investigation; LM, MVF: Conceptualization; LM, MVF, MT: Writing – review & editing. All authors actively participated in the discussion of the results, they reviewed and approved the final version of the paper.

**CONFLICTS OF INTEREST:** Authors declare there are no conflicts of interest.

**FUNDING INFORMATION:** This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001 (PNPD 88887.368621/2019-00 to LM); AM thanks ‘Programa Unificado de Bolsas PUB-USP’ (2020 – Project 2305); MVF thanks ‘Apoio Novos Docentes’ program by USP (Proc. 18.1.270.38.4) and MT thanks CNPq (309488/2020-6) for supporting studies on the systematics of marine invertebrates.

**ACKNOWLEDGMENTS:** We are grateful for the suggestions made by two anonymous reviewers. We also thank R. Alitto (ZUEC) for the photograph of Ophiothrix trinadensis and A. Santana (UFBA) for the photographs of Ophiothrix spiniformis and Ophiothrix troscheli.

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