

A new species of *Sarcodictyon* (Anthozoa: Stolonifera) from Tenerife, Canary Islands

O. Ocaña, A. Brito & J. Nuñez

Ocaña, O., A. Brito & J. Nuñez. A new species of *Sarcodictyon* (Anthozoa: Stolonifera) from Tenerife, Canary Islands.

Zool. Med. Leiden 66 (31), 31.xiii.1992: 423-428, figs. 1-5, table 1.— ISSN 0024-0672.

Key words: Anthozoa; Stolonifera; *Sarcodictyon canariensis* spec. nov.; Canary Islands; Tenerife.

A new species of Stolonifera, *Sarcodictyon canariensis*, from Tenerife, Canary Islands, is described and illustrated. It is characterized by its large size, the form of its sclerites and internal anatomy. The material was collected at a depth of 95-130 m in the community of *Dendrophyllia ramea* (Linnaeus, 1758). *S. canariensis* is compared with other species of the same genus.

Ocaña, O., A. Brito & J. Nuñez, Departamento de Biología Animal, Facultad de Biología, Universidad de La Laguna, Tenerife, Islas Canarias.

Resumen

Una nueva especie de Stolonifera, *Sarcodictyon canariensis* spec. nov., se describe para las costas de Tenerife, Islas Canarias. El material estudiado proviene de fondos circalitorales de la comunidad de *Dendrophyllia ramea* (Linnaeus, 1758). *S. canariensis* se caracteriza por la gran talla de los polipos, la forma y talla de los escleritos, y por la anatomía interna. *S. canariensis* se compara con otras especies del mismo género.

Introduction

Colonies of an undescribed species of *Sarcodictyon* Forbes, 1847, were obtained at two localities on the SE coast of the island of Tenerife, Canary Islands from fishermen's trammel nets containing remains of the community of *Dendrophyllia ramea* (Linnaeus, 1758) (circalittoral zone).

The colonies were anaesthetized with menthol crystals and preserved in 70% alcohol; fragments used for histological study were fixed in 8% formaldehyde. The general morphology and anatomy were studied by means of a stereo dissecting microscope. Anatomical and histological details were studied on the basis of paraffine sections following the Cajal method for topographic staining (see Gabe, 1968). Sclerites were obtained by dissolution of the soft tissues in concentrated sodium hypochlorite, and examined with a light microscope and SEM.

The techniques used for the external and internal anatomical studies were similar to those followed by Herdman, 1883. The current taxonomy of the order Stolonifera is based only on the morphology of the colonies and of the sclerites. However, the present study also showed the internal anatomy and the microscopic anatomy to provide useful characters.

Only two other species of *Sarcodictyon* are known from the Lusitanian-Mediterranean-Mauritanian region of the Atlantic: *S. catenatum* Forbes, 1847, and *S. roseum* (Philippi, 1842). Two other species, *S. densum* and *S. charcoti*, more recently described from the Azores by Tixier-Durivault & d'Hondt (1975) should in our view be placed

in *Clavularia*, Blainville, 1830, on account of their needle like sclerites (López & Ocaña, in prep.).

The following abbreviations for depositories have been used: DZUL = Departamento de Zoología, Universidad de La Laguna, Tenerife, (Canary Islands); NNM/RMNH = Nationaal Natuurhistorisch Museum (formerly Rijksmuseum van Natuurlijke Historie), Leiden; TFMC CN = Museo de Ciencias Naturales de Tenerife, (Canary Islands); ZMA = Zoölogisch Museum, Amsterdam/ Instituut voor Taxonomische Zoölogie.

Systematics

Family *Clavulariidae* Hickson, 1894

Genus *Sarcodictyon* Forbes, in Johnston, 1847

Sarcodictyon canariensis spec. nov.

Material.— Holotype, RMNH 18616, "Canary Islands, Tenerife, Punta de Güimar, 14.vi.1982, G. Dionis", over dead corals and bryozoans, c. 60 polyps. Paratypes: RMNH 18617, same data, over *Ircinia spec.*, c. 30 polyps; TFMC CN/0176, "Canary Islands, Tenerife, Las Eras, 16.x.1982, G. Dionis", over sponges and bryozoans, c. 20 polyps; DZUL I-320, idem, c. 20 polyps; DZUL I-330, idem, c. 15 polyps.

Material examined for comparison.— Two colonies of *Sarcodictyon rosea* (Philippi, 1842) (ZMA Coel-8350); three colonies *Sarcodictyon catenatum* Forbes, 1847 (collection R.L. Manuel, Oxford University).

Description.— The colonies form a complex reticular structure of narrow stolons with membranous expansions, up to almost 1 cm². The polyps are arranged at irregular intervals and tend to be more densely distributed on the membranous expansions. The anthosteles are conical or cylindrical, 5-8 mm in height (fig. 5). The anthosteles and stolons are covered with a thin, colourless, transparent periderm, densely packed with orange-red sclerites. The colouration of the colony is pale red, darkening in certain areas due to precipitation of ooze. The anthocodiae are white and do not have sclerites.

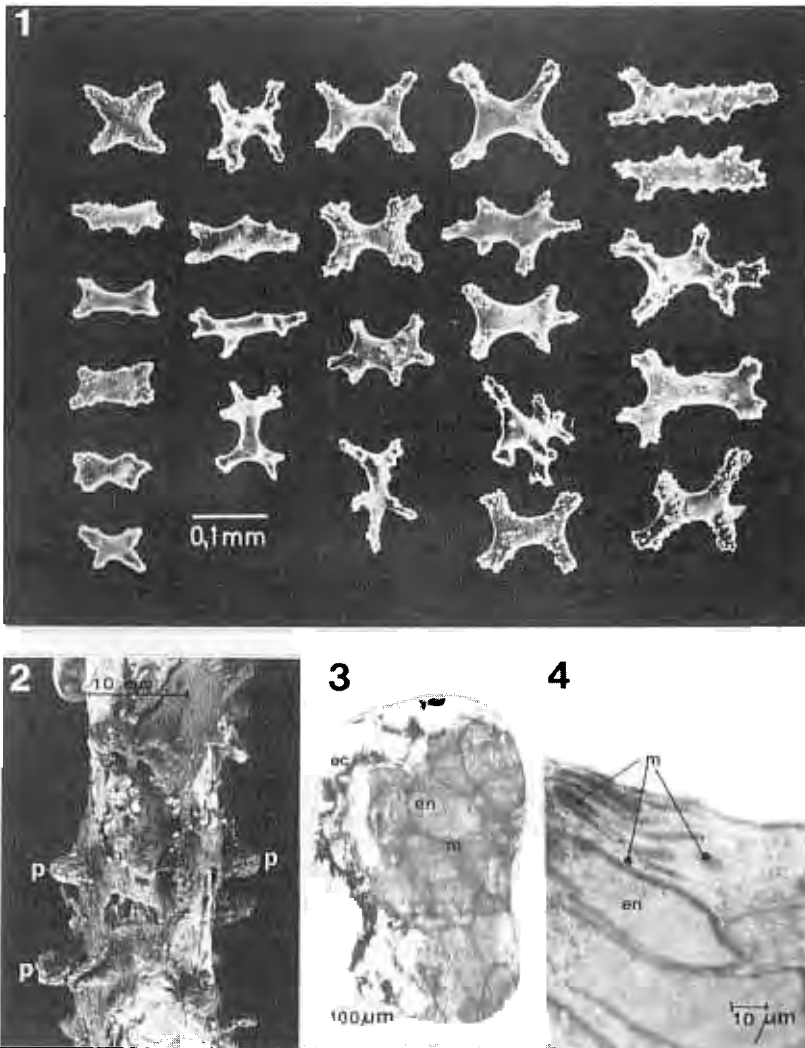
The following types of sclerites are present (terminology after Bayer et al., 1983): crosses (0.07-0.14 mm long, 0.02-0.04 mm wide), branched spindles (0.11-0.17 mm long, 0.02-0.04 mm wide) and shuttles (0.08-0.09 mm long, 0.03-0.04 mm wide) (fig. 1).

The endoderm of the polyp walls is well developed. The mesogloea is reticular and weak, embedded in the endoderm (figs. 3 and 4). The mesenteries have little developed filaments and weak, diffuse retractor muscles. The stolons have 3 to 5 longitudinal canals.

Etymology.— The species is named after the Canary Islands.

Ecology.— The colonies studied were collected on circalittoral bottoms between 95 and 130 metres deep, two colonies encrusting a dead axis of the gorgonian *Ellisella paraplexauroides* (Stiasny, 1936) (fig. 2), the other three growing among an irregular mass of sponges, bryozoans and dead corals.

Discussion.— The new species differs from *S. catenatum* by the presence of branched spindles, whereas the latter species has stellate plates, six-radiates and fused "quadruplets". Furthermore, in *S. catenatum* the tentacles have sclerites, which are absent in *S. canariensis*. Finally, the retractor muscles of the mesenteries of *S. cate-*



Figs. 1-4. *Sarcodictyon canariensis* spec. nov. (holotype, RMNH 18616). Fig. 1. Sclerites of stolons and anthosteles. Fig. 2. Colony on dead axis of *Ellisella paraplexauroides* (Stiasny, 1936). Fig. 3. Transverse section of the polyp wall at level of filaments. Fig. 4. Idem, detail; ec = ectoderm, en = endoderm, m = mesogloea, p = polyp.

natum are circumscribed and well developed, and the mesogloea of the polyp wall is well developed and presents many lacunae (Herdman, 1883: pl. 2 fig. 10; pl. 3 figs. 1, 3). In *S. canariensis* the retractor muscles are diffuse and weak, and the mesogloea of the polyp wall is reticular, weakly developed and without lacunae (figs. 3, 4 and table 1).

S. roseum (Philippi, 1842) [accommodated in *Rolandia* by Weinberg (1978: 167) but referred to *Sarcodictyon* by Bayer (1981: 885)] has fused "quadruplets", unlike *S. canariensis* (see Weinberg, pls. 17-18). Moreover, the mesogloea of *S. roseum* is lacunar

5

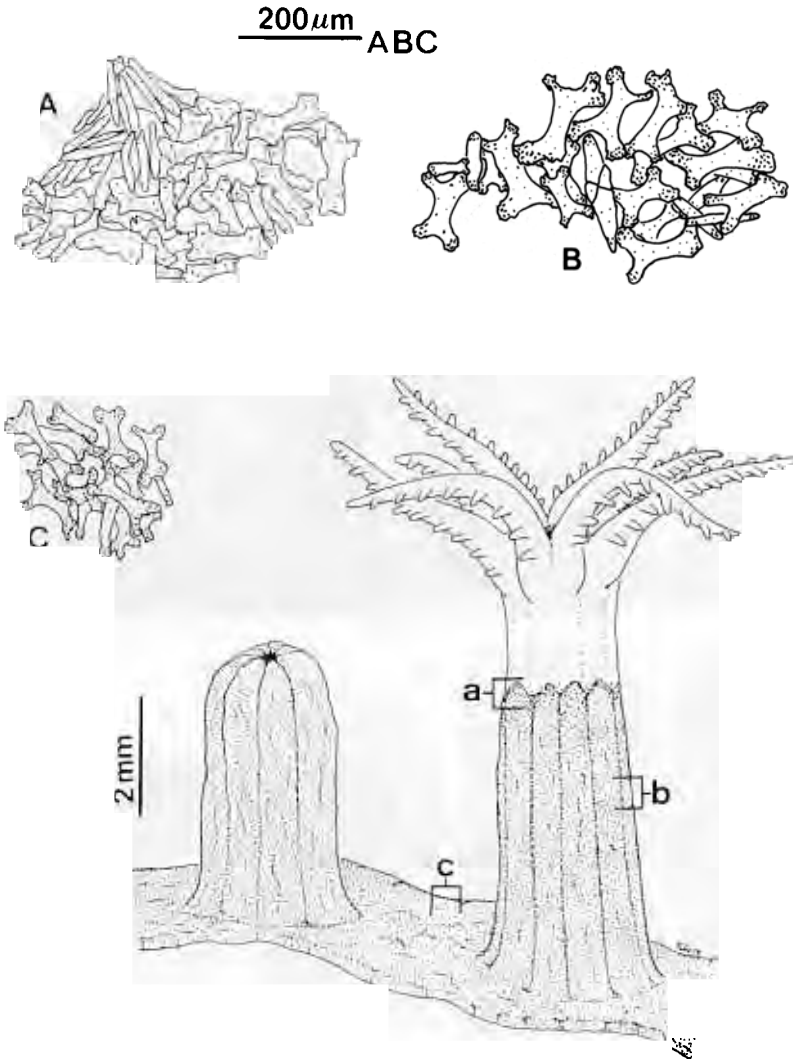
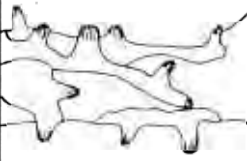
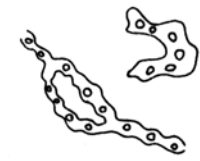
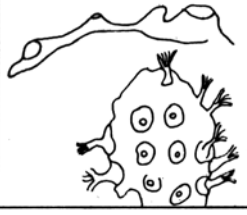


Fig. 5. Detail of a colony (paratype, DZUL I-320) with expanded and retracted polyp and disposition of sclerites. A-a: at the top of anthostele (shuttles and branched spindles). B-b: ca. halfway of anthostele (crosses and branched spindles). C-c: at the stolon (crosses and branched spindles).

and the stolons have 9-12 longitudinal canals, while in *S. canariensis* there are only 3-5.

Manuel (1981: 36) synonymized *S. roseum* and *S. catenatum*. Reexamination of British specimens kindly send to us for examination showed these to be *S. catenatum*. The differences between *S. roseum*, *S. catenatum* and *S. canariensis* are presented in table 1.

Table 1. Comparison of taxonomic characters of *Sarcodictyon canariensis*, *S. catenatum*, and *S. roseum*.

	<i>Sarcodictyon canariensis</i>	<i>Sarcodictyon catenatum</i>	<i>Sarcodictyon rosea</i>
Sclerite types	Crosses, branched spindles, shuttles and six radiates.	Crosses, stellate plates, six-radiates, shuttles, fused "quadruplets"	Crosses, fused "quadruplets", shuttles
Dimensions of sclerites	Length: 0.07-0.17 mm Width: 0.02-0.04 mm	Length: 0.04-0.07 mm Width: 0.02-0.04 mm	Length: 0.04-0.09 mm Width: 0.015-0.06 mm
Polyp length	5-8 mm	4-6 mm	2-3 mm
Retractors of mesenteries	Diffuse, weak	Circumscript, well developed	Diffuse, distinct
Mesogloea of polyp wall	Little developed, reticular, embedded in endoderm. No lacunae	Well developed, not reticular. Many lacunae	Well developed, not reticular. Many lacunae
Mesenterial filaments	Little developed	Well developed	Well developed
Stolons	3-5 longitudinal canals	2-4 longitudinal canals	9-12 longitudinal canals
Morphology of Colony			
Colour	Light red	Reddish	Reddish

Acknowledgements

Thanks are due to P.J. López (Universidad de Sevilla) for critically reading the manuscript, and for preparing the line-drawings. R.L. Manuel (University of Oxford) and R.W.M. van Soest (ZMA), kindly made available material of *Sarcodictyon catenatum* and *S. roseum*, respectively. Valuable advice was given by S. Weinberg (previously ZMA) and help in completing the manuscript by J.C. den Hartog and L.P. van Ofwegen (both NNM).

References

- Bayer, F.M., 1981. On some genera of stoloniferous octocorals (Coelenterata: Anthozoa), with descriptions of new taxa.— Proc. biol. Soc. Wash. 94 (3): 878-901.
- Bayer, F.M., M. Grasshoff, & J. Verseveldt. 1983. Illustrated trilingual glossary of morphological and anatomical terms applied to Octocorallia: 1-75.— Leiden.
- Blainville, H.M.D. de, 1834. Manuel d'Actinologie ou de Zoophytologie: i-viii, 1-632, 633-694, 102 pls.— Paris.
- Johnston, G., 1847. A history of the British Zoophytes (2nd ed) vol. 1: i-xvi, 1-488; vol. 2: pls. 1-74.— London.
- Gabe, M., 1968. Techniques histologiques: i-v, 1-1113.— Paris.

- Herdman, W.A., 1883. On the structure of *Sarcodictyon*.— Proc. R. phys. Soc. Edinb 8, 1883-85: 31-51, pls. 1-3.
- Manuel, R.L., 1981. British Anthozoa. Synopsis of the British fauna (n.s.): v-viii + 1-241. — London.
- Manuel, R.L., 1988. idem, revised.
- Philippi, R.A., 1842. Zoologische Beobachtungen.— Arch. Naturgesch., 8 (1): 33-45, pl. 1.
- Tixier-Durivault, A. & M.J. d'Hondt, 1975. Les octocoralliaires de la campagne Biaçores.— Bull. Mus. natn. Hist. nat. Paris (3) 252: 1361-1433.
- Weinberg, S., 1978. Revision of the common Octocorallia of the Mediterranean circalitoral iii. Stolonifera.— Beaufortia 27 (338): 139-176.

Received: 8.v.1992

Accepted: after translation and revision, 28.viii.1992

Edited: J.C. den Hartog & L.P. van Ofwegen