

TWO SPECIES OF *Sargassum* (FUCALES, PHAEOPHYCEAE), COLLECTED FROM MOTUPORE ISLAND, PAPUA NEW GUINEA

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Abstract

Two species of *Sargassum* (Fucales, Phaeophyceae), *S. peronii* (MERTENS) C. AGARDH (subgenus *Phyllotrichia*) and *S. polyporum* MONTAGNE (subgenus *Sargassum*) were collected and described from Motupore Island, Papua New Guinea. The latter species was reported for the first time.

Introduction

During the Keiten-maru expedition to Papua New Guinea in November to December 1989, some species of *Sargassum* (Fucales, Phaeophyceae) were collected. The list of seaweeds from Papua New Guinea has been reported by SCHMIDT (1928). He reported 40 species of *Sargassum*, in which almost species were belonging to the subgenus *Sargassum*. In this report, two species of *Sargassum*, *S. peronii* (MERTENS) C. AGARDH and *S. polyporum* MONTAGNE, were described from Papua New Guinea. The former species, which has been belonging to the subgenus *Phyllotrichia*, has been described from northern Australia and distributed in New Caledonia (WOMERSLEY, 1954) and New Guinea (SCHMIDT, 1928). The latter species, which has been belonging to the subgenus *SARGASSUM*, has been described from Macao, China, and distributed in Hong Kong, China (SETCHELL, 1936) and Ryukyu Islands, Japan (KILAR et al. 1990), but this is the first report from Papua New Guinea.

Materials and Methods

Motupore Island is located near Port Moresby, on the south coast of the mainland, Papua New Guinea. *Sargassum peronii* was collected from the west coast of Motupore Island on December 3, 1989, and *S. polyporum* from the same locality on December 2, 1989. They were growing from 1 to 5 m depth and the substratum was dead coral. They were collected by snorkeling. Collected materials were immediately fixed with 10% formaldehyde. Upon return to Kyoto University, Japan, specimens were examined for vegetative traits.

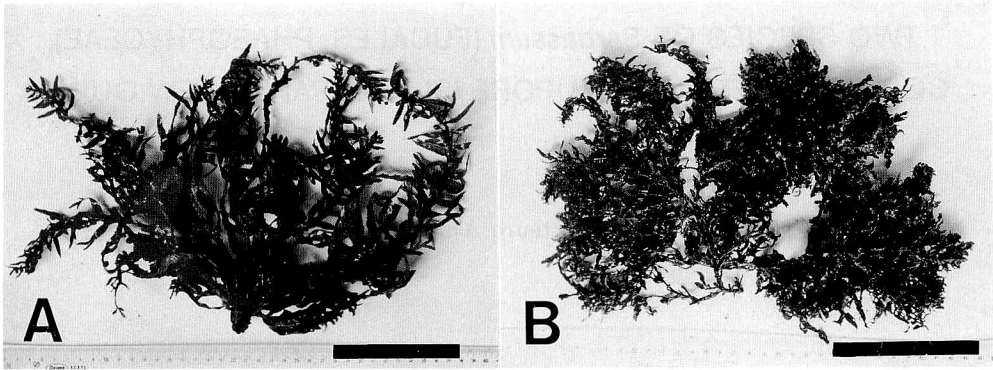


Fig. 1. Liquid preserved specimens from Motupore Island, Papua New Guinea. A: *Sargassum peronii* (MERTENS) C. AGARDH, B: *Sargassum polyporum* MONTAGNE. Scale = 10 cm.

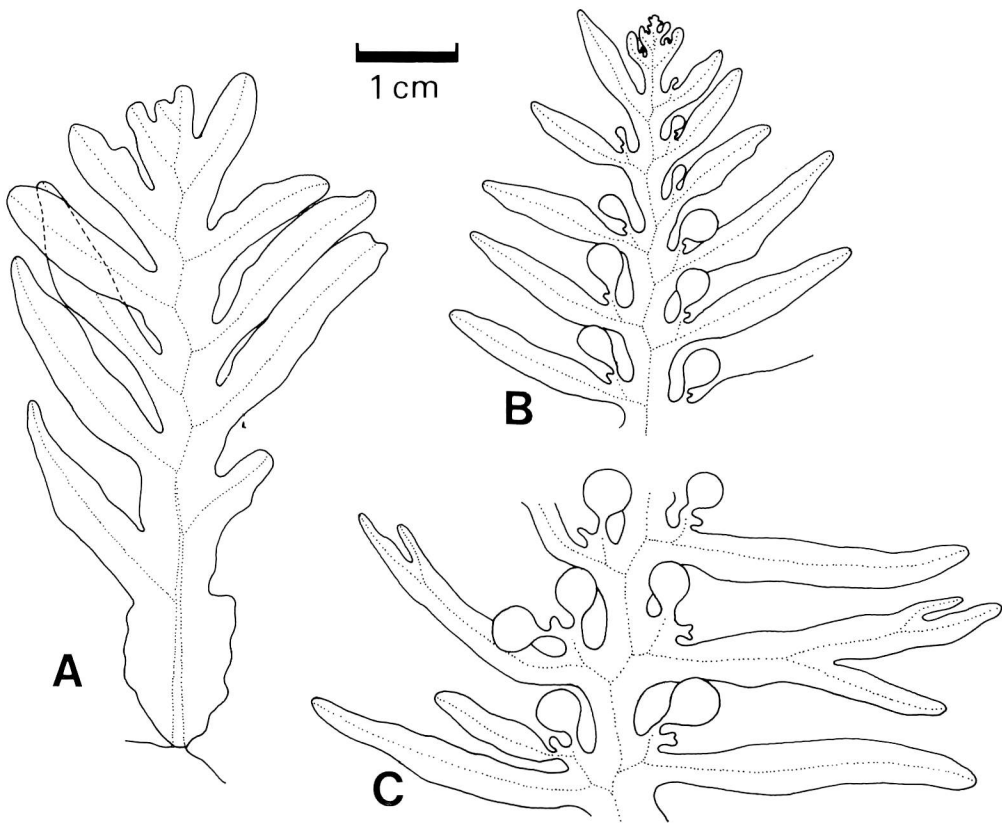


Fig. 2. *Sargassum peronii* (MERTENS) C. AGARDH A: A young primary branch at the upper part of the stem. B,C: A well-developed primary branch with leaves and vesicles. (B: upper part, C: lower part)

Descriptions

Sargassum peronii (MERTENS) C. AGARDH (Fig. 1, A)

Holdfast discoid to conical, up to 1.7 cm in diameter; stem terete or slightly compressed, to 8 cm long and 5 mm in diameter, with warty surface by old branch scars, bearing several primary branches alternately from the upper edges, up to 22 cm; primary branches axes broadly winged, 11 mm wide below with a distinct midrib, tapering evenly above, alternate simple branches which are contracted at the base. Secondary branches arising in axils of primary branches, alternate, pinnate, distichous, with simple or rarely divided (1–3 times) branches, up to 4 cm long and 8 mm wide, apices obtuse or acute, margins always entire, midrib distinct and percurrent, cryptostomata very small, scattered over the surface; vesicles borne regularly in axils of each branches, spherical, up to 7 mm long, smooth at apices; pedicels terete or slightly compressed, shorter than vesicles.

Habitat: From 1–5 m depth, in lagoons, often forming dense stands on dead coral.

Remarks: Specimens from Motupore Island have no receptacles, but the morphological characters were well-fitted to those of *S. peronii*. Morphological characters of this species seemed to be very similar to those of *S. decurrens* (R. BROWN ex TURNER) C. AGARDH (WOMERSLEY, 1987). However, "*S. peronii* differs from *S. decurrens* in possessing more definite laterals, which are contracted at the base and usually simple, though sometimes divided" (WOMERSLEY, 1954).

Sargassum polyporum MONTAGNE (Fig. 1, B)

Holdfast discoid, up to 1.2 cm in diameter; stem terete, to 11 mm long and 3 mm in diameter, with warty surface; primary branches reaching 22 cm long, terete, usually with smooth surface, rarely with a few spines; secondary branches issued at about 9 mm intervals, alternately branched, phyllotaxis 1/2, up to 9 cm long, usually with smooth surface, rarely with a few spines; leaves sessile or with short petiole, linear, narrowly spatulate, flat to spirally twisted, simple or usually 1–3 times furcate on the upper to middle part, to 5 cm long and 7 mm wide, symmetrical base, obtuse at apices, margins usually dentate at the base or nearly entire, undulate or straight in lateral view, midrib distinct, percurrent, cryptostomata very small, scattered over the surface; vesicles spherical, up to 4 mm long, usually smooth at apices; pedicels terete, shorter than vesicles or nearly the same as vesicle, usually with no appendage, but rarely formed on the tip of a small leaf.

Habitat: From 1–5 m depth, in lagoons, often forming dense stands on dead coral.

Remarks: The specimens from Motupore Island have no receptacles. Most morphological characters, except smooth surface on the primary and secondary branches, were fitted to those of the type specimen and Japanese plants (Table 1). The type specimen from Macao has very small leaves (up to 1.5 cm long and 1.5 mm wide) and vesicles (up to 2.3 mm in diam.) (SETCHELL, 1936). Usually branches of this species collected in Macao, Hong Kong and Japan were covered with small, well-developed spines, but very few spines were only observed at the tips of primary and secondary branches in Papua New Guinea plants. As morphological characters in this group have wide range of variation (KILAR et al., 1990), the specimens from Papua New Guinea were identified as *Sargassum polyporum* MONTAGNE.

Table 1. Comparative study of morphological characters of *Sargassum polyporum* MONTAGNE.

Locality characters	Japan (June, 1989)	Macao, China (SETCHELL, 1936)	Papua New Guine (Dec., 1989)
holdfast	conical to discoid		discoid
diam.	up to 2 cm		up to 1.2 cm
stem	terete		terete
height	up to 3 cm		up to 1.1 cm
diam.	up to 4 mm		up to 3 mm
surface	warty		warty
numbers	1-9/holdfast		1-7/holdfast
main branch	terete	terete	terete
length	up to 42 cm		up to 22 cm
diam.	1-2.5 mm		up to 1.5 mm
surface	spinulose	spinulose	smooth or a few spines
phyllotaxis	1/2-1/3		1/2
leaf	sessile or short petiole		sessile or short petiole
form	linear spatulate elliptical flat to twisted	linear lanceolate	linear spatulate
branching	simple or pinnately 1-7 times	simple or pinnately	simple or pinnately 1-3 times
length	1-5 cm	up to 1.5 cm	up to 5 cm
width	3-10 mm	up to 1.5 mm	up to 7 mm
l : w	1 : 1 - 7 : 1		3 : 1 - 7 : 1
base	symmetrical or asymmetrical		symmetrical
apex	obtuse to acute		obtuse to acute
margin	entire to basely dentate	entire to basely dentate	entire to basely dentate
midrib	percurrent or near apex		percurrent
cryptostomata	one row or scattered		very small scattered
vesicle	spherical to obovate	globular	spherical
length	up to 6.5 mm	up to 2.3 mm	up to 4 mm
apex	round		round
stalk	terete to flattened		terete
length	shorter than vesicle	longer than vesicle	shorter than vesicle
margin	entire or spine or wings		entire
receptacle	terete		unmatured
length	up to 8 mm		
width	up to 1 mm		
surface	warty	forked	
arrangement	racemosely	racemosely	

References

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