

Typification of the name *Opephyllum martensii* Schmitz (*Delesseriaceae*, *Rhodophyta*)

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Six slides labelled “*Nitophyllum martensioides*”, located in the slide collection of Schmitz’s red algal types in the Natural History Museum, London (BM), can be identified as *Opephyllum martensii* Schmitz (Schmitz & Hauptfleisch, 1897). Label data fully correspond to the protologue of *O. martensii* (collected by Martens from Mindanao, Philippines). This collection of six slides from a single gathering is, therefore, interpreted to be the holotype for the name *Opephyllum martensii*, superseding the neotype recently proposed by Lin & al. (2001).

KEYWORDS: *Delesseriaceae*, nomenclature, *Opephyllum*, *Rhodophyta*, typification.

The red algal genus *Opephyllum* Schmitz (in Schmitz & Hauptfleisch, 1897) had remained poorly known until its recent rediscovery and in-depth study by Lin & al. (2001). Earlier, Papenfuss (1962) called attention to its uncertain status, saying that it was then known only from the original collection made by Martens from Zamboanga, Mindanao, Philippines. Papenfuss stated that the alga had never been illustrated and suggested that judging from its description it may be congeneric with *Martensia* Hering (1841).

According to Schmitz in his description of *Opephyllum*, this same alga had been reported (incorrectly) by Martens (1868) as *Pollexfenia pedicellata* Harvey. The record of *Opephyllum* by Schmitz has been repeated by later workers (DeToni, 1900, 1924; Kylin, 1956; Velasquez & al., 1975; Silva & al., 1987) but without the report of any new collections.

In Lin & al.’s (2001) detailed account of *Opephyllum*, in which they combined a morphological study with molecular analyses of two genes (large subunit ribosomal DNA and *rbcL*), they determined that the taxon fits into a nested cluster of Indo-Pacific species of *Martensia*. Although the alga did not show the network organization characteristic of *Martensia* (Svedelius, 1908), they argued that species of *Martensia* show a continuous (non-network) blade in the juvenile condition, and that it seems reasonable to regard *Opephyllum martensii* as retaining that juvenile condition. They concluded by transferring *O. martensii* into *Martensia* (as *M. martensii*).

Although Lin & al. (2001) asserted that “reproductive structures...were unknown...” for *Opephyllum*, Schmitz (in Schmitz & Hauptfleisch, 1897) did describe male and female plants in general terms. A translation of his account follows: “thallus a delicate, transparent blade, beautiful rose-red but ephemeral and easily fading,

mostly monostromatic, without nerves or veins (a superficial resemblance to *Nitophyllum punctatum*), irregularly lobed, richly perforated by regularly small rounded holes in upper parts of blades. Growth in area of the thallus intercalary (apparently without apical cells), divisions of the cells oriented in all directions. Spermatangia in the form of rounded sori scattered over the thallus surface. Cystocarps distributed along the upper margins of the thallus and along the margins of the holes, located on thickened places of the margins. The cystocarps are almost bottle-shaped and are very thick for the delicate blades; they contain a large number of pyriform granular spores, which, attached by the apex, entirely cover the central column. Tetrasporangial plants unknown. This alga sticks firmly to the paper when dried and has a beautiful silky lustre”.

Lin & al. (2001) were unsuccessful in their attempt to locate type material of *Opephyllum martensii* in the Berlin-Dahlem Herbarium, which was heavily damaged by bombings in the final stages of World War II. Lin & al. did not say whether they searched for type material in other European herbaria. Whereas Koster (1969) indicated that a “few” of the type collections of Schmitz and Hauptfleisch are in the Rijksherbarium, Leiden, Stafleu & Cowan (1985) stated under their entry for Schmitz that the types in his herbarium are deposited in BM, namely, a “collection of 7.457 microscope preparations of marine algae, being the types of his Florideae...purchased 1899”. In correspondence with Jennifer Bryant, I had learned that there are approximately 7,500 slides from the Schmitz collection in the Natural History Museum (BM) and that in recent years they were gradually databased and have become accessible. Ms. Bryant informed me that there is an herbarium folder in BM with the name *Opephyllum* and a number corresponding to the genus,

but the folder contains nothing.

I requested that Dr. Olivier De Clerck of the University of Ghent during a visit to the BM do a favour for me by carrying out a search in the Schmitz slide collection. Although he found no slides labelled "*Opephyllum martensii*", he did come across six slides bearing (on the back) the bar-codes BM000653209 through BM000653214. These are the accession numbers added when the slides were databased for the Schmitz database (J. Bryant, pers. comm.). At one end of all six slides is the same original labelling: the apparently unpublished designation "*Nitophyllum martensioides*" followed by "Mindanao, Martens, Berliner Herb." Mindanao is the Philippine island that includes Zamboanga, the type locality, and Martens was the collector. At the other end of each slide is (in ink) "5.87" and "139M", and (in pencil) a number in a series 3170–3175. The "5.87" is the date of the preparation of the slide, May 1887. "139M" was added by a curatorial assistant, in the 1950s, who first "catalogued" the Schmitz slides by giving them numbers that had been added in the margin to the BM copy of Engler and Prantl, followed by the species initial letter, hence "139M". The pencilled numbers were added to locate the storage sequence, i.e., where the slide fitted into the cabinet. According to Ms. Bryant, the labelling of taxon, locality, collector and source herbarium at one end of the slides and date of preparation at the other was done in Berlin contemporary with the preparation of the slides. The fact that the original labelling is identical on all six slides indicates that the material on these slides came from a single original gathering, and can be considered a single specimen as defined in Art. 8.3 of the ICBN (Greuter & al., 2000).

Four of the six slides were sent on loan for my examination of them. The morphology of the alga on these slides is of a delesseriacean alga, *Nitophyllum*-like, composed of a monostromatic blade with discrete perforations. Three of these four slides have parts of spermatangial thalli, the small rounded sori being scattered over the blade surface. The material on the fourth slide is somewhat fragmentary but appears to be female, with a couple of ruptured cystocarps. The generic name used by Schmitz, *Opephyllum*, alludes to the perforate nature of the blade: Gr. ope, perforation; Gr. phyllon, leaf. But most importantly, the material can be identified as *Opephyllum martensii* both on the basis of Schmitz's original description and on the recent detailed description provided by Lin & al. (2001). The appropriately descriptive name "*Nitophyllum martensioides*", alluding to its morphological similarity to both *Nitophyllum* and *Martensia*, was clearly a manuscript name by Schmitz that became *Opephyllum martensii* when published (in Schmitz & Hauptfleisch, 1897). Thus, the evidence strongly points to the conclusion that these six slides in

the Natural History Museum, London (BM) are the actual type of *Opephyllum martensii* Schmitz and can be treated as a single specimen as defined by Art. 8.2 and 8.3 of the St. Louis Code. These six slides constitute the holotype and supersede the neotype proposed by Lin & al. (2001) (Art. 9.17, ICBN, Greuter & al., 2000).

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LITERATURE CITED

- DeToni, G. B.** 1900. *Sylloge Algarum. Vol. IV. Florideae. Sectio II.* Pp. 387–776. Sumptibus auctoris, Typis Seminarii, Padua.
- DeToni, G. B.** 1924. *Sylloge Algarum. Vol. VI. Florideae. Sectio V. Additamenta.* xi + 767 pp. Sumptibus auctoris, Typis Seminarii, Padua.
- Greuter, W., McNeill, J., Barrie, F. R., Burdet, H. M., Demoulin, V., Filgueiras, T. S., Nicolson, D. H., Silva, P. C., Skog, J. E., Trehane, P., Turland, N. J. & Hawksworth, D. L.** (eds.). 2000. *International Code of Botanical Nomenclature (Saint Louis Code). Adopted by the Sixteenth International Botanical Congress St. Louis, Missouri, July-August 1999.* Koeltz Scientific Books, Königstein. [Regnum Veg. 138.]
- Hering, K.** 1841. Diagnoses algarum novarum a cl. Dr. Ferdinand Krauss in Africa Australi lectarum. *Ann. Mag. Nat. Hist.* 8: 90–92.
- Koster, J. T.** 1969. Type collections of algae. *Taxon* 18: 549–559.
- Kylin, H.** 1956. *Die Gattungen der Rhodophyceen.* CWK Gleerup, Lund.
- Lin, S.-M., Fredericq, S. & Liao, L. M.** 2001. Neotypification and taxonomic status of *Opephyllum martensii* Schmitz in Schmitz et Hauptfleisch (*Delesseriaceae, Rhodophyta*) from Zamboanga, Southern Philippines. *Bot. Mar.* 44: 589–595.
- Martens, G. von.** 1868. *Die Tange. Preuss. Exped. Ost-Asien, Bot. Theil.* (1) + 152 pp., 8 pls. Verlag der Königlichen Geheimen Ober-Hofbuchdruckerei R. v. Decker, Berlin.
- Papenfuss, G. F.** 1962. Clearing old trails in systematic phycolgy. *Proc. Ninth Pacific Science Congress, 1957,* 4: 229–233.
- Schmitz, F. & Hauptfleisch, P.** 1897. *Rhodophyceae.* Pp. 385–544 in: Engler, A. & Prantl, K. (eds.), *Die natürlichen Pflanzenfamilien.* 1(2). W. Engelmann, Leipzig.
- Silva, P. C., Meñez, E. G. & Moe, R. L.** 1987. Catalog of the benthic marine algae of the Philippines. *Smiths. Contr. Mar. Sci.* 27: 1–179.
- Stafleu, F. A. & Cowan, R. S.** 1985. *Taxonomic Literature, ed. 2, vol. 5 (Sal-Ste).* Bohn, Scheltema & Holkema, Utrecht.
- Svedelius, N.** 1908. Über den Bau und die Entwicklung der Florideengattung *Martensia*. *Kungl. Svenska Vetenskap-akad. Handl.* 43(7): 1–101, 4 pls.

Velasquez, G. T., Trono, G. C., Jr. & Doty, M. S. 1975. Algal species reported from the Philippines. *Philippine J. Sci.* 101: 115–169.