

Octocorals (Cnidaria, Anthozoa) from Reunion, with a description of two new species of the genus *Sinularia* May, 1898 and notes on the occurrence of other species

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ABSTRACT

This article is based on a recent octocoral survey conducted on the reefs of Reunion Island and on re-examination of part of an older collection (early 1970s) from there. It provides a systematic list of the octocorals and evaluates their abundance. The study describes two new species of the genus *Sinularia* May, 1898. *Sinularia shlagmani* n. sp. is characterised by relatively small clubs with a central wart and a colony with densely placed crest-like lobes. It was compared to other species of its clade featuring polyps without sclerites and clubs with distinct central wart, and found to differ from all of them in the shape of the lobes. *Sinularia tessieri* n. sp. belongs to a clade with collaret, points and tentacle-rods, and clubs with an indistinct central wart, and features an encrusting growth form. It differs from the previously described species featuring similar growth form in having distinctly longer clubs on the surface of the lobules. Based on the description of *Sarcophyton subviride* Tixier-Durivault, 1958, a discussion is provided on this species. The survey yielded in total 34 species of the families Alcyoniidae Lamouroux, 1812, Subergorgiidae Gray, 1859 and Xeniidae Ehrenberg, 1828, among which 28 are new zoogeographical records for Reunion.

KEY WORDS

Octocorallia,
Alcyonacea,
Sarcophyton,
Sinularia,
Reunion,
Indian Ocean,
coral reefs,
taxonomy,
new species.

RÉSUMÉ

Étude des octocoralliaires (Cnidaria, Anthozoa) de La Réunion avec la description de deux nouvelles espèces du genre Sinularia May, 1898 et des notes sur la présence d'autres espèces.

Cet article s'appuie sur une étude récente des octocoralliaires des récifs de l'île de La Réunion et sur le réexamen d'une partie d'une collection plus ancienne (du début des années 1970) originaire du même endroit. Nous fournissons ici une liste des octocoralliaires et évaluons leur abondance. L'étude contient la

MOTS CLÉS
 Octocorallia,
 Alcyonacea,
Sarcophyton,
Sinularia,
 île de La Reunion,
 océan Indien,
 récifs coralliens,
 taxonomie,
 espèces nouvelles.

description de deux nouvelles espèces du genre *Sinularia* May, 1898. *Sinularia shlagmani* n. sp. se distingue par des massues relativement petites, dotées d'une verrue centrale, et une colonie en forme de crête densément répartis. Elle est comparée à d'autres espèces de son clade ayant des polypes sans sclérite et des massues avec une verrue centrale distincte, et en diffère par la forme des lobes. *Sinularia tessieri* n. sp. appartient au clade possédant une couronne, des doubles rangées et des bâtonnets sur les tentacules, des massues avec une verrue centrale indistincte et représente une forme de croissance de type encroûtant. Elle diffère des autres espèces précédemment décrites possédant des formes de croissance similaires par la taille bien plus longue des massues présentes sur la surface des lobules. Une discussion de cette espèce est fournie sur la base de la description de *Sarcophyton subviride* Tixier-Durivault, 1958. L'étude a permis d'identifier au total 34 espèces appartenant aux familles Alcyoniidae Lamouroux, 1812, Subergorgiidae Gray, 1859 et Xeniidae Wright & Studer, 1889, parmi lesquelles 28 sont nouvellement signalées de La Réunion.

INTRODUCTION

The Island of Reunion is located in the southwest of the Indian Ocean, 21°06'S and 55°32'E, north of the tropic of Capricorn, 700 km from Madagascar to the west and 180 km from Mauritius to the northeast (Fig. 1). Reunion is the southernmost of the Mascarene Islands and has fringing reefs, covering part of its leeward western littoral side (Spalding *et al.* 2001). The 1998 coral bleaching event had some impact on these reefs, but the recovery was good in almost all areas, reaching a stony coral cover of 30-50% after the bleaching (Goreau *et al.* 2000). The coral reefs there are impacted by both direct and indirect influences of the increasing human population, and are formally protected within a marine park that is routinely monitored (Tessier *et al.* 2008).

The octocorals of several Indian Ocean reefs have been surveyed and have so far yielded numerous new species and new zoogeographical records, such as those of the Laccadives (Van Ofwegen & Vennam 1991; Vennam & Van Ofwegen 1996), Madagascar (e.g., Verseveldt 1968, 1969, 1970, 1973), Mozambique (Benayahu & Schleyer 1996; Benayahu *et al.* 2003), Mauritius (Vennam & Parulekar 1994), Seychelles (Verseveldt 1976; Maljutin 1992; Van Ofwegen & Slierings 1994; Van Ofwegen 2001), South Africa (e.g., Benayahu 1993; Benayahu &

Schleyer 1995) and Tanzania (Van Ofwegen & Benayahu 1992). These studies have undoubtedly demonstrated the prevalence of octocorals throughout the entire Indian Ocean reef systems.

Prior to the current study the only publication dealing with the octocorals of Reunion was that by Tixier-Durivault (1972), based on a collection conducted there in the early 1970s, and which listed 18 species. The list comprised species of the family Alcyoniidae Lamouroux, 1812 (10 species): *Lobophytum sarcophytoïdes* Moser, 1919, *L. varietum* Tixier-Durivault, 1957, *Sarcophyton ehrenbergi* Von Marenzeller, 1886, *S. spongiosum* Thomson & Dean, 1931, *Sinularia leptocladus* (Ehrenberg, 1834), *S. polydactyla* (Ehrenberg, 1834), *S. rigida* var. *amboinensis* Burchardt, 1903 valid as *S. rigida* (Dana, 1846), *S. simpsoni* Tixier-Durivault, 1945 valid as *S. erecta* Tixier-Durivault, 1945, *S. triaena* Kolonko, 1926 valid as *S. brassica* May, 1898, and *S. venusta* Tixier-Durivault, 1970 (amendments on *Sinularia* species following Verseveldt 1980); Nephtheidae Gray, 1862 (one species): *Stereonephthya unicolor* Gray, 1862; Xeniidae Ehrenberg, 1824 (one species): *Xenia elongata* Dana, 1846; Ellisellidae Gray, 1859 (four species): *Ellisella candida* (Ridley, 1882), *E. laevis* (Verrill, 1865), *E. ramosa* Simpson, 1910, and *Junceella vimen* Valenciennes, 1885; and Primnoidae (two species): *Pseudoplumarella plumatilis*

(Milne-Edwards & Haime, 1857) and *Calyptrophora japonica* Gray, 1886. The subsequent taxonomic literature, however, has referred to only some of these species. Verseveldt (1977) indicated that *S. rigida* is known from Reunion, without referring to Tixier-Durivault's (1972) publication. Verseveldt's (1980, 1982, 1983) respective revisions of the genera *Sinularia* May, 1898, *Sarcophyton* Lesson, 1834 and *Lobophytum* Von Marenzeller, 1886 acknowledged Tixier-Durivault's (1972) records from Reunion for some species, but not for others. Specifically, the former publications did not include Reunion as part of the geographical distribution of *S. brasica*, *S. leptoclados*, *S. polydactyla*, *L. variatum* and *S. ehrenbergi*. Verseveldt (1980) referred to the list of Tixier-Durivault (1972), but for some reason omitted Reunion as part of the geographical distribution of *S. erecta*. Notably, Verseveldt (1982) argued that Tixier-Durivault (1972) had incorrectly identified *S. spongiosum*. Verseveldt's revisions referred to Tixier-Durivault (1972), with an indication that Reunion is part of the geographical distribution of *S. venusta* and *L. sarcophytoides*. The above-mentioned data indicate that there is scant information available on Reunion octocorals, as well as inaccurate data or even a complete lack of awareness of this fauna.

The present article is based on both an octocoral survey carried out in Reunion during 2006-2008, and on the re-examination of part of the original old collection from there (see Tixier-Durivault 1972). It presents a systematic list of octocorals for Reunion with reference to their abundance and distribution at the different sites. Underwater photographs are presented for most of the species. The study includes a discussion of *Sarcophyton subviride* Tixier-Durivault, 1958 as well as a description of two new *Sinularia* species, *S. shlagmani* n. sp. and *S. tessieri* n. sp.

MATERIAL AND METHODS

Material was collected, using SCUBA, by YB on a field trip conducted in April 2008 (seven days). It yielded a total of c. 140 specimens of octocorals, encompassing the variety of taxa occurring at the 11 explored sites (Fig. 1). All samples were preserved in 70% alcohol and sub-samples were removed and

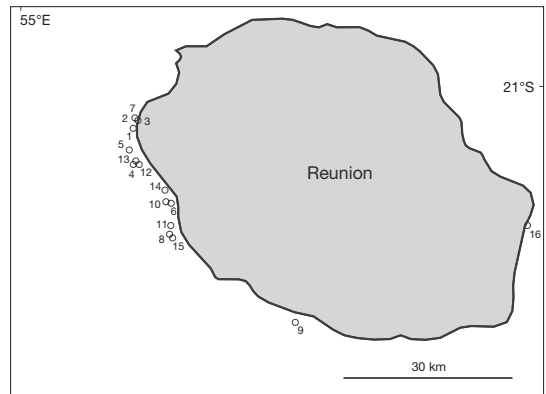


FIG. 1. — Map of Reunion showing locations of study sites: 1, Saint-Paul, Pointe des Aigrettes; 2, Saint-Paul, Pain de Sucre (Maharani); 3, Saint-Paul, Tours de Boucan; 4, Saint-Paul, Planch' Alizés; 5, Saint-Paul, l'Ermitage face au ponton au kiosque; 6, Saint-Leu, Récif des Colimaçons; 7, Saint-Paul, Cap la Houssaye; 8, Saint-Leu, Pointe au Sel; 9, Saint-Pierre, Terre Sainte; 10, Saint-Leu, Pointe des Châteaux; 11, Saint-Leu, Récif Pointe au Sel; 12, Passe de l'Ermitage; 13, l'Ermitage, 30 km from St-Denis; 14, Grande Ravine; 15, Saint-Leu, Place Arche; 16, Anse des Cascades.

preserved in absolute alcohol and DMSO for future molecular studies. An additional 13 specimens that were collected at another five sites by Prof. M. Aknin (Université de La Réunion) during 2006-2008 (Fig. 1), and sent to Tel Aviv University, are also included in the current study. All collection sites are listed below, totaling 16 reefs, with their coordinates, depth surveyed, type of reef and indication of those surveyed by Aknin:

- 1) Saint-Paul, Pointe des Aigrettes (21°02.58'S, 55°13.00'E), 23 m;
- 2) Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), 4 m, reef slope;
- 3) Saint-Paul, Tours de Boucan (21°01'30.87"S, 55°13'26.41"E), 20-29 m, reef slope;
- 4) Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), 14-19 m, reef slope;
- 5) Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), 14-19 m, reef slope;
- 6) Saint-Leu, Récif des Colimaçons (21°09'21.63"S, 55°16'57.64"E), 1 m, reef flat;
- 7) Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), 17 m, reef slope;

- 8) Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), 12-17 m, reef slope;
 9) Saint-Pierre, Terre Sainte (21°20'52.25"S, 55°28'49.62"E), 1 m, reef flat;
 10) Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), 14-20 m, reef slope;
 11) Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), 16-20 m, reef slope;
 12) Passe de l'Ermitage (21°05.190'S, 55°13.239'E), 17 m (M. Aknin);
 13) L'Ermitage, 30 km from St-Denis (21°05.586'S, 55°13.239'E), 15-20 m (M. Aknin);
 14) Grande Ravine (21°07.922'S, 55°16.095'E), reef slope, 16-20 m (M. Aknin);
 15) Saint-Leu, Place Arche (21°12.364'S, 55°16.818'E), 26 m (M. Aknin);
 16) Anse des Cascades (21°11.151'S, 55°49.621'E), 2-25 m (M. Aknin).

An inquiry to the MNHN yielded eight specimens, out of the 18 listed by Tixier-Durivault (1972) for Reunion. They were re-examined and are included in the current study. In order to identify all the material, sclerites from different parts of the colony were obtained by dissolving the tissues in 10% sodium hypochlorite, followed by rinsing in fresh water. When appropriate, they were prepared for scanning electron microscopy as follows: the sclerites were carefully rinsed with double-distilled water, dried at room temperature, coated with gold and examined with a Jeol 6480LV electron microscope, operated at 10 kV. Identification of species was facilitated by comparisons with permanent sclerite preparations of type material kept in the ZMTAU and the RMNH. The material is deposited at ZMTAU, RMNH and MNHN as indicated below. A few members of the family Nephtheidae as well as of the genus *Metalcyonium* Pfeffer, 1889 and *Carijoa* Müller, 1867 were also collected and are still being examined.

ABBREVIATIONS

MNHN Muséum national d'Histoire naturelle, Paris;
 RMNH Naturalis Biodiversity Center (NBC), formerly Rijksmuseum van Natuurlijke Historie, Leiden;
 ZMTAU Zoological Museum, Department of Zoology, Tel Aviv University.

SYSTEMATICS

In total, the study of the recent collections (2006-2008) and re-examination of the old one (Tixier-Durivault 1972) have yielded 34 species of the families Alcyoniidae, Subergorgiidae Gray, 1859 and Xeniidae, including *Simularia shlagmani* n. sp. and *S. tessieri* n. sp.

Re-examination of MNHN specimens revealed that six had been erroneously identified by Tixier-Durivault (1972). The original identifications have been corrected as follows: *L. sarcophytoides* and *L. variatum* to *L. depressum* Tixier-Durivault, 1966; *S. spongiosum* to *L. crassum* Von Marenzeller, 1886; *S. polydactyla* to *S. shlagmani* n. sp.; *S. venusta* to *S. hirta* (Pratt, 1903) and *X. elongata* to *Xenia lilliae* Roxas, 1933. The identification of *S. erecta* has been confirmed (see above).

Order ALCYONACEA Lamouroux, 1812

Family ALCYONIIDAE Lamouroux, 1812

Genus *Sarcophyton* Lesson, 1834

Sarcophyton subviride Tixier-Durivault, 1958
 (Figs 2-4; 14E, F)

MATERIAL EXAMINED. — ZMTAU Co 34408 and 4 microscope slides, Co 34411 (2 colonies), Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), reef slope, 14-19 m, 7.IV.2008. — RMNH Coel 40121, ZMTAU Co 34461 (2 colonies), Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008.

DISTRIBUTION. — Previously known from Aldabra Island, North of Madagascar (type locality). Reunion (new record).

DESCRIPTION

Co 34408 is an encrusting colony, exhibiting a rather soft texture. Polyparium with a maximum cross-section of 8.5 × 4.5 cm and a height of up to 4 cm (Fig. 2). Polyparium folded, directed towards colony base. All polyps retracted.

Tentacles with scale- and rod-sclerites, up to 0.14 mm long (Fig. 3A). Point sclerites with slight indentation at their ends, up to 0.19 mm long (Fig. 3B).

Surface of polyparium with clubs, smallest 0.09 mm long and longest up to 0.30 mm (Fig. 3C). Clubs featuring ill-defined head and tubercular prominences, also along handles. Interior polyparium with slender tubercular spindles, some slightly curved, up to 0.58 mm long (Fig. 3D).

Surface of base with tubercular clubs, 0.11–0.16 mm long (Fig. 4A) and spindles 0.10–0.17 mm long featuring zoned tubercles (Fig. 4B). Interior of base containing tubercular spindles, including stout and oval ones, up to 0.41 mm long (Fig. 4C).

Colour

In alcohol, preserved specimen beige with light brown stalk.

Living features

Colonies with beige-yellowish polyps; folded margins evident (Fig. 14E, F).

VARIABILITY

The paratypes differ in size: RMNH Coel 40121 with a maximum cross-section of 6 × 6 cm and a height of up to 3 cm; ZMTAU Co 34461: 2 colonies, 4.5 × 2.5 × 2.5 cm and 3 × 2.5 × 2 cm respectively; ZMTAU Co 34411: 2 colonies, 5 × 4 × 2 cm and 5.5 × 4.5 × 2.4 cm respectively.

REMARKS

Verseveldt (1982) redescribed the type of *S. subviride*. The colony shape of the type therein (pl. 22, fig. 2) resembles the currently examined colonies, although many of the polyps are not retracted. The redescription referred to flat tentacle rods and additional rods, arranged en chevron, corresponding to the polyp points (p. 78), but neither type of sclerites was depicted by Verseveldt (1982). We examined polyp mounts of the types deposited at RMNH and confirmed that the polyp sclerites there correspond to those depicted in the current description (Fig. 3A, B). Unfortunately, most taxonomists examining *Sarcophyton* species have overlooked the polyp sclerites and therefore excluded them from the original descriptions. This also applies to Verseveldt's 1982 revision of the genus, with the exception of *S. pulchellum* (Tixier-Durivault, 1957) (fig. 26 therein). Later descriptions of new *Sarcophyton*

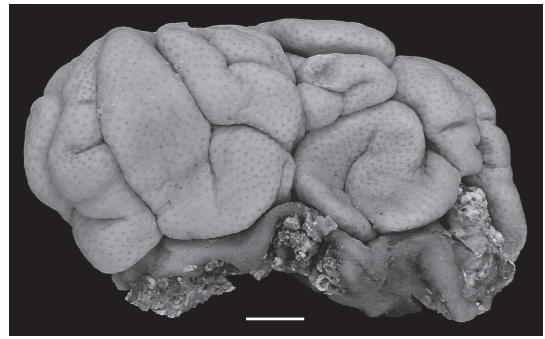


FIG. 2. — *Sarcophyton subviride* Tixier-Durivault, 1958 (ZMTAU Co 34408). Scale bar: 10 mm.

species indicated an absence of polyp sclerites (e.g., *S. nanwanensis* Benayahu & Perkol-Finkel, 2004 and *S. tumulosum* Benayahu & Van Ofwegen, 2009). These sclerites might be an important taxonomic feature, as has been proven for the speciose genus *Sinularia* (e.g., Van Ofwegen 2008).

The sclerites of the examined material are in general agreement with the description of the type of *S. subviride* (see Verseveldt 1982: 78, 79). However, in the surface of the base we found clubs, up to 0.16 mm long (Fig. 4A); whereas, according to Verseveldt, in the type they are up to 0.30 mm long. Similarly, the spindles of the base (Fig. 4C) are shorter compared to the type (up to 0.41 vs 0.6 mm, respectively). We consider these differences as reflecting intra-specific variation within *S. subviride*. Notably, our material constitutes the second finding of *S. subviride* since the collection of the type in Aldabra Island (north of Madagascar); and with its current finding in Reunion, it seems to have a bi-equatorial Indian Ocean distribution.

Genus *Sinularia* May, 1898

Sinularia shlagmani n. sp.
(Figs 5-7; 16E)

Sinularia conferta – Tixier-Durivault 1945: 61; 1951: 45 (Mascate).

Sinularia polydactyla – Tixier-Durivault 1972: 60 (Reunion; see begin of Systematics).

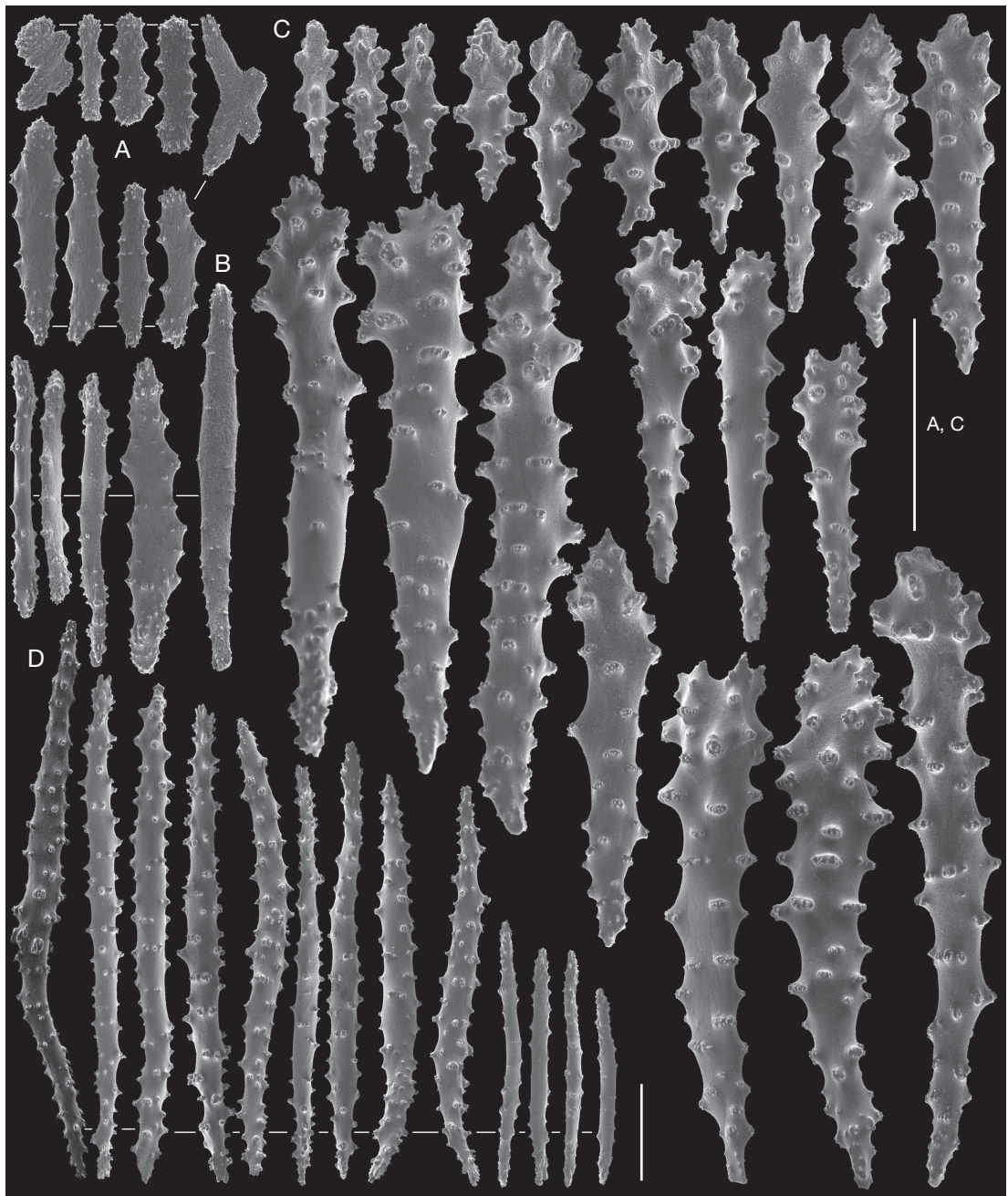


FIG. 3. — *Sarcophyton subviride* Tixier-Durivault, 1958 (ZMTAU Co 34408): **A**, scale- and rod sclerites of tentacle; **B**, point sclerites of polyp; **C, D**, sclerites of polyparium; **C**, clubs of surface layer; **D**, tubercular spindles of interior. Scale bars: 0.10 mm.

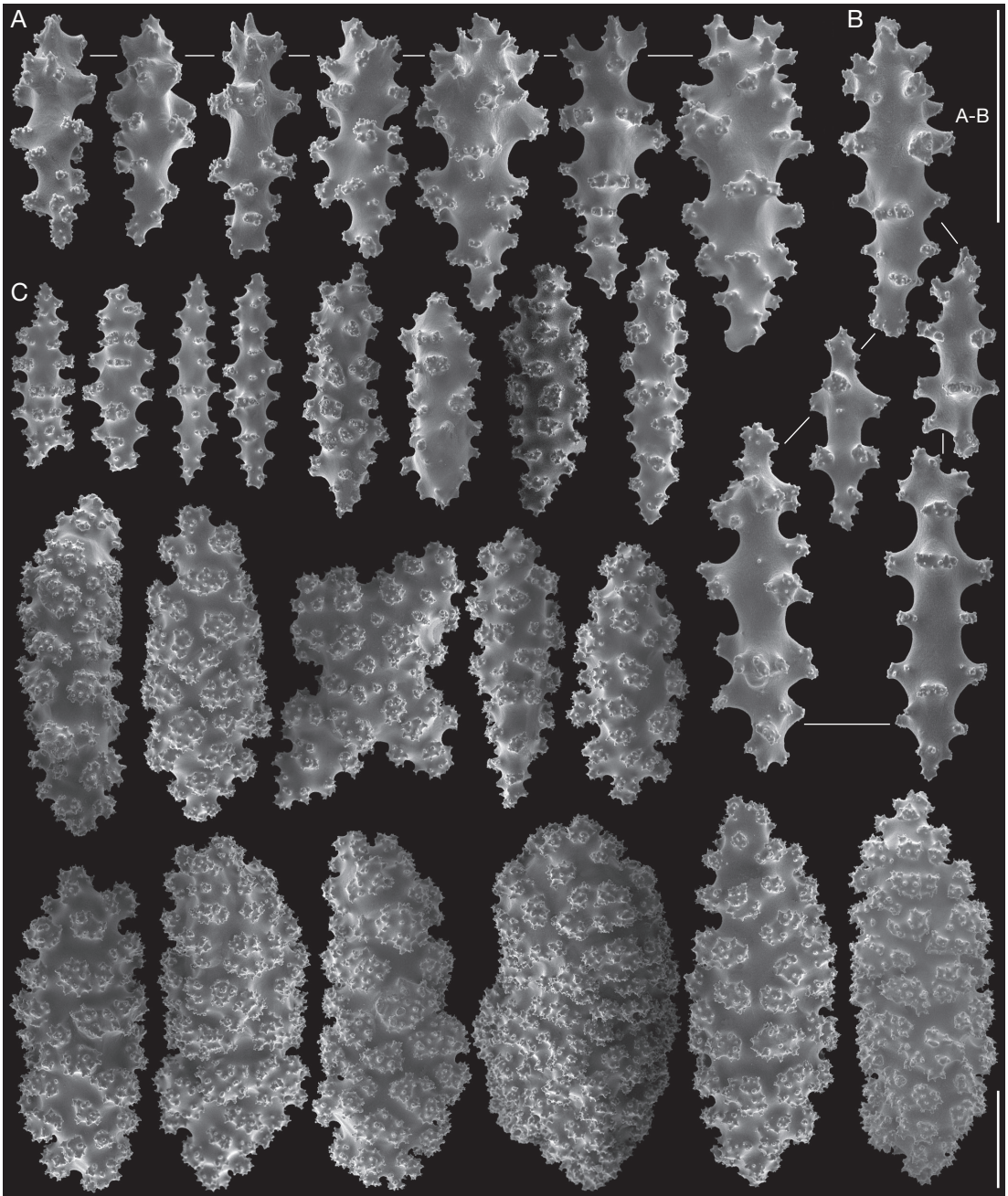


FIG. 4. — *Sarcophyton subviride* Tixier-Durivault, 1958 (ZMTAU Co 34408): **A-C**, sclerites of base; **A**, tubercular clubs of surface; **B**, spindles with zoned tubercles of surface; **C**, tubercular spindles and ovals of interior. Scale bars: 0.10 mm.



FIG. 5. — *Sinularia shlagmani* n. sp., holotype (ZMTAU Co 34418). Scale bar: 10 mm.

Not *Sinularia conferta* (Dana, 1846): 621.

Not *Sinularia* “*conferta*” – Van Ofwegen & Benayahu 1992: 154 (Tanzania; see remarks below).

Not *Sinularia polydactyla* (Ehrenberg, 1834): 58.

TYPE MATERIAL. — Holotype: ZMTAU Co 34418 (split into 2 parts) and 4 microscope slides, Saint-Leu, Récif des Colimaçons (21°09'21.63"S, 55°16'57.64"E), reef flat, 1 m, 8.IV.2008.

Paratypes: ZMTAU Co 34417, Co 34447 (2 colonies), same data as holotype. — ZMTAU Co 35435, Saint-Pierre, Terre Sainte (21°20'52.25"S, 55°28'49.62"E), reef flat, 1 m, 9.IV.2008. — ZMTAU Co 34470, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — MNHN, Saint-Pierre, leg. G. Faure.

TYPE LOCALITY. — Reunion, Saint-Paul, Récif des Colimaçons.

DISTRIBUTION. — Reunion: Saint-Paul, Récif des Colimaçons, Saint-Pierre, Terre Sainte, Saint-Leu and Pointe des Châteaux.

ETYMOLOGY. — The species is named after Alex Shlagman, collection manager, Zoological Museum, Tel Aviv University, in appreciation of his dedication and professional curatorial work, particularly in the octocoral collection.

DESCRIPTION

Holotype: an encrusting colony, split into two parts, with a maximum cross-section 12 × 9 cm and height up to 4 cm (Fig. 5). Polyparium consisting of rather short, laterally flattened and closely-set crest-like lobes. All polyps retracted. Colony with a hard texture.

Surface layer of the lobes containing sclerites with tubercles, up to 0.06 mm long (Fig. 6A) and

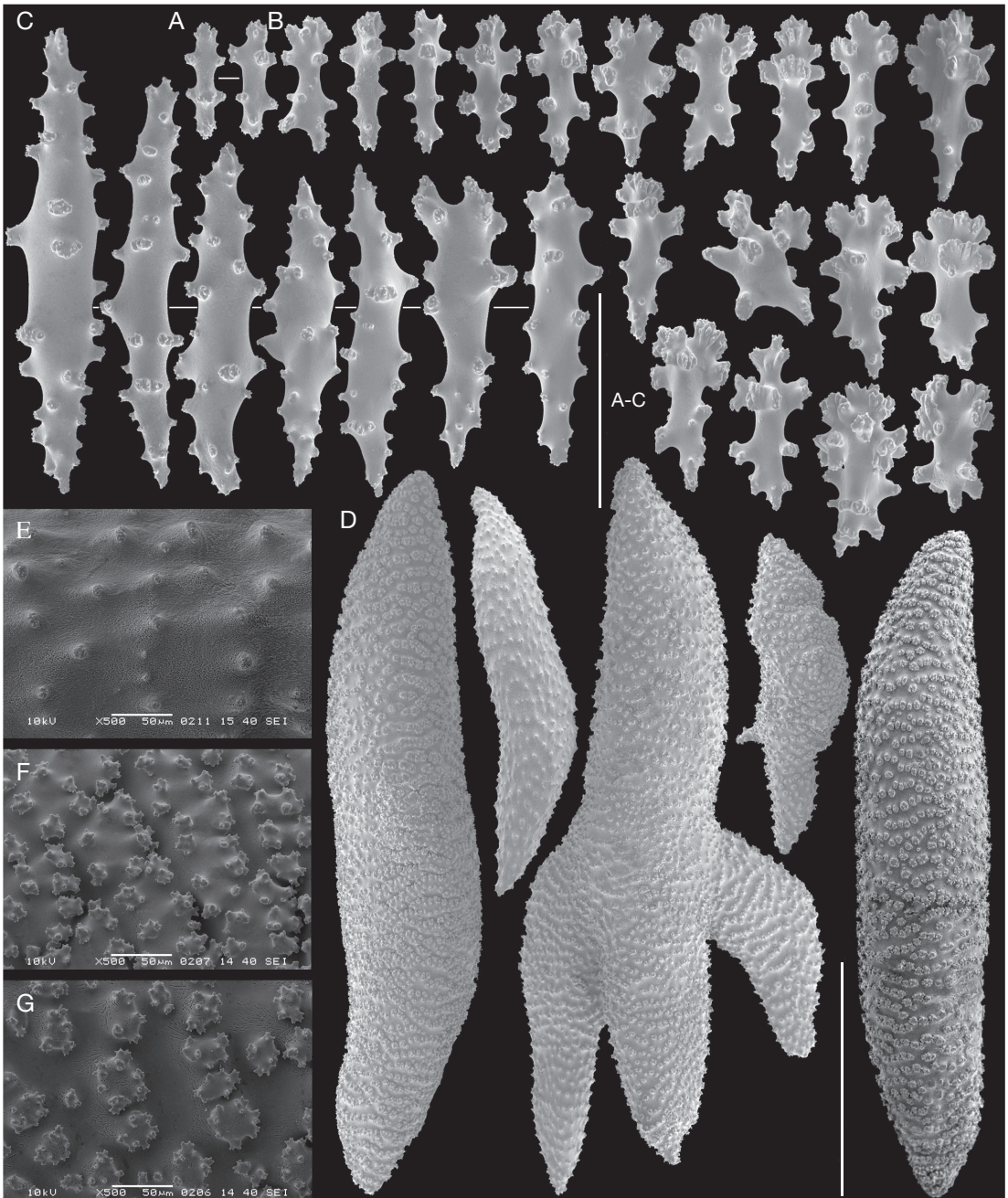


FIG. 6. — *Simularia shlagmani* n. sp., holotype (ZMTAU Co 34418): **A-C**, sclerites of surface layer of lobules; **A**, sclerites with tubercles; **B**, clubs with central wart; **C**, intermediate forms to spindles; **D**, spindles of interior lobe; **E-G**, tubercles on spindles; **E**, simple tubercle; **F**, complex tubercle; **G**, sparsely placed. Scale bars: A-C, 0.10 mm; D, 1 mm.

clubs with a central wart and tubercles on handle, up to 0.09 mm long (Fig. 6B). Additionally, with longer clubs, intermediate forms to spindles, up to 0.25 mm long (Fig. 6C).

Interior of the lobes with spindles, some branched, up to 3 mm long (Fig. 6D), with simple tubercles (Fig. 6E), or complex ones, either densely (Fig. 6F) or sparsely (Fig. 6G) placed.

Surface layer of base of colony containing clubs, mostly with central wart, similar to those of lobes, but wider, some with tubercles on handle, 0.07–0.10 mm long (Fig. 7A), also with spindles, up to 0.21 mm long (Fig. 7B).

Interior of the base with spindles, the small ones branched, up to 2.2 mm long (Fig. 7C), with large tubercles (Fig. 7D), or smaller ones (Fig. 7E).

Colour

Preserved holotype grey-beige.

Living features

The colony is beige in colour (Fig. 16F).

VARIABILITY

Paratypes differ in size: ZMTAU Co 34417 maximum cross-section of 7 × 7.5 cm and height of up to 5 cm; ZMTAU Co 34447: 2 colonies, 12 × 9.5 × 6.5 cm and 9 × 9 × 7 cm; and ZMTAU Co 34470 7 × 6 × 5 cm respectively.

REMARKS

Sinularia shlagmani n. sp. belongs to *Sinularia* clade 4C and 4D of McFadden *et al.* (2009): polyps without sclerites, clubs with central wart distinct. This clade includes, among others, species with encrusting colonies and most clubs in the surface layer of the polyparium < 0.10 mm, similar to the holotype and the paratypes of *S. shlagmani* n. sp. Among the previously described species with these features are *S. crebra* Van Ofwegen, 2008, *S. gibberosa* Tixier-Durivault, 1970, *S. nanolobata* Verseveldt, 1977 and *S. ovispiculata* Tixier-Durivault, 1970 (for the second and the latter species see Verseveldt 1980). These species have knob-shaped lobules, and thus differ from *S. shlagmani* n. sp. The following encrusting species feature finger-like lobes: *S. acetabulata* Verseveldt & Tursch, 1979,

S. deformis Tixier-Durivault, 1969, *S. pavida*, Tixier-Durivault, 1970, *S. scabra*, Tixier-Durivault, 1970 (for the last three species see Verseveldt 1980) and they also differ from *S. shlagmani* n. sp. Similarly, *S. siaesensis* Van Ofwegen, 2008 and *S. microclavata* Tixier-Durivault, 1969 (for the latter see Verseveldt 1980) feature compound lobes that also differ from the newly-described species. *Sinularia compressa* Tixier-Durivault, 1945 and *S. inflata* Tixier-Durivault, 1970 have small lobules, either finger-like or knob-shaped (see Verseveldt 1980). *Sinularia conferta* has long branched lobes (see Verseveldt 1980: pl. 6), but unfortunately the type has not been found, leading to various misleading conclusions in this species' diagnosis (see Verseveldt 1980: 31–35). Until Dana's type will be appropriately described, its taxonomic position, including its clade allocation, remains in doubt. Nonetheless, the clear difference between the lobes of *S. conferta* and *S. shlagmani* n. sp. (long branched lobes vs densely placed crests) leads to the conclusion that the two are separate species. It is thus evident that *S. shlagmani* n. sp. differs from all previously described *Sinularia* species of clade 4C and 4D in the shape of the lobes.

We have re-examined the two specimens from Tanzania identified as *S. "conferta"* by Van Ofwegen & Benayahu (1992). They show polyp sclerites and belong to clade 5B of McFadden *et al.* (2009): polyps with collaret and point sclerites, tentacles with rods, clubs with central wart distinct. In this clade we could not find a species with the characteristics of the Tanzanian specimens and we now regard these specimens as belonging to a yet undescribed species.

Sinularia tessieri n. sp.

(Figs 8–11; 16F, G)

TYPE MATERIAL. — Holotype: ZMTAU Co 34502 and 4 microscope slides, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16–20 m, 11.IV.2008.

Paratype: RMNH Coel 40120, same data as holotype.

TYPE LOCALITY. — Reunion, Saint-Leu, Récif Pointe au Sel (Cimetière).

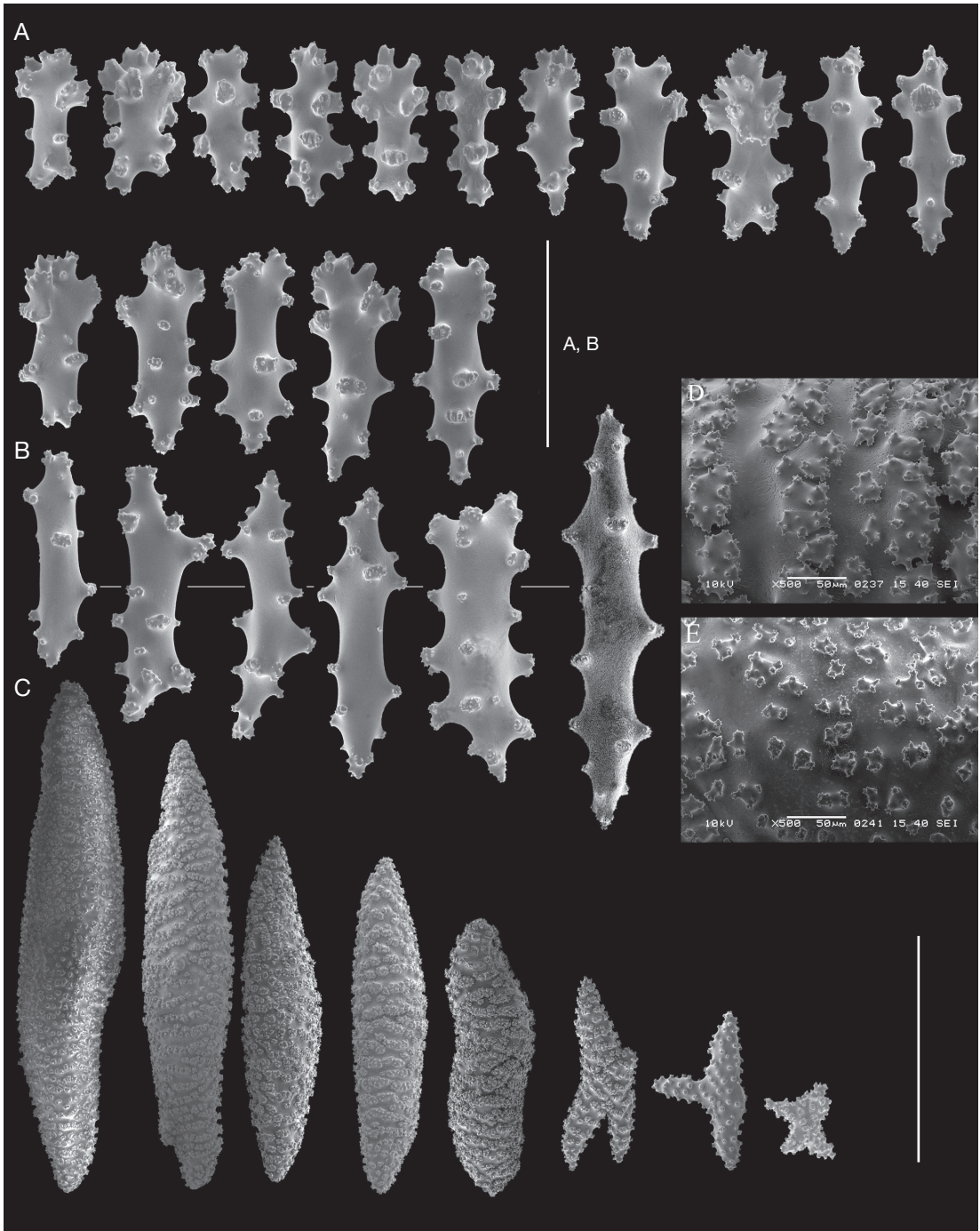


FIG. 7. — *Sinularia shlagmani* n. sp., holotype (ZMTAU Co 34418): **A, B**, sclerites of surface layer of base; **A**, clubs; **B**, spindles; **C**, spindles of interior base; **D, E**, tubercles on spindles; **D**, large tubercles; **E**, small tubercles. Scale bars: A, B, 0.10 mm; C, 1 mm.

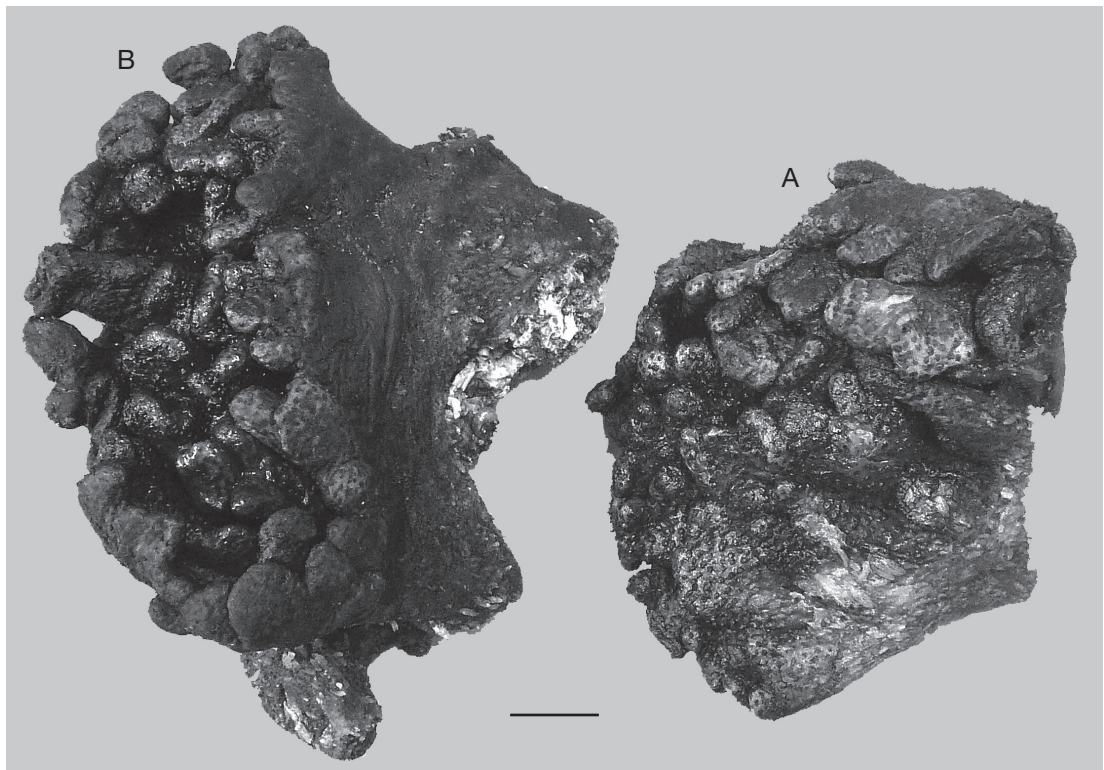


FIG. 8. — *Sinularia tessieri* n. sp.: **A**, holotype (ZMTAU Co 34502); **B**, paratype (RMNH Coel 40120). Scale bar: 10 mm.

DISTRIBUTION. — So far known only from the type locality.

ETYMOLOGY. — The species is named after Dr Emmanuel Tessier, Manager, Association Parc marin de La Réunion, in appreciation of his initiative to conduct the octocoral survey in Reunion and his support during the field work and afterwards.

DESCRIPTION

Holotype: an encrusting colony, with maximum cross-section of 7 × 4 cm and height up to 4 cm (Fig. 8A). Polyparium consisting of short lobes and a few longer ones that may branch off once. Lobes and lobules mostly flattened, or occasionally knob-shaped, and in part tending to bend down towards each other. Colony with a hard texture.

Polyps with tentacle rods and some collaret and point sclerites (Fig. 9A-C). Tentacle rods up to 0.08 mm long (Fig. 9A). Point sclerites with

poorly developed club-heads and up to 0.17 mm long (Fig. 9B). Collaret consisting of spindles, the longer ones slightly bent, up to 0.20 mm long (Fig. 9C).

Surface layer of the lobules containing clubs with warty heads and tubercles on handle, 0.07-0.16 mm long (Fig. 9D) and with a few crosses (Fig. 9E). In addition with spindles, up to 0.26 mm long, mostly with simple or, less commonly, complex tubercles (Fig. 9F).

Surface layer of base of colony containing clubs, similar to those of lobules, but wider, 0.10-0.20 mm long (Fig. 10A). Also spindles, up to 0.26 mm long (Fig. 10B).

Interior of the lobules with branched stout spindles, up to 2.70 mm long (Fig. 11A), with complex tubercles (Fig. 11B), or with simple ones (Fig. 11C). Interior of base with slightly longer spindles,

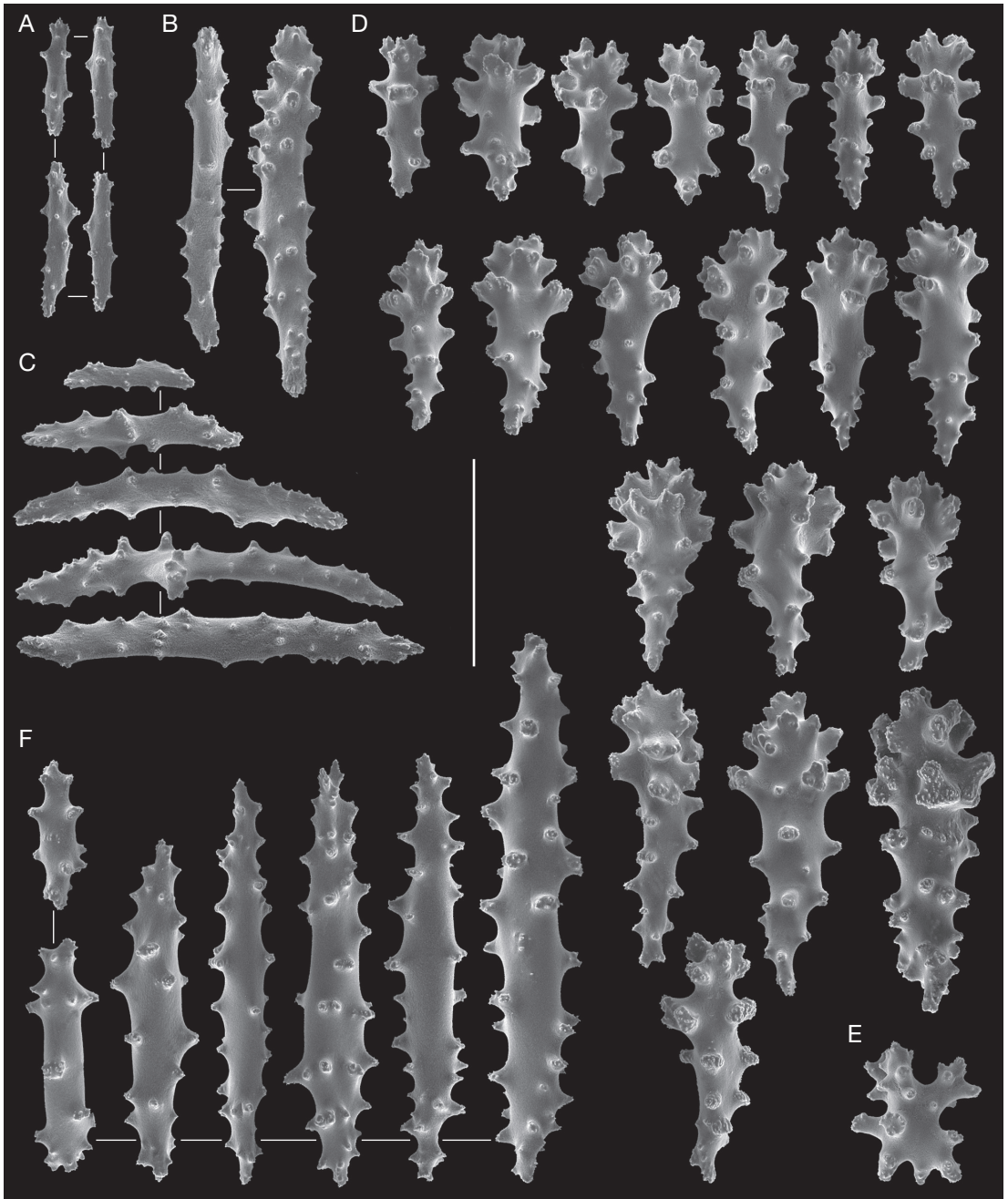


FIG. 9. — *Sinularia tessieri* n. sp., holotype (ZMTAU Co 34502): **A-C**, polyp sclerites; **A**, tentacle rods; **B**, point sclerites; **C**, collaret spindles; **D-F**, sclerites of surface layer of lobules; **D**, clubs with wart heads; **E**, crosses; **F**, spindles. Scale bar: 0.10 mm.

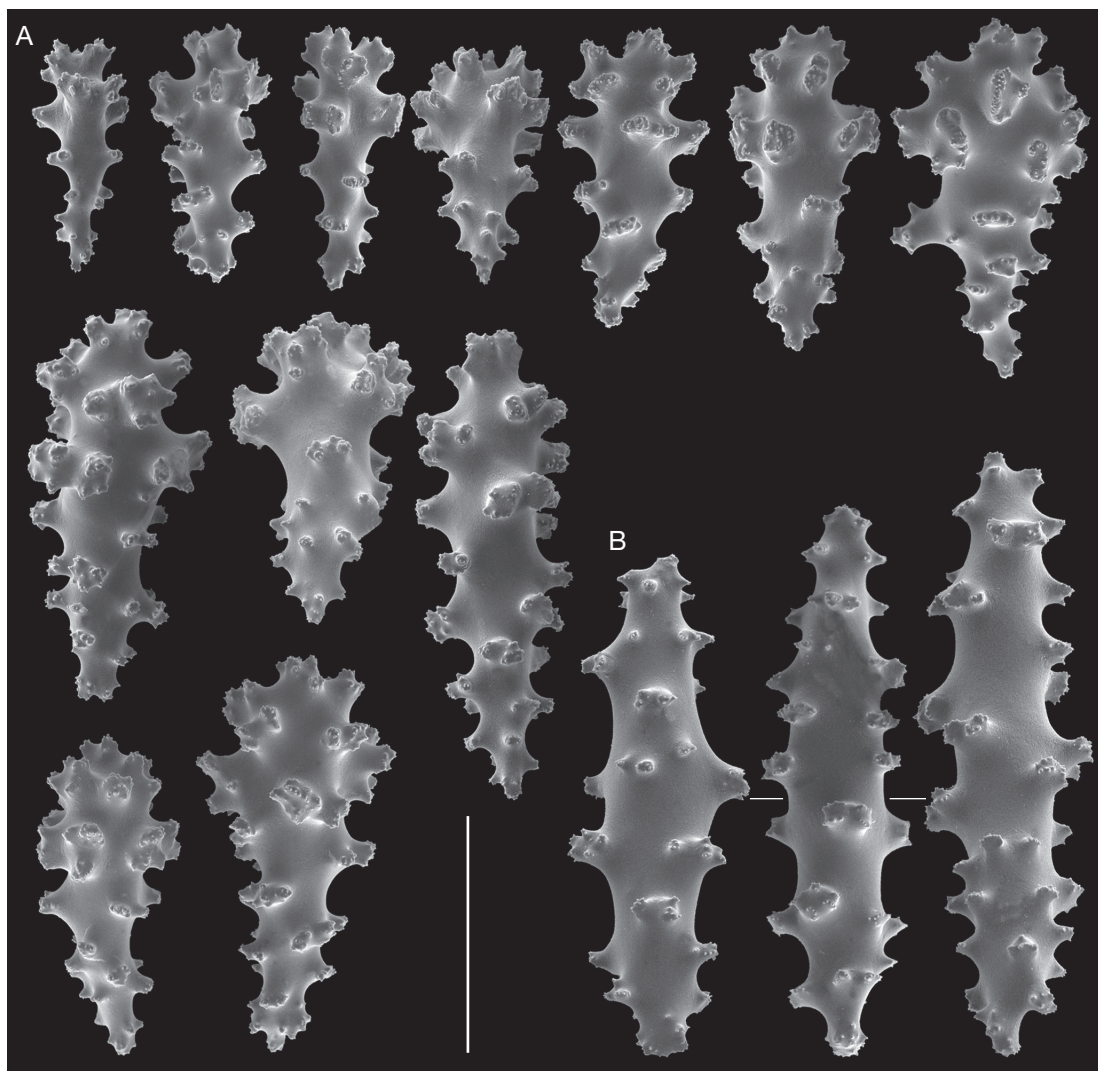


FIG. 10. — *Simularia tessieri* n. sp., holotype (ZMTAU Co 34502): **A**, **B**, sclerites of surface layer of base; **A**, clubs; **B**, spindles. Scale bar: 0.10 mm.

occasionally branched, up to 3.30 mm long (Fig. 11D), with complex tubercles (Fig. 11E).

Colour

Preserved holotype dark brown, almost black.

Living features

The colony is light-grey in colour, expanded polyps are light-beige.

VARIABILITY

Paratype RMNH Coel 40120 differs in size of colony: maximum cross section 6 × 5 cm and height of up to 2 cm (Fig. 8B).

REMARKS

Simularia tessieri n. sp. belongs to *Simularia* clade 2 of McFadden *et al.* (2009): polyps with collaret, points and tentacle rods; clubs with an indistinct

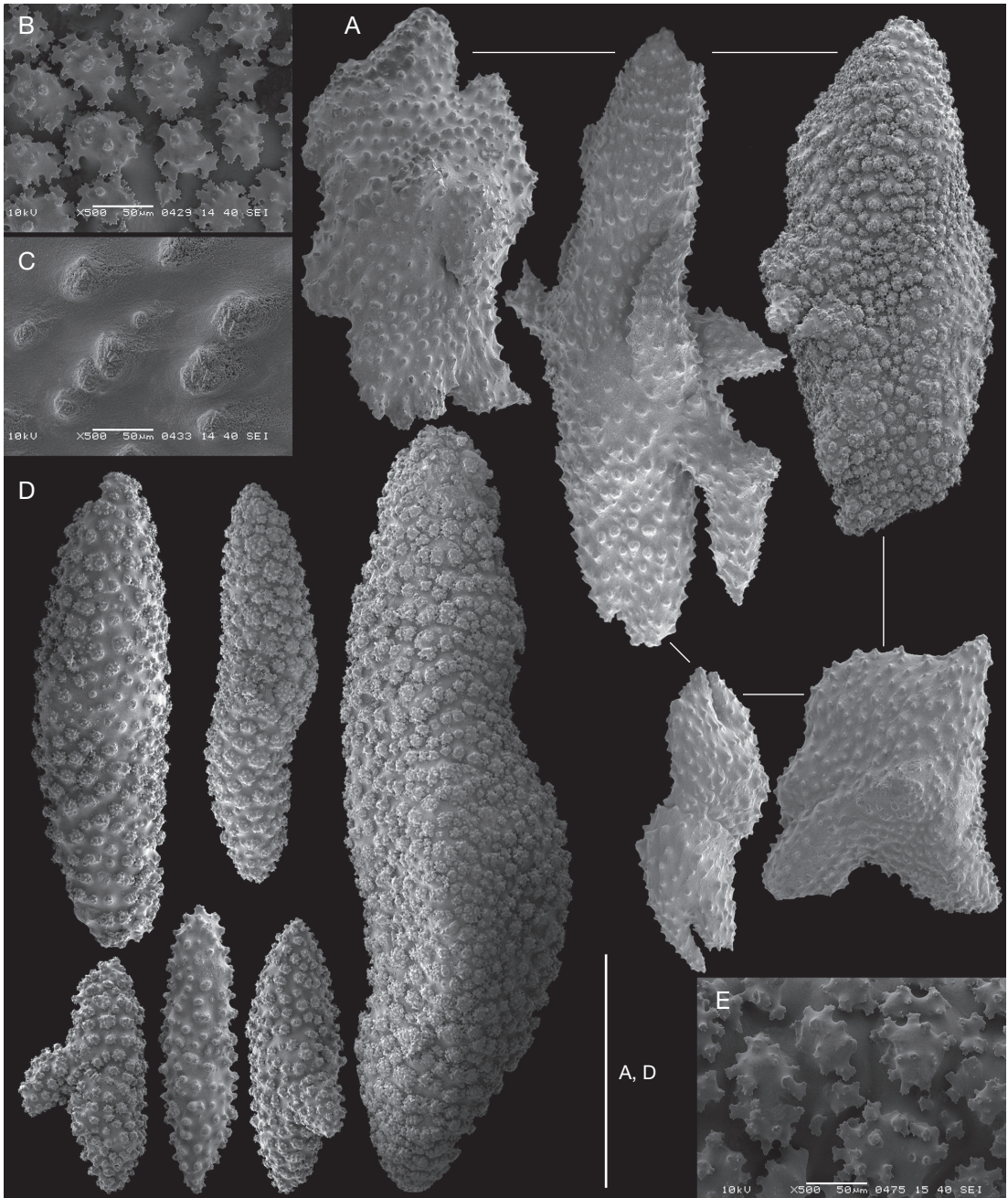


FIG. 11. — *Sinularia tessieri* n. sp., holotype (ZMTAU Co 34502): **A**, spindles of interior lobules; **B, C**, tubercles on spindles of interior lobules; **B**, complex tubercles; **C**, simple tubercles; **D**, spindles of interior base; **E**, complex tubercles on spindle of interior base. Scale bar: 1 mm.

TABLE 1. — Generic affiliation and abundance estimates of the octocoral genera of Reunion.

Genus	Nb of species	Abundance
<i>Annella</i> Gray, 1858	1	Rare
<i>Cladiella</i> Gray, 1869	3	Sporadic
<i>Klyxum</i> Alderslade, 2000	2	Rare
<i>Lobophytum</i> Von Marenzeller, 1886	5	Abundant
<i>Rhytisma</i> Alderslade, 2000	1	Rare
<i>Sarcophyton</i> Lesson, 1834	6	Abundant
<i>Sinularia</i> May, 1898	14	Dominant
<i>Subergorgia</i> Gray, 1857	1	Rare

TABLE 2. — Number of octocoral species recorded at the respective sites.

Location	Nb of species
1. Saint-Paul, Pointe des Aigrettes	4
2. Saint-Paul, Pain de Sucre (Maharani)	11
3. Saint-Paul, Tours de Boucan	7
4. Saint-Paul, Planch' Alizés	12
5. Saint-Paul, l'Ermitage face au ponton au kiosque	8
6. Saint-Leu, Récif des Colimaçons	1
7. Saint-Paul, Cap la Houssaye	9
8. Saint-Leu, Pointe au Sel	10
9. Saint-Pierre, Terre Sainte	1
10. Saint-Leu, Pointe des Châteaux	19
11. Saint-Leu, Récif Pointe au Sel (Cimetière)	15
12. Passe de l'Ermitage	4
13. L'Ermitage, 30 km from St-Denis	6
14. Grande Ravine	9
15. Saint-Leu, Place Arche	1
16. Anse des Cascades	1

central wart. Both the holotype and paratype are encrusting (i.e. lack a stalk). The previously described three species (*S. parva* Tixier-Durivault, 1970, *S. mugeblae* Verseveldt & Benayahu, 1983 and *S. soongi* Benayahu & Van Ofwegen, 2011) with encrusting growth form in this clade have distinctly longer and differently-shaped clubs on the surface of their lobules than in *S. tessieri* n. sp. In *S. parva* the clubs are up to 0.30 mm and some are even 0.40 mm long (see Verseveldt 1980). Similarly, *S. mugeblae* has clubs up to 0.32 mm, with narrow head, and a more slender and pointed handle compared to those of *S. tessieri* n. sp. The recently described *S. soongi*, which also belongs to *Sinularia* clade 2,

features clubs up to 0.25 mm long. Moreover, the stalked species of that clade differ from *S. tessieri* n. sp. *Sinularia grandilobata* Verseveldt, 1980 has clubs up to 0.10 mm long compared to up to 0.17 mm in the newly-described species. The clubs of *S. capricornis* Dautova, Van Ofwegen & Savinkin, 2010 are up to 0.18 mm long and the species features un-branched spindles in the interior of the lobes, as opposed to the stout and heavily branched ones of *S. tessieri* n. sp. (Fig. 11A). Notably, the latter stout spindles of *S. tessieri* n. sp. are not found in any of the species of clade 2. It is thus concluded that *S. tessieri* n. sp. differs from all previously-described species of clade 2.

FURTHER NOTES

The taxonomic results (given below) enabled analysis of octocoral abundance and distribution on the Reunion reefs. Table 1 presents the generic affiliation of the identified octocorals and the abundance estimates of the various genera on the reefs following the categories presented in Benayahu (1995) (for the latter, Tixier-Durivault's 1972 material is excluded), assigned to one of the four categories: rare, sporadic, abundant or dominant. The results indicate that the vast majority of the species on the reefs are of *Sinularia*, followed by *Sarcophyton* and *Lobophytum* (family Alcyoniidae).

The reef sites surveyed in 2006-2008 (Fig. 1) varied in respect to their number of octocoral species (Table 2). Although these collections were qualitative, it was anticipated that they would encompass all the taxa encountered during the dives, thus allowing us to identify sites with a relatively high octocoral diversity. Each of the following sites featured at least 10 species: Saint-Leu, Pointe des Châteaux (19 species), Saint-Leu, Récif Pointe au Sel (Cimetière) (15), Saint-Paul, Planch' Alizés (12) and Saint-Paul, Pain de Sucre (Maharani) (11).

CLASSIFICATION

Family ALCYONIIDAE Lamouroux, 1812
Genus *Cladiella* Gray, 1869

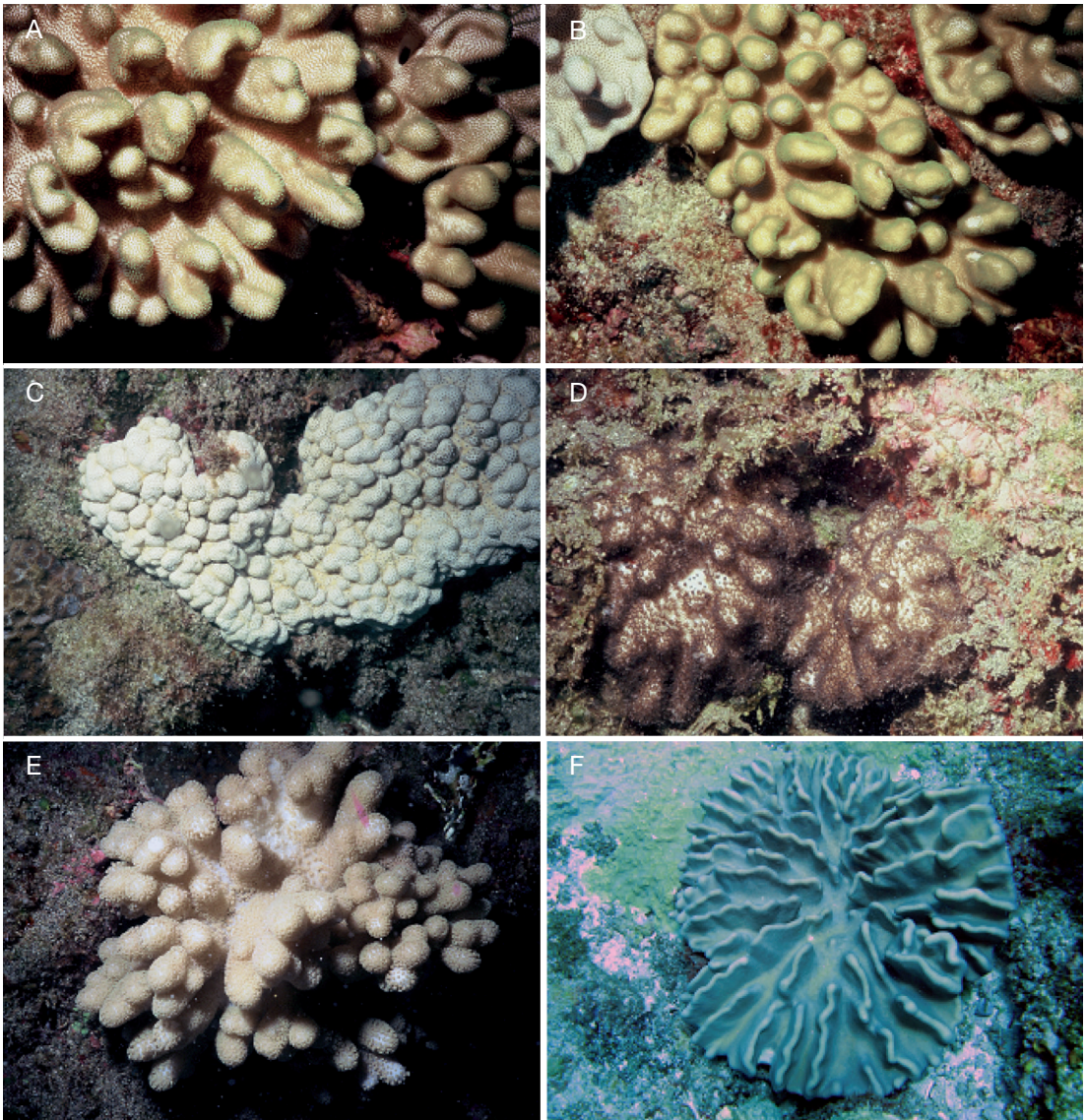


FIG. 12. — Live colonies of: **A**, *Cladiella australis* (Macfadyen, 1936); **B**, *Cladiella kashmani* Benayahu & Schleyer, 1996; **C**, *Cladiella krempfi* (Hickson, 1919); **D**, *Klyxum adii* Benayahu & Perkol-Finkel, 2010; **E**, *Klyxum flaccidum* Tixier-Durivault, 1966; **F**, *Lobophytum crassum* Von Marenzeller, 1886.

Cladiella australis (Macfadyen, 1936)
(Fig. 12A)

MATERIAL EXAMINED. — ZMTAU Co 34402 (2 colonies), Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008.

Cladiella kashmani Benayahu & Schleyer, 1996
(Fig. 12B)

MATERIAL EXAMINED. — ZMTAU Co 34413, Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), reef slope, 14-19 m, 7.IV.2008.

Cladiella krempfi (Hickson, 1919)

(Fig. 12C)

MATERIAL EXAMINED. — ZMTAU Co 34453 (2 colonies), Co 34458, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14–20 m, 10.IV.2008. — ZMTAU Co 34372 (2 colonies), Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 14 m, 3.IV.2008.

Genus *Klyxum* Alderslade, 2000*Klyxum adii* Benayahu & Perkol-Finkel, 2010

(Fig. 12D)

MATERIAL EXAMINED. — ZMTAU Co 34488 (4 colonies), Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16–20 m, 11.IV.2008.

Klyxum flaccidum Tixier-Durivault, 1966

(Fig. 12E)

MATERIAL EXAMINED. — ZMTAU Co 34472, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14–20 m, 10.IV.2008. — ZMTAU Co 34489, Co 34501, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16–20 m, 11.IV.2008. — ZMTAU Co 34410, Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), reef slope, 14–19 m, 7.IV.2008.

Genus *Lobophytum* Von Marenzeller, 1886*Lobophytum crassum* Von Marenzeller, 1886

(Fig. 12F)

MATERIAL EXAMINED. — ZMTAU Co 34475, Co 34478, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16–20 m, 11.IV.2008. — ZMTAU Co 34420, Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 17 m, 8.IV.2008. — ZMTAU Co 34436, Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), 15 m, reef slope, 9.IV.2008. — ZMTAU Co 34448, Co 34459, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14–20 m, 10.IV.2008. — ZMTAU Co 34393, Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14–19 m, 7.IV.2008. — ZMTAU Co 34370 (2 colonies), Co 34365 (2 colonies), Saint-Paul, Pain

de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 4–5 m, 3.IV.2008. — ZMTAU Co 34519, Passe de l'Ermitage (21°05.190'S, 55°13.239'E), 17 m, 24.XI.2008, leg. M. Aknin. — MNHN, Saint-Pierre, lagoon, 1.5 m, leg. G. Faure.

Lobophytum depressum Tixier-Durivault, 1966

(Fig. 13A, B)

MATERIAL EXAMINED. — ZMTAU Co 34390, Co 34394 (2 colonies), Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14–19 m, 7.IV.2008. — ZMTAU Co 34481, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16–20 m, 11.IV.2008. — ZMTAU Co 34442 (2 colonies), Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), reef slope, 12 m, 9.IV.2008. — ZMTAU Co 34527, Grande Ravine (21°07.922'S, 55°16.095'E), 16–20 m, 24.XI.2008, leg. M. Aknin. — MNHN (two colonies), Saint-Pierre, leg. G. Faure.

Lobophytum latilobatum Verseveldt, 1971

(Fig. 13C, D)

MATERIAL EXAMINED. — ZMTAU Co 34404, Co 34405 (2 colonies), Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14–19 m, 7.IV.2008. — ZMTAU Co 34464, 34467 (2 colonies), Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14–20 m, 10.IV.2008. — ZMTAU Co 34387, Saint-Paul, Tours de Boucan (21°01'30.87"S, 55°13'26.41"E), reef slope, 20–29 m, 4.IV.2008. — ZMTAU Co 34485, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), 16 m, 11.IV.2008.

Lobophytum patulum Tixier-Durivault, 1966

MATERIAL EXAMINED. — ZMTAU Co 33853, l'Ermitage, 30 km from St-Denis (21°05.586'S, 55°13.239'E), 15–20 m, XII.2006, leg. M. Aknin.

Lobophytum pauciflorum (Ehrenberg, 1834)

(Fig. 13E)

MATERIAL EXAMINED. — ZMTAU Co 34498, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16–20 m, 11.IV.2008. — ZMTAU Co 34381 (2 colonies), Saint-Paul, Tours de Boucan (21°01'30.87"S, 55°13'26.41"E), reef slope,



FIG. 13. — Live colonies of: **A, B**, *Lobophytum depressum* Tixier-Durivault, 1966; **A**, with extended polyps; **B**, with retracted polyps; **C, D**, *Lobophytum latilobatum* Verseveldt, 1971; **C**, with extended polyps; **D**, with retracted polyps; **E**, *Lobophytum pauciflorum* (Ehrenberg, 1834); **F**, *Rhytisma fulvum fulvum* (Forskål, 1775).

20-29 m, 4.IV.2008. — ZMTAU Co 34457, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — ZMTAU Co 34391, Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34528, Grande Ravine (21°07.922'S, 55°16.095'E), reef slope, 16-20 m, 24.XI.2008, leg. M. Aknin.

Genus *Rhytisma* Alderslade, 2000

Rhytisma fulvum fulvum (Forskål, 1775)
(Fig. 13F)

MATERIAL EXAMINED. — ZMTAU Co 34419, Saint-Paul,

Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 17 m, 8.IV.2008. — ZMTAU Co 34407 (2 colonies), Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34454 (2 colonies), Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008.

Genus *Sarcophyton* Lesson, 1834

Sarcophyton cherbonieri Tixier-Durivault, 1958

MATERIAL EXAMINED. — ZMTAU Co 34432, Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), reef slope, 17 m, 9.IV.2008. — ZMTAU Co 34388, Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008.

Sarcophyton flexuosum Tixier-Durivault, 1966 (Fig. 14A)

MATERIAL EXAMINED. — ZMTA Co 33856 (3 colonies), Saint-Paul, Pointe des Aigrettes (21°02.58'S, 55°13.00'E), 23 m, 11.III.2007, leg. M. Aknin. — ZMTAU Co 34452, CO 34471 (2 colonies), Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — ZMTAU Co 34439, Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), 12 m, reef slope, 9.IV.2008. — ZMTAU Co 34496, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16-20 m, 11.IV.2008. — ZMTAU Co 34386 (2 colonies), Saint-Paul, Tours de Boucan (21°01'30.87"S, 55°13'26.41"E), reef slope, 20-29 m, 4.IV.2008. — ZMTAU Co 34364 (4 colonies), Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 11 m, 3.IV.2008. — ZMTAU Co 35010 (2 colonies), Grande Ravine (21°07.922'S, 55°16.095'E), reef slope, 16-20 m, 18.IV.2008, leg. M. Aknin.

Sarcophyton glaucum (Quoy & Gaimard, 1833) (Fig. 14B)

MATERIAL EXAMINED. — ZMTAU Co 34477, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16-20 m, 11.IV.2008. — ZMTAU Co 34395 (2 colonies), Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34462, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008.

Sarcophyton infundibuliforme Tixier-Durivault, 1958 (Fig. 14C)

MATERIAL EXAMINED. — ZMTAU Co 34476, Co 34484, Co 34486, Co 34487, Co 34492 (2 colonies), Co 34499, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16-20 m, 11.IV.2008. — ZMTAU Co 33858, l'Ermitage, 30 km from St-Denis (21°05.586'S, 55°13.239'E), 15-20 m, XII.2006, leg. M. Aknin. — ZMTAU Co 34371, Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 9 m, 3.IV.2008. — ZMTAU Co 34406 (2 colonies), Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34389 (3 colonies), Co 34396, Co 34398, Co 34399, Co 34401, Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34460, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — ZMTAU Co 34443 (2 colonies), Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), reef slope, 12 m, 9.IV.2008.

Sarcophyton roseum Pratt, 1903 (Fig. 14D)

MATERIAL EXAMINED. — ZMTAU Co 34422, Co 34428, Co 34429, Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 7-17 m, 8.IV.2008.

Sarcophyton subviride Tixier-Durivault, 1958 (Fig. 14E, F)

MATERIAL EXAMINED. — ZMTAU Co 34408, Co 34411 (2 colonies), Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), reef slope, 14-19 m, 7.IV.2008. — RMNH Coel 40121, ZMTAU Co 34461 (2 colonies), Co 34451, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008.

Genus *Sinularia* May, 1898

Sinularia brassica May, 1898 (Fig. 15A)

MATERIAL EXAMINED. — ZMTAU Co 34375, Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 11 m, 3.IV.2008.

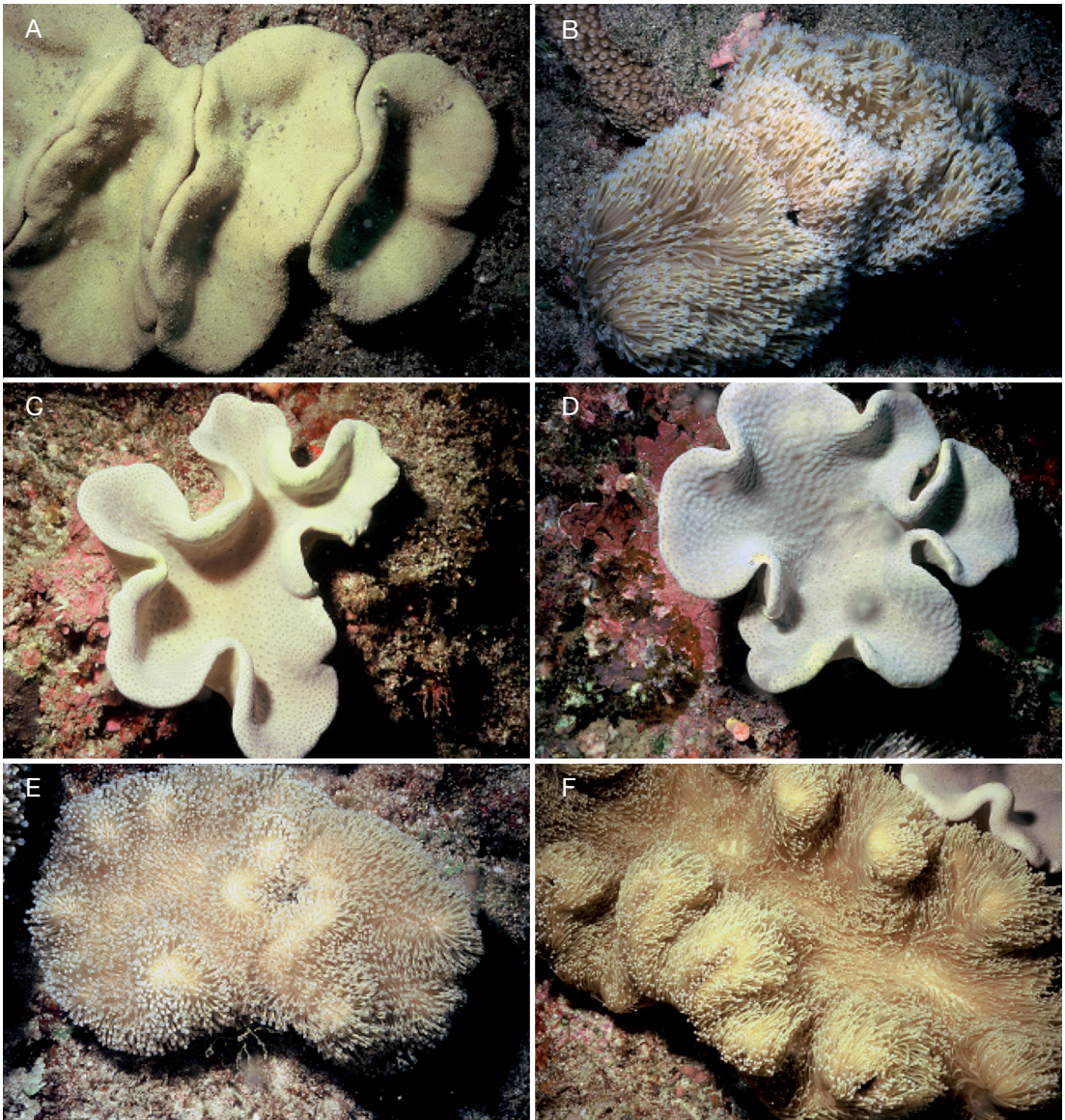


FIG. 14. — Live colonies of: **A**, *Sarcophyton flexuosum* Tixier-Durivault, 1966; **B**, *Sarcophyton glaucum* (Quoy & Gaimard, 1833) with extended polyps; **C**, *Sarcophyton infundibuliforme* Tixier-Durivault, 1958; **D**, *Sarcophyton roseum* Pratt, 1903; **E**, **F**, *Sarcophyton subviride* Tixier-Durivault, 1958 with extended polyps.

Sinularia compressa Tixier-Durivault, 1945

MATERIAL EXAMINED. — ZMTAU Co 34468, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008.

Sinularia densa Whitelegge, 1897
(Fig. 15B)

MATERIAL EXAMINED. — ZMTAU Co 34380 (2 colonies), Saint-Paul, Tours de Boucan (21°01'30.87"S, 55°13'26.41"E),

reef slope, 20-29 m, 4.IV.2008. — ZMTAU Co 33862 (2 colonies), l'Ermitage, 30 km from St-Denis (21°05.586'S, 55°13.239'E), 15-20 m, XII.2006, leg. M. Aknin. — ZMTAU Co 34414, Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34379 (2 colonies), Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 5 m, 3.IV.2008; ZMTAU Co 34373 (2 colonies), same data, but 7 m. — ZMTAU Co 34400 (2 colonies), Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34480, Co 34494, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16-20 m, 11.IV.2008. — ZMTAU Co 34421 (4 colonies), Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 17 m, 8.IV.2008. — ZMTAU Co 35009, Grande Ravine (21°07.922'S, 55°16.095'E), reef slope, 116-20 m, 18.IV.2007, leg. M. Aknin. — ZMTAU Co 35007, Co 35011 (2 colonies), Saint-Leu, Place Arche (21°12.364'S, 55°16.818'E), 26 m, 18.IV.2007, leg. M. Aknin. — ZMTAU Co 34435 (2 colonies), Co 34437 (2 colonies), Co 34444 (3 colonies), Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), reef slope. 12-15 m, 9.IV.2008.

Simularia erecta Tixier-Durivault, 1945
(Fig. 15C)

MATERIAL EXAMINED. — ZMTAU Co 34526, Grande Ravine (21°07.922'S, 55°16.095'E), reef slope, 16-20 m, 24.XI.2008, leg. M. Aknin. — ZMTAU Co 34450 (3 colonies), Co 34466 (2 colonies), Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — ZMTAU Co 34397 (2 colonies), Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34482 (3 colonies), Co 34495 (2 colonies), Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16-20 m, 11.IV.2008. — ZMTAU Co 34367 (5 colonies), Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 9 m, 3.IV.2008. — ZMTAU Co 33854 l'Ermitage, 30 km from St-Denis (21°05.586'S, 55°13.239'E), 15-20 m, XII.2006, leg. M. Aknin. — MNHN, Saint-Pierre, lagoon, leg. G. Faure.

Simularia gibberosa
Tixier-Durivault, 1970
(Fig. 15D)

MATERIAL EXAMINED. — ZMTAU CO 34378, Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 5 m, 3.IV.2008. — ZMTAU Co 34440, Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), reef slope, 12 m, 9.IV.2008. — ZMTAU Co 33859 Saint-Paul,

Pointe des Aigrettes (21°02.58'S, 55°13.00'E), 23 m, 11.III.2007, leg. M. Aknin.

Simularia birta (Pratt, 1903)
(Fig. 15E)

MATERIAL EXAMINED. — ZMTAU Co 34530, Grande Ravine (21°07.922'S, 55°16.095'E), reef slope, 16-20 m, 24.XI.2008, leg. M. Aknin. — ZMTAU Co 34445 (3 colonies), Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), reef slope, 12 m, 9.IV.2008. — MNHN, Reef of Nord Boucau, leg. G. Faure.

Simularia molesta Tixier-Durivault, 1970
(Fig. 15F)

MATERIAL EXAMINED. — ZMTAU Co 34425 (2 colonies), Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 17 m, 8.IV.2008. — ZMTAU Co 34465, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008.

Simularia muralis May, 1899
(Fig. 16A)

MATERIAL EXAMINED. — ZMTAU Co 33857, l'Ermitage, 30 km from St-Denis (21°05.586'S, 55°13.239'E), 15-20 m, XII.2006, leg. M. Aknin. — ZMTAU Co 34433, Co 34438, Co 34441, Saint-Leu, Pointe au Sel (21°12'17.54"S, 55°16'48.90"E), reef slope, 12-16 m, 9.IV.2008. — ZMTAU Co 35008 (2 colonies), Grande Ravine (21°07.922'S, 55°16.095'E), reef slope, 16-20 m, 18.IV.2007, leg. M. Aknin. — ZMTAU Co 34403 (2 colonies), Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34463, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — ZMTAU Co 34369 (3 colonies), Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 6 m, 3.IV.2008. — ZMTAU Co 34516, Co 34523, Co 34517, Passe de l'Ermitage (21°05.190'S, 55°13.239'E), 17 m, 24.XI.2008, leg. M. Aknin.

Simularia nanolobata Verseveldt, 1977
(Fig. 16B)

MATERIAL EXAMINED. — ZMTAU Co 34469 (2 colonies), Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — ZMTAU Co 34430 (3 colonies), Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 7 m, 8.IV.2008.

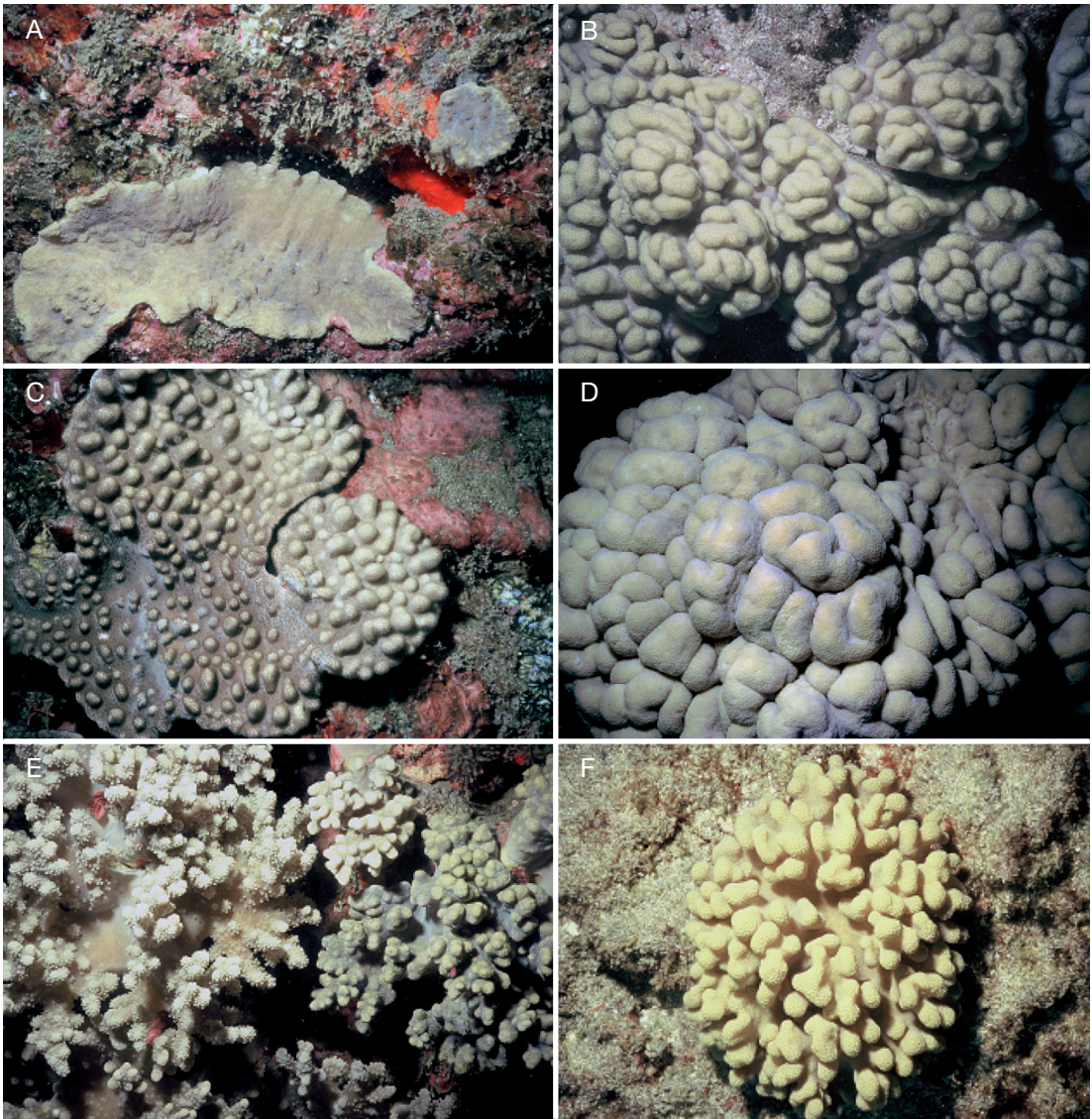


FIG. 15. — Live colonies of: **A**, *Sinularia brassica* May, 1898; **B**, *Sinularia densa* Whitelegge, 1897; **C**, *Sinularia erecta* Tixier-Durivault, 1945; **D**, *Sinularia gibberosa* Tixier-Durivault, 1970; **E**, *Sinularia hirta* (Pratt, 1903); **F**, *Sinularia molesta* Tixier-Durivault, 1970.

Sinularia numerosa Tixier Durivault, 1970
(Fig. 16C)

MATERIAL EXAMINED. — ZMTAU Co 34479, Co 34500, Co 34483, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16-20 m, 11.IV.2008. — ZMTAU Co 33860, l'Ermitage, 30 km from St-Denis (21°05.586'S, 55°13.239'E), 15-20 m,

XII.2006, leg. M. Aknin. — ZMTAU Co 34382 (3 colonies), Co 34385 (2 colonies), Saint-Paul, Tours de Boucan (21°01'30.87"S, 55°13'26.41"E), reef slope, 20-29 m, 4.IV.2008. — ZMTAU Co 34376 (3 colonies), Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 5 m, 3.IV.2008. — ZMTAU Co34415 (2 colonies), Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E),

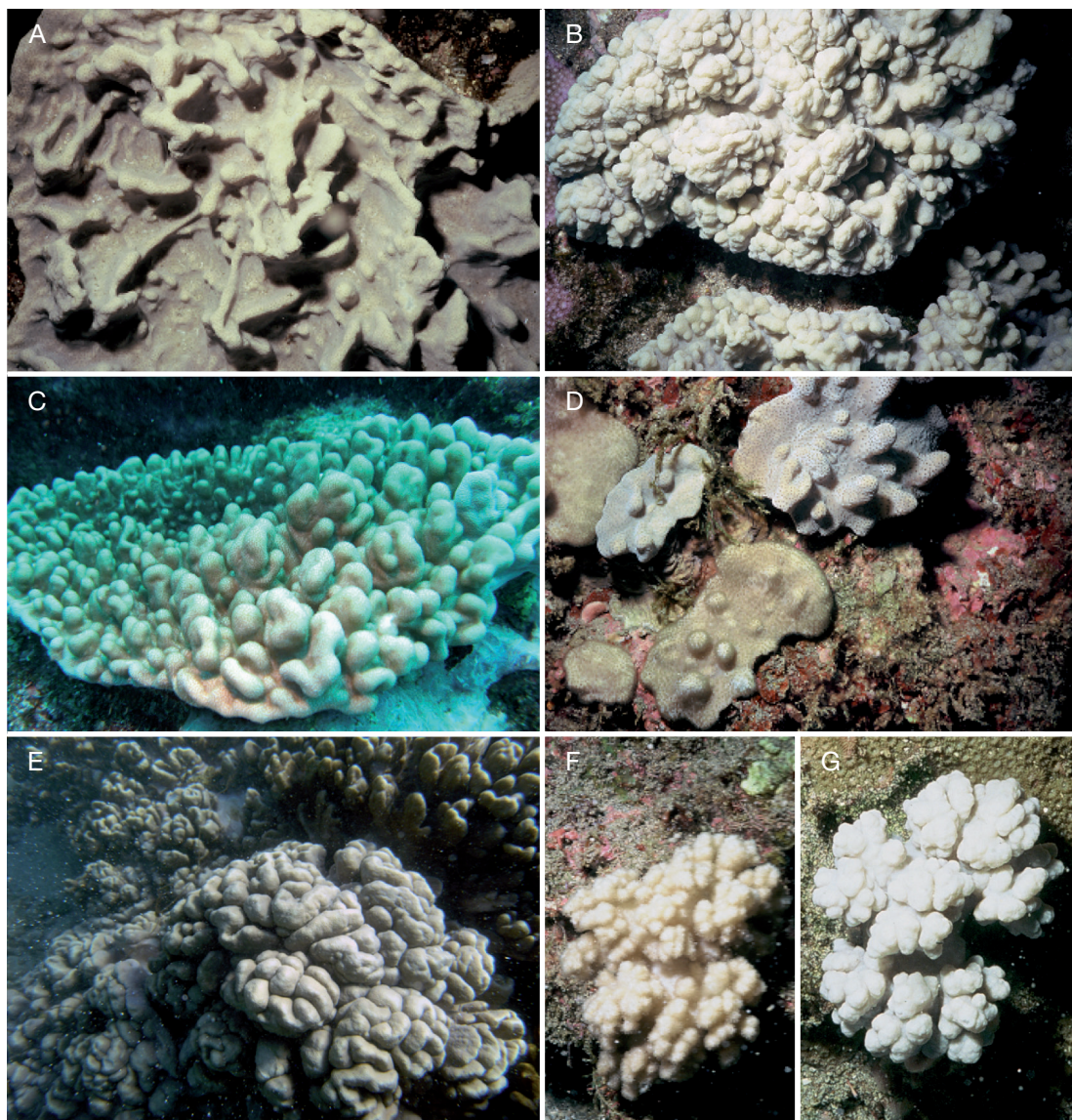


FIG. 16. — Live colonies of: **A**, *Sinularia muralis* May, 1899; **B**, *Sinularia nanolobata* Verseveldt, 1977; **C**, *Sinularia numerosa* Tixier-Durivault, 1970; **D**, *Sinularia peculiaris* Tixier-Durivault, 1970; **E**, *Sinularia shlagmani* n. sp.; **F, G**, *Sinularia tessieri* n. sp.; **F**, with extended polyyps; **G**, with retracted polyyps.

reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34456, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — ZMTAU Co 34431 (2 colonies), Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 7 m, 8.IV.2008. — ZMTAU Co 34524, Grande

Ravine (21°07.922'S, 55°16.095'E), reef slope, 16-20 m, 24.XI.2008, leg. M. Aknin. — ZMTAU Co 34518, 34521, Passe de l'Ermitage (21°05.190'S, 55°13.239'E), 24.XI.2008, 17 m, leg. M. Aknin. — ZMTAU Co 34529, Anse des Cascades (21°11.151'S, 55°49.621'E), 2-25 m, 2.XII.2008, leg. M. Aknin.

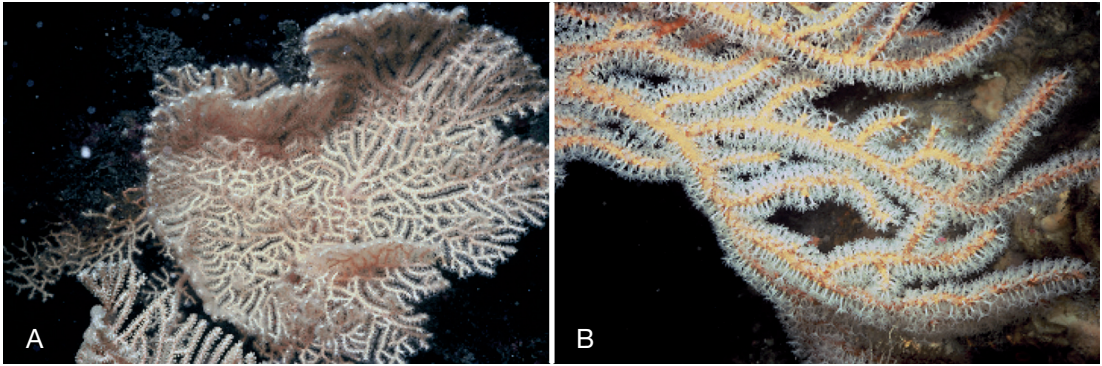


FIG. 17. — Live colonies of: **A**, *Annella reticulata* Ellis & Solander, 1786; **B**, *Subergorgia suberosa* (Pallas, 1766).

Sinularia peculiaris Tixier-Durivault, 1970
(Fig. 16D)

MATERIAL EXAMINED. — ZMTAU Co 33855, Co 33861, Pointe des Saint-Paul (21°02.58'S, 55°29.26'E), 23 m, 11.III.2007. — ZMTAU Co 34525, Grande Ravine (21°07.922'S, 55°16.095'E), reef slope, 16-20 m, 24.XI.2008, leg. M. Aknin. — ZMTAU Co 34427, Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 17 m, 8.IV.2008. — ZMTAU Co 34412 (2 colonies), Co 34409, Co 34416, Saint-Paul, l'Ermitage face au ponton au kiosque (21°04'10.33"S, 55°12'58.46"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34366 (5 colonies), Co 34374 (3 colonies), Saint-Paul, Pain de Sucre (Maharani) (21°01'22.33"S, 55°13'40.95"E), reef slope, 6-15 m, 3.IV.2008. — ZMTAU Co 34455, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — ZMTAU Co 34493, Co 34497 (2 colonies), Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16-20 m, 11.IV.2008. — ZMTAU Co 34392, Saint-Paul, Planch' Alizés (21°05'58.61"S, 55°13'48.81"E), reef slope, 14-19 m, 7.IV.2008. — ZMTAU Co 34520, 34522, Passe de l'Ermitage (21°05.190'S, 55°13.239'E), 17 m, 24.XI.2008, leg. M. Aknin.

Sinularia shlagmani n. sp.
(Fig. 16E)

TYPE MATERIAL. — Holotype: ZMTAU Co 34418 (split into 2 parts) and 4 microscope slides, Saint-Leu, Récif des Colimaçons (21°09'21.63"S, 55°16'57.64"E), reef flat, 1 m, 8.IV.2008.
Paratypes: ZMTAU Co 34417, Co 34447 (2 colonies), same data as holotype. — ZMTAU Co 35435, Saint-

Pierre, Terre Sainte (21°20'52.25"S, 55°28'49.62"E), reef flat, 1 m, 9.IV.2008. — ZMTAU Co 34470, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008. — MNHN, Saint-Pierre, leg. G. Faure.

Sinularia tessieri n. sp.
(Fig. 16F, G)

TYPE MATERIAL. — Holotype: ZMTAU Co 34502 and 4 microscope slides, Saint-Leu, Récif Pointe au Sel (Cimetière) (21°11'26.29"S, 55°16'59.27"E), reef slope, 16-20 m, 11.IV.2008.
Paratype: RMNH Coel 40120, same data as holotype.

Sinularia variabilis
Tixier-Durivault, 1945

MATERIAL EXAMINED. — ZMTAU Co 34473, Co 34474, Saint-Leu, Pointe des Châteaux (21°09'04.39"S, 55°16'12.47"E), reef slope, 14-20 m, 10.IV.2008.

Family SUBERGORGIIDAE Gray, 1859
Genus *Annella* Gray, 1858

Annella reticulata
Ellis & Solander, 1786
(Fig. 17A)

MATERIAL EXAMINED. — ZMTAU Co 34384 (2 colonies), Saint-Paul, Tours de Boucan (21°01'30.87"S, 55°13'26.41"E), reef slope, 20-29 m, 4.IV.2008.

Genus *Subergorgia* Gray, 1857

Subergorgia suberosa (Pallas, 1766)
(Fig. 17B)

MATERIAL EXAMINED. — ZMTAU Co 34383, Saint-Paul, Tours de Boucan (21°01'30.87"S, 55°13'26.41"E), reef slope, 20-29 m, 4.IV.2008. — ZMTAU Co 34423 (2 colonies), Saint-Paul, Cap la Houssaye (21°01'02.90"S, 55°14'15.49"E), reef slope, 17 m, 8.IV.2008.

Family XENIIDAE Wright & Studer, 1889
Genus *Xenia* Lamarck, 1816

Xenia lillieae Roxas, 1933

MATERIAL EXAMINED. — MNHN, 1971, leg. G. Faure.

DISCUSSION

Based on both the recent (2006-2008) and the old (Tixier-Durivault 1972) collections, the current study provides for the first time a comprehensive account of the octocorals of Reunion. It yielded two new species, *S. shlagmani* n. sp. and *S. tessieri* n. sp. Prior to the current survey, the list provided by Tixier-Durivault (1972) offered the only report on the octocoral fauna there; a report that, unfortunately was found to be erroneous. The revised identification of the MNHN material comprised five species (*L. depressum*, *L. crassum*, *S. erecta*, *S. hirta* and *S. shlagmani* n. sp.), all also found in the recent collections (Table 1), thus bringing to 28 the total number of new zoogeographical records from Reunion.

The findings revealed *Simularia* as the most speciose genus on the Reunion reefs (Table 1: 14 species), albeit fewer than in the Red Sea (38), East Africa (33) and Madagascar (23) (Van Ofwegen 2002). The remote geographical position of Reunion, in the southwest Indian Ocean, 700 km from Madagascar to the west and 180 km from Mauritius to the northeast, could be the reason for the relatively low *Simularia* diversity found there. At present there is no information on the octocoral fauna of Mauritius or Rodrigues, the adjacent islands at the southern end of the Mascarene Ridge, and therefore it is still too speculative to posit the zoogeographical patterns of octocorals

in that region. Nonetheless, the discovery of the two new species in the current study indicates the need to explore the region further, including deeper habitats. A recent collection conducted by M. Schleyer at the underwater lava flows of Reunion (unpublished data) revealed two additional new records, *Simularia humesi* Verseveldt, 1968 (ZMTAU Co 35490) and *Ovabunda biseriata* (Verseveldt & Cohen, 1971) (ZMTAU Co 35432). These findings further indicate that comprehensive surveys of Reunion and of the Indian Ocean reefs, along with the re-examination of previous collections, if available, would help to elucidate the zoogeographical patterns of octocorals, and in particular their possible endemism to remote islands.

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