A new species of *Alertigorgia* (Coelenterata: Octocorallia: Anthothelidae) from the Indo Malayan region

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Key words: Coelenterata; Anthozoa; Octocorallia; *Alertigorgia*; new species; Ovulidae; *Oceanapia*; Indonesia.
A new species of *Alertigorgia* from Indonesian waters is described and depicted, and compared with the hitherto only described species in the genus, *A. orientalis* (Ridley, 1884). The species is part of a unique association in which a mollusc species lives on an octocoral, which on its turn lives on a sponge species.

Introduction

Kükenthal (1908) established the genus *Alertigorgia* for a single species described by Ridley (1884) as *Iciligorgia orientalis* from Torres Strait, Australia. Since that original description the species has been found regularly in the Malay Archipelago and Australia (for references see Verseveldt, 1940: 104), but the genus remained monotypic. However, Colin & Arneson (1995: 89) published an underwater picture of a species named *Solenocaulon* sp., from Papua New Guinea, and a few years later, Erhardt & Baensch (1998: 271) showed a similar looking species labelled as "new genus and new species", from Bunaken, Sulawesi, Indonesia. The second author got involved with the identification of these images, and was already in possession of colony fragments collected by the Coral Reef Research Foundation and Harry Erhardt when he discussed the matter with the first author, who also had seen images of this species, made by B.W. Hoeksema (NNM) in Bunaken national park. During a fieldtrip in 1998, B.W. Hoeksema & L.P. van Ofwegen photographed and collected several specimens at Bunaken and from this material it became obvious we were dealing with an as yet undescribed species of *Alertigorgia*, which is described below. In 2001 the species was also found at Bali, Indonesia (see material examined).

Titanideum mjöbergi Broch, 1916, should most likely also be included in *Alertigorgia*. The species is described as having cylindrical branches and may represent a third species of the genus. The original description lacks sufficient detail, and the validity of the species will be the subject of another paper.

Abbreviations

The NNM-LIPI-WWF Expedition, 2001, was a joint project of the National Museum of Natural History (NNM), Leiden, The Netherlands, the Research Centre for Oceanology, Indonesian Institute of Sciences (PPO-LIPI), and the World Wildlife Fund (WWF),

The material is deposited in the Zoological Museum Bogor (ZMB) of the LIPI Research Centre for Biology (PPB-LIPI, Cibinong), and the NNM (RMNH); NTM stands for Museum and Art Gallery of the Northern Territory, Australia.

Description

Genus *Alertigorgia* Kükenthal, 1908

Diagnosis, amended: Anthothelidae with bushy or sparsely branched colonies. Branches may be cylindrical, flattened with acute edges or expanded and leaf-like. Polyps fully retractile into slit-like apertures, densely scattered over both faces in the species with leaf-like branches, arranged bilaterally in two narrow grooves on edges of conspicuously flattened branches, or singly or in small groups within short narrow grooves in the species with cylindrical branches. The medulla has prickly needles and thick rods with a few large tubercles; the surface layer has plump spindles with complex tubercles. Polyps have a collaret and points arrangement. Sclerites are colourless. Colonies are zooxanthellate.

Alertigorgia hoeksemai spec. nov.
(figs 1-6)

Material examined.— NTM C015585, **holotype**, BUN.07, Indonesia, N. Sulawesi, Bunaken Park, ESE of Siladen island, 124°48′E 01°37′30″N, scuba diving, 35-40 m depth, 7.v.1998, coll. B.W. Hoeksema & L.P. van Ofwegen; **paratypes**: NTM C015586, same data as holotype; NTM C014257, Indonesia, North Sulawesi Sea, Bunaken Islands, 01°38′N 124°46′E, 12-18 m depth, 1996, coll. H. Erhardt; NTM C014258, Indonesia, Manado, 01°45.1′N 124°58.87′E, 3 m depth , coll. Coral Reef Research Foundation, 21.v.1993; RMNH Coel. 31952, same data as holotype; RMNH Coel. 31953, NNM-LIPI-WWF Exped., BAL.09, Indonesia, Bali, Sanur, Loloan Batu Agung, 08°43′31″S 115°15′57″E, slowly declining reef slope, sandy base, scuba-diving, 17 m depth, 3.iv.2001, coll. B.W. Hoeksema; RMNH Coel. 31954, NNM-LIPI-WWF Exped., BAL.14, Indonesia, Bali, NE-side Pulau Serangan, off lighthouse, 08°43′17″S 115°15′31″E, slowly declining reef slope, sandy base, scuba-diving, 15-20 m depth, 5.iv.2001, coll. B.W. Hoeksema; RMNH Coel. 31955, NNM-LIPI-WWF Exped., BAL.15, Indonesia, Bali, NE-side Pulau Serangan; 08°44′03″S 115°15′05″E, slowly declining reef slope, sandy base, scuba-diving, 22 m depth, 7.iv.2001, coll. L.P. van Ofwegen & M. Slierings; MZB Coel. 3, NNM-LIPI-WWF Exped., BAL.13, Indonesia, Bali, NE-side Pulau Serangan, Loloan Serangan, 08°43′39″S 115°15′13″E, slowly declining reef slope, sandy base, scuba-diving to 17 m depth, 5.iv.2001, coll. M.I.Y.T. Hermanlimianto; MZB. Coel. 4, same data as RMNH Coel. 31955, coll. M.I.Y.T. Hermanlimianto.
Material used for comparison.— RMNH Coel. 31956, *Alertigorgia orientalis*, BUN.16, Indonesia, N. Sulawesi, S Tetapaan island, reef, 124°30′30″E 01°18′N, scuba diving -23 m. 12.v.1998, coll. B.W. Hoeksema & L.P. van Ofwegen.

Description.— The holotype is 70 cm long and 40 cm wide (fig. 1). The lower part is attached to a sediment dwelling species of the sponge genus *Oceanapia* (see base of colony in fig 2c; Colin & Arneson, fig. 167) but it is difficult to see where exactly the sponge ends and the octocoral begins. All branches are expanded leaf-like. The polyps are densely scattered over both faces of the leaves. The calyces are dome-shaped and all polyps are retracted into slit-like apertures (fig. 2f).

The polyps have a collaret of 2-3 rows of spindles and points with 4-6 spindles. All these spindles have simple tubercles and are up to 0.25 mm long (fig. 3a-b). The tentacles have small rods, up to 0.15 mm long (fig. 3c).

The surface layer of the leaves has ovals, cylinders, and spindles, up to 0.30 mm long, with densely placed complex tubercles (figs 3d, 4a); a few sclerites have some warts fused disk-like (fig. 4a, second sclerite). Towards the interior the spindles become less tuberculate and narrower (figs 3e, 4b).

The medulla has slender needles, up to 0.30 mm long, with simple tubercles and spines (fig. 4c).

Colour.— Alive the colony was brown, preserved it is cream; all sclerites are colourless.

Etymology.— Named after Dr Bert W. Hoeksema, head of the department of Zoology/Marine Research, NNM, who collected most of the type material.

Remarks.— The species differs from *Alertigorgia orientalis* (fig. 2g-h) in its leaf-like branches (fig. 2a-d; Hoeksema & Ofwegen, 2004). Furthermore, the sclerites are also different, *A. orientalis* has larger polyp sclerites (fig. 5a-c); larger spindles in the surface layer, and less ovals and cylinders (fig. 5d, 6a); and shorter rods in the medulla (fig. 6c). Moreover, the surface layer has more sclerites with warts fused disk-like (fig. 6a).

Specimens of both *Alertigorgia* species grow almost exclusively on specimens of a sponge species of the genus *Oceanapia*. On the leaf-like branches of several specimens of *A. hoeksemai* an unidentified egg cowry (Gastropoda: Ovulidae) was observed, probably feeding on the tissue (fig. 2e). This creates a unique association of an egg cowry living on an octocoral, which on its turn lives on a sponge.

Distribution.— N. Sulawesi, Papua New Guinea, Bali.

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10 cm

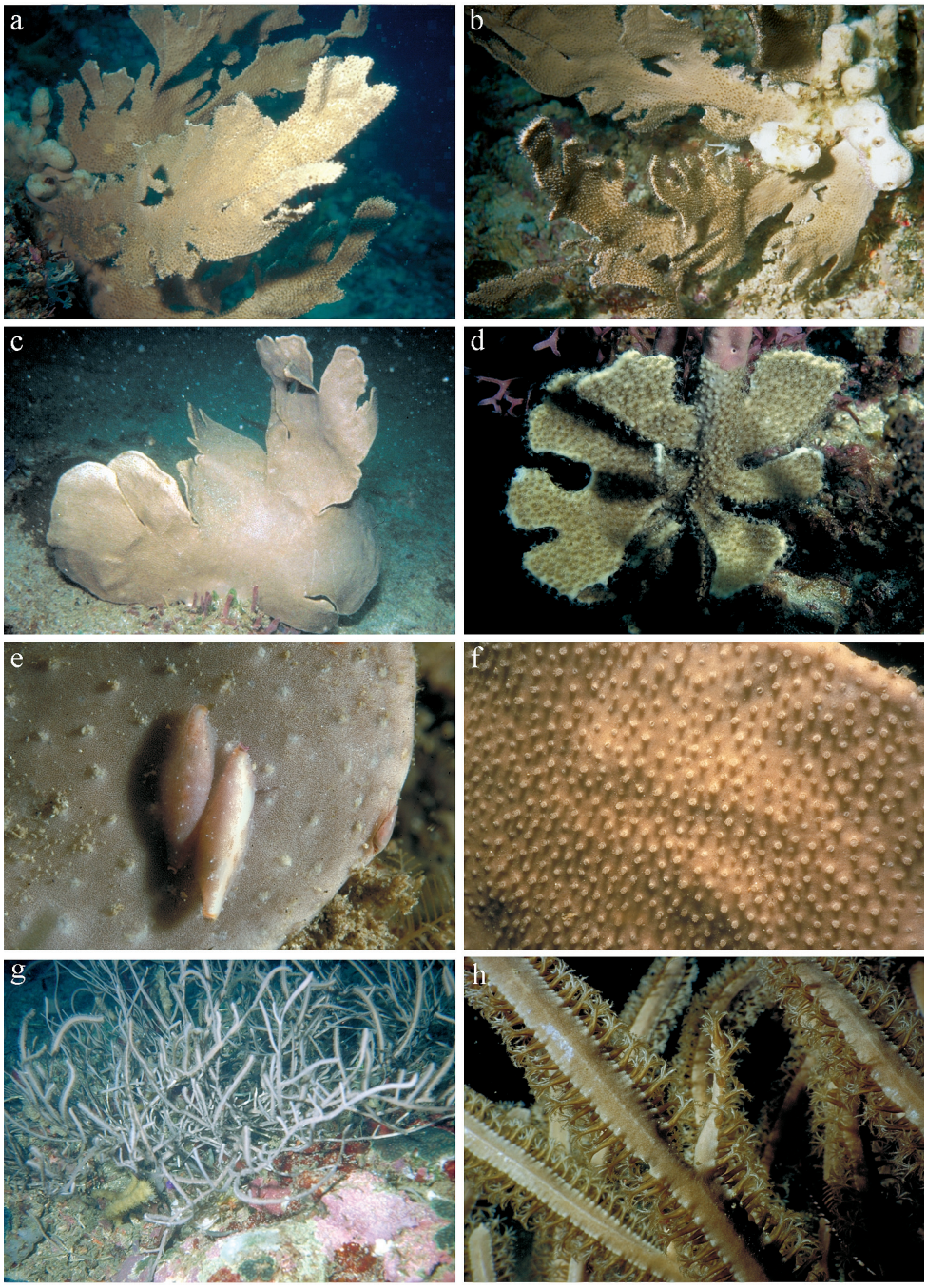

Fig. 2a-b, d, live colonies of *Alertigorgia hoeksemai* spec. nov. at Bunaken; c, at Bali; e, Ovulidae on *A. hoeksemai*; f, close-up calyces; g-h, *A. orientalis* from Ambon.

◀ Fig. 1. NTM C015585, holotype of *Alertigorgia hoeksemai* spec. nov.

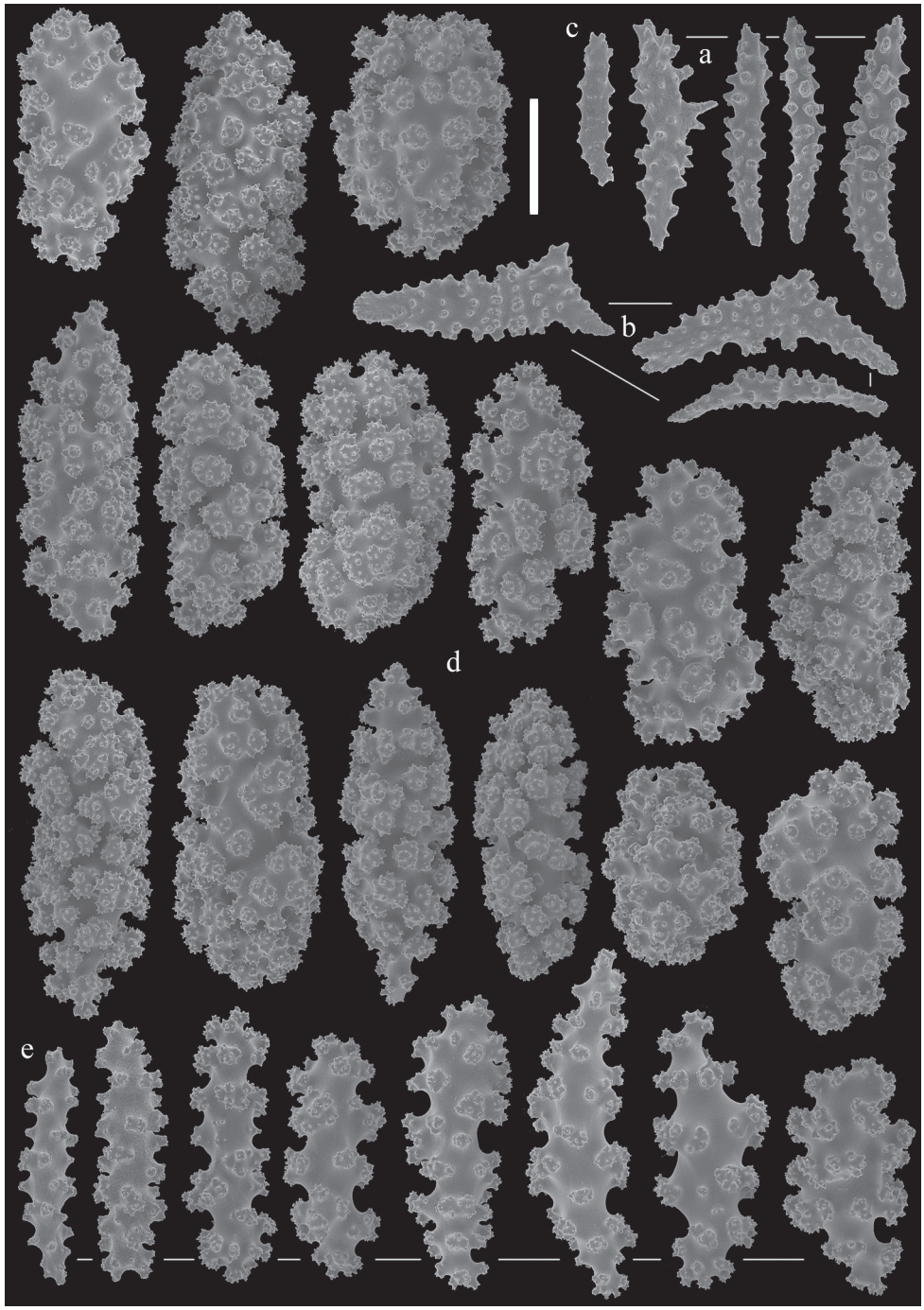

Fig. 3. Sclerites of *Alertigorgia hoeksemai* spec. nov.; a, point spindles; b, collaret spindles; c, tentacle rod; d, spindles and ovals of surface layer; e, spindles of subsurface layer. Scale 0.10 mm.

Fig. 4. Sclerites of *Alertigorgia hoeksemai* spec. nov.; a, ovals of surface layer; b, spindles of subsurface layer; c, needles from medulla. Scale 0.10 mm.

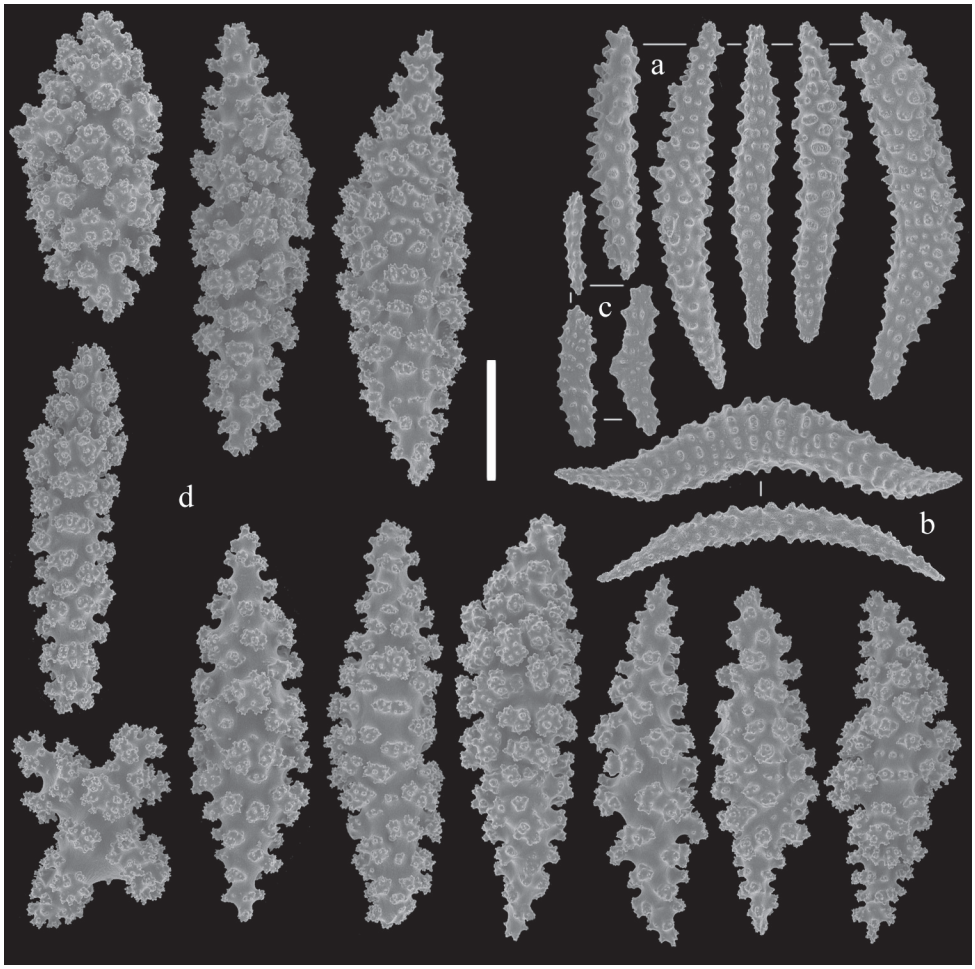

Fig. 5. Sclerites of *Alertigorgia orientalis* (Ridley, 1884); a, point spindles; b, collaret spindles; c, tentacle rods; d, spindles of surface layer. Scale 0.10 mm.

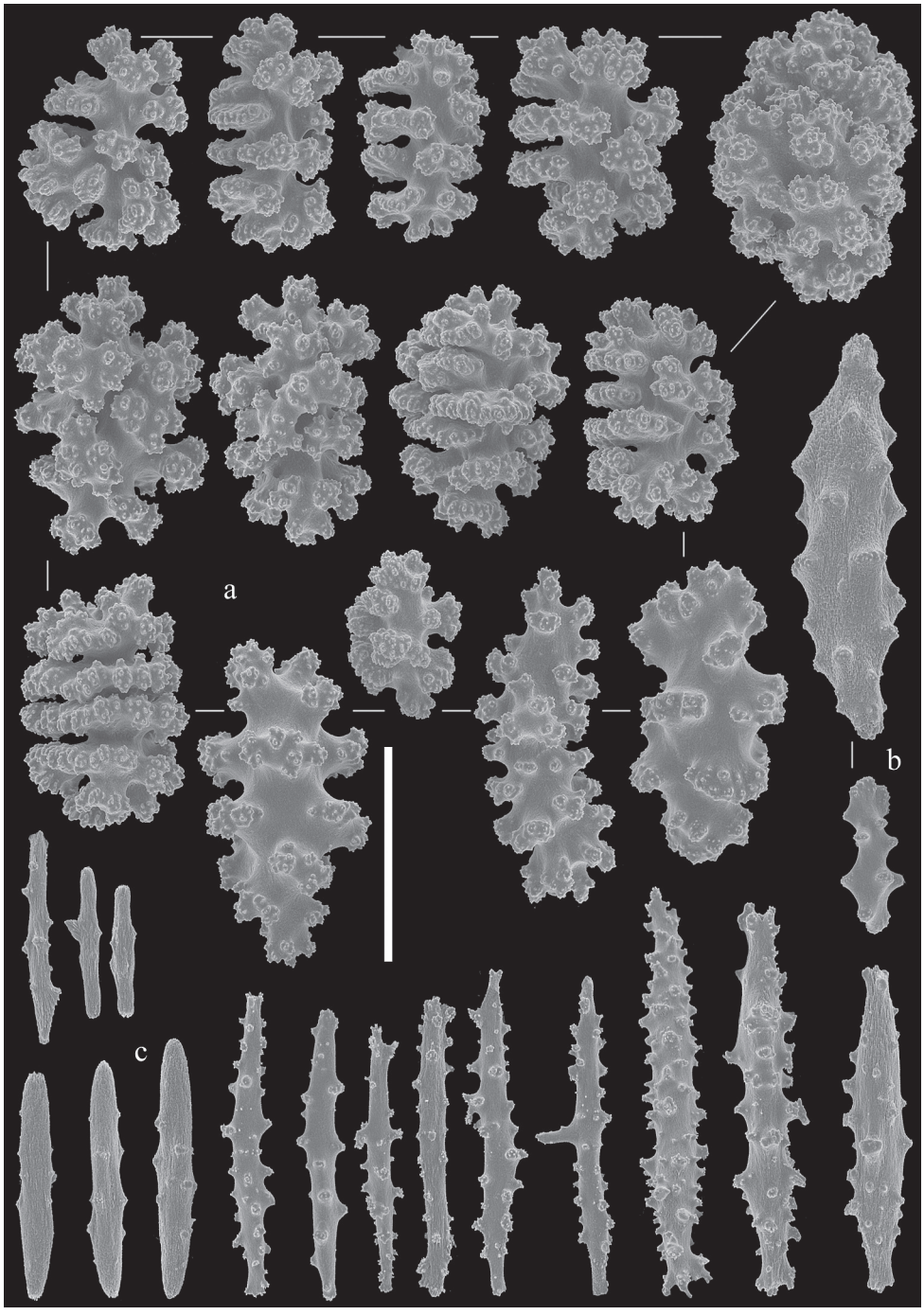

Fig. 6. Sclerites of *Alertigorgia orientalis* (Ridley, 1884); a, ovals of surface layer; b, ovals from subsurface layer; c, needles from medulla. Scale 0.10 mm.