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A NEW GENUS OF ALCYONACEAN CORAL (ANTHOZOA: OCTOCORALLIA) FROM CARIBBEAN WATERS

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ABSTRACT

Rhizalcyon rhodora, a new genus and species of octocoral from the southern Caribbean is described and illustrated. The capitate colonial form superficially resembles *Nidalia rubripunctata* Verseveldt and Bayer (family Nidaliidae) but on the basis of its sclerites and unarmed polyps the genus is assigned to the family Alcyoniidae.

Owing to the intense interest generated by discovery of the "new world," a vast array of natural history specimens was brought back to naturalists in Europe by explorers of the West Indies during the 16th, 17th and 18th centuries. During its first century, the U.S. Government vigorously pursued marine investigations around North America, resulting in extensive collections of marine specimens obtained by various survey vessels in the latter half of the 19th century and first half of the 20th. Consequently, knowledge of the marine fauna of the Caribbean is probably second only to that of the Mediterranean Sea.

Explorations by vessels of the U.S. Coast Survey and the U.S. Fish Commission (later the U.S. Bureau of Fisheries and U.S. Fish and Wildlife Service) obtained large collections of western Atlantic Octocorallia that formed the basis for a comprehensive monograph begun by A. E. Verrill and completed by Elisabeth Deichmann (1936). However, even the richness of that report has been overshadowed by new collections obtained by various agencies including the U.S. Fish and Wildlife Service (M/V OREGON, SILVER BAY), the Rosenstiel School of Marine and Atmospheric Science (R/V GERDA, JOHN ELLIOTT PILLSBURY, GILLISS, COLUMBUS ISELIN), and the Harbor Branch Oceanographic Institution (JOHNSON SEA LINK I and II), as well as individual research projects and divers.

Rich collections obtained by SCUBA divers from depths too deep to be sampled by shore collecting and skin diving and too shallow or too rough for effective dredging substantially augment knowledge of a poorly explored part of the marine environment. The amount of material now available for investigation is so vast and the research so time consuming that a thorough revision of the fauna probably is not a realistic goal for the foreseeable future.

Nevertheless, some specimens are so distinctive that no question of their status lurks in the older literature to preclude investigation and publication. One such example is the inconspicuous soft coral taken by R/V PILLSBURY in 1969 and by R/V ALPHA HELIX in 1977.

Alcyoniidae

Diagnosis.—More or less fleshy colonies, membranous or massive, bush-like or tree-like, in the last cases with a barren basal part, the stalk, and a distal part bearing anthocodiae, the polyparium. Sclerites small (usually less than 1 mm long, but in some genera considerably more), mostly spindle-shaped but occasionally with clubs. Polyps monomorphic or dimorphic, retractile. (After Verseveldt and Bayer, 1988.)

Rhizalcyon new genus

Diagnosis.—Colonies small, monomorphic, digitate but often becoming capitate, arising from marginally lobate membranous holdfast that may locally develop as root-like slender lobes. Sclerites absent from anthocodiae, those of coenenchyme as slender, openly tuberculate spindles, with many twinned forms ("crosses").

Type Species.—*Rhizalcyon rhodora* n. sp.

Etymology.—From Greek 'Ριζα, a root + alcyon, from Greek 'Αλκυων, the kingfisher, source of the generic name *Alcyonium,* from ''Αλσ, the sea. Gender, feminine.

Remarks.—Development of root-like holdfasts is not common in Alcyonacea, but a parallel condition occurs in *Anthomastus grandiflorus* Verrill (Deichmann, 1936: 52, pl. 1, figs. 8, 9), a species that inhabits soft substrate. In *Rhizalcyon,* production of stolons also appears to be related to the nature of the substrate, possibly developed to maintain the location of the colony on a substrate of fine, unconsolidated rubble subject to occasional movement. None of the colonies from Aruba are stolonate, whereas most of those from Trinidad are. Consequently, this feature has little practical taxonomic significance.

Rhizalcyon rhodora new genus, new species
Figures 1, 2

Material Examined.—Caribbean Sea, off Aruba: 12°30.3'N, 70°02.7'W, 30 m. R/V ALPHA HELIX Carib 1 sta. ND-16-500, 26 June 1977. 30 colonies, syntypes, USNM 93227 (SEM 2081.)

East of Trinidad: 10°40.5'N, 60°37.5'W, 33 m; R/V JOHN ELLIOTT PILLSBURY sta. P-840, 1 July 1969. 15+ colonies and broken stolons on bits of bottom rubble, syntypes, USNM 93226.

Diagnosis.—As for the genus.

Description.—The colonies are generally club-shaped, attached to the substrate by a thin, spreading holdfast, but the clavate shape is very variably expressed, depending partly upon size, partly on number of polyps (Fig. 1). Colonies vary from a low, columnar form with the stalk little or no narrower than the capitulum composed of only 3 or 4 polyps, to distinctly club-shaped forms having a sterile stalk distinctly narrower than the ovoid capitulum composed of as many as 10 polyps, possibly more. As the coelenteric cavity of at least some of the polyps extends to the base of the colony, the polyparium is not just the wider distal part, but the entire capitulum and stalk.

Some colonies have a long, very slender stalk that gradually widens distad to a terminal capitulum consisting of the calyces and anthocodiae of a small number of polyps, perhaps only 3 or 4. The colonies are attached to small bits of broken shell or fragments of coral by a membranous holdfast that resembles a stolon owing to its lobate margins, but the present suite of specimens has no evidence of more than one clavate polyparium arising from the holdfast. In one case two colonies are attached to a single small shell, but a clear line of demarcation can be seen where their holdfasts come in contact with one another. Otherwise, only one colony is attached to a bit of substrate.

One colony is 11.5 mm tall, with an ovate capitulum 9 mm tall and 5 mm wide, composed of about 10 polyps, borne on a stalk 2.5 mm tall and only 1.4 mm wide. Smaller colonies have similar proportions but fewer polyps.

The tallest colony is 24 mm tall, with a narrow stalk only 0.5–1.0 mm thick, gradually widening distally to about 2.3 mm immediately below the terminal capitulum consisting of 5 polyps.

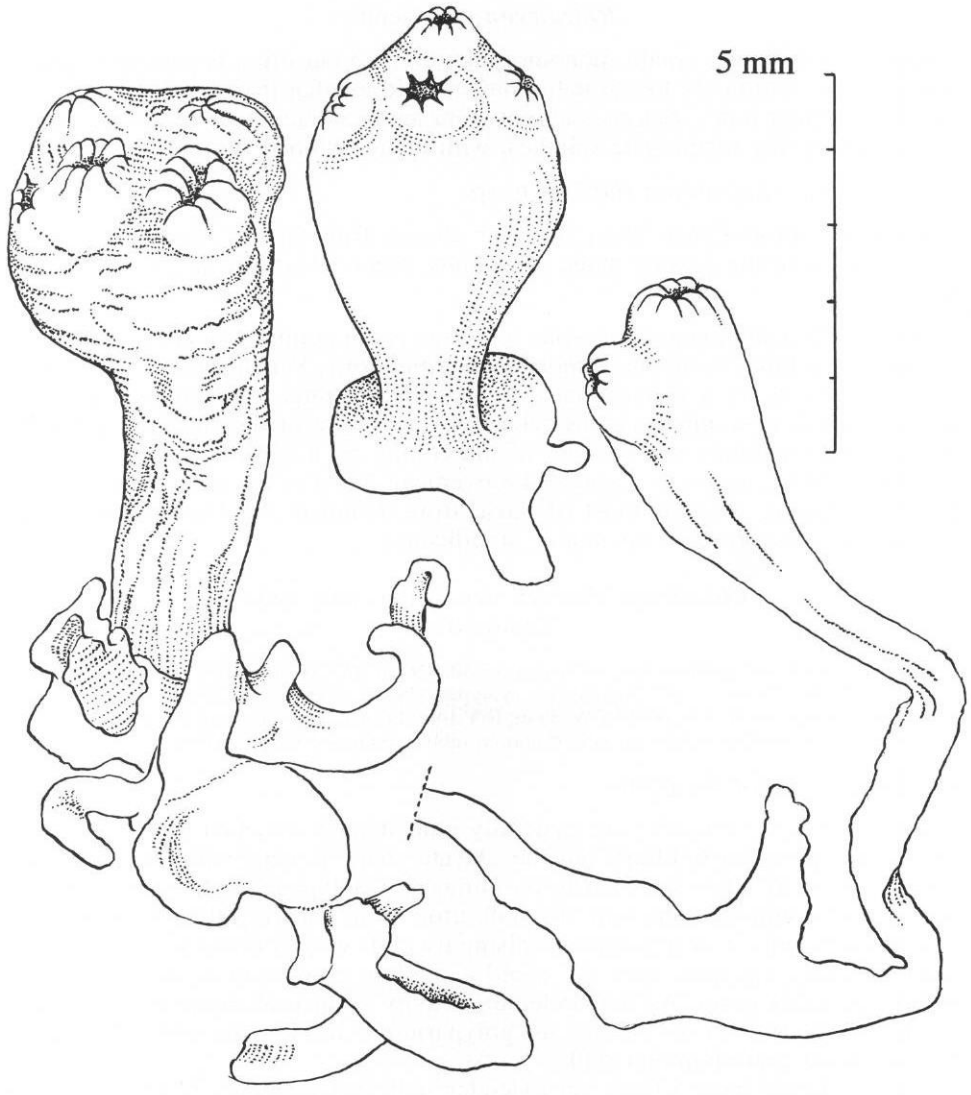

Figure 1. *Rhizalcyon rhodora* new genus, new species. Colonies to show variation in shape. Sketches by camera lucida.

Two colonies attached to a small, dead gastropod shell are roughly columnar in form, only slightly narrowed just above their stolon-like holdfasts, which touch one another but do not appear to be continuous. Each of the colonies consists of 5 polyps but, since the apertures of the polyps may be almost imperceptible when completely retracted, this number is only approximate.

Even in the shorter, strongly clavate colonies the anthocodiae of the polyps are located on the distalmost end of the capitulum, in most cases retracted within an 8-rayed verruca scarcely raised above the coenenchymal surface.

Although more or less broken and detached owing to the fragmented nature of the substrate, the specimens from Trinidad clearly produce branching, root-like

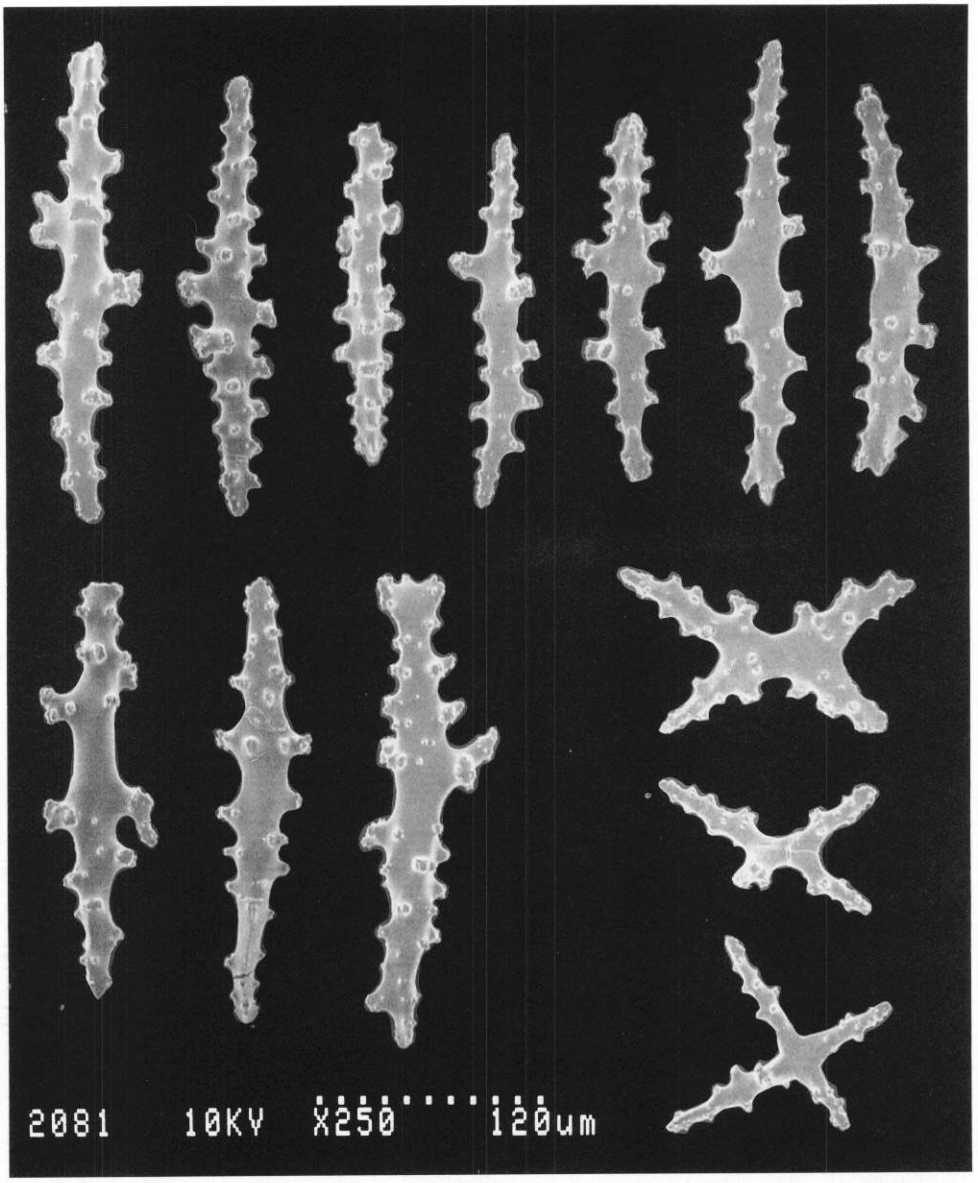

Figure 2. *Rhizalcyon rhodora* new genus, new species. Sclerites. Top row: Spindles from surface of capitulum. Bottom row: Spindles from coelenteric walls in interior of capitulum; crosses from surface of capitulum.

stolons attached to small bits of bottom rubble. The general appearance of such root-like holdfasts suggests that these structures serve to stabilize the colonies on a shifting substrate. In some cases, a few polyps form a small, knob-like polyparium attached to a bit of substrate by small root-like lobes, but in others the polyparium is in the form of a more or less irregularly club-shaped capitulum on a short stalk anchored by several narrow, branching rhizoids. In several of the colonies, the anthocodiae are preserved completely exsert, with a narrow column

having long, filamentous tentacles bearing a few widely spaced, slender pinnules along each side. Their shape strongly suggests a fishing function, but no food organisms were observed in the extended parts of the polyps.

The anthocodiae are completely devoid of sclerites, but when cleared and observed with polarized illumination the tissues are seen to be crowded with a multitude of birefringent granules (so-called "miliary granules").

The coenenchyme is filled with slender spindles reaching a length of 0.25 mm, sculptured by widely spaced thorns and tubercles, some of which are pointed, others with several sharp apical projections; cross-shaped forms are numerous (Fig. 2).

Etymology.—From *Rhodora,* Neo-Latin botanical name, a kind of rhododendron, from Greek 'Ρόδον, the rose, in allusion to the prevalent pink color. A noun in apposition.

Comparisons.—Although the shape of the tall, slender colonies is somewhat similar to that of *Nidalia rubripunctata* Verseveldt and Bayer, 1988, from the Caribbean coast of Colombia, specimens of that species are much larger (up to 80 mm), with a globular capitulum and prominent, bluntly conical calyces. The anthocodiae of *Rhizalcyon rhodora* are completely devoid of sclerites but those of *N. rubripunctata* are strongly armed with a conspicuous crown and points, with 25–30 transverse rows in the crown and up to 10 more or less curved sclerites in each point and, as usual in *Nidalia,* many small platelets in the proximal part of the introvert. Moreover, the coenenchymal sclerites of *N. rubripunctata* are large, pointed spindles up to 3 mm long and 0.26 mm wide, whereas those of *R. rhodora* are small, at most only 0.25 mm long.

Associated Fauna.—Fragments of *Thelogorgia* sp. too small for specific identification but probably *T. studeri* Bayer, and two small, incomplete specimens of *Ellisella* sp. were present among the specimens from Trinidad. These have been retained along with the syntype lot.

Acknowledgments

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