

## The Marine Algae from the Island of Yonaguni-II

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### Abstract

This paper deals with a marine algae of additional ones to the algae described by Yamada and Tanaka (1938). During the course of this study, 43 species (12 species of Chlorophyta, 7 species of Phaeophyta, and 24 species of Rhodophyta) are described, 3 of which are new records in the algal flora of southern Japan.

### INTRODUCTION

Yonaguni island, which lies in the southwestern end of Ryu-Kyu Islands (Fig. 1), is poorly known from the stand point of the marine algal flora. The only report on the algal flora of this island was made by Yamada and Tanaka (1938). They described 102 species (36 species of Chlorophyta, 8 species of Phaeophyta, and 57 species of Rhodophyta) from this island.

In 1959, the senior author of this paper has had field trips to Yonaguni island and collected a number of specimens of algae. These collection made it possible for us to carry out the study of algal flora of this island. In addition to these

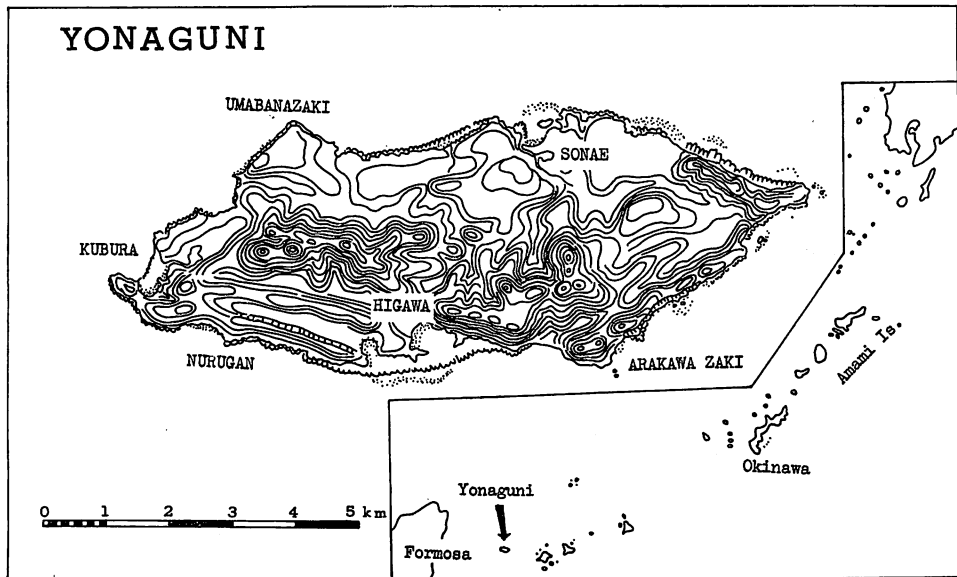


Fig. 1. Map of Yonaguni Island.

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specimens, some specimens sent to our laboratory by Mr. Miyara are used in this study.

The complete set of specimens used in this study is housed in the Herbarium of Faculty of Fisheries, Kagoshima University. Collections were originally preserved in 10 % formalin-sea-water. Furthermore, some of the macroscopic species are mounted on herbarium sheet and some of the microscopic species are mounted on glycerine-jelly slides.

#### CHLOROPHYTA

##### Valoniaceae

##### *Valonia* GINNANI

##### *Valonia utricularis* (ROTH) AGARDH

Börgeesen, Mar. Alg. D. W. Ind., (1913-20) p.30; W. V. Bosse, Liste des alg. du Siboga, vol. 1, (1913) p. 60; Yendo, Note. alg. new to Jap. II, (1914) p. 268; Yamada, Mar. Chloro. Ryukyu, (1934) p. 37; Okamura, Mar. alg. Kotosho, (1931) p. 99, Nippon Kaiso Shi, (1936) p. 33.

Japanese name: Baronia

Hab.: Oodomari (Oct. 28, 1959)

Syn.: *Conferva utricularis* ROTH

##### *Valonia aegagropila* C. AGARDH

Kützing, Tab. Phyc. vol. 6, (1856) pl. 87 fig.1; De Toni, Syll. Alg. vol. 1, (1889) p. 377; W. V. Bosse, Liste des alg. du Siboga, vol. 1, (1913) p. 60; Yamada, Meeres alg. Formosa, (1925) p. 80, Mar. Chloro. Ryukyu, (1934) p. 37; Egerod, Analysis Siphonous Chloro., (1952) p. 348; Dawson, Mar. Plant. Nha Trang, (1954) p.388.

Japanese name: Tama baronia

Hab.: Sonai (Oct. 27, 1959)

##### Siphonocladaceae

##### *Struvea* SONDER

##### *Struvea anastomosans* (HARVEY) PICCONE & GRUNOW ex Piccone

Börgeesen, Mar. Alg. D. W. Ind., (1913-20) p. 54 fig. 39; Egerod, Analysis Siphonous Chloro., (1952) p.359 fig.4, Mar. Alg. Thailand, (1971) p.123 fig. 10-16; Dawson, Mar. Plant. Nha Trang, (1956) p.30 fig.8 g.

Japanese name: Sainome amiha

Hab.: Kubura (Oct. 30, 1959)

Syn.: *Cladophora?* *anastomosans* HARVEY

##### *Struvea delicatula* KÜTZING

Single small specimen of this species are at hand, which were growing upon the frond of *Digenea simplex*. *S. anastomosans* has been described in Japan as *Struvea delicatula* KÜTZING (Yamada 1934: 36; 1925: 82; Okamura 1931: 97; 1930: 103).

##### Anadyomenaceae

##### *Anadyomene* LAMOUROUX

*Anadyomene wrightii* HARVEY

De Toni, Syll. Alg. vol.1, (1889) p.367; Okamura, Icon. Jap. alg. I, (1908) p.198 pl. 40 figs.1-6; W. V. Bosse, Liste des alg. du Siboga, vol. 1, (1913) p.73; Yamada, Mar. Chloro. Ryukyu, (1934) p.40; Børgesen, Some Mar. Alg. Mauritius I, (1940) p.33 fig.9; Dawson, Mar. plant. Nha Trang, (1954) p.390 fig.9 e.

Japanese name: Ukioriso

Hab.: Oodomari (Oct. 28, 1959)

## Cladophoraceae

## Rhizoclonium KÜTZING

*Rhizoclonium kernerii* STOCKMAYER

Børgesen, Mar. Alg. D. W. Ind., (1913-20) p.20 fig.8, Mar. alg. Canary Is., (1925) p. 50 fig. 7, Some Mar. alg. Mauritius, (1940) p.43; Dawson, Mar. plant. Nha Trang, (1954) p.386 fig.7 a-c; Taylor, Mar. alg. Northwest. coast N. America, (1937) p. 84; Pacif. Mar. Alg. Allan Hancock Exped. Galapagos Is., (1945) p.55, Mar. alg. east. Tropical Subtropical coast Americas, (1960) p.75; Tanaka, Mar. alg. south. Jap. IV, (1963) p.64 fig.1.

Japanese name: Kawaguchi midoro

Hab.: Sonai (Oct. 27, 1959)

## Dasycladaceae

*Acetabularia* LAMOUROUX*Acetabularia möbii* SOLMS-LAUBACH

Børgesen, Some Mar. Alg. Mauritius I, (1940) p. 44; Egerod, Analysis Siphonous Chloro., (1952) p.411 fig.23 i; Dawson, Mar. plant. Nha Trang, (1954) p.397 fig. 13 i.

Japanese name: Hina kasanori

Hab.: Hikawa and Oodomari (Oct. 28, 1959)

Syn.: *A. minutissima* OKAMURA

*A. wettsteinii* SCHUSSNIG

*A. polyphysoides* OKAMURA (non CROUAN)

The present southern Japanese specimen is closely related to *A. parvula*. *A. parvula* and *A. möbii* bear the several features overlapping each other. However, the present specimen is more closely similar with the descriptions and illustrations of *A. möbii* made by Egerod (1952).

*Acetabularia clavata* YAMADA

Mar. Chloro. Ryukyu, (1934) p.57 figs.24-25; Egerod, Analysis Siphonous Chloro. (1952) p.413 fig.23 j-k.

Japanese name: Hanaregasa

Hab.: Oodomari (Oct. 28, 1959)

## Bryopsidaceae

*Bryopsis* LAMOUROUX

*Bryopsis indica* A. & E. S. GEPP

W. V. Bosse, Liste des alg. du Siboga, vol.1, (1913) p. 93; Yamada, Mar. Chloro. Ryukyu, (1934) p.61 fig.30; Börgesen, Some Mar. Alg. Mauritius I, (1940) p.44; Taylor, Plants of Bikini, (1950) p.50; Dawson, Mar. Plant. Nha Trang, (1965) p. 34 fig.14; Womersley and Bailey, Mar. Alg. Solomon Is., (1970) p. 271.

Japanese name: Indo hanemo

Hab.: Hikawa (Oct. 29, 1959)

*B. indica* is closely resemble to *B. pennata* as shown by Egerod (1952). The relationship between these two species needs clarifying.

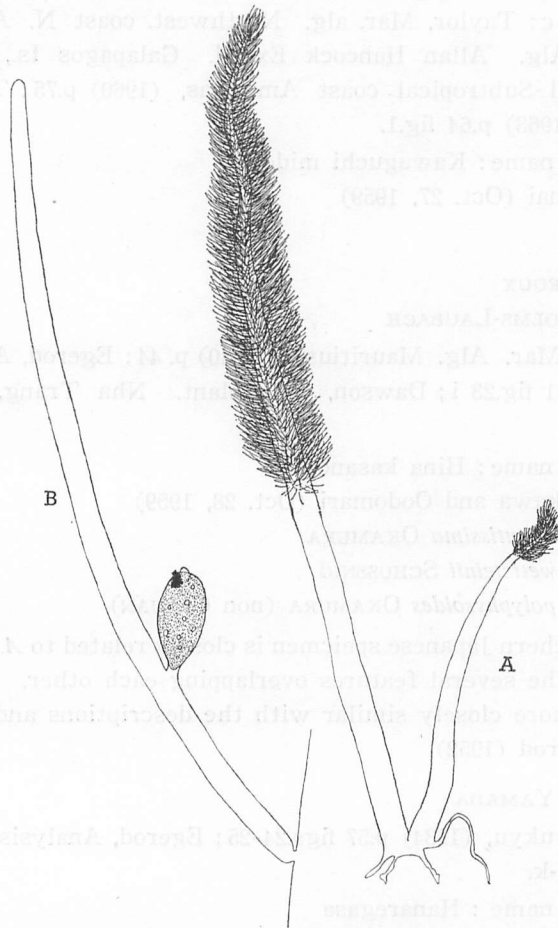
*Pseudobryopsis* BERTHOLD*Pseudobryopsis hainansis* TSENG Fig. 2

Fig. 2. *Pseudobryopsis hainansis*.

A. Habit of plant. (X 10)

B. Ramulus with a gametangium. (X 106)

Stud. Mar. Chloro. Hainan, (1936) p.171 figs.27-28; Ogata, Noteworthy alg. Takarazima, (1954) p. 9 pl.3 figs.2-4; Diaz-Piferrer, New Spec. *Pseudobryopsis*, (1965) p. 470.

Japanese name: Hanemomodoki

Hab.: Nurugan (Oct. 28, 1959)

Recently, Womersley and Bailey (1970) described two new species of genus *Pseudobryopsis* from Solomon Islands. *P. hainanensis* is closely similar to one of their species, *P. solomonensis*.

Caulerpaceae

*Caulerpa* LAMOUROUX

*Caulerpa ambigua* OKAMURA

Alg. Ogasawara-jima, (1897) p.4 pl.1 figs.3-10, Mar. alg. Kotosho, (1931) p.101; W. V. Bosse, Liste des alg. du Siboga, vol. 1, (1913) p.97 fig. 24; Yamada, Mar. Chloro. Ryukyu, (1934) p.64 fig.33; Egerod, Analysis Siphonous Chloro., (1952) p.368, Mar. Alg. Thailand, (1971) p.123 fig.17; Dawson, Mar. Plant. Nha Trang, (1954) p.392 fig.9 f; Taylor, *Caulerpa* Israel South Red Sea Exped., (1967) p.13 figs.1-4; Nizamuddin, *Caulerpa* Karachi, (1967) p.160 figs.14-17.

Japanese name: Hime zuta

Hab.: Oodomari (Oct. 28, 1959)

Syn.: *C. vickersia* BÖRGESEN

*C. ambigua* var. *vickersiae* (BÖRGESEN) EUBANK

var. *simplex* EUBANK

var. *dichotoma* EUBANK

var. *furcifolia* (TAYLOR) EUBANK

var. *laxurians* (TAYLOR) EUBANK

Dawson (1956) and Gilbert (1962) regarded *C. ambigua* and *C. vickersiae* as distinct species. But, Egerod (1971) mentioned that these two species are conspecific.

*Caulerpa taxifolia* (VAHL.) AGARDH

Harvey, Phyc. Austr., vol.3, (1863) pl.178; W. V. Bosse, Monogr. des Caulerpes, (1898) p.292; Börgesen, Some Ind. green and brown alg. II, (1932) p.58; Okamura, Icon. Jap. Alg. vol.3, (1913) p.38 pl.110 figs.4-5.

Japanese name: Ichii zuta

Hab.: (April 15, 1936)

Syn.: *Fucus taxifolius* VAHL

*Caulerpa falcata* KÜTZING

Codiaceae

*Halimeda* LAMOUROUX

*Halimeda incrassata* LAMX. f. *lamourouxii* BARTON

Gen. *Halimeda*, (1901) p.27 pl.4 fig.41; Okamura, Icon. Jap. Alg. vol.3, (1913) p.213 pl.149 figs.9-10; Hilis, Rev. Gen. *Halimeda*, (1959) p.365.

Japanese name :

Hab.: Hikawa (Oct. 29, 1959)

#### PHAEOPHYTA

Ectocarpaceae

*Feldmannia* HAMEL

*Feldmannia irregularis* (KÜTZING) HAMEL Fig. 3 B-C

Phéophycees de France V, (1939) xvii fig.61 f; Cardinal, Ectocarpacées de la Manche, (1964) p.54 fig.29; Womersley, Mar. alg. south. Australia II, (1967) p.192; Womersley and Bailey, Mar. alg. Solomon Is., (1970) p.289.

Japanese name :

Hab.: Oodomari (Oct. 28, 1959)

Syn.: *Ectocarpus irregularis* KÜTZING

Joly (1965) placed *E. irregularis* KÜTZING under the genus *Giffordia*. However, the authors of this paper prefer to follow the Hamel's proposal. Hamel (1939) separated genus *Feldmannia* from *Ectocarpus* on the basis of the differences of the shape of chromatophores, presence of distinct growth regions at the base of long unbranched filaments, and the sporangia mostly borne below the growth regions.

*Feldmannia indica* (SONDER) WOMERSLEY AND BAILEY Fig. 3 A

Mar. Alg. Solomon Is., (1970) p. 288.

Japanese name: Nagami shiomidoro

Hab.: Oodomari (Oct. 28, 1959)

Syn.: *Ectocarpus indicus* SONDER

*Giffordia indica* (SOND.) PAPENFUSS et CHIHARA

Sphacelariaceae

*Sphacelaria* LYNGBYE

*Sphacelaria variabilis* SAUVAGEAU

Yamada, Mar. Alg. Mutsu Bay, (1928) p.504 fig.7 a-c; Okamura, Nippon Kaiso Shi, (1936) p. 152.

Japanese name: Matazaki kurogashira

Hab.: Oodomari (Oct. 28, 1959)

*Sphacelaria furcigera* KÜTZING Fig. 3 D

Tab. Phyc. vol. V, (1855) p.27 tab.20 fig. II; Börgesen, Some Mar. Alg. Mauritius, II, (1941) p.46 fig.21; Dawson, Mar. plant. Nha Trang, (1954) p.400 fig.14 h; Kamura, Note Some Mar. Alg. South. Ryukyu Is. (1), (1963) p.104 fig.1.

Japanese name: Waijigata kurogashira

Hab.: Nurugan (Oct. 28, 1959)

Dictyotaceae

*Dictyota* LAMOUR.

*Dictyota linearis* (AG.) GREV.

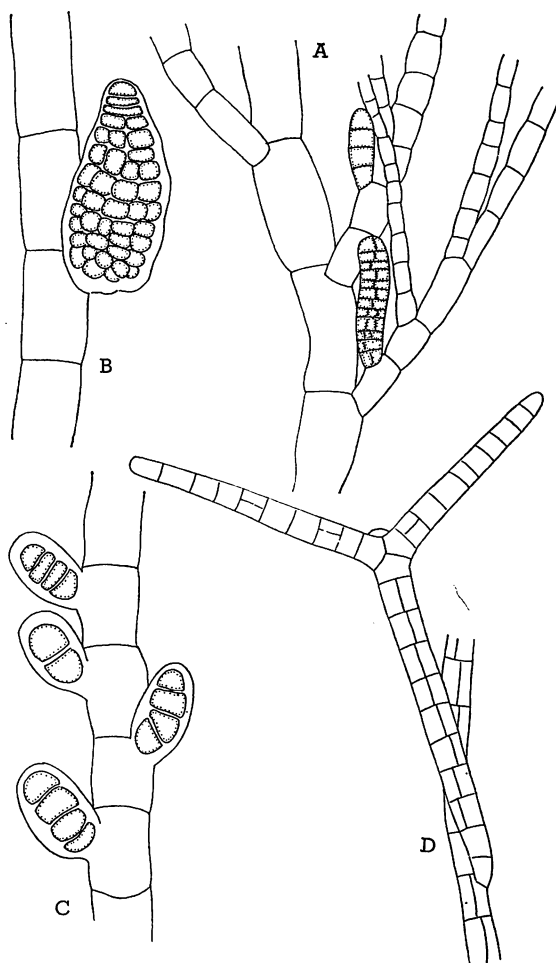


Fig. 3. A. *Feldmannia indica*. B-C. *Feldmannia irregularis*. Parts of fronds bearing plurilocular sporangia. A. ( $\times 175$ ) B-C. ( $\times 450$ ) D. *Sphacelaria furcigera*. A portion of the filaments with propagulum. ( $\times 175$ )

Kützing, Tab. Phyc. IX, (1859) t.21; De Toni, Syll. Alg. III, (1889-1924) p. 275; Okamura, Icon. Jap. Alg. III (2), (1913) p.29 pl.107, Nippon Kaisei Shi, (1936) p.162.

Japanese name: Ito amiji

Hab.: Nurugan (Oct. 28, 1959)

Syn.: *D. angustissima* SOND.

*Dictyota divaricata* LAMOUR.

Okamura, Icon. Jap. Alg. III (2), (1913) p.31 pl.108 fig.1-8, Mar. Alg. Isl. Hatidyo, (1930) p.101, Nippon Kaisei Shi, (1936) p.162; De Toni, Syll. Alg. III, (1889-1924) p.276.

Japanese name: Kazuno amiji  
 Hab.: Oodomari (June 30, 1960)  
 Syn.: *D. bartayresiana* var.  $\beta$  *divaricata* J. AG.  
*D. notarisii* SOND.  
*D. acutiloba* KÜTZ.

#### Chnoosporaceae

*Chnoospora* J. AGARDH

*Chnoospora minima* (HERING) PAPENFUSS

Note. South. African Mar. Alg. IV, (1956) p. 69; Taylor, Mar. alg. east. tropical subtropical coast America, (1960) p.263 pl.36 figs.3-4.

Japanese name: Bogata murachidori  
 Hab.: Higashizaki (Feb. 27, 1960)  
 Syn.: *C. fastigiata* J. AGARDH  
*C. pacifica* J. AGARDH

### RHODOPHYTA

#### Bangiaceae

*Bangia* LYNGBYE

*Bangia fusco-purpurea* (DILLW.) LYNGBYE

Kützing, Tab. Phyc. vol.3, (1853) t.29 b; Okamura, Icon. Jap. Alg. IV (5), (1916-23) p.87 pl.171 figs.6-12, Nippon Kaiso Shi, (1936) p.377 fig.183; Tanaka, Spec. *Bangia* from Japan, (1950) p.167 fig.3, Japanese Protofloridae, (1952) p.23.

Japanese name: Ushikenori  
 Hab.: Oodomari (Oct. 31, 1959)  
 Syn.: *Bangia atropurpurea* f. *fuscopurpurea* (DILLW.) J. AGARDH  
*Conferva fuscopurpurea* DILLWYN  
*Bangia atropurpurea* f. *fuscopurpurea* (DILLW.) LYNGBYE

#### Helminthocladiaceae

*Dermonema* (GREVILL) HARVEY

*Dermonema frappieri* (MONT. & MILLARD) BÖRGESEN

Some Mar. Alg. Mauritius, (1942) fig. 21; Dawson, Mar. Plant. Nha Trang, (1954) p.414 fig.25 m, Note. Tropical Pacif. Mar. Alg., (1954) p.6 fig.4; Papenfuss, Note. algal nomenclat. V, (1967) p. 96.

Japanese name: Kasamatsu  
 Hab.: Sonai (Oct. 27, 1959); Kubura (Oct. 30, 1959)  
 Syn.: *Dermonema gracile* (MARTENS) W. V. BOSSE

#### Gelidiaceae

*Gelidium* LAMOUR.

*Gelidium isabelae* TAYLOR

Pacif. Mar. Alg. Allan Hancock Exped. Galapagos Is., (1954) p.154 pl.5 figs. 8-12;



Tanaka, Mar. Alg. South. Jap. VI, (1965) p.55 fig.4.

Japanese name: Herahimebuto

Hab.: Kubura (Oct. 30, 1959)

Plocamiaceae

*Plocamium* LYNGBYE

*Plocamium serratum* OKAMURA

Mar. Alg. Kotosho, (1931) p. 115, Icon. Jap. Alg. VI, (1932) p.100, Nippon Kaiso Shi, (1936) p.616.

Japanese name: Kizami yukari

Hab.: Urano (March 29, 1960)

Syn.: *Plocamium costatum* (J. AG.) HOOK. et HARV.

Gracilariaceae

*Gracilaria* GREVILLE

*Gracilaria crassa* HARVEY

De Toni, Syll. Alg. IV, (1900) p.439; W. V. Bosse, Liste des Alg du Siboga IV, (1928) p.431; Yamada, Note. Some Jap. Alg. V, (1933) p.281 pl.13 fig.1; Okamura, Nippon Kaiso Shi, (1936) p. 632; Børgesen, Some Mar. Alg. Ceylon, (1936) p.86 fig.8, Some Mar. Alg. Mauritius IV, (1952) p.33; Dawson, Mar. Plant. Nha Trang, (1954) p.438; Ohmi, Spec. *Gracilaria* and *Gracilariopsis*, (1958) p. 25.

Japanese name: Taiwan ogonori or Fushikurenori

Hab.: Kubura (Nov. 1, 1959)

Syn.: *Corallopsis opuntia* J. AGARDH

*Gracilaria edulis* (GMEL.) SILVA

Rev. nomenclat. conserv. alg., (1952) p. 293; Ohmi, Spec. *Gracilaria* and *Gracilariopsis*, (1958) p. 16 fig. 6 pl. III-B.

Japanese name: Kataogonori

Hab.: Kubura (Nov. 20, 1959)

Syn.: *Fucus edulis* GMEL.

*Gracilaria lichenoides* (L.) HARV.

Rhodymeniaceae

*Coelarthrum* BØRGESEN

*Coelarthrum coactum* OKAMURA et SEGAWA

Segawa, Mar. alg. Susaki, II, (1936) p.186 fig. 7; Ogata, Note Alg. Takarazima Is., (1956) p. 287 fig. 4.

Japanese name: Sujikonori

Hab.: Kubura (Oct. 30, 1959)

Ceramiaceae

*Antithamnion* NÄGELI

*Antithamnion percurrans* DAWSON

Annot. List. Mar. Alg. Eniwetok Atoll, (1957) p.116 fig.24 a, b; Itono, Gen.

*Antithamnion* I, (1969) p. 38 fig.6 A-C.

Japanese name: Katahanohutatsugasane

Hab.: Kubura (Oct. 30, 1959)

The specimens of this species were found as an epiphyte associated with *Gymnothamnion elegans*.

*Antithamnion antillanum* BÖRGESEN

Mar. alg. D. W. Ind., (1913-20) p.226 fig.213-216.

Japanese name: Nisekinuitogusa

Hab.: Kubura (Oct. 30, 1959)

Syn.: *Antithamnion lherminieri* (CROUAN & CROUAN) NASR

*Callithamnion lherminieri* CROUAN & CROUAN

*Dasyphila* SONDER

*Dasyphila plumarioides* YENDO Fig.4 A

Nov. alg. Jap., (1920) p.7; Okamura, Icon. Jap. Alg. IV, (1923) p.190 pl.198 figs. 5-11, ibid VI, (1931) p.52 pl.277 fig.11; Womersley and Bailey, Mar. Alg. Solomon Is., (1970) p.326 fig.9 pl.27.

Japanese name: Okishinobu

Hab.: Kubura (Oct. 30, 1959)

The specimens of Yonaguni Island are closely identical with the widely distributed southern Japanese specimens. Recently, Womersley and Bailey (1970) described the presence of this species in Solomon Islands. Judging from their plate and figures, the materials of Solomon Islands are more laxly and sparsely branched in comparison with the materials at hand.

On the surface of thallus of *D. plumarioides* from Yonaguni Island, many fronds of *Spermothamnion yonakuniensis* and *Ptilothamnion cladophorae* are found as an epiphytes.

*Spyridia* HARVEY

*Spyridia filamentosa* (WULFEN) HARVEY

Feldmann-Mazoyer, Recherches Céramiacées Méditerranée occidentale, (1940) p. 348; Taylor, Mar. Alg. Florida, (1928) p.197; Okamura, Icon. Jap. Alg. III (1), (1913) p.8 pl.102 figs.5-14, ibid IV, (1923) p.6 pl.152 fig.1-3; Börgesen, Mar. Alg. D. W. Ind., (1913-20) p. 233 figs. 222-226; W. V. Bosse, Liste des Alg. du Siboga, (1923) p.320; Dawson, Mar. Red Alg. Pacif. Mexico, (1962) p.69 pl.30 figs.1-3.

Japanese name: Ubukegusa

Hab.: Odomari (Oct. 28, 1959) Kubura (Oct. 30, 1959)

Syn.: *Fucus filamentosa* WULFEN

*Ceramium* ROTH

*Ceramium gracillimum* var. *byssoides* (HARV.) G. MAZOYER

Ceramiees Afrique Nord, (1938) p. 323; Dawson, Some Mar. alg. south. Marshall Is., (1956) p. 53, Mar. Red Alg. Pacif. Mexico, (1962) p. 57 pl. 20 fig. 2-3.

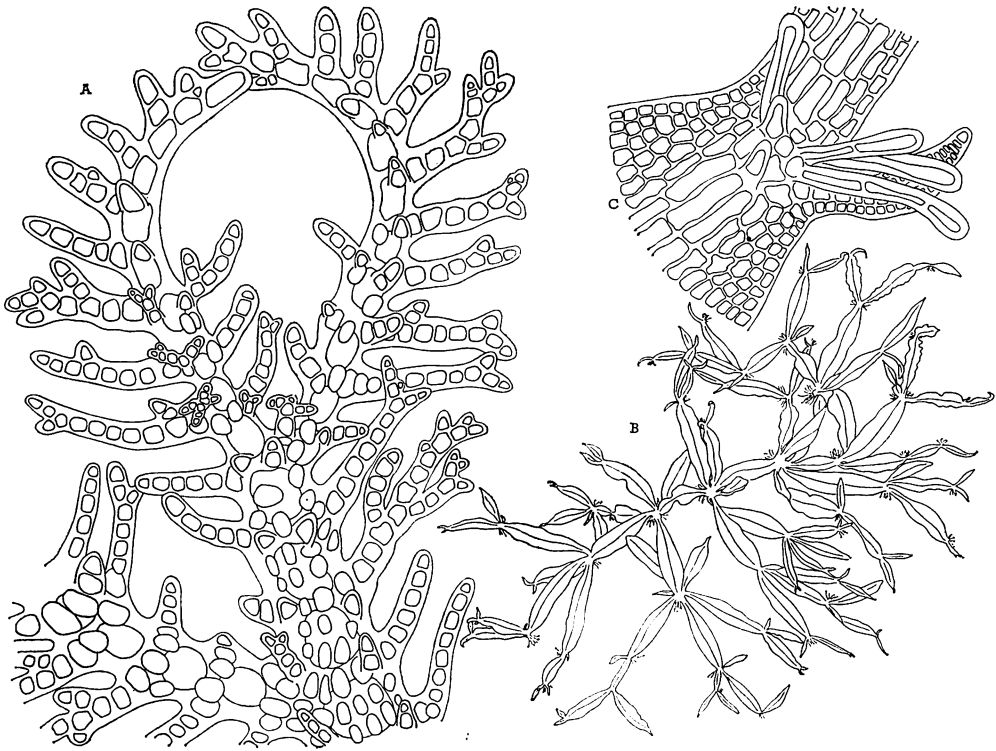


Fig. 4. A. *Dasyphila plumarioides*. A apex of axis showing laterals, whorl-branchlets and cortication. ( $\times 370$ ). B-C. *Caloglossa leprieurii* B.. Habit of plants. ( $\times 3$ ) C. Detail of part of frond showing the formation of attachment rhizoids. ( $\times 117$ )

Japanese name :

Hab. : Hikawa (Oct. 29, 1959)

Syn. : *Ceramium byssoideum* HARVEY

*Ceramium transversale* COLLINS & HARVEY

*Ceramium masonii* DAWSON

*Ceramium mazatlanense* DAWSON

Rev. *Ceramium*, (1950) p.130 pl. 2fig.14-15, Note Pacif. Coast Mar. Alg, (1954) p. 6, Mar. Red Alg. Pacif. Mexico, (1962) p.59 pl.23 fig.1-2; Jaasund, Mar. Alg. Tanzania III, (1970) p.67 fig.1 A.

Japanese name :

Hab. : Kubura (Oct. 30, 1959)

*Ceramium fimbriatum* SETCHELL & GARDNER

Mar. alg., (1924) p.777 pl.26 fig.43-44; Dawson, Rev. *Ceramium*, (1950) p.123; Mar. Red Alg. Pacif. Mexico, (1962) p.56 pl.19 fig.3 pl.20 fig.6-7; Nakamura, Gen. *Ceramium* and *Campylaeophora*, (1965) p.143 fig.8.

Japanese name: Fusatsuki igisu  
 Hab.: Oodomari (Oct. 31, 1956)

*Ceramium taylorii* DAWSON

Rev. *Ceramium*, (1950) p.127 pl.2 fig.13 pl.4 fig.31-33, Mar. Red. Alg. Pacif. Mexico, (1962) p.65 pl.26 fig.1-3; Jaasund, Mar. Alg. Tanzania III, (1970) p.66 fig.1 I-J.

Japanese name:  
 Hab.: Sonai (Oct. 27, 1959)

Delesseriaceae

*Caloglossa* (HARVEY) J. AGARDH

*Caloglossa leprieurii* J. AGARDH Fig. 4 B-C

Okamura, Icon. Jap. Alg. I, (1909) p.172 pl.36 pl.37, Nippon Kaiso Shi, (1936) p.794 fig.383.

Japanese name: Ayaginu  
 Hab.: Sonai (Oct. 27, 1959)  
 Syn.: *Delesseria leprieurii* MONT.  
*Hypoglossum leprieurii* Kütz.

Dasyaceae

*Dasya* C. AGARDH

*Dasya* spec.

Hab.: Oodomari (Oct. 28, 1959)

The present southern Japanese specimens are closely related to *Dasya iyengarii* BÖRGESSEN (1937: 345) which is originally known from India. In the upper parts of the plants, the present specimens resemble very closely to the descriptions made by Börgesen on *Dasya iyengarii* in having much incurved lateral branches and in having slender descending filaments along the canals. However, in the lower parts of southern Japanese plants, the axis is entirely corticated by small irregular shaped cells, and, in this respect, the identity of the present materials to *D. iyengarii* are insufficient for comparing the southern Japanese species.

Rhodomelaceae

*Bostrychia* MONTAGNE

*Bostrychia binderi* HARVEY

Tokida, Some little known Mar. alg. Jap. (2), (1941) p.55; Taylor, Tropical Mar. Alg., (1960) p.598; Joly, Flora Mar., (1965) p.229.

Japanese name: Higashi kokemodoki  
 Hab.: Kubura (Nov. 1, 1959)

A single small fragment, which was associated with *Murrayella pericladus*, is at hand. The structures of lateral branches coincide quite well with the previously made descriptions and illustrations of *B. binderi*.

*Bostrychia tenella* (VAHL) J. AGARDH

Börgeesen, Mar. Alg. D. W. Ind., (1913-20) p.300 fig.299-302; W. V. Bosse, Liste des alg. du Siboga, (1923) p.363; Okamura, Icon, Jap. Alg. I, (1909) p.96 pl.22 figs.1-13; Taylor, Tropical Mar. Alg., (1960) p. 599; Joly, Flore ficologia mar., (1957) p.168.

Japanese name: Kokemodoki

Hab.: Kubura (Nov. 1, 1959)

Syn.: *Fucus tenellus* VAHL

*Bostrychia tenuis* (HARVEY) POST f. *simpliciuscula* (HARVEY) POST Fig. 5

Weitere Daten zum Verbreitung des Bostrychietum III, (1939) p. 6; Tokida, Some little known mar. alg. Japan, (2), (1941) p.51.

Japanese name: Tanikokemodoki

Hab.: Sonai (Oct. 28, 1959)

Syn.: *Bostrychia simpliciuscula* HARV.

*Bostrychia andoi* OKAMURA

*Chondria* AGARDH

*Chondria repens* BÖRGESEN

Mar. alg. Easter Is., (1924) p.299 fig.40-41; Dawson, Mar. Plant. Nha Trang, (1954) p.460 fig.62 d-e; Tanaka, Mar. Alg. South. Jap. IV, (1963) p.66 fig.4.

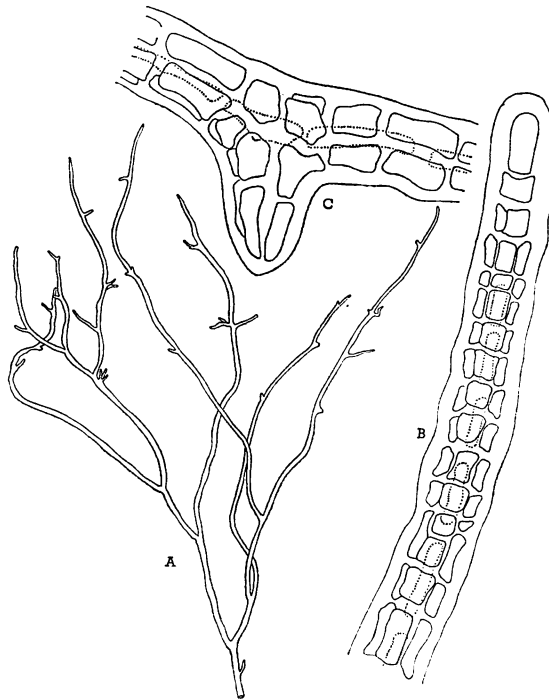


Fig. 5. *Bostrychia tenuis* f. *simpliciuscula*. A. Outline of frond. ( $\times 7$ )  
B-C. Details of filaments. ( $\times 194$ )

Japanese name: Hime yanaginori

Hab.: Hikawa (Oct. 28, 1959)

*Polysiphonia* GREVILLE

*Polysiphonia howei* HOLLENBERG

in Taylor, Pacif. Mar. Alg. Galapagos, (1945) p.302, Phycological Notes II, (1958) p.64, *Polysiphonia* Tropical Pacif., (1968) p.203 figs.1 D, 1 E, 2 A.

Japanese name: Yonakuni itogusa

Hab.: Sonai (Oct. 27, 1959), Kubura (Oct. 30, 1959)

Syn.: *Polysiphonia yonakuniensis* SEGI

*Polysiphonia rhizoidea* MENEZ

*Vidalia* LAMOUROUX

*Vidalia obtusiloba* (MERT.) J. AGARDH

Falkenberg, Rhodomelaceen, (1901) p.429; De Toni, Syll. Alg. IV, (1900) p.1102; Okamura, Nippon Kaiso Shi, (1936) p.884 fig.412, Icon. Jap. Alg. III, (1915) p.123 pl.131.

Japanese name: Kaerinami

Hab.: Kubura (Oct. 30, 1959)

Syn.: *Fucus obtusiloba* MERT.

*Murrayella* SCHMITZ

*Murrayella pericladus* (C. AGARDH) SCHMITZ

Börgeesen, Mar. Alg. D. W. Ind., (1913-20) p.314; Tokida, Some little known mar. alg. Japan (2), (1941) p.51; Taylor, Tropical mar. alg., (1960) p.593; Joly, Fl. Mar., (1965) p.225; Hollenberg Phycological Notes, (1968) p.80.

Japanese name: Nagamigusa

Hab.: Oodomari (Oct. 28, 1959), Kubura (Nov. 1, 1959)

Syn.: *Hutchinsia pericladus* AG.