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Two new paracyoniid octocorals from Japan (Anthozoa: Alcyonacea)

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Abstract

Two new species of paracyoniid octocorals are described from Japan. One of them, *Ceeceenus retractus* n. sp., is the fifth species of the genus, and the other, *Nanalcyon sagamiense* n. gen. n. sp., is proposed as a new genus. *Nanalcyon* is similar to the Mediterranean and Atlantic genera *Maasella* Poche, 1914 and *Paralcyonium* Milne Edwards and Haime, 1850, but the new genus clearly differs from these in having independent colonies not joined by stolons. The ultrastructure of the sclerites is compared among the new genus, *Ceeceenus* and *Paralcyonium* by means of SEM. All three genera display the same three main types of sclerites, flat platelets, rods and spindles, the ultrastructure of all consisting of non-branching fibrous crystals. In addition to these, two genera, *Ceeceenus* and *Paralcyonium*, have flat oval platelets with the ultrastructure showing branching dendritic crystals, lacking in *Nanalcyon*.

Key words: *Nanalcyon*, *Ceeceenus*, new genus, new species, Octocorallia, Paracyoniidae, Japan, Pacific, sclerite ultrastructure, dendritic crystals, fibrous crystals, scanning electron microscopy.

Introduction

Species of the family Paracyoniidae Gray, 1869 characteristically have the whole polyparium completely retractile within the basal pedicel. Four genera have long been known, viz., *Maasella* Poche, 1914, *Paralcyonium* Milne Edwards and Haime, 1850, *Studeriotis* Thomson and Simpson, 1909, and *Carotalcyon* Utinomi, 1952 (Bayer, 1981). Two of these genera, *Maasella* and *Paralcyonium*, have been recorded from the Mediterranean and Atlantic (see Weinberg, 1977) and share a growth form in which several colonies are usually connected by a stolon. The other two genera, *Studeriotis* and *Carotalcyon*, have been recorded from the Indo-Pacific (e.g., Kükenthal, 1910; Thomson and Dean, 1931; Utinomi, 1952; Benayahu and Chou, 2010) and have independent colonies that are usually not connected by a common stolon. Recently, Ofwegen and Benayahu (2006) added a fifth genus, *Ceeceenus*, from several Indo-Pacific localities. Although this genus closely resembles *Paralcyonium* in almost all of its morphological characters, viz., colony form including polyp arrangement, spiculation, color, and presence of stolons connecting the colonies, they considered it appropriate to establish a new genus in "light of molecular data, constant difference in sclerite ultrastructure, different tentacular armature, and disjunct distribution" (Ofwegen & Benayahu, 2006: 29).

More recently, Tentori and Ofwegen (2011) summarized the crystal types of sclerite ultrastructure in several soft corals, viz., acicular type, fibrous type, granular type, fusiform type and dendritic type.

The diagnoses of each genus are summarized as follows:

Genus *Maasella* (partly after Weinberg, 1977): Monomorphic. Colonies connected by stolons, each colony formed of small groups of polyps. Within each group, basal parts of polyps fused together to form pedicel stiffened by large spindles. Above pedicel, polyps independent, not communicating directly with each other, and secondary polyps absent. Entire polyp covered with platelets but tentacles devoid of sclerites aside from several very small spindles proximally (i.e. in subtentacular region). Canal walls entirely devoid of sclerites. Zooxanthellae present in tissue.

Genus *Paralcyonium* (partly after Weinberg, 1977; Ofwegen and Benayahu, 2006): Monomorphic. Colonies connected to each other by extremely short stolons, each colony formed of groups of large polyps. Pedicel stiffened