Distribution

Type locality only.

Remarks

On first observation the two specimens were thought to represent the preceding species. However, on closer examination they were found to differ from it in the presence of a fewer number of scales between mouth and anus, a distinct sole, the naked odd ambulacrum and imbricating plates made up of a single layer of calcareous material. The new species also differs from other nominal species of *Psolidium* in the same way as *P. pulcherrimum*. Although both the brood-protecting species are closely related, they are definitely not conspecific, despite their sympatry.

Order Aspidochirotida Grube

Family Synallactidae Ludwig

Genus *Synallactes* Ludwig

***Synallactes samyni* sp. nov.**
Figure 15

Diagnosis

A ventrally flattened species, up to 130 mm long. Tentacles 20, in two circles. Papillae in six longitudinal series, restricted to dorsal and ventro-lateral ambulacra, mid-dorsally 2-4 mm long, elsewhere up to 12 mm long. Tube feet restricted to ventral surface, 2-4 rows per ambulacrum, stopping 7 mm short of mouth, interambulacra naked. Mouth bordered by papillae and tube feet. Polian vesicles two; madreporite attached to body wall. Spicules comprising small to large, 3-4 armed tables; small dorsal tables (crosses) with 59-167 μm disc; small ventral tables (crosses) commoner, disc 33-133 μm. Disc of large tables nearly always 3-armed, with arms bifurcating at base, giving impression of six arms; dorsal table discs 181-486 μm, ventral table discs 157-443 μm, arms of small tables with 0-3 perforations, those of large tables with up to 15 perforations; spire of fused pillars, terminally trifid, occasionally bifid. Papillae supported with small tables (crosses) and spinous rods, 238-533 μm, with none to numerous terminal perforations. Tube feet deposits of similar form. Tentacle deposits comprise similar but larger rods 424-867 μm.

Etymology

This species is named after Dr. Yves Samyn, of the Belgian Royal Institute of Natural Sciences, in recognition of his contribution to our understanding of the biogeography of the West Indian Ocean holothuroids.

Material examined

Holotype, SAM-A28021, R.V. 'Africana', South Coast Inshore Biomass and Horse Mackerel Survey, St. A15343-116-DT02, near Plettenberg Bay 35° 03' S, 24° 06' E, 28.ix.1993, 1006 m. *Paratypes*, SAM-A28022, same data as holotype, 7 specimens; SAM-28023, West Coast Hake Biomass Survey, St. A 13013-100-020-5130, off Cape Peninsula, 34° 34' S, 17° 57' E, 12.ii.1992, 438 m, 1 spec.

Type locality

South and south west coast, WCP, 438-1006 m.

Description of holotype

Specimen of moderate size, length 90 mm, breadth in mid-body 25 mm; dorsal surface slightly arched, ventral flattened. Colour in alcohol off-white to light yellowish, papillae and tube feet of same colouration. Mouth anterior, ventral; tentacles 20, in two circles (15+5), those of inner circle only slightly smaller; anus posterior, large, ventral. Papillae restricted to dorsal and ventro-lateral surfaces, much longer than tube feet, in six longitudinal series, arising from short, wart-like prominences that are often reduced and sunken into body wall - dorso-lateral and ventro-lateral papillae up to 12 mm long, mid-dorsal ones smaller (2-4 mm), those in the region of the mouth 12-15 mm long, posterior ones about 11 mm. Tube feet restricted to ventral ambulacra, 2-4 rows in mid-ventral ambulacrum with two rows at extremities and four rows in middle, but not always so, stopping 7 mm short of posterior border of mouth; ventro-lateral ambulacra with 2-3 rows of tube feet, occasionally reduced to a single zig-zag row; interambulacra naked. Anteriorly mouth bordered by papillae similar to those of dorsal body wall and posteriorly by podia of the ventro-lateral ambulacra which sparingly extend into oral region with some appearing papillose but still bearing end-plates; no other specialized oral papillae, nor any occurring in tufts. Anus surrounded by short podia (up to 3 mm long), with well-developed end-plates. Body wall thick (4.5 mm), gelatinous, slimy to the touch.

Calcareous ring (Figure 15J) well-calcified, radial plates much larger than interradial plates, squarish, broad anteriorly, narrow posteriorly, anterior margin with a deep medial notch flanked by two shallower notches, one on each side; posterior margin deeply cleft; interradial plates squashed between radial plates, shorter, triangular, with a shallow posterior concavity and thin anterior projection, hardly reaching anterior margin of corresponding radial plate. Polian vesicles two, elongate, ventral one 7 mm long, left dorsal one 25 mm. Stone canal (Figure 15I) in dorsal mesentery, white, single, straight, 12 mm long, passing anteriad, terminating imperceptibly in an oval madreporite attached to antero-dorsal body wall. Longitudinal muscles thick (ca 4 mm), unpaired. Gonad in three tufts, each tuft bearing several dichotomously branched tubules; gonoduct in dorsal mesentery, parallel to stone canal. No tentacle or podial ampullae. Respiratory trees and most of gut lost.

Spicules of dorsal and ventral body wall more or less similar, comprising small to large, 3-(4) armed tables, scarcely two tables found that are identical. Small dorsal tables (crosses) (Figure 15A) with cross-like disc (crosses), 59-167 μm (mean 109 μm), spire 43-93 μm (mean 65 μm); small ventral tables (crosses) (Figure 15G) commoner, also with cross-like disc, 33-133 μm (mean 80 μm), spire 33-67 μm (mean 49 μm). Disc of large tables nearly always 3-armed with arms usually bifurcating at base to give impression of six arms. Disc of large dorsal tables (Figure 15B) 181-486 μm (mean 320 μm), spire 67-143 μm; disc of large ventral tables (Figure 15F) 157-443 μm (mean 245 μm), spire 64-90 μm; arms of table disc frequently terminating in expanded, racquet-shaped ends with small to large perforations (Figure 15C) (small tables with 0-3 perforations, large tables with up to 15 perforations), but bifurcations rarely anastomosing to form complete or incomplete multilocular disc; few discs with knobs on surface, perhaps indicating a reduced spire (Figure 15D), sometimes present. Spire of a single pillar, terminally trifid but occasionally bifid, those of the larger tables usually with a terminal perforation. Papillae supported by small tables (crosses) and straight to slightly curved rods (Figure 15E), 238-533 μm (mean 395 μm), sparsely spinose and terminally branched, with 0-many perforations, some with a short, branched medial process. Tube feet deposits of similar form and size as those of papillae, 269-571 μm (mean 427 μm), suckers supported by large “end-plates up to 752 μm, composed of several overlapping, simple, multilocular plates with irregular margins. Tentacle deposits (Figure 15H) comprising larger, slightly curved rods of the tube feet or papillae type, 424-867 μm (mean 616 μm). Longitudinal and cloacal muscles devoid of spicules.

Description of paratypes

Of the eight paratypes one is badly contracted and another poorly preserved. Size range 80 mm x 36 mm (contracted specimen) to 135 mm x 30 mm (relaxed specimen). Disposition and size of pedicels and papillae

and composition of spicules similar to holotype. Position of mouth and anus variable - mouth terminal in one specimen, ventrally directed in another and ventral in the remaining paratypes; anus ventral in one specimen, sub-dorsal in another and terminal in the remaining paratypes. In a dissected but eviscerated paratype there are also two Polian vesicles, the longer one ventral and the shorter one dorsal in position. Respiratory trees (determined in another paratype) are well branched but with short sac-like extensions, of more or less equal length, reaching mid-body, arising from a common stem. Gonad in 3-5 tufts.

Distribution

Type locality only.

Remarks

Regrettably**,** neither Cherbonnier (1952) compared his *S. mollis* to Théel's *S. challengeri* nor did Massin (1992) his *S. challengeri* to Cherbonnier's *S. mollis* since, of the approximately 20 nominal species of the genus known to date, the new species here described comes quite close to but is not identical with *S. challengeri* from the subantarctic and *S. mollis* from the Atlantic coast of South Africa. The new species also comes close to *S. longipapillata* Sibuet, 1978 from the north Atlantic and *S. viridilimus* Cherbonnier, 1952, also from the Atlantic coast of South Africa. It differs from *S. challengeri* in the maximum length of the papillae (15 mm vs. 7 mm) and tube feet, in the oral papillae not organized into bundles, fewer (2 vs. 2-5) Polian vesicles, more tables in the body wall, arms of large table disc frequently bifurcating but hardly ever anastomosing to form a complete disc; from *S. mollis* in the rarity of four-armed tables and the presence of bifurcating three-armed ones, with larger number of holes at the extremities; from *S. viridilimus* in the well-calcified calcareous ring, lack of 3-4 pillared table spires, the slenderness of the spires and the scarcity of four-armed tables; and from *S. longipapillata* in the shorter length of the papillae and their disposition in six instead of four rows, the presence of tri-radiate table discs with frequently bifurcating arms, shorter arms and spires, and larger holes in the arms. Table II compares the new species with *S. mollis* Cherbonnier, *S.* cf. *mollis* (described below) and *S. challengeri* Théel.

***Synallactes* cf. *mollis* Cherbonnier, 1952**

Figure 16

Type

SAM.

Type locality

R. V. 'Africana' St. 723.V.7B, off west coast of WCP, 31° 30' S, 17° 00' E, ca. 366 m.

Material examined

SAM-A28023, R.V. 'Africana', South Coast Inshore Biomass and Horse Mackerel Survey, St. A15343-116-DT02, off Plettenberg Bay, 35° 03' S, 24° 06' E, 28.ix.1993, 1006 m, 1 spec.

Description

Specimen eviscerated, cylindrical to barrel-shaped due to strong contraction, ventral surface flattened, dorsal conspicuously arched. Length 75 mm, width in mid-body 37 mm. Mouth anterior, ventral; anus terminal, ventrally directed. Papillae dorsal and ventro-lateral, in six rows, arising from wart-like prominences of vary ing length, 11 –12 papillae in each ventro-lateral ambulacra, longest (including wart) about 10 mm, dorsal and latero-dorsal papillae also about 12 per row, longest (including wart) about 10 mm, mid-dorsal papillae reduced, also about 12 per row, longest (including wart) about 4 mm, stopping 7 mm short of anus. No special