

Note on the marine algal flora of the Oki Isls. VIII.¹

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Sargassum microceratium (turner) C. Agardh (Sargassaceae, Phaeophyta) is reported as a new entry not only to the present writer's algal list of the Oki Islands in the sea of Japan but also to the marine algal flora of San-in district.

Key Index Words: marine algal flora, the Oki Isls.

Introduction

The present writer has reported 399 spp. in 84 families and 197 genera of marine benthic algae from the Oki Islands to date since 1970, which include 33 spp. in 5 families and 15 genera of Cyanophyta, 68 spp. in 18 families and 21 genera of Chlorophyta, 90 spp. in 21 families and 47 genera of Phaeophyta, 209 spp. in 40 families and 114 genera of Rhodophyta (Hagihara, Hirose and Kajimura 1970; Hirose and Kajimura 1973; Kajimura 1975a-1988b).

The present writer, this time, could add one more new entry *Sargassum microceratium* not only to his algal list of the Oki Islands but also to the marine algal flora of San-in district.

Materials and Methods

Many mature and sterile specimens used for this study were collected by the present writer at the depth ranging from 0.5 m to 1.5 m in sublittoral zone in Dōgo-district, the Oki Islands by skin diving in 1987 and 1988.

Fresh specimens as well as specimens dried, preserved in formalin-seawater or glycerinated were used for morphological and anatomical studies. Various parts of the plant were sectioned with a freezing microtome. Hand sections were also made. Sections were mounted in a 50% aqueous solution of rice syrup acidified with acetic acid (33:1 v/v).

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PHAEOPHYTA
 PHAEOPHYCEAE
 FUCALES
 SARGASSACEAE

Sargassum microceratium (Turner) C. Agardh

Agardh, C. A. 1824: 306. Agardh, J. G. 1848: 295. De Toni, G. B. 1895: 114. Okamura, K. 1936: 322. Yoshida, T. 1983: 125.

Thallus attaining the height of 1 m. Perennial holdfast discoid (Figs 4–6), flattened and a few centimeters in diameter. A single perennial stout main axis arising from the holdfast (Figs 1–3), erect, cylindrical to subcylindrical, usually simple (Figs 1–4) but sometimes forked once (Fig. 5) or twice (Fig. 6), 1.5–4 mm in diameter and 1–25 cm in length in dried specimens. Some annual principal branches produced alternate-bilaterally from the stout main axis (Figs 1–3, 5), with many lateral branches bearing branchlets (Fig. 7) and producing long pyramidal forms. The lateral branches cylindrical to subcylindrical bearing branchlets spirally and the branchlets bearing leaves also spirally in turn. Vestiges of the principal branches forming prominent nodes after their perishing (Figs 4–6). Also vestiges of the lateral branches (Fig. 9) as well as those of the branchlets and leaves (Fig. 10) forming minute nodes after their perishing. The

Figs 1–4. *Sargassum microceratium* (Turner) C. Agardh.

Fig. 1. Habit of a dried sterile specimen collected in Tsuma Bay on October 12, 1987.

Fig. 2. Habit of a mature male specimen collected in Fuku-ura Bay on March 11, 1988.

Fig. 3. Habit of a dried mature female specimen collected in Fuku-ura Bay on April 4, 1988.

Fig. 4. Lower part of the specimen shown in Fig. 3, showing a flattened discoid holdfast and some spinous vestiges of the principal branches left on the simple main axis.

Figs 5–8. *Sargassum microceratium* (Turner) C. Agardh.

Fig. 5. Lower part of a dried mature female specimen collected in Fuku-ura Bay on April 4, 1988, showing a once forked main axis.

Fig. 6. Lower part of a dried sterile specimen collected in Tsuma Bay on November 4, 1987, showing a twice forked main axis.

Fig. 7. Part of a dried mature male specimen collected in Fuku-ura Bay on March 11, 1988, showing a young principal branch bearing some branchlets bearing linear leaves in turn.

Fig. 8. Part of a dried sterile specimen collected in Tsuma Bay on December 18, 1987, showing vesicles with (arrows) or without mucronation.

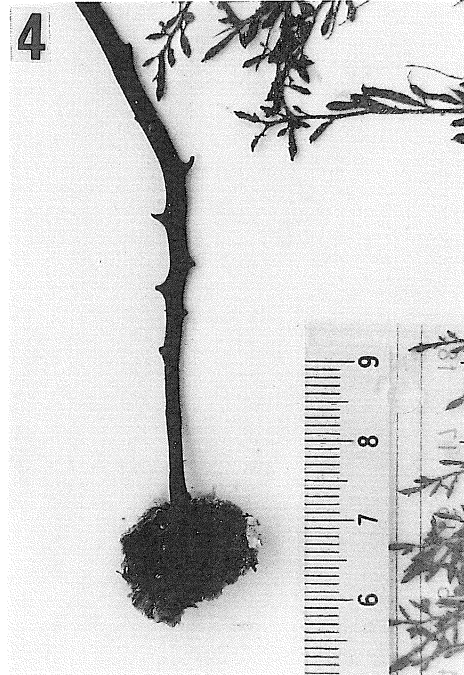
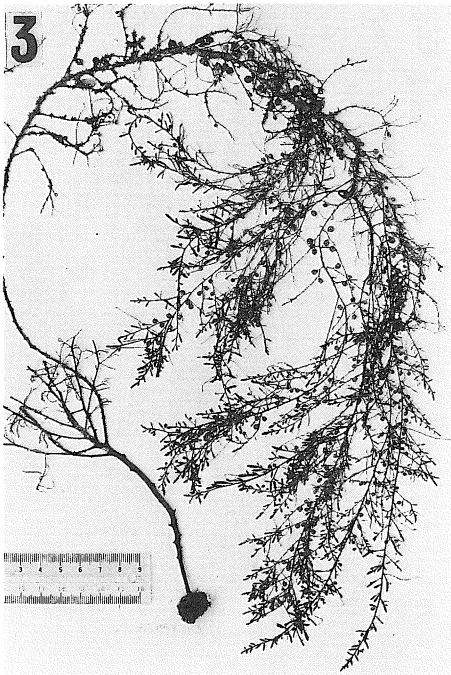
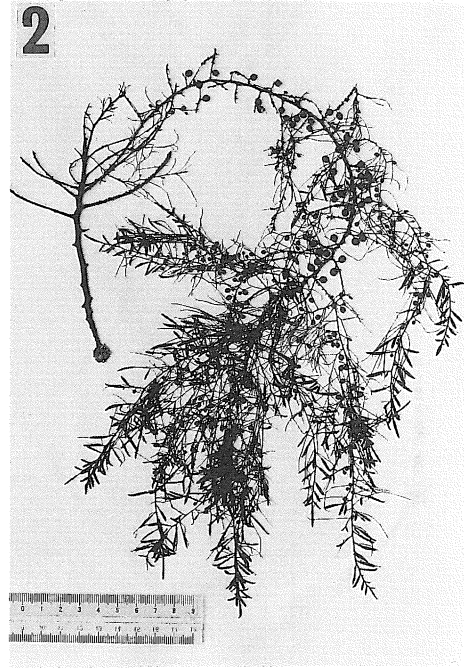
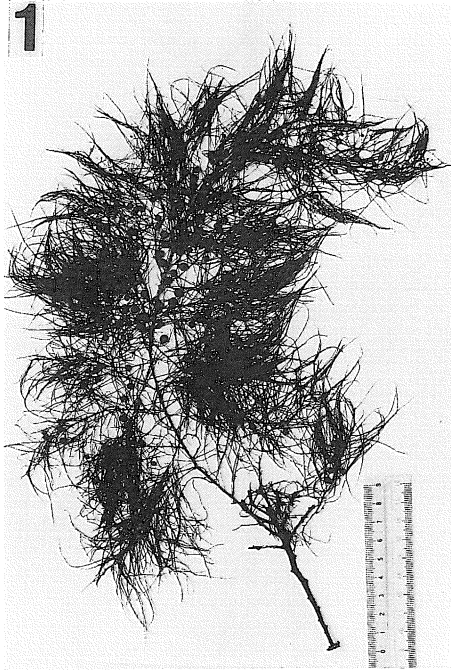
Figs 9–12. *Sargassum microceratium* (Turner) C. Agardh.

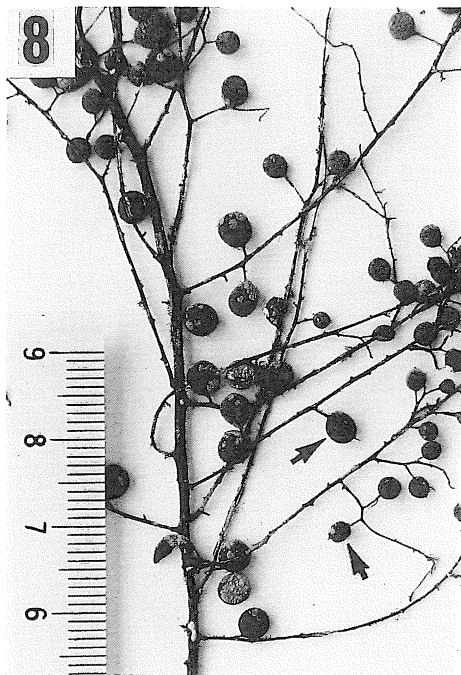
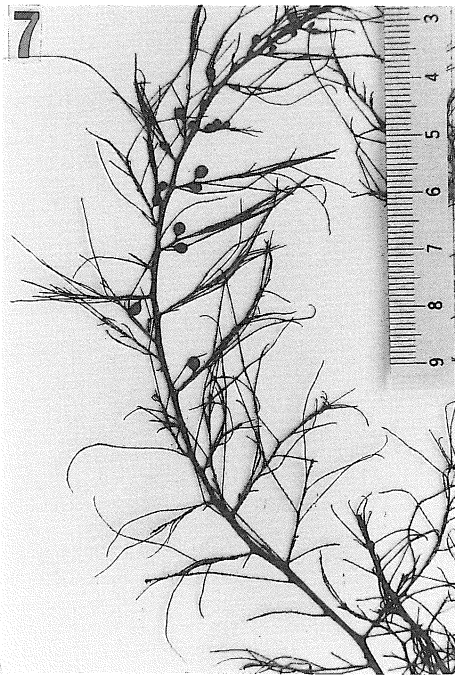
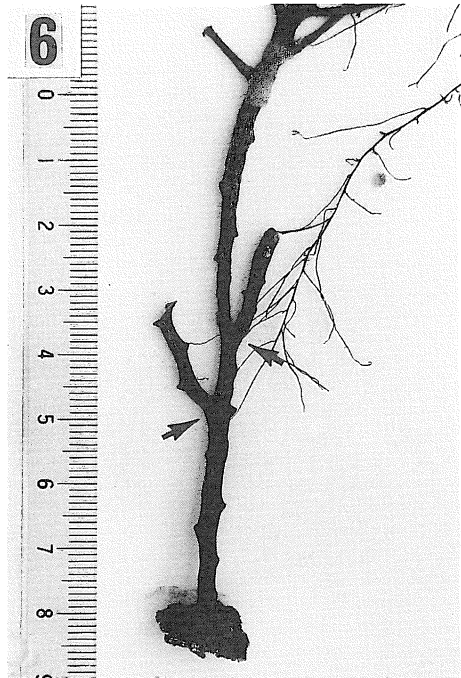
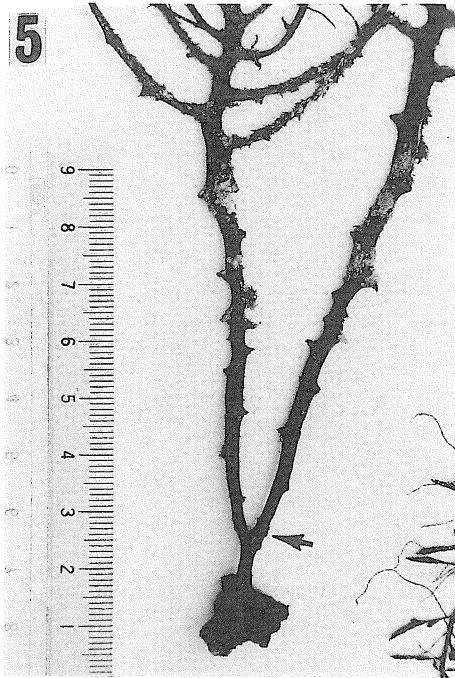
Fig. 9. Part of a dried sterile specimen collected in Tachiki Bay on September 15, 1987, showing a principal branch (arrow) bearing many vestiges of lateral branches.

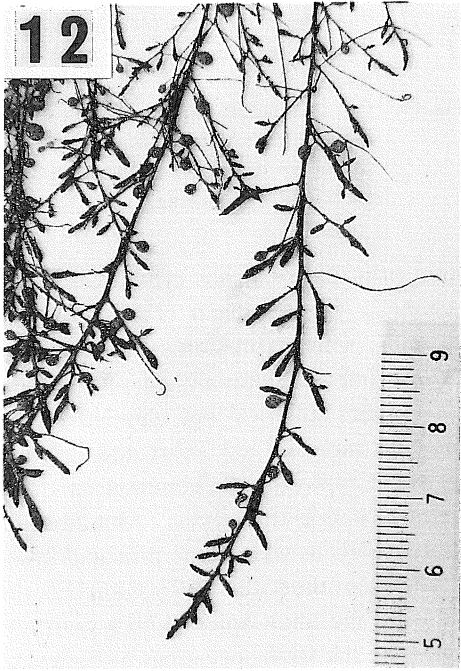
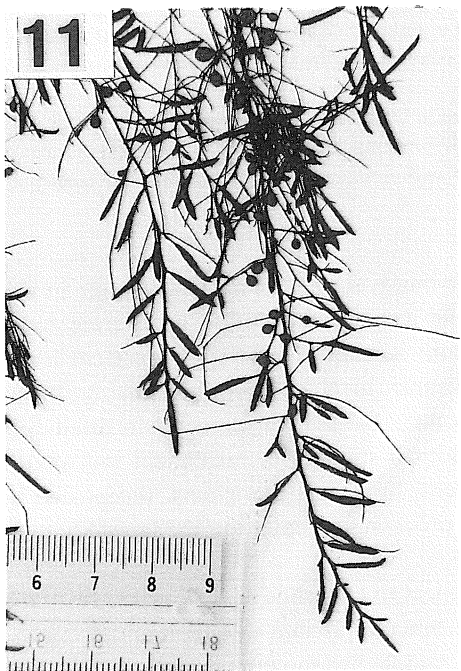
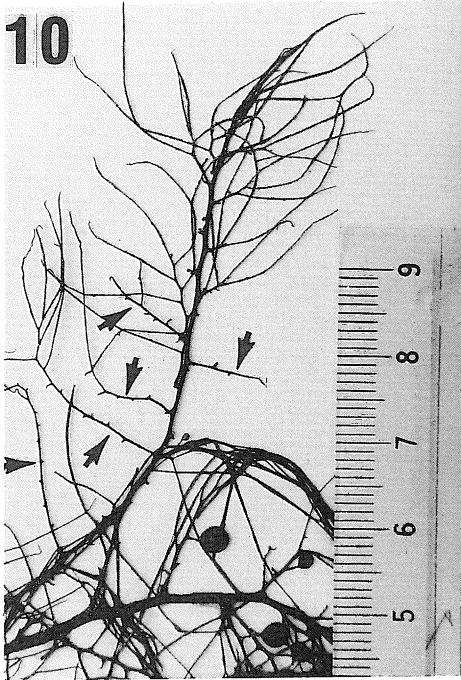
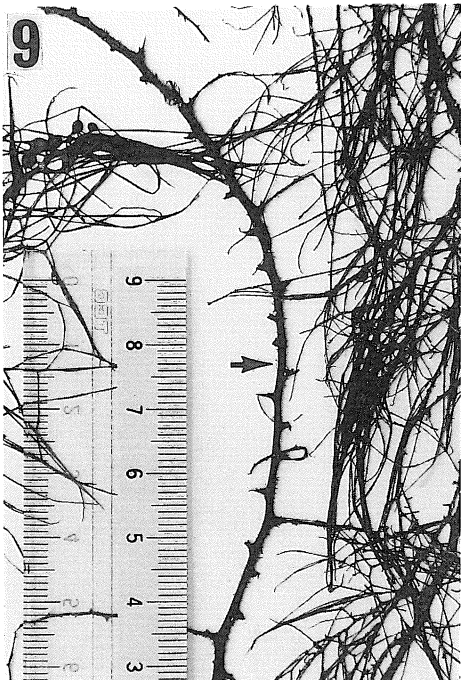
Fig. 10. Part of the same specimen as shown in Fig. 9, showing some branchlets (arrows) bearing 2 to several vestiges of the linear leaves.

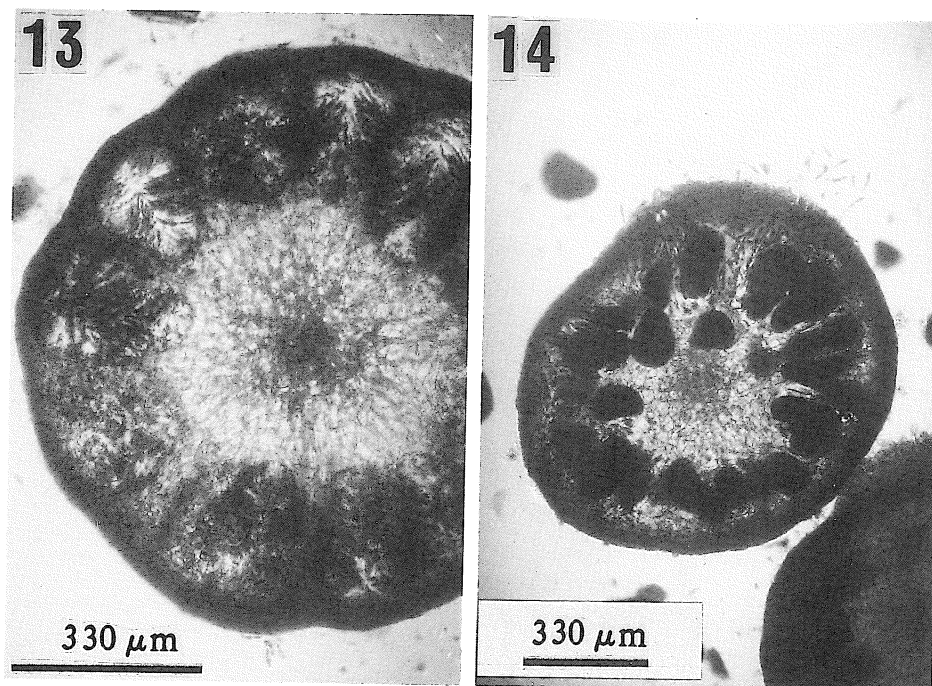
Fig. 11. Upper part of the specimen shown in Fig. 2, showing some male receptacles arranged racemosely.

Fig. 12. Upper part of the specimen shown in Fig. 3, showing some female receptacles arranged racemosely.









Figs 13, 14. *Sargassum microceratium* (Turner) C. Agardh.

Fig. 13. Part of a mature male specimen collected in Fuku-ura Bay on April 4, 1988 and preserved in formalin-seawater, showing some male conceptacles in the transverse section of a male receptacle.

Fig. 14. Part of a mature female specimen collected in Fuku-ura Bay on April 27, 1988 and preserved in formalin-seawater, showing some female conceptacles containing oogonia in the transverse section of a female receptacle together with some oogonia removed from conceptacles artificially in sectioning.

annual principal branches cylindrical to subcylindrical, 0.5–2 mm in diameter in dried specimens. Leaves linear (Figs 7, 10), cylindrical to subcylindrical, tapering toward both ends, with cryptostomata in common and no midrib, unstalked, 1–6 cm long in dried specimens, commonly curved, usually simple, arranged spirally with 1/3 phyllotaxis. Vesicles spherical but obovoid when young, 1–5 mm in diameter in dried specimens with more or less short and thin cylindrical stipe, with infrequent mucronation (Fig. 8). Cryptostomata common on the lateral branches, branchlets, receptacles and vesicles as well as the leaves. Minute spinal processes common on the lateral branches and branchlets as well as the principal branches.

The plant dioecious. Receptacles cylindrical to subcylindrical (Figs 13, 14), tapering toward the blunt apices with a perishable bract, 3–18 mm in length and 1–2 mm in diameter in the fresh specimens of both sexes, simple but sometimes with proliferations, arranged racemosely on the branchlets as well as the upper portion of the principal

branches and the lateral branches (Figs 11, 12). The plants fruiting in March and April.

Habitat: On rocky bottom and stones in the upper sublittoral zone in the well protected areas.

Collections: Tachiki Bay, drifted, on September 14, 1987, sterile, (OS 9939); Tachiki Bay, at the depth of 1.5 m, on rocky bottom, on September 15, 1987, sterile, (OS 9940); Fuku-ura Bay, at the depth of 0.5 m, on rocky bottom, on September 19, 1987, sterile, (OS 9941); Tachiki Bay, at the depth of 1.5 m, on stones, on September 20, 1987, sterile, (OS 9955); Tsuma Bay, at the depth of 0.5 m, on rocky bottom, on September 28, 1987, sterile, (OS 9942); Tsuma Bay, at the depth of 0.5 m, on stone, on October 12, 1987, sterile, (OS 9943); Tsuma Bay, at the depth of 0.5 m, on rocky bottom, on November 4, 1987, sterile, (OS 9944); Tsuma Bay, at the depth of 0.5 m, on rocky bottom, on December 18, 1987, sterile, (OS 9945); Tsuma Bay, at the depth of 0.5 m, on rocky bottom, on December 26, 1987, sterile, (OS 9946); Fuku-ura Bay, at the depth of 0.5 m, on stones, on December 29, 1987, sterile, (OS 9947); Fuku-ura Bay, at the depth of 0.5 m, on rocky bottom, on March 11, 1988, fruiting, (OS 9948); Tsuma Bay, at the depth of 0.5 m, on rocky bottom, on March 14, 1988, fruiting, (OS 9949); Fuku-ura Bay, at the depth of 0.5 m, on rocky bottom, on April 4, 1988, fruiting, (OS 9950); Fuku-ura Bay, at the depth of 0.5 m, on rocky bottom, on April 5, 1988, fruiting, (OS 9951); Tsuma Bay, at the depth of 0.5 m, on rocky bottom, on April 7, 1988, fruiting, (OS 9952); Fuku-ura Bay, at the depth of 0.5 m, on rocky bottom, on April 27, 1988, fruiting, (OS 9953); Fuku-ura Bay, at the depth of 0.5 m, on stones, on July 25, 1988, juvenile, (OS 9954).

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