

**REDESCRIPTION OF *ACRYPTOLARIA NORMANI* NUTTING, 1927,
JUNIOR SYNONYM OF THE WESTERN PACIFIC SPECIES
ZYGOPHYLAX TIZARDENSIS KIRKPATRICK, 1890
(CNIDARIA: HYDROZOA: LAFOEIDAE)**

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ABSTRACT. – The holotype of *Acryptolaria normani* Nutting, 1927, a species neither reported nor cited since the original description, has been studied, redescribed and figured. The species has been found to be conspecific with *Zygophylax tizardensis* Kirkpatrick, 1890, a Western Pacific species for which remarks and known data on its geographical and bathymetrical distribution are provided.

KEY WORDS. – hydroids, junior synonym, Western Pacific, distribution.

INTRODUCTION

The species-level systematics of several genera of Lafoeidae has been rather neglected. At least 30 recent genera are historically assigned to the family, although many of them are currently considered synonyms. Stechow (1923) divided the family into four subfamilies: Bonneviellinae Broch, 1909 (presently considered a separate family), the nominotypical Lafoeinae A. Agassiz, 1865, Hebellinae Fraser, 1912, and the Zygophylacinae Quelch, 1885. Although slightly modified by some authors, this taxonomical arrangement is adopted by most recent authors (e.g., Calder, 1991).

The Lafoeinae include lafoeid genera with coppinia (except *Cryptolarella*) but without diaphragm or nematophores, viz. *Acryptolaria*, *Filellum*, *Grammaria*, and *Lafoea*. The genus *Acryptolaria*, described by Norman (1875), nowadays is known to be rather common, especially in deeper waters. Nutting (1927) described a new species of *Acryptolaria* from off the Philippines (10°10'35''N 124°03'15''E), named *Acryptolaria normani*. The species has not been discovered or reported since the original description. While reviewing Lafoeinae, we came across the type specimen of *Acryptolaria*

normani. The study of this type compelled us to make a redescription of the species and a reassessment of its taxonomic position.

TAXONOMY

***Acryptolaria normani* Nutting, 1927**
(Figs. 1, 2A, B; Table 1)

Acryptolaria normani Nutting, 1927: 209, Pl. 41 Figs. 1-2.

Material examined. – Holotype - numerous stem fragments up to 27 mm long. United States National Museum (USNM 5413), Sta. 5413, 10°10'35''N 124°03'15''E, between Cebu and Bohol islands (Philippines), 42 fms (76 m), coll. Albatross Expedition, 24 Mar.1909.

Description. – Stem erect, polysiphonic (Fig. 1A), occasionally branched. Apophysis and nodes absent in main tube and hydrocladia. Accessory tubes with scattered tubular nematothecae (Fig. 1B). Hydrocladia unforked, alternate, arising in one plane from main tube at almost 90° (Fig. 1A).

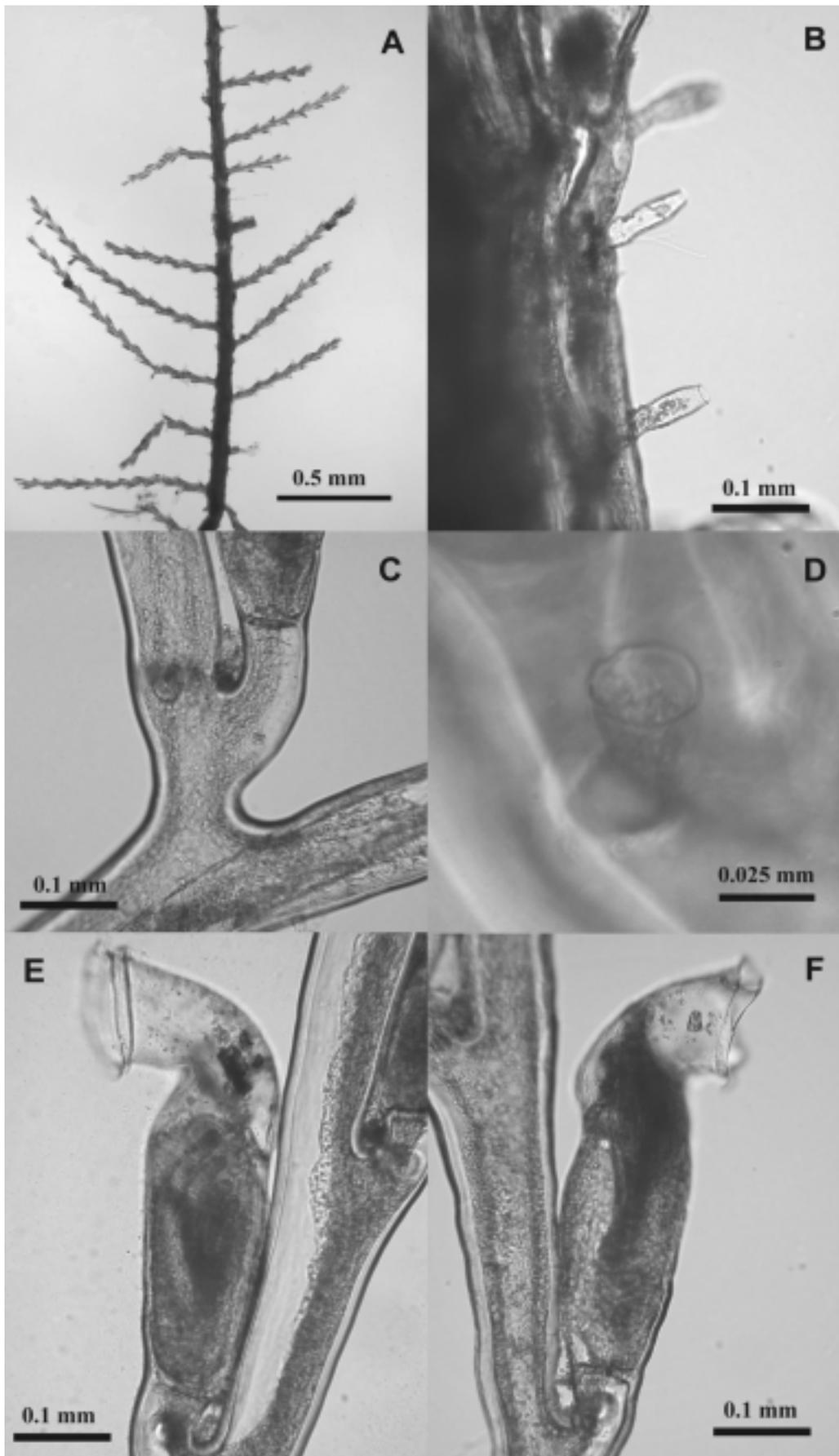


Fig. 1. *Acryptolaria normani* Nutting, 1927 (= *Zygophylax tizardensis* Kirkpatrick, 1890). A, general appearance of a fragment of stem with hydrocladia and hydrothecal arrangement (note the presence of a broken secondary stem); B, cauline nematothecae; C, pedicel of first, basal, hydrotheca (note the absence of nematothecae); D, nematotheca of hydrothecal pedicel; E-F, hydrothecae. (All photographs from holotype).

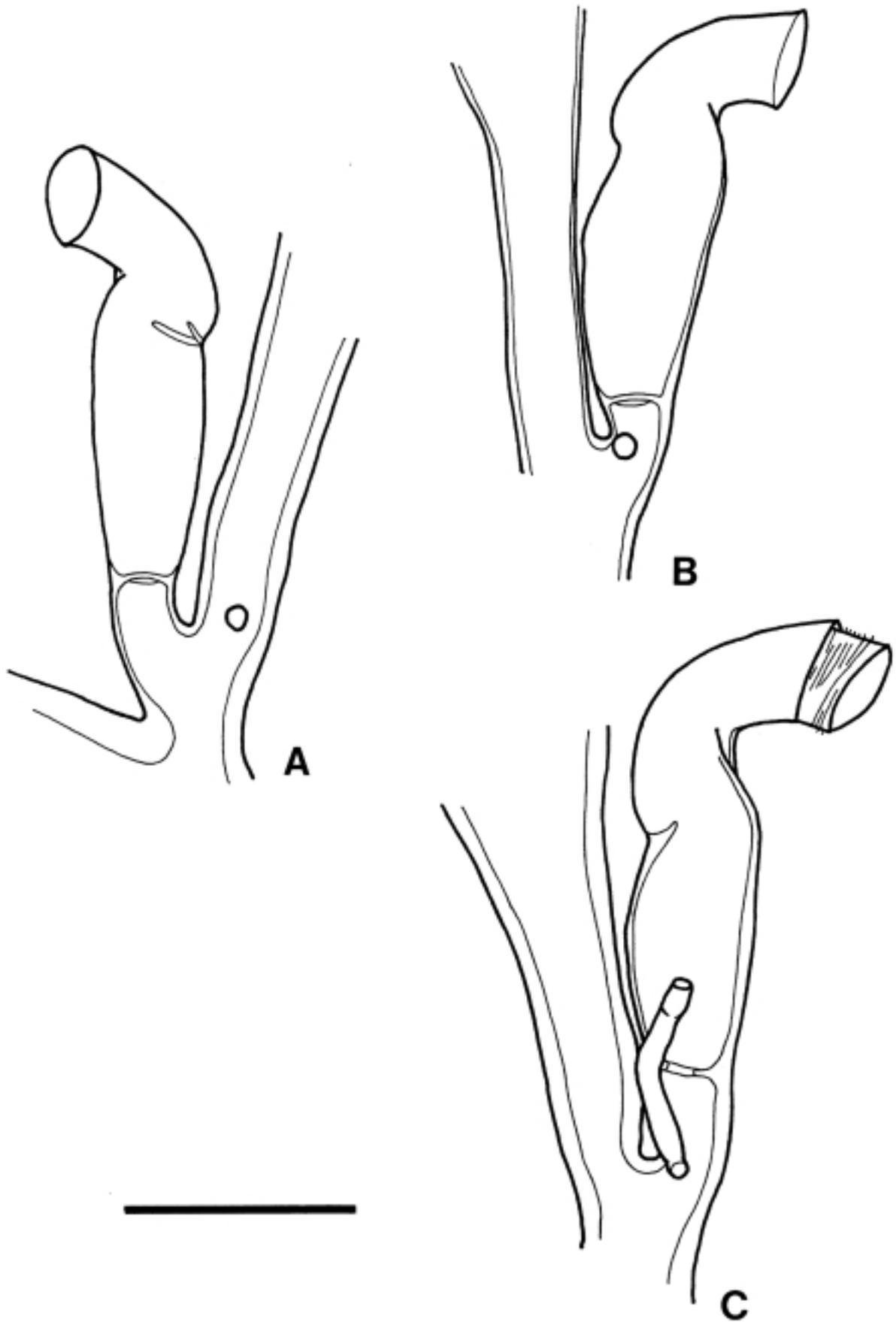


Fig. 2. *Acryptolaria normani* Nutting, 1927 (= *Zygophylax tizardensis* Kirkpatrick, 1890): A, origin of hydrocladium showing first hydrotheca (note the absence of nematothecae on hydrothecal pedicel); B, hydrotheca. *Zygophylax tizardensis*: C, hydrotheca. (A, B from holotype of *Acryptolaria normani*; C from Stechow's material). Scale bar: 250 μ m.

Table 1. Measurements of *Acryptolaria normani* Nutting, 1927 (in μm).

Hydrothecae	
Length of abcauline wall	340-380
Length of adcauline wall	470-560
Diameter at aperture	100-130
Diameter at diaphragm	60-80
Length of renovations	up to 110
Length of pedicel	60-120
Nematothecae (accessory tubes)	
Length	80-160
Diameter at aperture	10-30
Nematocysts (microbasic mastigophores)	
Larger group	20-25 x 8-11
Smaller group	5.5-6 x 2-2.5

Hydrothecae alternately arranged in one plane (Fig. 1A). Hydrotheca completely free, pedicellate, separated from pedicel by strongly developed diaphragm (Figs. 1E, F, 2A, B). One nematotheca on each side of hydrothecal pedicel (Figs. 1D-F, 2B). Pedicel of basal hydrotheca deprived of nematothecae (Figs. 1C, 2A); corresponding pair of nematothecae on hydrocladium, just above pedicel insertion (Figs. 1C, 2A).

Hydrotheca tubiform, upwardly directed, approximately straight up to basal two-thirds, then strongly curved abcaudally at distal third (Figs. 1E, F, 2A, B). Hydrothecal adcauline wall convex, but clearly divided into two parts by a pronounced concave invagination (Figs. 1F, 2A, B), internally corresponding to a well-developed adcauline pseudodiaphragm (Fig. 2A): basal portion slightly convex, wall somewhat lying on adjacent tube; distal portion markedly convex, forming a kind of hump just above invagination, and strongly bent outwards (Figs. 1E, F, 2A, B). Abcauline hydrothecal wall mainly straight or slightly convex basally, turning abruptly outwards at distal part. Hydrothecal aperture circular, rim even and slightly flared, parallel to long axis of hydrotheca or slightly tilted downwards or upwards (Figs. 1E, F, 2A, B). Some hydrothecae with up to seven renovations.

Cnidome consisting of microbasic mastigophores in two size classes.

Hydranth apparently without abcauline caecum (Fig. 1E).

Remarks. – There is no record or reference for *Acryptolaria normani* since its original description by Nutting (1927: 209, Pl. 41 Figs. 1-2). The study of the type material has proved the incorrect assignment of this species to the classical concept of *Acryptolaria* or even Lafoeinae (e.g., Calder, 1991), as shown by several features: the presence of a hydrothecal diaphragm, the pedicellate and completely free (though sometimes lying on the adjacent tube wall) hydrotheca, and the presence of nematothecae. Such a set of characters is typical of the subfamily Zygophylacinae, more precisely of the genera *Abietinella* Levinsen, 1913, and *Zygophylax* Quelch, 1885. However, since the presence of an operculum

is characteristic of *Abietinella* (cf. Peña & García Carrascosa, 1993), a structure absent in the holotype of *A. normani*, the species is unambiguously considered referable to *Zygophylax* (reproductive characters, such as the non-organized coppinia, may also differentiate the two genera, but reproductive structures are not present in the holotype).

A closer comparison with the known species of *Zygophylax* has shown that *A. normani* is conspecific with *Zygophylax tizardensis* Kirkpatrick, 1890, originally described from the China Sea and later recorded from neighbouring areas. The shape of the hydrotheca in Kirkpatrick's species is characteristic, making it easily recognizable. It is the same shape we found in the type material of *A. normani*. Still, as stated by Hirohito (1995: 150), “the remarkable feature of this species [*Z. tizardensis*] is the presence of an additional diaphragm in the middle of intrathecal wall of the hydrotheca besides the normal diaphragm at the base”, a feature also present in the type material of *A. normani*.

According to Nutting (1927: 209) the hydrothecae are “adnate to the branch for most of their length up to the bend, but those on the tips of the colony are free for a considerable part of their length”. Nutting's figures also show hydrothecae adnate to the branches in most of their adcauline length. He overlooked the presence of an adcauline pseudodiaphragm and the regular pattern of a pair of nematothecae on the hydrothecal pedicels. The study of the type material of *A. normani* has shown that Nutting's (1927) original description and figures are incorrect, obscuring its taxonomical position and making it difficult to assign the species to *Zygophylax*.

***Zygophylax tizardensis* Kirkpatrick, 1890**

(Fig. 2C)

Zygophylax tizardensis Kirkpatrick, 1890: 12-13, Pl. 3 Fig. 3; Jäderholm, 1903: 277; 1919: 10; Clarke, 1907: 16; Stechow, 1913a: 144; 1913b: 11, 117; 1923: 10; Dawydoff, 1952: 56; Yamada, 1959: 48; Hirohito, 1983: 6, 33-34, Fig. 13; 1995: 150, Fig. 47a-d, Pl. 10 Fig. B; Rees & Vervoort, 1987: 66-67; Vervoort, 1987: 91, Fig. 10.9.

Perisiphonia tizardensis - Vanhöffen, 1910: 316.

Acryptolaria normani Nutting, 1927: 209, Pl. 41 Figs. 1-2.

Material examined. – Zoologische Staatssammlung München (ZSM – no number) Sta. 362d, Sagami Bay. Doflein 04 (cf. Stechow, 1913b).

Remarks. – Colonies of *Z. tizardensis* have been reported up to 60 mm high (Hirohito, 1995), with similar features as described above; the same applies to the hydrothecae (Fig. 2C). However, Hirohito (1995) reported “one nematotheca borne on basal part of each pedicel”, whereas the material described herein has a pair of nematothecae on each hydrothecal pedicel (except that of the basal hydrotheca). The description of Kirkpatrick (1890: 12-13) stated: “sarcothecae numerous, .1 to .4 millim., on tubes composing the main stem and larger branches; a pair at the base of each hydrotheca”. Hirohito’s observation may be incorrect or there is also the possibility that his material represents a variation.

The female gonosome was described by Hirohito (1983: 33-34, fig. 13b): “Coppinia almost spherical about 5 cm in diameter, developed on branch. Rather a small number of separate gonothecae aggregated into cluster. Gonotheca sack-like, bearing two or three curved opening tubes at distal end. Many protective tubes with nematothecae, branching and anastomosing each other, covering cluster of gonothecae like a canopy.” Hirohito (1995: 150, fig. 47d) stated “Gonosomes borne on stem, consisting of aggregated but not contiguous gonothecae and many branched tubes surrounding gonothecae; tubes bearing nematothecae. Gonothecae pouch-like, with two or three processes at distal end; the processes often twisted, with the apertures facing to various directions. Only female gonothecae containing planulae were observed.”

Distribution. – *Zygophylax tizardensis* has been reported from depths from 63 (Kirkpatrick, 1890) to 720 m (Jäderholm, 1919). It is known from Japanese waters [Sagami Bay (Stechow, 1913b; Jäderholm, 1919; Hirohito, 1995), off the Bonin Islands (Jäderholm, 1919) and Izu Oshima and Niijima Islands (Hirohito, 1983)], from Tizard Reef (China Sea) (Kirkpatrick, 1890) and from off the Philippines (Nutting, 1927 as *Acryptolaria normani*).

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