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# *FUNGIA (VERRILLOFUNGIA) SPINIFER* SPEC. NOV., A NEW SCLERACTINIAN CORAL (FUNGIIDAE) FROM THE INDO-MALAYAN REGION

by

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Claereboudt, M. & B. W. Hoeksema: *Fungia (Verrillofungia) spinifer* nov. spec., a new scleractinian coral (Fungiidae) from the Indo-Malayan region.

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Key words: *Fungia*; new species; Bismarck Sea; Indo-Malayan Region. A new *Fungia* species from the Bismarck Sea is described and its taxonomic position is discussed.

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## INTRODUCTION

The Fungiidae have an important place among Indo-Pacific scleractinian reef corals. Many nominal species have been described in this family, but only about 40 of them proved to be valid (Hoeksema, in prep.) which is roughly 10% of the total number of living Indo-Pacific reef coral species. Only a few of these species do not occur in the central part of the Indo-Pacific, or more specifically the Indo-Malayan Region. The new species has been collected by both authors from different locations in Papua New Guinea and Indonesia.

In the most recent generic revision of the Fungiidae, the genera *Fungia* Lamarck, 1801 and *Cycloseris* Milne Edwards & Haime, 1849 are kept separate (Wells, 1966). The new species described below shows a combination of characters hitherto considered characteristic for either the former or the latter

genus. Therefore the relationship between both genera is also discussed.

The type material is deposited at the Rijksmuseum van Natuurlijke Historie, Leiden (RMNH) and at the Institut Royal des Sciences Naturelles de Belgique, Bruxelles (IRSNB).

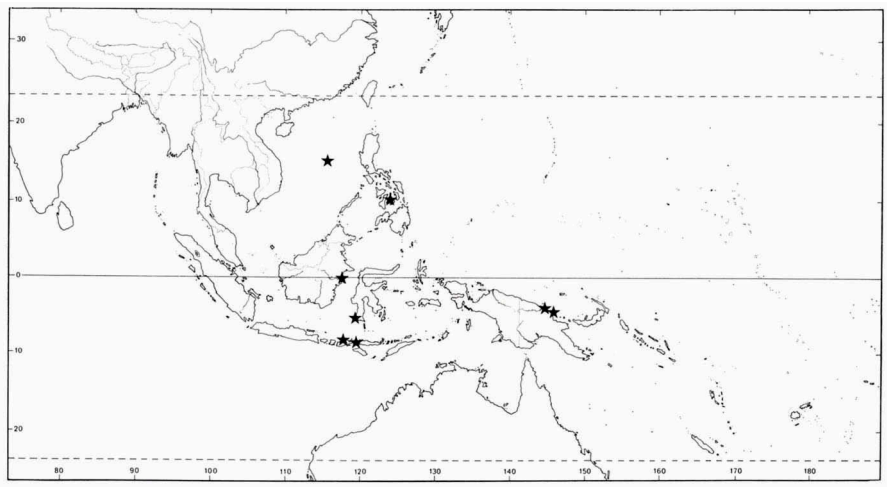



Fig. 1. Map of the Central Indo-Pacific with locations where *Fungia spinifer* has been found.

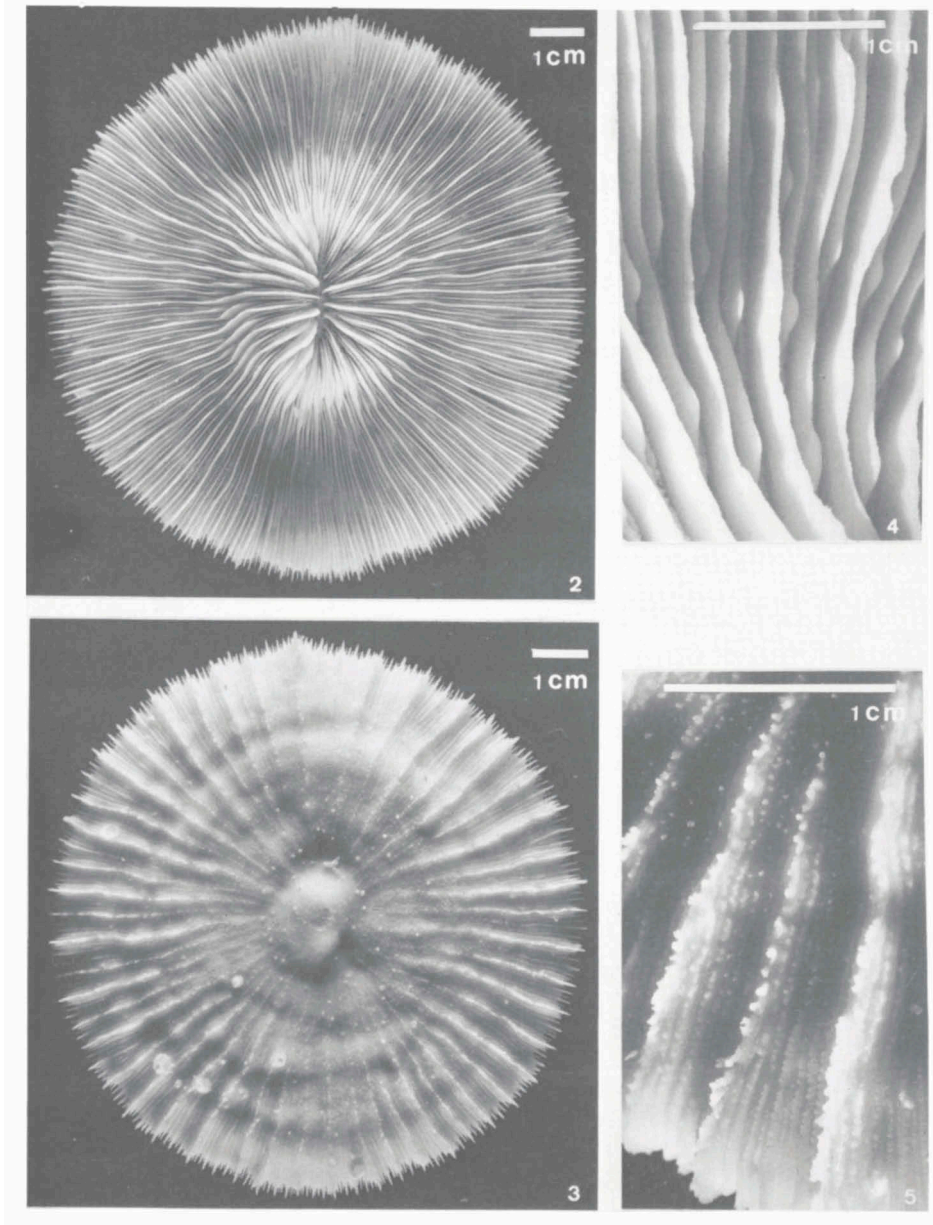
## TAXONOMIC ACCOUNT

### **Fungia (Verrillofungia) spinifer** spec. nov.
(figs. 2-8)

Type material. – RMNH 17620 (holotype); 17621, 17622, 17623, IRSNB 27009-401 (paratypes of *Fungia spinifer*, type loc. Laing Island, Bismarck Sea, Papua New Guinea); RMNH 17624, IRSNB 27009-402 (paratypes of *F. spinifer*, loc. Madang, Papua New Guinea).

Description. – The corals are solitary and free-living. The diameter of the specimens in the type series varies from 5.0 to 12.5 cm and their outline varies from circular to slightly oval. The aboral surface is either slightly concave, flat or even markedly convex (fig. 6). The central part around the mouth is slightly arched in most of the specimens, but even strongly so in some of them (fig. 7).

The septa are straight or slightly undulating and are arranged in cycles (fig. 2). The septa of lower order cycles are more protruding than the other ones. Tentacular lobes are distinct on the septa of only some of the corals (figs. 4, 7). The septal margins are thin and bear fine triangular dentations in a density of 40 to 60 per cm (fig. 4). The septal sides are covered by fine granulations,




Figs. 2-5. Holotype of *Fungia spinifer* (RMNH 17620): 2, oral view; 3, aboral view; 4, details of septa; 5, details of costae.

trabeculae, fused in ridges parallel with the septal margin. The columella is well developed and formed by densely packed paliform lobes. The synapticulae between the septa are difficult to detect because of the tight septal arrangement.

The wall is always imperforate. A detachment scar is only visible at the undersurface of some of the smaller specimens, but has disappeared in larger ones. The unequally developed costae are most distinct at the periphery of the corals. The costae of lower order cycles bear long echinose spines, which are diverging from the costal axis (fig. 8). The costae of higher orders consist of single rows of short spines which are finely granulated. The density of the costal ornamentations varies from 30 to 40 per cm. At the central part of the lower surface the radial costal structures are less distinct, but the short spines are still visible. Two corals are partly covered by epibionts. One individual harboured the endoparasite *Leptoconchus* spec. (Gastropoda, Coralliophillidae).

The polyp of the living animal shows little variation in colour: it varies from brown to grey, while the mouth is bordered by blue and white radially striped lips.

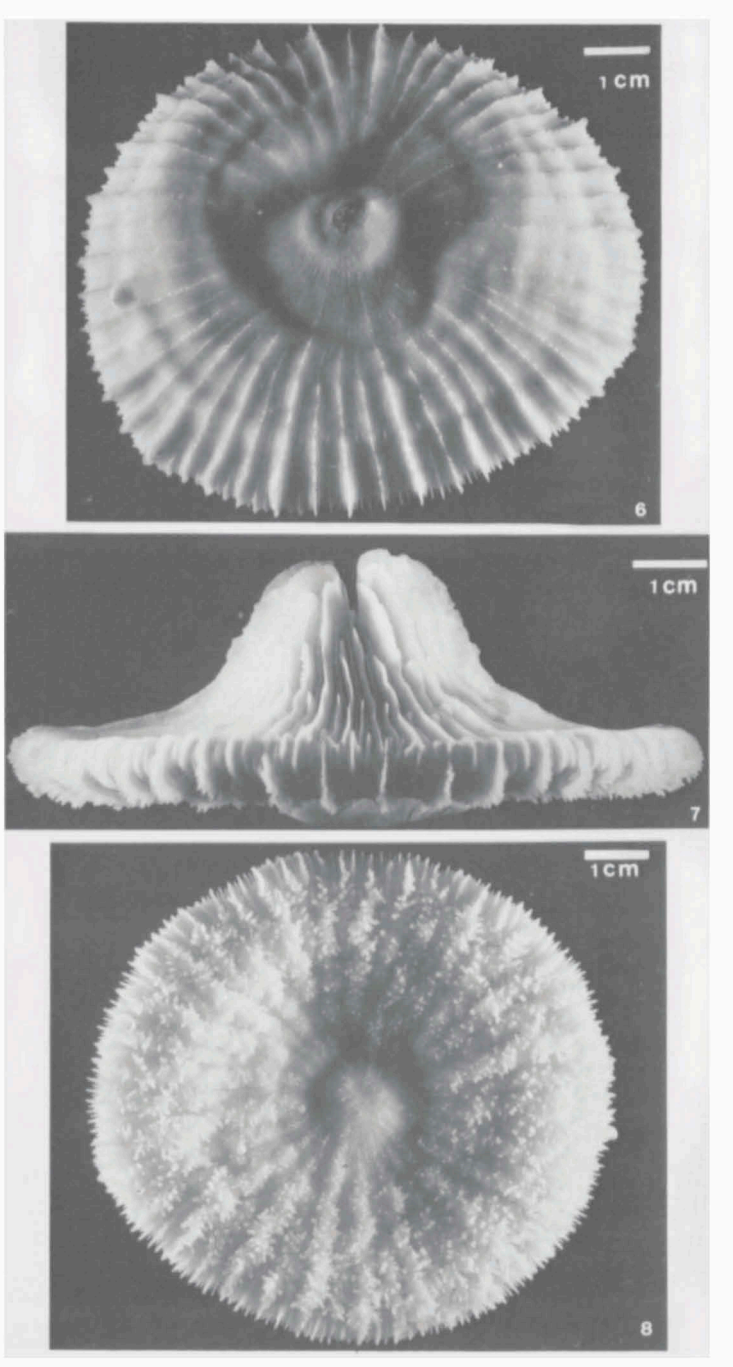
Habitat. – The type specimens were found at two locations (fig. 1), the barrier reef off Madang on the seaward slope (depth 17-25 m) and Laing Island on the seaward slope (depth 12-42 m). The substratum consisted of coarse sand (*Halimeda* sand) or coral rubble. The two sites are characterized by clear water and a deep reaching reef slope (see also Claereboudt, in prep.). Specimens from Indonesia were collected by the second author within the same depth ranges, always under the zones of high coral coverage, on a soft bottom.

Etymology. – The specific name *spinifer* has been derived from the spinose character of the costae of lowest orders.

Geographical distribution. – The species has been found in the South China Sea, Philippines, Indonesia and Papua New Guinea (fig. 1; see also Hoeksema, in prep.).

## DISCUSSION

The new species strongly resembles some species in the subgenus *Cycloseris*. The oral surface looks superficially like that of *Fungia (Cycloseris) fragilis* (Alcock, 1893) and the aboral side like that of *F. (C.) tenuis* Dana, 1846 and of *F. (C.) vaughani* Boschma, 1923. *F. (C.) fragilis* can even reach a diameter of 15 cm (see USNM 77775 from the Philippines) which is more than usual for *Cycloseris*; this species has fine costae which are only slightly alter-




Figs. 6-8. Paratypes of *Fungia spinifer*: 6, (RMNH 17621) aboral view; 7, (RMNH 17622) side view; 8, (RMNH 17623) aboral view.

nating in size, in which it differs from *F. (V.) spinifer* spec. nov. Corals of *F. (C.) tenuis* and *F. (C.) vaughani* have protruding costae of low order cycles, like those of the new species, but in these two species the costae are usually finer and sharper.

The most fundamental differences between the present species and those in *F. (Cycloseris)* can be found in the septal and costal ornamentations. In the new species the septal sides do not have rows of fine granulations perpendicular to the septal margin as characteristic for *F. (Cycloseris)*. Instead the granulations are arranged in ridges parallel to it, as is usual in *F. (Verrillofungia)* Wells, 1966. Corals belonging to *F. (Cycloseris)* lack the sharp granulations on the costal spines. The septal and costal ornamentations of the new species are most similar to those of *F. (Verrillofungia) scabra* Döderlein, 1901. In *F. spinifer* septa and costae are more unequal and less protruding than in *F. scabra*.

*F. spinifer* is most akin to species in the subgenus *Verrillofungia*, but considering the fine septal dentations, it is also not very remote from *Cycloseris*. Because of this species and some others the current division between *Cycloseris* and *Fungia* is not clear enough to keep them separated and appears to be rather artificial. In a revision of all reef-dwelling Fungiidae more arguments will be given for an inclusion of *Cycloseris* as a subgenus in *Fungia* (Hoeksema, in prep).

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