RHODYMENIA COCCOCARPA, A NEW COMBINATION BASED ON PHYLLOPHORA COCCOCARPA MONT.

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ABSTRACT. The new combination Rhodymenia coccocarpa (Mont.) M. J. Wynne, based on Phyllophora coccocarpa Mont., is proposed; it takes precedence over the nomen novum Rhodymenia subantarctica Ricker.

The red alga Phyllophora coccocarpa was described by Montagne (1852b) on the basis of a d’Urville collection from the Strait of Magellan. The alga was described as a stipitate frond, with a bare, terete or broadened stipe expanding into flattened cuneate blades proximally and having linear bifid enervate apical portions, with rotund lobes. Cystocarps were said to be on the distal segments, sessile and globose, with the center (in the dried state) depressed, acorn-shaped and ostiolate. According to Montagne, part of his earlier concept (Montagne 1845) of Rhodymenia palmetta (J. V. Lamour.) Grev. [current name: Rhodymenia pseudopalmata (J. V. Lamour.) P. C. Silva] belonged within his new species Phyllophora coccocarpa. Montagne (1854) later repeated his description of P. coccocarpa and also provided a single figure of its habit. In all of his accounts of this species, Montagne (1852b, 1854, 1856) described his material as fertile, referring to cystocarps [“conceptaculis”]; indeed that is what he depicted in the habit illustration (Montagne, 1854, pl. 16, fig. 1), which is reproduced here as Fig. 1. Yet, according to Hariot (1889) Montagne’s Herbarium (in PC) contains a single non-reproductive specimen of original material of Phyllocarpa coccocarpa, which Hariot treated as Epymenia membranacea Harv., currently known as Rhodymenia obtusa (Grev.) Womersley (Womersley 1996).

I asked Dr. Bruno de Reviers to check on authentic material of Phyllocarpa coccocarpa in PC. He kindly informed me that he located in the Montagne herbarium two elements belonging to the protologue: a single specimen of the holotype (PC 0060225; MA 4824) (Fig. 2) and an original and unpublished sketch of the anatomy (MS 434, p. 4809) (Fig. 3); scanned images of these elements were provided to me. He did not find any additional specimen in any place in PC. It is clear that the holotype corresponds perfectly to Montagne’s (1854) plate 16, fig. 1, except that the specimen does not show any cystocarps. Figure 4 is a closer view of distal regions of the holotype showing the absence of cystocarps. This observation confirms that Hariot was correct but renders doubtful Montagne’s description of the cystocarps. It is possible that Montagne had another, small, fertile specimen that he used for adding the observations on cystocarps, but there is no evidence of such material.

The sketch (Fig. 3), which is very faint, is accompanied by the following notations: “Phyllophora coccocarpa Montg.”, “Rhodymenia palmetta olime”, “Magellan”, “D’Urville” and “Hb. de C. Montagne.” The sketch is of a portion of a cross section, showing cortical, subcortical and medullary cells, an organization that conforms to the anatomy of Rhodymenia.

In addition to the more usual pattern of dichotomous to irregular branching and marginal proliferation, a distinctive mode of producing new branches from a thickened
midrib region of proximal portions of blades can be observed in the holotype (both in the specimen and the figure) and in specimens assigned to this species by Taylor (1939). These collections, in MICH, are the following: CHILE. Punta Arenas Magallanes Prov., 4 Feb 1927, Waldo L. Schmitt 315; FALKLAND ISLANDS. Stanley Harbor, East Falkland Island, without date, Waldo L. Schmitt 98. This occasional production of new branches from the face of a parent blade was pointed out by Taylor (1939).

An annotation label is attached to the holotype of Phyllocarpa coccocarpa, dated December 13, 1985 with the determination “Dendrymenia skottsbergii” by Maria Emiliana Ramírez. This name is based on Rhodymenia skottsbergii Dawson (1941), a species transferred to Dendrymenia by Levring (1960); however, such a determination is not admissible, because the name P. coccocarpa predates R. skottsbergii. Rhodymenia skottsbergii is a currently recognized species, which is endemic to the
temperate west coast of South America (Hoffmann & Santelices 1997). It has a distinctive manner of producing lateral fronds, which arise spirally within the funnel-shaped region at the base of the parent frond. New blades continue to be sympodially developed with an amplexicaul structure in the region of each new branch (Dawson 1941). According to Hoffman and Santelices (1997), R. skottsbergii is unique in the order Rhodymeniales in having this developmental mode. Clearly, the determination of the holotype of Phyllophora coccocarpa as Rhodymenia [Dendrymenia] skottsbergii is incorrect.

When Skottsberg (1923) distinguished his new genus Dendrymenia from Rhodymenia Grev., he based the genus on the single species D. flabellifolia (Bory) Skottsberg [basionym: Sphaerococcus flabellifolius Bory (1828)]. As pointed out by Dawson (1941), it has been recognized that the material Skottsberg “had in hand” was not taxonomically identical to Bory’s species, and he published the new species Rhodymenia skottsbergii, with the type from Concepcion Bay, Chile. At the same time Dawson (1941) demonstrated that genuine Rhodymenia flabellifolia (Bory) Montagne, which also occurs on the west coast of southern South America, lacks the amplexicaul character present in R. skottsbergii. Although some authors (e.g., Taylor, 1945 1947; Kylin 1956; Levrin 1960; Santelices 1989) have recognized Dendrymenia as distinct from Rhodymenia on the basis of its sympodial development, other authors (e.g., Dawson 1941; Sparling 1957; Ramírez & Santelices 1991; Hoffmann & Santelices 1997; Saunders et al. 1999) have not. The critical point is that the type of a genus, namely, Dendrymenia, is a species (Art. 10.1 of the ICBN), and, as noted above, D. flabellifolia [Sphaerococcus flabellifolius Bory] lacks the critical diagnostic trait of Dendrymenia as conceived by Skottsberg, the sympodial development; therefore, Dendrymenia must be regarded as congeneric with Rhodymenia.
Phyllophora cuneifolia J. D. Hooker & Harvey (1845) was described with a type locality in the Falkland Islands. One of the two original Hooker specimens (K in BM) was depicted by Cotton (1915, pl. 7). According to Ricker (1987), the lectotype for Phyllophora cuneifolia [K in BM] was collected by J. D. Hooker on 1 April 1842 from St. Salvador Bay, East Falkland Islands (selected by A. Gepp and J. H. Price). While reporting on new collections of this species from the Falkland Islands and southern Chile, Taylor (1939) transferred P. cuneifolia to Rhodymenia, but in so doing, he created a later homonym of R. cuneifolia Okamura (1934), the latter name now treated as Gracilaria cuneifolia (Okamura) I. K. Lee & Kurogi (1977), a species recognized from Japan, China, and Korea (Yoshida 1998; Zhang & Xia 1994; Kim et al. 2006). In the belief that the name of a taxonomic synonym was not available, Ricker (1987) proposed the new name Rhodymenia subantarctica, and that name has been used in contemporary literature (Wiencke & Clayton 2002; Graeve et al., 2002). The name of a synonym, however, is available, namely, Phyllophora coccocarpa Montagne (1852b), and the transfer to Rhodymenia is proposed here. This disposition, which was first proposed by Kylin and Skottsberg (1919), has been accepted by Papenfuss (1964), Ramírez & Santelices (1991), and by AlgaeBase (Guiry 2006).


In addition to Montagne's illustration (1854, pl. 16, fig. 1), Phyllophora coccocarpa has been depicted by Cotton (1915, pl. 7), Kylin & Skottsberg (1919, fig. 10, as "Rhodymenia corallina"), Ricker (1887, fig. 90, as Rhodymenia subantarctica), and Wiencke and Clayton (2002, pl. 16, figs 4-5, as Rhodymenia subantarctica).

This species has been reported (sometimes under the names Epymenia membranacea and Rhodymenia corallina) from the Strait of Magellan and Tierra del Fuego (Piccone 1886; Hariot 1889; Skottsberg 1923), southern Chile (Hariot 1895; Kylin & Skottsberg 1919; Taylor 1939; Levring 1960), Easter Island and Juan Fernandez Island (Levring 1941; Etcheverry 1960), southern Argentina (Hariot 1895), the Falkland Islands (Hooker & Harvey 1845; Hooker 1846–1847; Cotton 1915; Taylor 1939), Îles Kerguelen (Hooker 1846–1847; Dickie 1876; Askenasy 1888; Zinova 1973), Macquarie Island (Ricker 1987), and Antarctica (namely, King George Island and Palmer Station of the Antarctic Peninsula) (Clayton et al. 1997; Wiencke & Clayton 2002). Taylor (1939) explained that while Skottsberg’s (1923) concept of Rhodymenia corallina conformed to Phyllophora coccocarpa, Kylin’s (1931: 21, pl. 8, fig. 20) concept did not.

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LITERATURE CITED


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