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Family Sollasellidae Lendenfeld, 1887

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Sollasellidae Lendenfeld (Demospongiae, Hadromerida) comprises a single Australian species, *Sollasella digitata* Lendenfeld, 1888. This species is ramose with branches having in cross section a three-layered skeleton consisting of a cortical region of brushes of megascleres, a subcortical region of low spicular density and an axial core of confused spicules and spicule bundles. Its status among Hadromerida is *incertae sedis*, but closest relatives appear to be Polymastiidae, Suberitidae and Stylocordylidae.
Keywords: Porifera; Demospongiae; Hadromerida; Sollasellidae; *Sollasella*.

DEFINITION, DIAGNOSIS, SCOPE

Synonymy

Sollasellidae Lendenfeld, 1887a: 584.

Definition

Hadromerida with a cortex strengthened by short oxeas and an axial skeleton consisting of a mixture of long styles and short oxeas. No microscleres.

Diagnosis

Stalked ramose sponges with polygonal ornamentation of lines of inhalant openings. A cortical region is supported by a palisade of oxeas, and is separated from the axial core of confused masses of styles and oxeas by a subcortical region with low spicular density traversed by bundles consisting of a single style surrounded by a mass of oxeas bound by spongin. Spicules oxeas and styles, no microscleres.

Scope

A single genus and species.

History and biology

The family was erected by Lendenfeld (1887a: 584), and later clarified with the erection of the genus *Sollasella* with the definition '… cortex of expanding tufts of radiating spicule-bundles … interior skeleton irregular non-radial disposed spicule-bundles … '. The family was subsequently maintained by Hallmann (1914: 286), predominantly because of the incompatibility of *S. digitata* with established families. Topsent (1904b: 142) assigned *Trachya hystrix* to *Sollasella*, but Hallmann (1914: 286) erected for that species the genus *Pseudotrachya* and referred this to Axinellidae (now considered to belong to Polymastiidae). De Laubenfels (1936a: 161) assigned the family to his order Epipolasida (intended to receive families and genera with astrophorid affinities but lacking triaenes). This order is no longer recognized and aster-bearing members are assigned to Ancorinidae and Hemiasterellidae. De Laubenfels (1936a) assigned next to *Sollasella* also a series of genera here considered members of the family Halichondriidae, like *Epipolasis, Axinyssa*; these lack a cortical region and an axially condensed skeleton, and their spiculation is oxeas and may include trichodragmas. *Sollasella* was assigned to Coppatiidae (a dustbin family for putative Epipolasida) by Hooper & Wiedenmayer (1994: 141), but these authors gave insufficient grounds for this. In its present concept, Sollasellidae is maintained solely for *Sollasella*. With Polymastiidae, it shares the presence of a cortex and it is particularly similar to *Pseudotrachya*, with which it shares the combination of choanosomal styles and ectosomal oxeas. With some Suberitidae (*Homaxinella, Plicatellopsis, Rhizaxinella*) it shares the stalked habit and axially condensed skeleton. Some affinity with Stylocordylidae is also apparent.

SOLLASELLA LENDENFELD, 1888

Synonymy

Sollasella Lendenfeld, 1888: 56.

Type species

Sollasella digitata Lendenfeld, 1888: 56 (by monotypy).

Definition

Sollasellidae with stalked ramose habit and with polygonal ornamentation of lines of inhalant openings on the surface. Choanosomal skeleton consisting of an axial core of aligned spicule bundles and extra-axial perpendicular bundles set at right angles to the axial core and traversing a subcortical region. Ectosomal skeleton a distinct cortex of spicule brushes. Megascleres small oxeas and large styles.

Previous review

Hallmann, 1914: 286.

Description of type species

Sollasella digitata Lendenfeld, 1888 (Fig. 1A–F).

Synonymy. *Sollasella digitata* Lendenfeld, 1888: 56; Hallmann, 1914; 287, pl. XV figs 1–2, text-fig. 1.

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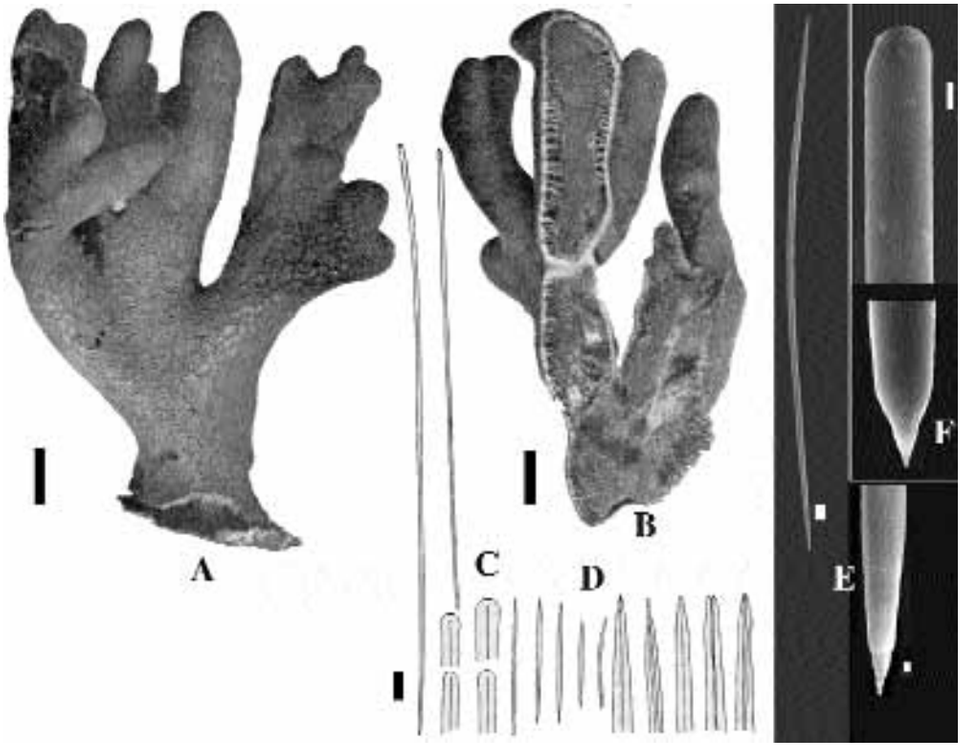

Fig. 1. *Sollasella digitata* Lendenfeld, 1888. A, habit of spirit specimen (scale 1 cm). B, BMNH lectotype (scale 1 cm). C, drawing of styles (scale 10 μm) and details of heads (same scale 1 μm). D, drawing of oxeas (scale 10 μm) and details of apices (scale 1 μm). E–F, SEM images of spicules (right scales 1 μm, left scale 10 μm). E, oxea and detail of apex. F, style. A–D, reproduced from Hallmann, 1914: pl. XV figs 1–2 and text-fig. 1.

Material examined. Lectotype (per Hallmann, 1914): BMNH 1886.8.27.639 (spirit specimen), including 2 slides. Paralectotype (here designated): AM G9107 – 'syntype' mentioned by Hooper & Wiedenmayer (1994: 144). Other material. BMNH unnumbered – dry specimen from 'Marley Beach, July 9/93/ No. 61, Dendy collection'.

Description (mostly from Hallmann, 1914). Stalked ramose sponge (Fig. 1A, B) of up to 14 cm long, with rounded short branches. Consistency very firm, tough. Surface hispid due to protruding spicules, and provided with a characteristic polygonal pattern of lines of round shallow depressions (Fig. 1A), presumed to be inhalant openings. Oscules up to 2 mm in diameter, few in number. In cross section the branches (Fig. 1B) show three distinct regions, an outer cortical region, an open subcortical region of low spicular density, and an axially condensed region. The axial region consists of confusedly strewn spicules and anastomosing spicule bundles bound by considerable amount of spongin, the bundles consist of a mixture of styles and oxeas. The subcortical region is traversed by spicule bundles with orientation perpendicular to the axial core, and these consist of a single central style and a mass of surrounding oxeas. The styles protrude to some extent beyond the surface. The cortical skeleton is supported by the brushed endings of the subcortical spicule bundles. Choanocyte chambers about 25 μm in diameter, confined to the axial core. Cortex densely fibrous. Spicules (Fig. 1C–F), oxeas with sharp points, often annulated, 340–760 × 10–16 μm; styles with often slightly swollen head and mucronate points (dubbed 'tylostrongyles' by Hallmann) 2000–4000 × 10–35 μm. Distribution and ecology. Port Jackson, E coast of Australia, no further data.

Remarks. The species has never been recorded since Hallmann, 1914, and is apparently rare. Its true affinities remain to be established.