A new species of *Astrogorgia* (Coelenterata: Octocorallia: Plexauridae) from Bali

M.I.Y.T. Hermanlimianto & L.P. van Ofwegen

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M.I.Y.T. Hermanlimianto, Research Center for Oceanography (PPO-LIPI), Jl. Pasir Putih 1, Ancol Timur, Jakarta 11048, Indonesia (e-mail: yos103@yahoo.com).
L.P. van Ofwegen, Nationaal Natuurhistorisch Museum, P.O. Box 9517, 2300 RA Leiden, The Netherlands (e-mail: ofwegen@naturalis.nl).

Key words: Coelenterata; Octocorallia; Alcyonacea; Plexauridae; *Astrogorgia*; Bali; Indonesia; new species.
A new species of *Astrogorgia* from Bali, Indonesia, is described and depicted. An amended diagnosis of the genus is presented and a related genus is discussed. Compared with other species of *Astrogorgia*, specimens of the new species have a rather unusual bushy growth form, and very small sclerites.

Introduction

During the Bali-Lombok Strait Expedition, 2001, 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), hundreds of soft corals were collected and photographed. The material is deposited in the Zoological Museum Bogor (ZMB) of the LIPI Research Centre for Biology (PPB-LIPI, Cibinong), and the NNM (RMNH). A preliminary examination of this material yielded a species of *Astrogorgia*, which is new to science, and is described and depicted in this paper.

Description

Genus *Astrogorgia* Verrill, 1868

Diagnosis after Grasshoff, 2000, amended: The sclerites of the coenenchyme are spindles with irregularly arranged tubercles; capstans can be present in the interior. The length of the largest spindles can exceed the diameter of the branches on which they are located. In the anthocodia, numerous flattened sclerites are placed around the tentacle bases and extend up the tentacles. Growth forms are fans with free branches, rarely bushy.

Remarks.— Fabricius & Alderslade (2001) synonymized the genus *Acanthomuricea* Hentschel, 1903, with *Astrogorgia*.

The genus *Elasmogorgia* Wright & Studer, 1889, resembles *Astrogorgia*. Species of *Elasmogorgia* also have spindles in the coenenchyme, and only seem to differ by having unbranched or sparsely branched colonies. However, the sclerites of the type species, *E.*

filiformis, are poorly described and therefore it remains unclear whether we are dealing with two different genera, or that we have a situation as in *Leptogorgia* Milne Edwards & Haime, 1857, and *Eunicella* Verrill, 1869. Both these genera have species with arborescent colonies and others with unbranched colonies lying on the substrate. Assuming the latter is also the case in *Astrogorgia* Ofwegen & Hoeksema (2001) described a species having colonies with sparse branching lying on the substrate as *Astrogorgia bayeri*. Pending a re-examination of *E. filiformis*, and other species assigned to this genus, *A. bayeri* is retained as a species of *Astrogorgia*.

Astrogorgia balinensis spec. nov.
(figs 1-3)

Material examined.— RMNH Coel. 34670, part of holotype, NNM-LIPI-WWF Exped., BAL27, Indonesia, Bali, NE side of Nusa Lembongan, Tanjung Jangka ('Jack Point'); 08°39'46''S 115°28'06''E; deep reef slope, rocky with patches of sand, strong currents; scuba-diving to 30 m depth; 18.iv.2001, coll. L.P. van Ofwegen & M. Slierings; MZB. Coel. 1, part of holotype, coll. M.I.Y.T. Hermanlimianto; RMNH Coel. 34672, paratype, same data as holotype; RMNH Coel. 34671, paratype, NNM-LIPI-WWF Exped., BAL33, Indonesia, Bali, W side of Nusa Penida, Tuluk Penida (= 'Crystal Bay'); 08°42'54''S 115°27'26''E; shallow bay with much sand around a rock, much swell; scuba-diving to 18 m depth; 21.iv.2001, coll. L.P. van Ofwegen & M. Slierings; MZB. Coel. 2, paratype, same data as RMNH Coel. 34671, coll. M.I.Y.T. Hermanlimianto.

Description.— The holotype is a sparsely branched, bushy colony, the RMNH part 12 cm long and 11 cm wide (fig. 1c). The main stem is about 0.5 cm wide and branching starts 3 cm above the holdfast. The top of the stem and the end of the branches are slightly swollen. Branches are almost cylindrical. The calyces form low dome-shaped elevations and are arranged all around the branches; all polyps are retracted. Surface layer of the coenenchyme and calyces contains capstans and spindles, up to 0.25 mm long, with simple to complex tubercles (fig. 2a). The capstans become more numerous towards the axis (fig. 3). Polyps have small spindles at the tentacle base (fig. 2b), 0.07-0.15 mm long, arranged in eight longitudinal groups. In the tentacles shuttles (fig. 2c) and scale-like sclerites (fig. 2d) are present, up to 0.30 mm long.

Colour.— Colony dark red; spindles of the tentacle bases are yellow, all other sclerites reddish.

Etymology.— The species is named after the type locality Bali, Indonesia.

Remarks.— Only two species of *Astrogorgia* have been reported having a bushy colony form, *A. arborea* (Thomson & Simpson, 1909) from India, and *A. mengalia* Grasshoff, 1999, from New Caledonia. *A. arborea* has spindles up to 3.5 mm long and in *A. mengalia* they are up to 1.3 mm, in both much longer than the 0.25 mm of the present species. Moreover, both these species don't have the sparse thick branches of the present material.

A. dumbea Grasshoff, 1999, from New Caledonia, has rather small spindles in the coenenchyme, mostly up to 0.35 mm long, and in *A. jiska* Grasshoff, 2000, from the Red Sea, they are slightly longer, up to 0.80 mm long. However, both these species have fan-shaped colonies (Grasshoff 2000: fig. 131; Grasshoff & Bargibant, 2001: 169).

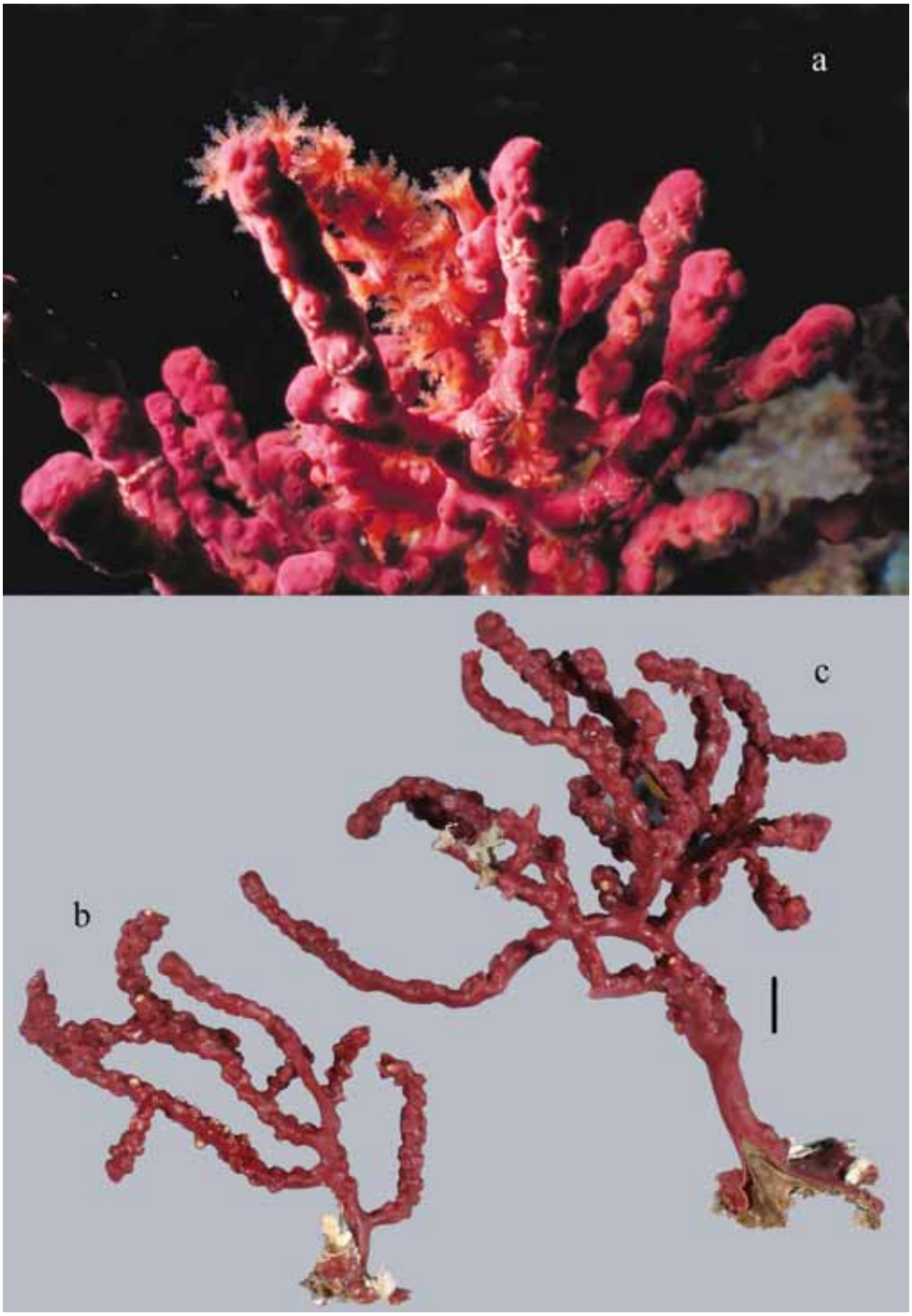

Fig. 1. *Astrogorgia balinensis* spec. nov.; a, detail of live colony at station BAL33; b, paratype RMNH Coel. 34672; c, part of holotype RMNH Coel. 34670.

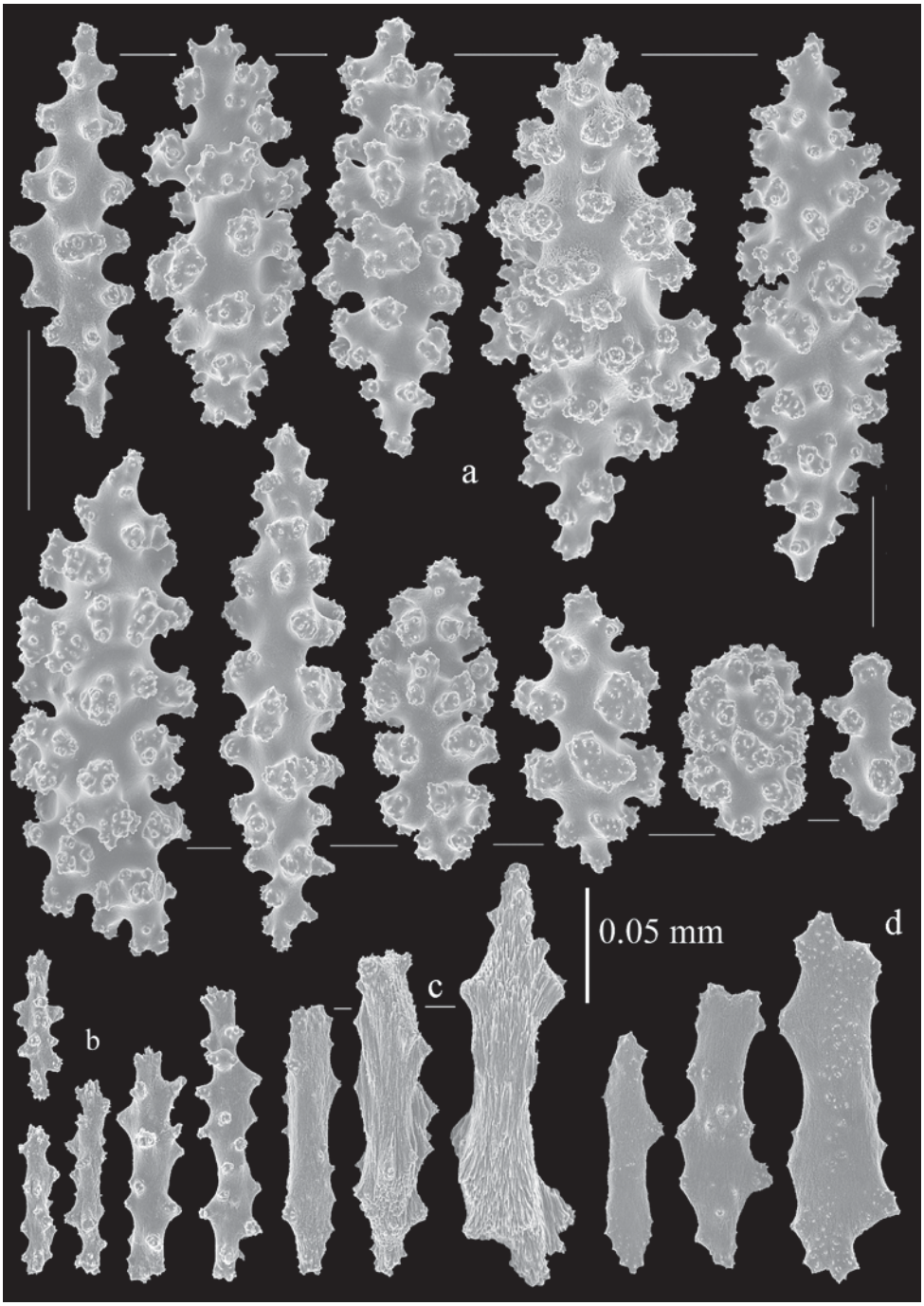

Fig. 2. *Astrogorgia balinensis* spec. nov., RMNH Coel. 34670; a, spindles and capstans of surface layer of the coenenchyme and calyces; b, small spindles of the tentacle base; c, shuttles of tentacles; d, scale-like sclerites of tentacles.

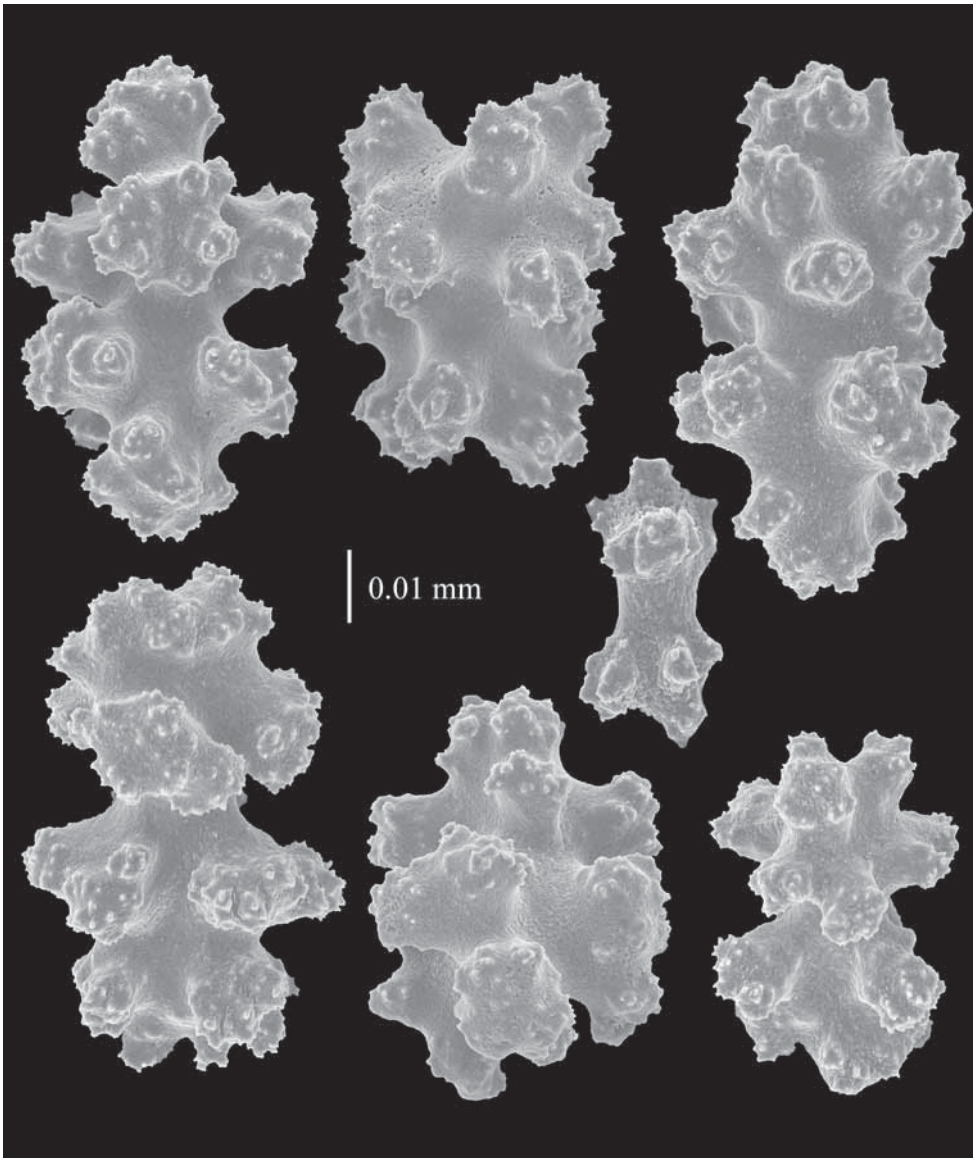

Fig. 3. *Astrogorgia balinensis* spec. nov., RMNH Coel. 34670, capstans of deeper layer of coenenchyme.

References

Fabricius, K. & P. Alderslade, 2001. Soft corals and sea fans: a comprehensive guide to the tropical shallow water genera of the Central-West Pacific, the Indian Ocean and the Red Sea.— Australian Institute of Marine Science, Townsville, 264 pp.

Grasshoff, M., 1999. The shallow water gorgonians of New Caledonia and adjacent islands (Coelenterata: Octocoralia).— Senckenbergiana Biologica 78 (1/2): 1-245, figs 1-156, 11 pls.

Grasshoff, M., 2000. The gorgonians of the Sinai coast and the Strait of Gubal, Red Sea (Coelenterata, Octocorallia).— Courier Forschungsinstitut Senckenberg 224: 1-125.

Grasshoff, M. & G. Bargibant, 2001. Coral reef gorgonians of New Caledonia.— Paris, 335 pp.

Hentschel, E., 1903. Gorgonacea von Amboina und Thursday Island. Zoologische Forschungsreisen in Australien und dem Malayischen Archipel. Ausgefuhrt in den Jahren 1891-1893 von Richard Semon, 5. Band, 6. Lieferung.— Denkschriften Medicinisch-Naturwissenschaftlichen Gesellschaft Jena 8: 643-652, pls 52-53.

Milne Edwards, H. & J. Haime, 1857. Histoire naturelle des coralliaires ou polypes proprement dits 1.— Paris, I-XXXIV + 1-326.

Ofwegen, L.P. van & B.W. Hoeksema, 2001. *Astrogorgia bayeri*, a new gorgonian octocoral species from South Sulawesi (Coelenterata: Octocorallia: Plexauridae).— Bulletin of the Biological Society of Washington 10: 66-70, figs 1-3.

Thomson, J.A. & J.J. Simpson, 1909. An account of the Alcyonarians collected by the Royal Indian Marine Survey Ship Investigator in the Indian Ocean; with a report on the species of *Dendronephthya* by W.D. Henderson. II. The Alcyonarians of the littoral area.— Calcutta, The Indian Museum, i-xviii+1-319 pp, pls 1-9.

Verrill, A.E., 1868. Critical remarks on the halcyonoid polyps of the Museum of Yale College with descriptions of new genera.— American Journal of Science and Arts 2 (45): 411-415.

Verrill, A.E., 1869. Critical remarks on the halcyonoid polyps with descriptions of new species in the museum of Yale College 4.— American Journal of Science and Arts 2 (48): 419-429.

Wright, E.P. & T. Studer, 1889. Report on the Alcyonaria collected by H.M.S. Challenger during the years 1873-1876.— Report on the Scientific Results of the voyage of H.M.S. Challenger, Zoology 31, i-lxxvii + 1-314, 43 pls.

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