

Lectotypification of *Sebdenia flabellata* (J. Agardh) Parkinson (Gigartinales, Rhodophyta)

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Summary

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Type material of *Isymenia flabellata* J. Agardh was examined and determined to conform to *Sebdenia*. The transfer of this taxon to *Sebdenia* by Parkinson is supported. *Sebdenia flabellata* (J. Agardh) Parkinson is regarded to be the correct name for a red algal species that includes *Sebdenia polydactyla* (Børgesen) Balakrishnan. Its taxonomic separation from the superficially similar *Halymenia trigona* (Clemente) C. Agardh is confirmed.

Two discrete taxa are now recognized to have been included in Taylor's (1960, pl. 51, fig. 1, 2) concept of *Halymenia agardhii* De Toni (Schneider & Searles, 1975). One of these taxa belongs in *Halymenia* C. Agardh (*Cryptonemiaceae*, Gigartinales), and the name *H. trigona* (Clemente) C. Agardh has been applied to that entity (Codomier, 1974). The other taxon belongs in *Sebdenia* (J. Agardh) Berthold (*Sebdeniaceae*, Gigartinales), and its correct name is *S. flabellata* (J. Agardh) Parkinson (1980). Both are widely distributed and have overlapping geographic ranges. The distribution of *H. trigona* includes the eastern and western North Atlantic, the Mediterranean (Taylor, 1960, as *H. agardhii* pro parte; Codomier, 1974; Gallardo & al., 1985), and eastern Australia (Millar, 1990). The distribution of *S. flabellata* (including *S. polydactyla*) includes the West Indies, North Carolina, Japan, the Gulf of California, India, South Africa, Indonesia, western and eastern Australia (Børgesen, 1932; Schneider & Searles, 1991; Norris & Bucher, 1976; Norris & Aiken, 1985, Yoshida & al., 1990; Ballantine & Norris, 1989; Millar, 1990). These two taxa have been frequently confused because of their morphological resemblance. They share a common morphological expression of a clump of mostly regularly dichotomously branched axes that are terete to subcylindrical and mucilage-filled. Strong evidence supports recognition of two entities, and their reproductive and vegetative differences have been discussed (Schneider & Searles, 1975; Norris & Bucher, 1976). The following additional characteristics serve to distinguish these two taxa:

***Sebdenia flabellata*:** thalli coarse, axes reaching a diameter of greater than 2 cm below the major dichotomies; a regular gradation of axis width down to the ultimate branches is not noticeable; branch tips obtuse; branches lying in one plane; medullary ganglia more numerous and coarse, bearing dark-staining, gland-like cells; tetrasporangia 19-30 μm long.

***Halymenia trigona*:** thalli not coarse, axes reaching a width of only 2-6 mm; a regular gradation series in width down to the branch tips, which exhibit tapering and thus are rounded-acute; branching often in more than one plane; medullary ganglia less

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numerous and less coarse; gland-like cells lacking on ganglia; tetrasporangia 15-20 μm long.

J. Agardh (1899) described *Isymenia flabellata* from collections made in the West Indies and Florida. Since the name *Halymenia flabellata* Schmitz (1895) already existed, De Toni (1905) created the new name *H. agardhii* when he transferred *I. flabellata* to *Halymenia*. Although he gave no indication of having examined J. Agardh's type of *I. flabellata*, Codomier (1972) stated that *H. agardhii* ought to be placed in the genus *Sebdenia*; however, Codomier's proposed transfer was invalid because it lacked proper reference to the place of valid publication of the basionym (Art. 33.2 of the ICBN, Greuter & al., 1988). Codomier (1972) thought that his "*Sebdenia agardhii*" was very closely related to *S. polydactyla* (Børgesen) Balakrishnan, which was based on material from India. Finally, Parkinson (1980) correctly pointed out that since the epithet *flabellata* was not occupied in *Sebdenia*, the name of this species should be *S. flabellata* (J. Agardh) Parkinson.

Contemporary workers have made no mention that they have examined J. Agardh's (1899) original material on which his *Isymenia flabellata* was based, to determine whether it belongs to *Sebdenia* or to *Halymenia*. Through the kindness of Dr. Per Lassen, Curator of the Agardh Herbarium in Lund, we have been able to receive on loan the syntypes of *I. flabellata*. They comprise nine cards with eight mounted specimens (annotated LD 22284 through 22292). [Card 22290 is a note in J. Agardh's hand referring to specimens 22291 and 22292.] All of the specimens bear the diagnostic gland-like cells on large medullary ganglia, and the axes show flabellate branching in a single plane. Thus, we can state with confidence that all belong to *Sebdenia* and represent the same taxon. The eight specimens were initially identified as the following:

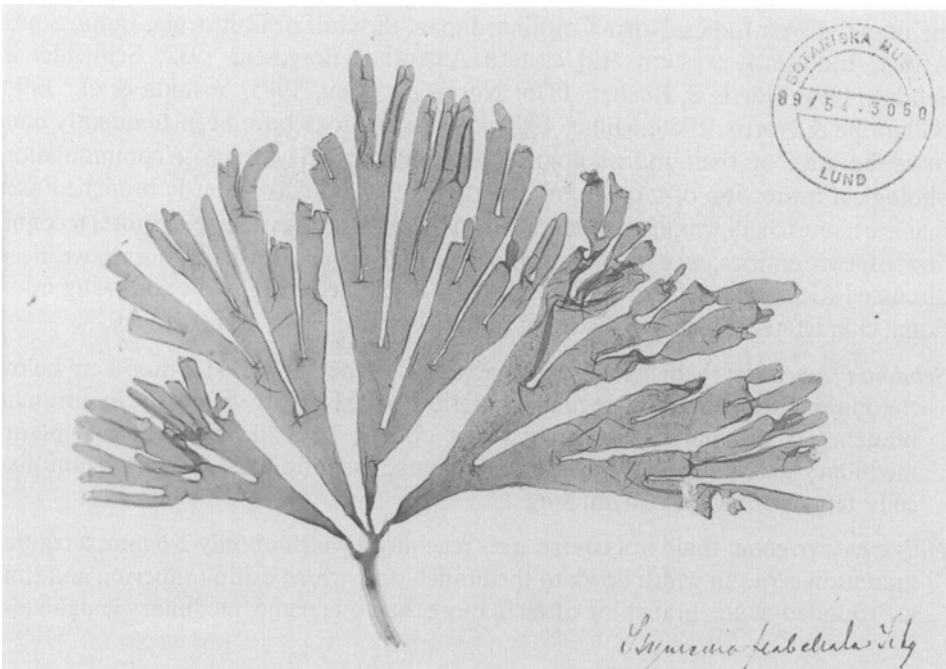


Fig. 1. Lectotype specimen of *Isymenia flabellata* J. Agardh [i.e., *Sebdenia flabellata* (J. Agardh) Parkinson], LD 22292.

- LD 22284: *Halymenia decipiens* J. Agardh, distributed in 1878 as No. 80 in Farlow, & al's *Algae exsiccatae americanae borealis*. Collected in Key West, by F. W. Hooper. Vegetative young (small) specimens.
- LD 22285-87: All *Halymenia decipiens*, annotated in J. Agardh's hand as *I. flabellata*. Collected in Indian River (Florida) by Mrs. G. A. Hall. Vegetative, large specimens.
- LD 22289 (possibly also 22288): *Scinaia furcellata* var. *undulata*. Collected in Key West by Mrs. G. A. Hall. Vegetative, large.
- LD 22291-92: Specimens cited in *Flora guadeloupensis* as "*Chrysomenia dichotomo-flabellata* Crouan msc." (back of sheets mention only "Guadeloupe"). Both bear numerous tetrasporangia and are large specimens.

Since no holotype was distinguished by J. Agardh, we hereby designate as lectotype one of the two cards from Guadeloupe, LD 22292 (Fig. 1), since they are the only reproductive specimens (tetrasporangia) among the syntypes of J. Agardh (1899: 62). Furthermore, LD 22292 is a large specimen bearing the typical morphology for the taxon, including inflated axes, swollen nodes, and obtuse apices.

Another question is whether *Sebdenia flabellata* and *S. polydactyla* can be differentiated. Tseng & al. (1980) stated that Hong Kong specimens showed the roundness of the axils of *S. polydactyla* on the one hand and the blunt-ending, ultimate branches and smaller thallus of *S. flabellata* on the other, and they concluded that these two species did not seem to be distinct.

The following expresses our understanding of the synonymy of these two species discussed in this paper:

- Sebdenia flabellata*** (J. Agardh) Parkinson (1980: 12).
 ≡ *Isymenia flabellata* J. Agardh (1899: 62, 66), non *Halymenia flabellata* Schmitz (1895: 162).
 ≡ *Halymenia agardhii* De Toni (1905: 1542).
 = *Halymenia polydactyla* Børgesen (1932: 122).
 = *Sebdenia polydactyla* (Børgesen) Balakrishnan (1961: 212).

- Halymenia trigona*** (Clemente) C. Agardh (1822: 211).
 ≡ *Fucus trigonus* Clemente (1807: 318).
 ≡ *Halarachnion trigonum* (Clemente) Kützing (1849: 722).
 ≡ *Isymenia trigona* (Clemente) J. Agardh (1899: 67).
 See Codomier (1974) for other synonyms.

It should be noted that in Codomier's (1974) designation of a "lectotype" of *Halymenia trigona*, he selected a specimen (Agardh Herb., LD 22312) which was sent from Cadiz by A. Cabrera to C. Agardh. An appropriate lectotype in our opinion would be a specimen of *Fucus trigonus* Clemente in the Instituto Botanico A. J. Cavanilles, Madrid (MA).

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