LITTORAL SPONGES FROM SELVAGENS ISLANDS

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With 1 figure

ABSTRACT. In this paper a small collection of littoral demosponges from Selvagens Islands is studied. Five species were identified: *Myxilla rosacea* (LIEBERKÜN, 1959), *Adocia laevis* GRIESSINGER, 1971, *Ircinia fasciculata* (PALLAS, 1766), *Sarcotragus spinosula* SCHMIDT, 1862 and *Aplysina aerophoba* SCHMIDT, 1862.

A. laevis, described from NW Mediterranean Sea, was found for the first time in the Atlantic Ocean.

The known distribution of the species is consistent with the existence of two faunistic assemblages - Mediterranean-Atlantic and Amphi-Atlantic.

INTRODUCTION

Littoral sponges of the North-Eastern Atlantic Ocean are relatively well known. The English Channel and specially the Mediterranean Sea are the best investigated areas.

Mediterranean-Atlantic Province islands have also been studied, but the knowledge concerning their sponge fauna is quite different from island to island. Therefore, the fauna of the Açores Archipelago, in the Lusitanean region, is quite well studied due to TOPSENT (1898, 1904, 1928), LÉVI & VACELET (1958), BOURY-ESNAULT & LOPES (1985) and MOSS (1992).

Despite some references to Madeira Archipelago (JOHNSON, 1989; TOPSENT, 1927, 1928) and to Canary Islands (CRUZ & BACALLADO, 1982, 1983, 1984a, b; TOPSENT, 1981; WEERDT & VAN SOEST, 1986), the sponge fauna of these mauritanian islands is poorly known. In the same biogeographic region, Selvagens Islands have not been investigated, apart from the finding of *Petrosia ficiformis* (POIRET, 1789) in the south coast of Selvagem Grande (WEERDT & VAN SOEST, 1986).

In this work we have studied a small collection of shallow-water demosponges from Selvagem Grande.

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MATERIAL AND METHODS

The sponges were collected in the south coast of Selvagem Grande (Fig. 1) at two different sites: Enseada das Cagarras - 30° 08' 20" N 15° 52' 10" W (May 1980); Enseada da Fonte das Galinhas - 30° 8' 15" N 15° 51' 50" W (June 1983).

The specimens were collected in the intertidal zone and by snorkeling until 5m.

Fixing, preserving and laboratory methodology followed RÜTZLER (1978).

The sponges were determined according LÉVI (1973) and BERGQUIST (1980) classifications.

RESULTS

The study of this small collection allowed us to recognize five species of Demosponges representing four different orders.

Order POECILOSCLERIDA TOPSENT, 1928
Family Myxillidae TOPSENT, 1928
Genus *Myxilla* SCHMIDT, 1962
Myxilla rosacea (LIEBERKÜN, 1959)

BOURY-ESNAULT, 1971, p.309

Material: two specimens from Enseada das Cagarras.

Description: Encrusting sponge (thickness up to 1 cm) covering 9 cm^2 of the substrate; surface hispid with small oscules (diameter: 0.5-1 mm) irregularly distributed; soft and rather viscous; living specimens pale or dark orange.

Reticulate skeleton of acanthostyles and ectosomal tornote; abundant microscleres dispersed.

Spicules: Acanthostyles curved and slightly fusiform,
115.5-159/1.8-4.2 μm (139.7/3.1 μm)
Tornote with spiny points
141-175.5/1.5-2.9 μm (162.8/2.4 μm)
Anchorate chelae
13.8-18.6/0.9-1.8 μm (16.1/1.3 μm)
Sigma, abundant
15-30.6/0.5-1.8 μm (22.4/1.2 μm)

Habitat: on illuminated rocky surfaces; 4-5 m.

Distribution: cosmopolitan.

Order HAPLOSCLERIDA TOPSENT, 1928
Family Haliclonidae LAUBENFELS, 1932
Genus *Adocia* GRAY, 1867
Adocia laevis GRIESSINGER, 1971

GRIESSINGER, 1971, p. 160

Material: one specimen from Enseada das Cagarras.

Description: Ramified sponge; branches slightly depressed (diameter: 5-7mm); smooth surface with abundant oscules dispersed on it; spongy and firm; light brown.

Reticulate skeleton composed by primary paucispiculated fibers and transverse spicules, enrobbed by abundant spongin; ectosomal skeleton, supported by primary fibers, formed by a well developed spongin net where spicules are included; abundant spherulous cells (diameter: 10 μm) in the reticulum.

Spicules: slightly curved oxea with pointed ends 60-76.5/1.5-2.3 μm (67/1.7 μm)

Discussion: We confirmed the diagnosis of the studied specimen by comparing it with the holotype; we also note that the spicules are less strong than in the mediterranean specimen.

Habitat: on illuminated rocky surfaces; 4-5 m.

Distribution: Alboran Sea (western Mediterranean Sea).

Order DICTYOCERATIDA MINCHIN, 1900
Family Thorectidae BERGQUIST, 1978
Genus *Ircinia* NARDO, 1833
Ircinia fasciculata (PALLAS, 1766)

VACELET, 1959 - p.89

Material: one specimen from Enseada das Cagarras

Description: violet sponge, beige inside; massive (9x4.5x3 cm); surface with little conules (1-2mm) irregularly spaced (1-3 mm).

Primary reticulated fibers (70-96 μm) with abundant strange elements; secondary fibers (20-60 μm) stratified without inclusions, originating perforated plates; firm consistency due to the abundant spongin filaments (1.8-5 μm) existing in the coanosome.

Habitat: on illuminated rocky surfaces; 4-5 m.

Distribution: cosmopolitan.

Genus *Sarcotragus* SCHMIDT, 1862
Sarcotragus spinulosa SCHMIDT, 1862

VACELET, 1959 - p.92

Material: one specimen from Enseada das Cagarras.

Description: massive dark grey sponge (10x6.5x4 cm) with a thin conulouse surface (conules: 0.5-1mm); oscules (diameter:1-2 mm) irregularly dispersed; firm consistence.

Skeleton of stratified fibers without inclusions; primary fasciculated fibers (120-145 μm) with a fibrillar pith; secondary fibers without pith (22.5-88 μm); spongin filaments very thin (1.5-2 μm) and abundant.

Habitat: on illuminated rocky surfaces; 4-5 m.

Distribution: cosmopolitan.

Order VERONGIDA BERGQUIST, 1978
Family Aplysinidae CARTER, 1875
Genus *Aplysina* NARDO, 1834
Aplysina aerophoba SCHMIDT, 1862

VACELET, 1959 - p. 87

Material: three specimens from Enseada da Fonte das Galinhas.

Description: Little massive specimens (maximum size: 3.5x2x1.5 cm) with incipient lobules where oscules are localized; surface smooth with diminute conules (0.2-0.5 mm); rubbery consistence; yellow in live changing to dark brown after preservation. Skeleton of identical fibers forming a polygonal network; spongin fibers (32-80 μm) with stratified cortex and fibrillar pith where convex growing marks can be seen.

Habitat: on horizontal and vertical rocky surfaces indirectly illuminated; intertidal and 2 m.

Distribution: cosmopolitan.

DISCUSSION

Adocia laevis described at the Alboran Sea (western Mediterranean Sea) at a depth of 20-25 m (GRIESSINGER, 1971) was found at Selvagem Grande in shallower waters (5 m deep).

All the other species have a wide bathymetric range of distribution and have already been reported at low depths.

Selvagens Islands are geographically included in the Mauritanian region of the Mediterranean-Atlantic Province. Apart from *A. laevis*, only known from the Mediterranean Sea, the other species had already been found within that biogeographic region. They have a wide range of geographical distribution, and are usually referred to as cosmopolitan species and therefore they are not very useful in the characterization of a faunistic assemblage.

The observed species and their known distribution are consistent with two distribution

patterns recognized in the Atlantic Ocean and adjacent seas:

Mediterranean-Atlantic:
M. rosacea: NE Atlantic, from the Arctic to the Equator and Mediterranean Sea
S. spinosula: NE Atlantic, from Bay of Biscay to the Equator and Mediterranean Sea
A. laevis: Alboran Sea and Selvagens Islands

Amphi-Atlantic:
I. fasciculata: from Cape Finisterre to SE Atlantic; Caribbean Sea and Brazil
A. aerophoba: from Cape Finisterre to Cape Blanco and Caribbean Sea.

Apart from the five species, littoral known demosponges from Selvagem Islands include one more species, *Petrosia ficiformis*. This one was found at Enseada das Cagarras at 5-20 m deep (WEERDT & VAN SOEST, 1986). Regarding its geographical distribution it must be included in the above mentioned Mediterranean-Atlantic faunistic assemblage.

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REFERENCES

BERGQUIST, P.:

1980. A revision of the supraspecific classification of the orders Dictyoceratida, Dendroceratida and Verongida (Class Demospongiae). *N. Z. Journal of Zoology*, 7: 443-503.

BOURY-ESNAULT, N.:

1971. Spongiaires de la zone littorale rocheuse de Banyuls-sur-mer. II. Systématique. *Vie Milieu*, **22**(2): 287-350.

BOURY-ESNAULT, N. & M. T. LOPES:

1985. Les Démosponges littorales de l'Archipel des Açores. *Ann. Inst. Océanogr.*, Paris, **61**(2): 149-225.

CRUZ, T. & J. J. BACALLADO:

1982. Contribución al conocimiento de los Espongiarios de las Islas canarias. I. Demosponjas "HOMOSCLEROPHORIDA y ASTROPHORIDA" del litoral de Tenerife. *Boln. Inst. Esp. Oceanogr.*, **6**(4): 76-87.

1983. Esponjas perforantes (PORIFERA, CLIONIDAE) de Tenerife, Islas Canarias. *Vieraea*, **12**(1-2): 37-48.

1984a. Contribution al conocimiento de los Espongiarios de las Islas Canarias: Demosponjas de los fondos de Dendrophyllia ramea (L.) en Tenerife. *Ann. Fac. Ciencias*, **10**(1-2): 71-98.

1984b. Contribution al conocimiento de los Espongiarios de las Islas Canarias: Demosponjas (HADROMERIDA) del litoral de Tenerife. Servicio de Publicaciones de la Universidad de la Laguna. *Tomo Homenaje al Dr. A. González Gonzáles*, **1**: 61-70.

GRIESSINGER, J.-M.:

1971. Etude des Reniérides de Méditerranée (Démosponges Haplosclerides). *Bull. Mus. natu. Hist. nat.*, 3(3): 97-182.

LÉVI, C. & J. VACELET:

1958. Eponges récoltées dans l'Atlantique oriental par le "Président Théodore-Tissier" (1955-1956). *Recl. Trav. Inst. Pêches Marit.*, 22(2): 225-246.

LÉVI, C.:

1973. Systématique de la classe des Demospongiaria (Démosponges). In: Traité de Zoologie. vol. 3. Spongiaires. ed. P.-P. Grassé. Paris, Masson et Cie. pp. 577-631.

MOSS, D.:

1992. A summary of the Porifera collected during "Expedition Azores 1989". *Arquipelago*. Life and Earth Sciences, **10**:45-53.

RÜTZLER, K.:

1978. Sponges in coral reefs. In: Coral reefs: research methods. Monographs on Oceanographic Methodology, 5. eds. D. R. Stoddart & R. E. Johannes. Paris, UNESCO. pp. 299-313.

TOPSENT, E.:

1891. Voyage de la Göelette "Melita" aux canaires et au Sénégal: Spongiaires. *Mém. Soc. Zool. Fr.*, **4**: 11-15.

1898. Éponges nouvelles des Açores (Première série). *Mém. Soc. Zool. Fr.*, **11**: 225-225.

1927. Diagnoses d'éponges nouvelles recueillies par le prince Albert I de Monaco. *Bull. Inst. Océanogr. Monaco*, **2**:(502): 1-29.

1928. Spongiaires de l'Atlantique et de la Méditerranée, provenant des croisières du prince Albert I de Monaco. *Résult. camp. Scient. Prince Albert I Monaco*, **74**: 1-376.

VACELET, J.:

1959. Répartition générale des éponges et systématique des éponges cornées de la région de marseille et de quelques stations méditerranées. *Recl. Trav. Stn. mar. Endoume*, **16**(26): 39-101.

WEERDT, W. H. & R. W. M. VAN SOEST:

1986. Marine shallow-water HAPLOSCLERIDA (PORIFERA) from the South-Eastern part of the North Atlantic Ocean. *Zool. Verh.*, **225**: 1-49.

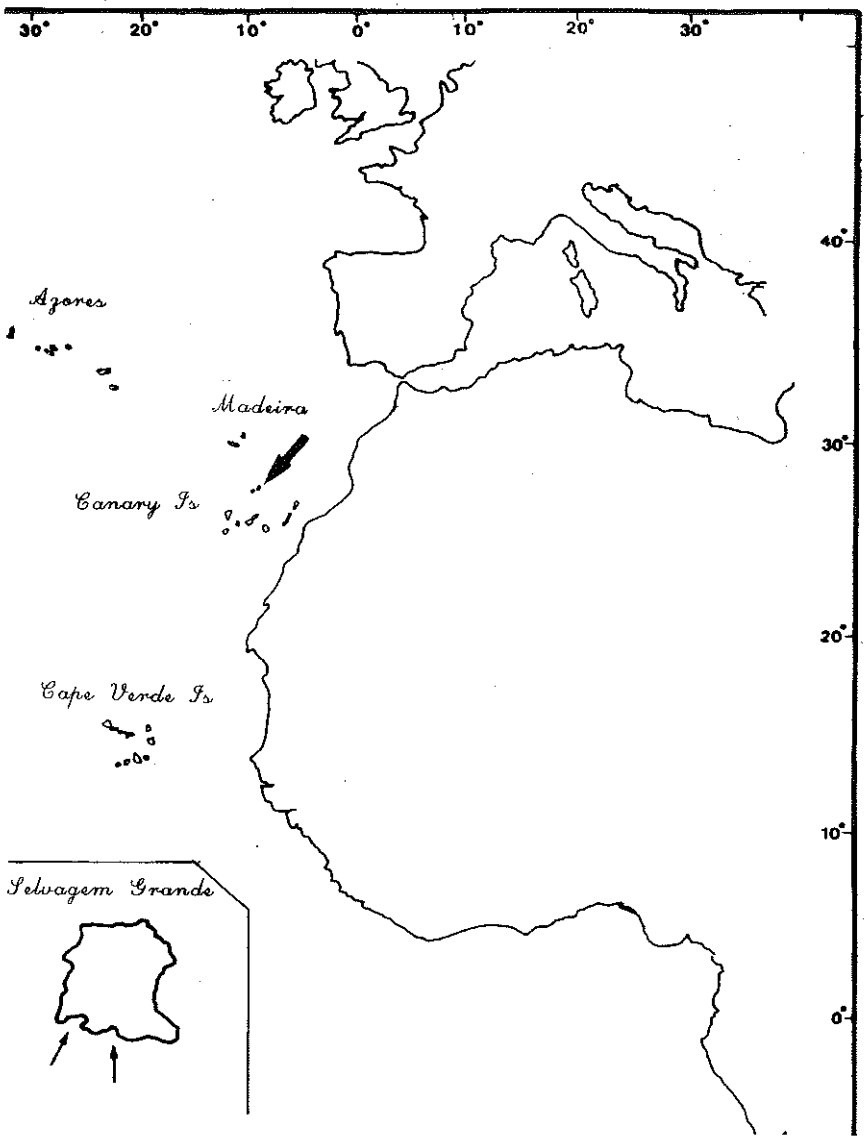

Figure 1 - Localization of Selvagens Islands in NE Atlantic Ocean and sampling sites at the south coast of Selvagem Grande.