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A NEW SPECIES OF *METALCYONIUM* (OCTOCORALLIA, ALCYONACEA) FROM THE RED SEA

by

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With 1 text-figure and 4 plates

Abstract

Metalcyonium verseveldti sp. nov., a new species of octocoral (Coelenterata) is descrebed. It is the first report of this genus from the Red Sea.

Introduction

During the last few years, a thorough study was made of the distribution of octocorals around the Sinai peninsula. The material was collected mainly by SCUBA diving, so the research embraces a large variety of niches of the coral reef ecosystem. The author has collected several colonies of a soft coral at Marsa Bareika, near the southern tip of Sinai. Examination of this material reveals that the specimens belong to the genus *Metalcyonium* Pfeffer, 1889 (Alcyoniidae). They differ markedly from any other known species. I establish a new species, which I name *Metalcyonium verseveldti*, after Dr. J. Verseveldt, to whom I am greatly indebted for teaching me the taxonomy of alcyonarian corals.

The material that was investigated is kept partly in the Zoological Museum, Department of Zoology, Tel-Aviv University, Tel-Aviv, Israel. One colony is the holotype, register number NS 16770 (pl. 1 fig. 1); the others are paratypes, NS 16771 (pl. 1 fig. 2). Other paratypes have been donated to the Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands, register number RMNH Coel. No. 13903.

Taxonomic report

Metalcyonium verseveldti sp. nov.

Material. — Marsa Bareika, 27°45'N 34°14'E, Red Sea, depth 12 m, 3.vii.1978. A group of several dozens of colonies were growing over a dead stony

coral. The body colour of the living colony was conspicuously dark blue. The polyps were expanded, their colouration was light blue.

Description of the holotype. — The shape of the colony is mushroom-like; it consist of a polyp-bearing capitulum and a distinct sterile stalk (pl. 1 fig. 1). The diameter of the round capitulum is 11 mm, while the length of the sterile stalk is 14 mm. The polyps are monomorphic. In the preserved material, the anthocodiae are contracted; their length is up to 2.60 mm, the width is up to 1.50 mm. Occasionally, at the distal part of the anthocodiae, the partly contracted tentacles can be seen.

The common sclerites of the colony are nearly smooth spindles (fig. 1a-e). They are found in all parts of the colony, the tentacles excepted. Some of the spindles are more or less pointed, with others have blunt ends. Their maximum length is 0.78 mm and their width is 0.03 to 0.08 mm.

A Scanning Electron Microscope (JSM-35) was used in order to gain more information on the morphology of the spindles (pl. 2 figs. 1-5). The scanning study elucidates the shape of the thickenings that occasionally appear along the spindles. Pl. 2 fig. 5 demonstrates high magnification of such a thickened zone.

Both the tentacles and the pinnules contain numerous minute rods, which are flattened and granulated. Their length and width are up to 0.19 mm and 0.05 mm respectively, but most of them are shorter and narrower (fig. 1, f-l). Many of these sclerites have a distinct waist (fig. 1, g, k, l). Two light spots near their extremities are common. Scanning microscopy reveals more details of their structure (pls. 3, 4). It appears that the light spots that have been seen by light microscope are tiny pits in the surface of the sclerite (pl. 3 figs. 1, 2, 4). The surface of the sclerite is "spongy" (pl. 4).

Several polyps were cleared by a solution of phenol-xylol, by which the arrangement of the anthocodial sclerites could be seen (pl. 1 figs. 3, 4). The armature consists of a rather distinct crown, up to 10 rows deep, superimposed by eight double rows of spindles arranged en chevron. Each row consist of about 25 spindles. Below the crown there are also some spindles, which are irregularly arranged. The shape and the dimension of the anthocodial spindles have already been described (fig. 1, a-e).

Colour. — In alcohol the specimens are creamy yellow; the tentacles are white.

Variability. — The diameter of the capitula varies from 7 to 15 mm; the shape is pherical or oval. Some colonies consist of two capitula, each with its own stalk, which arises from a short, common, membranous basal part (pl. 1 fig. 2).

Remarks. — It is the first report of the genus *Metalcyonium* from the Red Sea. *M. verseveldti* is characterized by its nearly smooth spindles that are found in all parts of the colony except for the tentacles, which contain tiny rods.

In spite of the fact that the colour is usually not a good taxonomic trait among Alcyonacea, it should be noticed that the dark blue colour of the living colonies of *M. verseveldti* may be helpful in field recognition of the species.

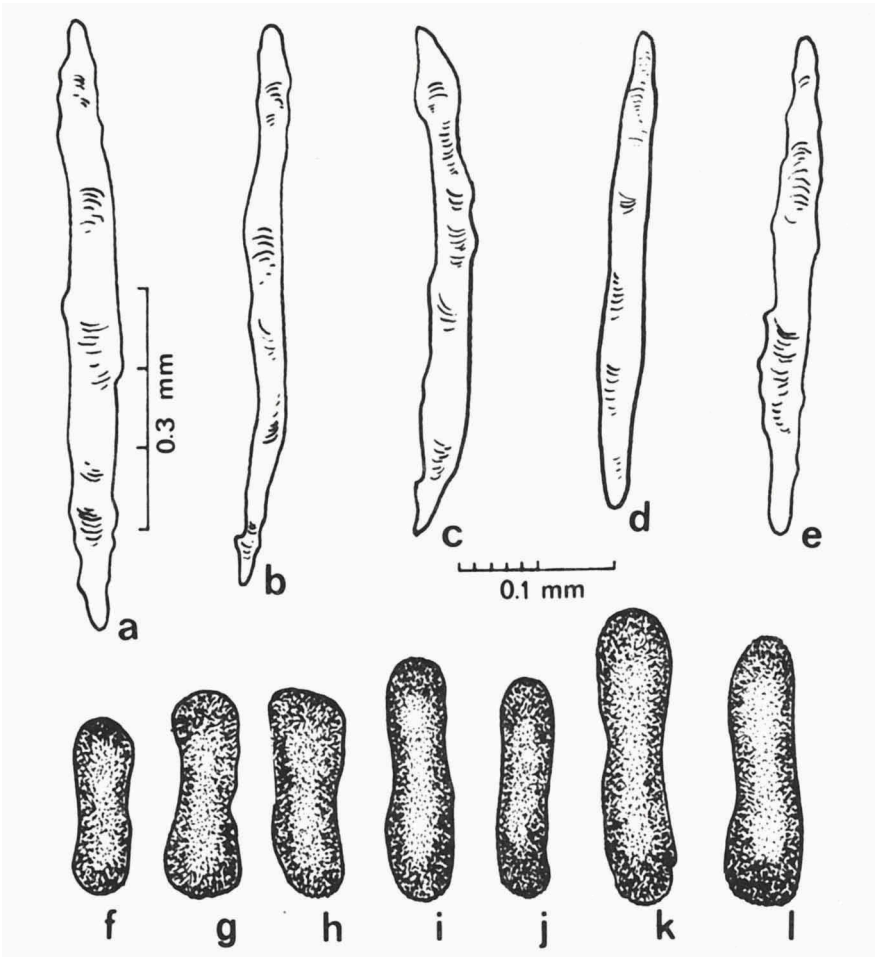

Fig. 1. *Metalcyonium verseveldti* nov. sp., holotype. a-e, sclerites from polyps, capitulum, surface layer of the stalk and its interior; f-l, sclerites from the tentacles and the pinnules. Enlargement of a-e indicated by 0.3 mm scale at a; that of f-l by 0.1 mm scale below c.

Utinomi (1964: 7) rightly restricts the genus *Metalcyonium* "to mushroom-like or capitate, unilobular alcyoniids with a spherical or semispherical polyp-bearing capitulum distinctly separated from a sterile stalk". *M. verseveldti* has these characteristics. The fact that sometimes two colonies arise from a common base is irrelevant. Kükenthal (1906: 48) found the same phenomenon in *M. novarae*. Some specimens had two stalks standing on a common base, one specimen even four.

Five valid and two dubious species of the genus *Metalcyonium* have been described till now. The geographical distribution is wide, see the following list:

1. ?*M. capitatum* Pfeffer, 1889	South Georgia
2. *M. molle* Burchardt, 1903	Amboina
3. ?*M. novarae* Kükenthal, 1906	Cape of Good Hope
4. *M. pacificum* (Yamada, 1950)	Japan
5. *M. muricatum* (Yamada, 1950)	Japan
6. *M. fungiforme* (Tixier-Durivault, 1954)	Cape of Good Hope
7. *M. violaceum* (Tixier-Durivault, 1955)	Several localities on west coast of Africa, between Dakar and the mouth of River Congo.

It is questionable whether the species *capitatum* and *novarae* belong to the genus *Metalcyonium*, because (according to information from Dr. J. Verseveldt) in these species the polyp-bearing capitula are not distinctly separated from a sterile stalk: in *capitatum* as well as in *novarae* (see Kükenthal, 1906: 48) the polyps arise already from the base of the colony.

The species *clavatum* Pfeffer, 1889, and *patagonicum* May, 1899, which are usually placed in the genus *Metalcyonium*, belong to the genus *Bellonella* Gray, 1862.

The present species, which inhabits coral reef environment, was found only in one locality around Sinai peninsula. Many dives were carried out, in order to obtain more information concerning its abundance, but in vain. This implies that *M. verseveldti* is a very rare species in the studied reef zones.

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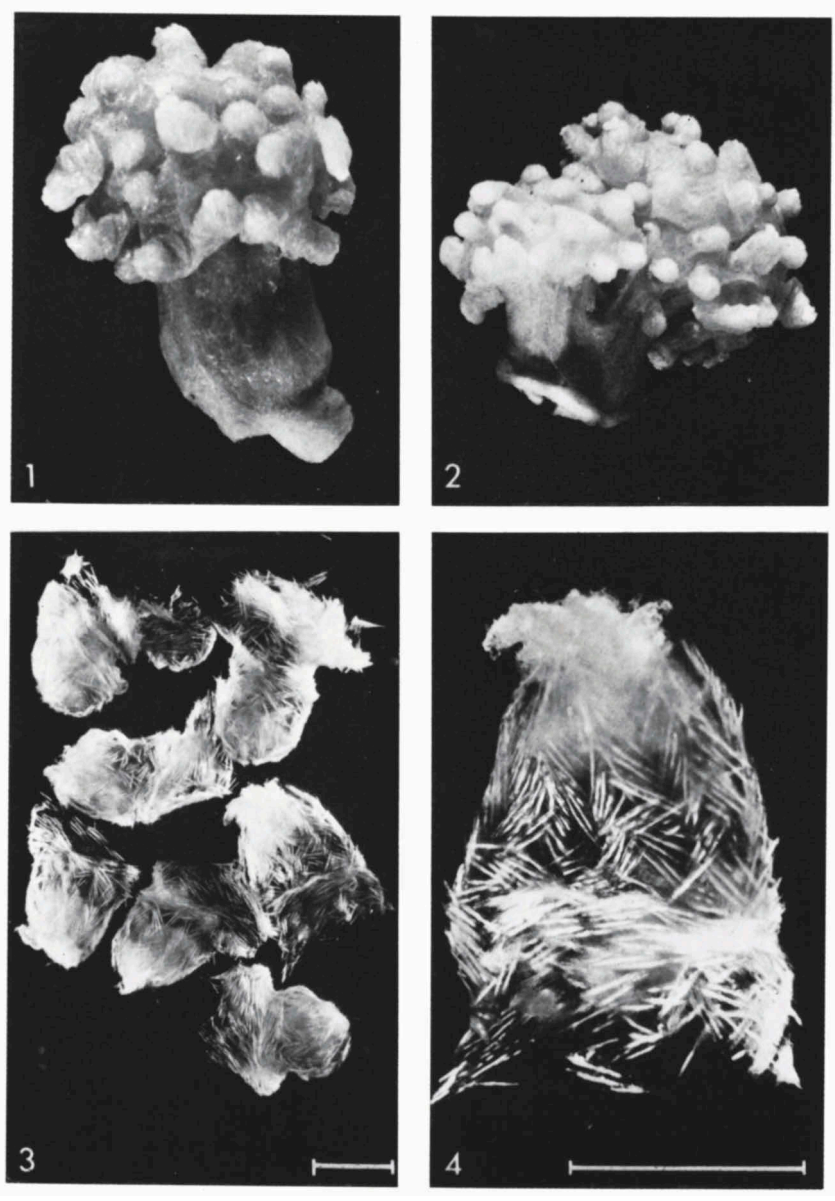
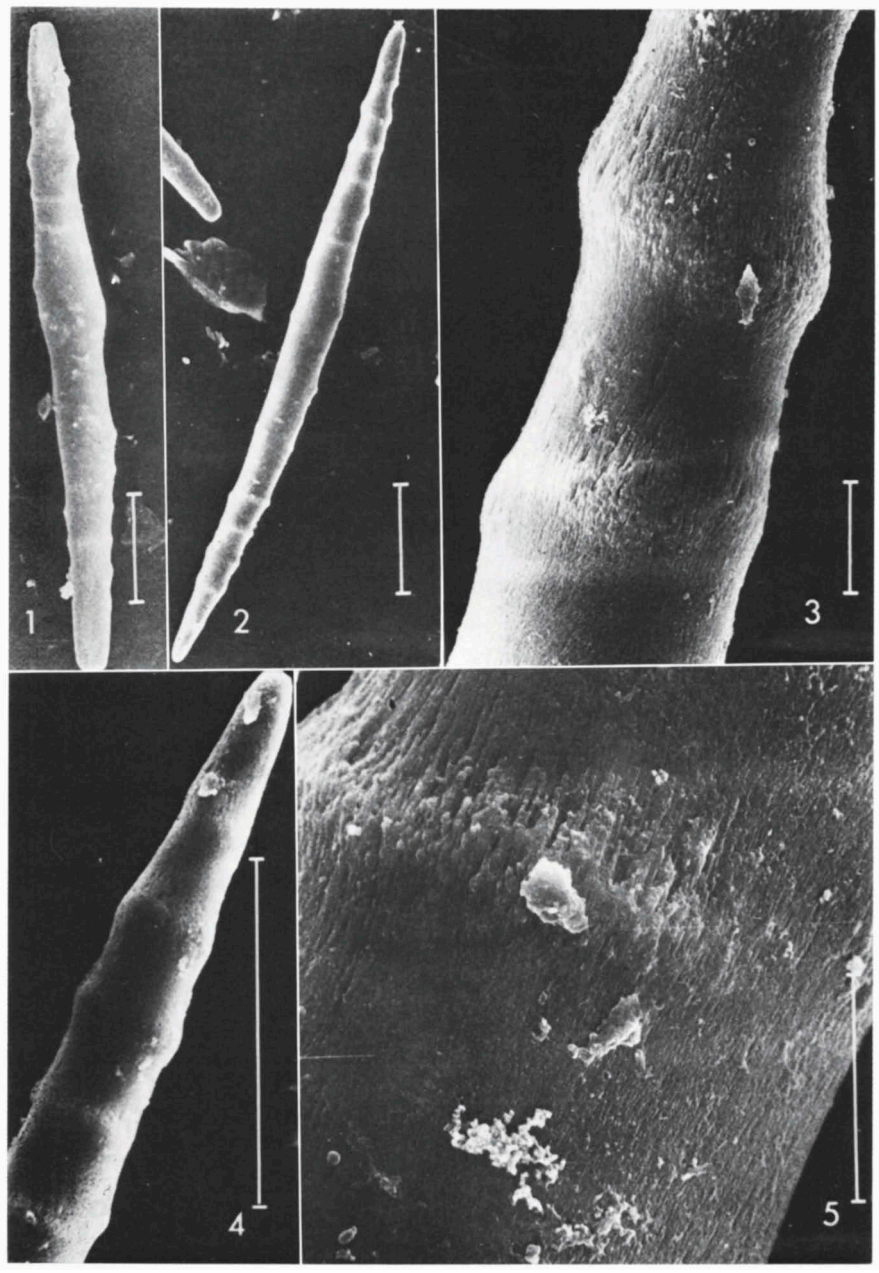
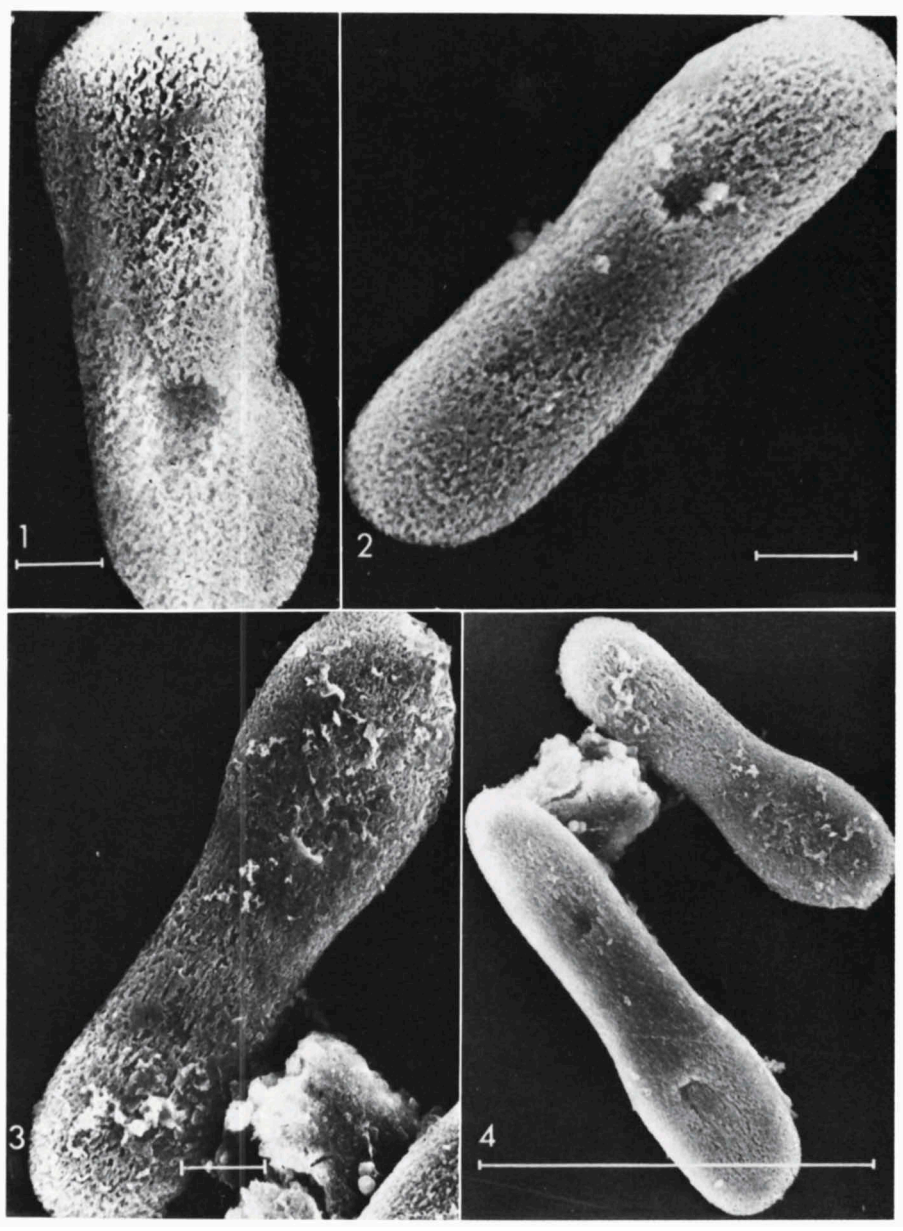


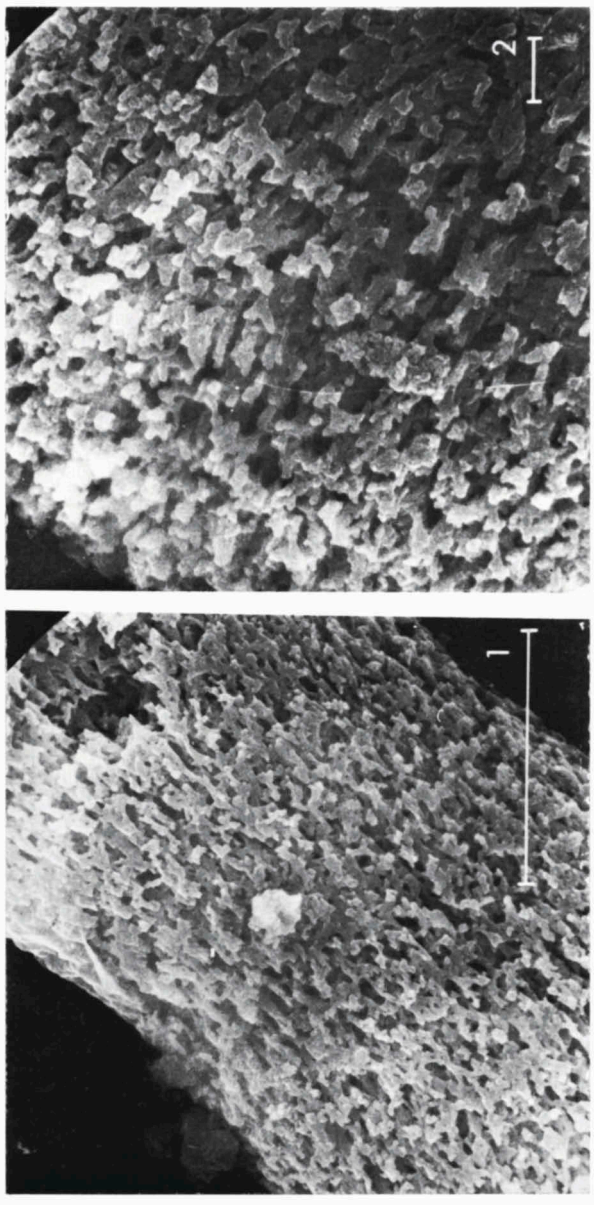
Figs. 1-4. *Metalcyonium verseveldti* sp. nov. 1, holotype, NS 16770, × 3.5; 2, paratype, NS 16771, × 3; 3, 4, polyps cleared by phenolxylol solution; the bars represent 1.0 mm.



Figs. 1-5. *Metalcyonium verseveldti* sp. nov.; SEM photographs of the spindles. The bars in figs. 1-3 represent 0.10 mm, those in figs. 4, 5 represent 0.01 mm.



Figs. 1-4. *Metalcyonium verseveldti* sp. nov.; SEM photographs of sclerites from tentacles and pinnules. The bars in figs. 1-3 represent 0.01 mm, that in fig. 4 0.10 mm.



Figs. 1-2. *Metalcyonium verseveldti* sp. nov; SEM photographs of sclerites from tentacles and pinnules. The bar in fig. 1 represents 0.01 mm, that in fig. 2 0.001 mm.