

**Note on the Marine Algal Flora in the Middle Part  
of the Japan Sea Coast of Honshū I. Cyanophyta,  
Chlorophyta, Phaeophyta\***

Mitsuo KAJIMURA

Marine Biological Station, Shimane University,

Kamo, Saigo, Oki-gun, 685 Japan

(Received September 6, 1978)

From the middle part of the Japan Sea coast of Honshū extending from Shōmenzaki Point on the boundary between Kyoto Prefecture and Fukui Prefecture to Nezugaseki in Yamagata Prefecture, 622 spp. marine algae including 49 spp. of Cyanophyta, 54 spp. of Chlorophyta, 169 spp. of Phaeophyta and 350 spp. of Rhodophyta have been reported in the 38 floristic papers and 16 taxonomical papers up to date.

Researches on the marine algal flora in the middle part of the Japan Sea coast of Honshū including Sado Isl. where the influence of Tsushima Warm Current is still rather strong all the year round, were carried out by the writer in 1967, 1977 and 1978 at the following stations: Hyūga, Fukui Pref. (April 11, 1967); Matsuzaki, Okazaki (April 12, 1967); Tsuruga (May 2, 1967); Obama, Sotomo (May 5, 1967); Wada, Sodezaki, Aoshima Islet, Futagojima Islet (May 6, 1967); Mikuni (August 2, 1967); Urasoko (March 22, 1977); Tassha and Off Tassha, Sado Isl., Niigata Pref. (June 22, 1977, June 24-26, 1978); Akasaki, Off Akasaki, Off Ogi, Wajima, Noto Pen., Ishikawa Pref. (June 24, 1977, July 28-29, 1978); Yokohama, Fukui Pref. (June 25, 1977). Collections in deep waters off Urasoko, Ogi, Akasaki and Tassha, were made with a steel dredge designed by the writer. As a result of the present researches, the writer could collect 270 spp. of marine algae including 30 spp. of Cyanophyta belonging to 17 genera and 4 families, 34 spp. of Chlorophyta belonging to 13 genera and 9 families, 77 spp. of Phaeophyta belonging to 38 genera and 19 families, and 129 spp. of Rhodophyta belonging to 65 genera and 28 families. Two spp. of Sea-grasses belonging to 1 genus and 1 family were also collected. Cyanophyta, Chlorophyta and Phaeophyta of them are reported here on account of financial limitation this time.

The following 10 spp. marked with ※ in the list are new records to Japan: *Gomphosphaeria lacustris*, *Hydrococcus rivularis*, *Hyella caespitosa*, *Phormidium fragile*, *Oscillatoria foreaui*, *Streblonema anomalum*, *Streblonema corymbiferum*,

\* Contribution No. 8 from Oki Marine Biological Station, Shimane University.

*Streblonema rugosum*, *Compsonea pusillum* and *Compsonea secundum*; and the following 8 spp. marked with ⊙ are new to the Japan Sea: *Sphaeronema lithophila*, *Microcoleus sanctae-crucis*, *Lyngbya pellucida*, *Phormidium feldmannii*, *Ectocarpus laurenciae*, *Sphacelaria tenuis*, *Cutleria multifida*, *Leathesia globosa*, also those 9 spp. of Cyanophyta, 14 spp. of Chlorophyta and 11 spp. of Phaeophyta marked with ○ are new to the middle part of the Japan Sea coast of Honshū.

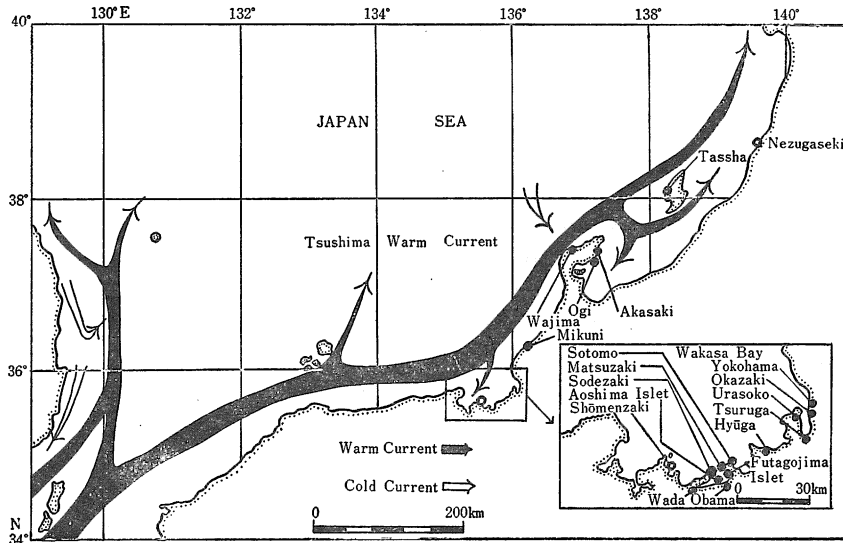


Fig. 1. Map showing Tsushima Warm Current and its branches washing the south-western and middle Japan Sea coasts of Honshū (after Kawai, 1972, Fig. 6(a)–6(b)), and the site of the stations where the materials were collected on the shore or in the offing.

CYANOPHYTA  
CYANOPHYCEAE  
CHROOCOCCALES  
CHROOCOCCACEAE

- 1. *Coccochloris stagnina* SPRENGEL seq. DROUET et DAILY  
in UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 10, pl. 1, fig. 1, 1961.  
*Habitat*: 0.5 m, on *Sphacelaria prostrata*: Sotomo.
- 2. *Anacystis aeruginosa* (ZANARDINI) DROUET et DAILY  
in UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 12, pl. 1, fig. 2, 1961; NODA, M., Mar. Alg. Sado Isl. Jap. Sea (2), p. 15, 1974.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
- 3. *Gomposphaeria aponina* KÜTZING seq. DROUET et DAILY  
in DESIKACHARY, T. V., Cyanophyta, p. 150, pl. 28, fig. 1–3, 1959; UMEZAKI, I., Mar. Blue-green

Alg. Jap., pp. 15–16, pl. 1, fig. 7, 1961.

*Japanese name:* Ai-no-tama.

*Habitat:* At low-tide-level, on *Cladophora pusilla*: Hyūga, Akasaki.

※ 4. *Gomphosphaeria lacustris* CHODAT

in DESIKACHARY, T. V., Cyanophyta, p. 150, pl. 28, fig. 4–6, 12, 13, 1959.

*Habitat:* At low-tide-level, on *Cladophora pusilla*: Hyūga.

## ENTOPHYSALIDACEAE

5. *Entophysalis conferta* (KÜTZING) DROUET et DAILY

in UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 18, pl. 2, fig. 2, 1961; TOKIDA, J. and MASAKI, T., List Mar. Alg. Coll. Vicin. Oshoro Mar. Biol. Sta. Oshoro, Hokkaido, Jap., p. 181, 1959.

*Habitat:* 0.5 m, on *Sphacelaria prostrata* and *Elachista tenuis*: Sotomo, Akasaki, Tassha.

## PLEUROCAPSALES

### HYELLACEAE

※ 6. *Hydrococcus rivularis* KÜTZING

in DESIKACHARY, T. V., Cyanophyta, pp. 180–181, pl. 30, fig. 10–14, 1959.

*Habitat:* At low-tide-level, on *Cladophora pusilla*: Hyūga.

○ 7. *Xenococcus acervatus* SETCHELL et GARDNER

Mar. Alg. Pac. Coast N. Am., pp. 31–32, pl. 5, fig. 13, 1919; DESIKACHARY, T. V., Cyanophyta, p. 182, pl. 31, fig. 28, 1959.

*Habitat:* At low-tide-level, on *Cladophora pusilla*: Hyūga.

8. *Xenococcus cladophorae* (TILDEN) SETCHELL et GARDNER

Mar. Alg. Pac. Coast N. Am., pp. 33–34, pl. 4, fig. 8, 1919; DESIKACHARY, T. V., Cyanophyta, p. 183, pl. 31, fig. 26, 1959; TOKIDA, J. and MASAKI, T., List Mar. Alg. Coll. Vicin. Oshoro Mar. Biol. Sta., Oshoro, Hokkaido, Jap., p. 191, 1959.

*Habitat:* At low-tide-level, on *Cladophora pusilla*: Hyūga.

※ 9. *Hyella caespitosa* BORNET et FLAHAULT

in DESIKACHARY, T. V., Cyanophyta, pp. 183–185, pl. 34, fig. 1–15, 1959.

*Habitat:* At low-tide-level, in the holdfast of *Grateloupia* sp.: Sotomo.

## NOSTOCALES

### OSCILLATORIACEAE

○10. *Hydrocoleum coccineum* GOMONT

in UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 26–27, pl. 3, fig. 3, 1961.

*Japanese name:* Miru-tsuki.

*Habitat:* 0.5 m, on *Elachista tenuis*: Tassha.

◎11. *Sphaeronema lithophila* (ERCEGOVIĆ) UMEZAKI

- Mar. Blue-green Alg. Jap., pp. 31–32, pl. 10, fig. 11, 1961.  
*Habitat*: 1.5 m, on *Cladophora ohkuboana*: Sotomo.
- ◎12. *Microcoleus sanctae-crucis* FRÉMY  
 in UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 35, pl. 4, fig. 5, 1961.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
13. *Lyngbya infixa* FRÉMY  
 in DESIKACHARY, T. V., Cyanophyta, p. 282, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 48, pl. 7, fig. 2, 1961.  
*Habitat*: At low-tide-level, on *Sphacelaria prostrata*: Sotomo.
14. *Lyngbya nordgardhii* WILLE seq. FRÉMY  
 in DESIKACHARY, T. V., Cyanophyta, pp. 287–289, pl. 54, fig. 1–3, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 43, pl. 6, fig. 3, 1961.  
*Habitat*: At low-tide-level, on *Sphacelaria prostrata*: Sotomo.
- ◎15. *Lyngbya pellucida* UMEZAKI  
 Mar. Blue-green Alg. Jap., pp. 47–48, pl. 6, fig. 7, 1961.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
16. *Lyngbya semiplena* (C. AGARDH) J. AGARDH  
 in SETCHELL, W. A. and GARDNER, N. L., Alg. N. W. Am., p. 187, 1903; DESIKACHARY, T. V., Cyanophyta, p. 315, pl. 49, fig. 8, pl. 52, fig. 7, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 51–53, pl. 7, fig. 4, 1961.  
*Japanese name*: Yogore-kudamo.  
*Habitat*: 1 m, on *Gelidium pusillum*: Mikuni, Akasaki.
17. *Symploca hydroides* KÜTZING ex GOMONT  
 in DESIKACHARY, T. V., Cyanophyta, p. 335, pl. 60, fig. 2, 3, 6, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 55–57, pl. 9, fig. 1, 1961.  
*Habitat*: 1 m, on *Symphyocladia pennata*: Mikuni.
- ◎18. *Phormidium feldmannii* FRÉMY  
 in UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 62, pl. 10, fig. 1, 1961.  
*Habitat*: 1.5 m, on *Cladophora ohkuboana*: Sotomo.
- ※19. *Phormidium fragile* (MENEHINI) GOMONT  
 in COLLINS, G. S. and HERVEY, A. B., Contrib. Bermuda Biol. Sta. Res., No. 69. Alg. Bermuda, p. 20, 1917; DESIKACHARY, T. V., Cyanophyta, p. 253, pl. 44, fig. 1–3, 1959.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
20. *Phormidium tenue* (MENEHINI) GOMONT  
 in DESIKACHARY, T. V., Cyanophyta, p. 259, pl. 43, fig. 13–15, pl. 44, fig. 7–9, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 60, pl. 9, fig. 5, 1961.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
21. *Spirulina labyrinthiformis* (MENEHINI) GOMONT  
 in DESIKACHARY, T. V., Cyanophyta, p. 195, pl. 36, fig. 11, pl. 49, fig. 1, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 67, pl. 10, fig. 10, 1961.  
*Japanese name*: Hime-rasenmo.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.

- 22. *Spirulina major* KÜTZING ex GOMONT  
in SETCHELL, W. A. and GARDNER, N. L., Alg. N. W. Am., p. 182, 1903; Mar. Alg. Pac. Coast N. Am. Part I Myxophyceae, pp. 56–57, pl. 1, fig. 5, 1919; DESIKACHARY, T. V., Cyanophyta, pp. 196–197, pl. 36, fig. 13, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 65–66, pl. 10, fig. 8, 1961.  
*Habitat*: 0.5 m, on *Elachista tenuis*: Tassha.
- 23. *Spirulina subsalsa* OERSTED ex GOMONT  
in DESIKACHARY, T. V., Cyanophyta, pp. 193–195, pl. 36, fig. 3, 9, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 66, pl. 10, fig. 9, 1961.  
*Japanese name*: Rasenmo.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
- 24. *Spirulina tenerrima* KÜTZING ex GOMONT  
in COLLINS, F. S. and HERVEY, A. B., Contrib. Bermuda Biol. Sta. Res., No. 69. Alg. Bermuda, pp. 18–19, 1917; UMEZAKI, I., Mar. Blue-green Alg. Jap., p. 65, pl. 10, fig. 7, 1961.  
*Habitat*: 0.5 m, on shell of molluscs; 0.5 m, on *Elachista tenuis*: Hyūga, Tassha.
- 25. *Oscillatoria amphibia* C. AGARDH ex GOMONT  
in SETCHELL, W. A. and GARDNER, N. L., Alg. N. W. Am., p. 183, 1903; Mar. Alg. Coast N. Am. Part I Myxophyceae, p. 63, 1919; COLLINS, F. S. and HERVEY, A. B., Contrib. Bermuda Biol. Sta. Res., No. 69. Alg. Bermuda, p. 20, 1917; DESIKACHARY, T. V., Cyanophyta, p. 229, pl. 37, fig. 6, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 73–74, pl. 11, fig. 9, 1961.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
- ※26. *Oscillatoria foreau* FRÉMY  
in DESIKACHARY, T. V., Cyanophyta, p. 219, pl. 40, fig. 18, 1959.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
- 27. *Oscillatoria laete-virens* (CROUAN) GOMONT  
in DESIKACHARY, T. V., Cyanophyta, p. 213, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 72–73, pl. 11, fig. 7, 1961.  
*Habitat*: At low-tide-level, on *Cladophora pusilla*: Hyūga.
28. *Oscillatoria nigro-viridis* THWAITES ex GOMONT  
in SETCHELL, W. A. and GARDNER, N. L., Alg. N. W. Am., p. 183, 1903; Mar. Alg. Pac. Coast N. Am. Part I Myxophyceae, p. 62, 1919; COLLINS, F. S. and HERVEY, A. B., Contrib. Bermuda Biol. Sta. Res., No. 69. Alg. Bermuda, p. 19, 1917; DESIKACHARY, T. V., Cyanophyta, p. 202, pl. 42, fig. 6, pl. 49, fig. 2, 1959; UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 70–71, pl. 11, fig. 5, 1961.  
*Japanese name*: Kuro-yuremo.  
*Habitat*: 0.5 m, on *Laurencia pinnata*: Hyūga.

## RIVULARIACEAE

29. *Calothrix codicola* SETCHELL et GARDNER  
Mar. Alg. Revillagigedo Isls. Exped. 1925, pp. 124–125, pl. 4, fig. 4, 1930.  
*Habitat*: 0.5 m, in *Chondria crassicaulis*: Hyūga.
30. *Isactis plana* (HARVEY) THURET  
in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part I Myxophyceae,

pp. 104–105, 1919; UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 101–103, 1961.

*Japanese name:* Iwano-aza.

*Habitat:* 0.5 m, on shell of molluscs: Hyūga, Akasaki.

31. *Rivularia nitida* AGARDH

in SETCHELL, W. A. and GARDNER, N. L., Alg. N. W. Am., p. 198, 1903; UMEZAKI, I., Mar. Blue-green Alg. Jap., pp. 104–105, pl. 21, fig. 1, 1961.

*Japanese name:* Ana-riburaria.

*Habitat:* At low-tide-level, on rocky bottom: Akasaki.

CHLOROPHYTA  
CHLOROPHYCEAE  
ULOTRICHALES  
ULOTRICHACEAE

32. *Ulothrix flacca* (DILLWYN) THURET

in YENDO, K., Notes Alg. New Jap., p. 119, 1909; SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part II Chlorophyceae, pp. 284–285, 1920.

*Japanese name:* Hibi-midoro.

*Habitat:* At low-tide-level, on concrete surface: Urasoko.

GOMONTIACEAE

○33. *Gomontia polyrhiza* (LAGERHEIM) BORNET et FLAHAULT

in COLLINS, F. S., Green Alg. N. Am. p. 370, 1909; YENDO, K., Notes Alg. New Jap., II., pp. 266–267, 1914; TOKIDA, J. and MASAKI, T., List Mar. Alg. Coll. Vicin. Oshoro Mar. Biol. Sta., Oshoro, Hokkaido, Jap., p. 177, 1959.

*Japanese name:* Kaimidori.

*Habitat:* 1.5 m, in the holdfast of *Undaria pinnatifida*: Sotomo.

ULVALES  
ULVACEAE

34. *Ulva pertusa* KJELLMAN

in WEBER-VAN BOSSE, A., Liste Alg. Siboga, pp. 51–52, 1913; OKAMURA, K., Icon. Jap. Alg., Vol. IV., pp. 79–83, pl. 169, fig. 8, pl. 170, fig. 1–15, 1951.

*Japanese name:* Ana-aosa.

*Habitat:* At low-tide-level, on *Gelidium amansii*: Hyūga, Yokohama, Akasaki, Tassha.

35. *Enteromorpha compressa* (LINNÉ) GREVILLE

in COLLINS, F. S., Green Alg. N. Am., p. 201, 1909; SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part II Chlorophyceae, pp. 251–252, pl. 14, fig. 7–8, pl. 16, fig. 3, 1920.

*Japanese name:* Hira-aonori.

*Habitat:* At low-tide-level, on rocky bottom: Hyūga.

36. *Enteromorpha intestinalis* (LINNÉ) LINK  
in COLLINS, F. S., Green Alg. N. Am., pp. 204–205, 1909; COLLINS, F. S. and HERVEY, A. B., Alg. Bermuda, p. 34, 1917.  
*Japanese name*: Bou-aonori.  
*Habitat*: At low-tide-level, on rocky bottom: Hyūga, Yokohama, Tassha.
37. *Enteromorpha linza* (LINNÉ) J. AGARDH  
in COLLINS, F. S., Green Alg. N. Am., p. 206, 1909; SETCHELL, W. A. and GARDNER, N. L., Alg. N. W. Am., p. 212, 1903.  
*Japanese name*: Usuba-aonori.  
*Habitat*: 0.3 m, on rocky bottom: Hyūga, Tassha.
38. *Enteromorpha prolifera* (MÜLLER) J. AGARDH  
in COLLINS, F. S., Green Alg. N. Am., pp. 202–203, 1909; COLLINS, F. S. and HERVEY, A. B., Alg. Bermuda, p. 33, 1917.  
*Japanese name*: Suji-aonori.  
*Habitat*: 0.5 m, 20 m, on rocky bottom: Obama, Off Ogi.

CLADOPHORALES  
CLADOPHORACEAE

39. *Chaetomorpha aerea* (DILLWYN) KÜTZING  
in HARVEY, W. H., Ner. Bor.-Am. Sub-Class III. Chlorospermae, incl. supp., p. 86, 1858; COLLINS, F. S., Green Alg. N. Am., pp. 324–325, pl. 12, fig. 115, 1909.  
*Japanese name*: Tarugata-juzumo.  
*Habitat*: At low-tide-level, on shell of molluscs: Sotomo.
40. *Chaetomorpha crassa* (C. AGARDH) KÜTZING  
in WEBER-VAN BOSSE, A., Liste Alg. Siboga I Myxophyceae, Chlorophyceae, Phaeophyceae, p. 85, 1913; COLLINS, F. S. and HERVEY, A. B., Alg. Bermuda, p. 42, 1917.  
*Japanese name*: Hoso-juzumo.  
*Habitat*: 1 m, on *Marginisporum* sp.: Mikuni.
- 41. *Chaetomorpha media* (C. AGARDH) KÜZING  
in COLLINS, F. S., Green Alg. N. Am., p. 79, 1909; OKAMURA, K., Descr. Jap. Alg. (in Jap.), p. 68, 1956.  
*Japanese name*: Enaga-juzumo.  
*Habitat*: At low-tide-level, on rocky bottom: Sotomo.
42. *Chaetomorpha moniligera* KJELLMAN  
in OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 66–67, fig. 34, 1956; Icon. Jap. Alg. Vol. VI, pp. 15–16, pl. 260, fig. 1–8, 1961.  
*Japanese name*: Tama-juzumo.  
*Habitat*: 0.5 m, on Melobesioideae: Sotomo.
- 43. *Chaetomorpha spiralis* OKAMURA  
Icon. Jap. Alg., Vol. II., pp. 162–165, pl. 95, fig. 1–11, 1951; Descr. Jap. Alg. (in Jap.), pp. 67–68, 1956.

*Japanese name:* Futo-juzumo.

*Habitat:* 15 m, 40 m, on *Lithothamnium* sp.: Off Ogi, Off Akasaki, Off Tassha.

○44. *Cladophora conchopheria* SAKAI

Sp. *Cladophora* Jap. Vicin., pp. 48–50, pl. XVI, 2, text-fig. 22, 1964.

*Japanese name:* Kaigoromo.

*Habitat:* At low-tide-level, on shell of molluscs and Melobesioideae: Sotomo, Akasaki.

○45. *Cladophora crystallina* (ROTH) KÜTZING

in COLLINS, F. S. and HERVEY, A. B., Contrib. Bermuda Biol. Sta. Res., No. 69. Alg. Bermuda, p. 46, 1917; SAKAI, Y., Sp. *Cladophora* Jap. its Vicin., pp. 41–43, pl. 17, fig. 3, text-fig. 17–18, 1964.

*Japanese name:* Kuristaru-shiogusa.

*Habitat:* 0.5 m, on *Polysiphonia tokidae*: Hyūga.

46. *Cladophora fascicularis* (MERTENS) KÜTZING

in COLLINS, F. S., Green Alg. N. Am. p. 345, 1909; COLLINS, F. S. and HERVEY, A. B., Alg. Bermuda, p. 46, 1917.

*Japanese name:* Fusa-shiogusa.

*Habitat:* Drifting, on rope: Hyūga.

○47. *Cladophora ohkuboana* HOLMES

New Mar. Alg. Jap., pp. 249–250, pl. 10, fig. 1, 1895; OKAMURA, K., Icon. Jap. Alg., Vol. VII., p. 47, pl. 325, fig. 1–3, 1962.

*Japanese name:* Kata-shiogusa.

*Habitat:* 1.5 m, 10 m, 30 m, on rocky bottom, *Lithothamnium* sp. and *Sargassum patens*: Sotomo, Off Akasaki, Tassha.

48. *Cladophora opaca* SAKAI

Sp. *Cladophora* Jap. Vicin., pp. 62–64, pl. 11, fig. 2, 1964; *Cladophora glaucescens* (non HARVEY) YENDO, Notes Alg. New Jap. V., pp. 248–249, 1916.

*Japanese name:* Tsuyanashi-shiogusa.

*Habitat:* At low-tide-level, on rocky bottom: Okazaki.

○49. *Cladophora pusilla* SAKAI

Sp. *Cladophora* Jap. its Vicin., pp. 58–60, pl. 17, fig. 2, text-fig. 27, 1964.

*Japanese name:* Ko-shiogusa.

*Habitat:* 1.5 m, on *Corallina squamata*: Sotomo, Akasaki.

50. *Cladophora rudolphiana* (C. AGARDH) HARVEY

in COLLINS, F. S., Green Alg. N. Am., pp. 336–337, 1909; SAKAI, Y., Sp. *Cladophora* Jap. its Vicin., pp. 38–41, pl. 4, fig. 2, pl. 5, fig. 1, text-fig. 15–16, 1964.

*Habitat:* At low-tide-level, on rocky bottom: Matsuzaki.

○51. *Cladophora rupestris* (LINNÉ) KÜTZING f. *submarina* FOSLIE

in COLLINS, F. S., Green Alg. N. Am., p. 346, 1909; SAKAI, Y., Sp. *Cladophora* Jap. its Vicin., pp. 56–58, pl. 12, fig. 1, text-fig. 26, 1964.

*Japanese name:* Iwa-shiogusa.

*Habitat:* At low-tide-level, on *Corallina pilulifera*: Sotomo.



- 52. *Cladophora uncinella* HARVEY  
 in OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 55–56, 1956; SAKAI, Y., Sp. *Cladophora* Jap. its Vicin., pp. 60–62, text-fig. 28, pl. 11, fig. 1, 1964.  
*Japanese name*: Maki-shiogusa.  
*Habitat*: 20 m, on shell of molluscs: Urasoko.

## ANADYOMENACEAE

- 53. *Microdictyon japonicum* SETCHELL  
 in OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 40–41, fig. 19, 1956; SEGAWA, S., mar. alg. Susaki, Prov. Idzu, its vicin., p. 60, 1935.  
*Japanese name*: Amimoyō.  
*Habitat*: 30 m, on *Lithothamnium* sp.: Off Akasaki.

SIPHONOCLADALES  
VALONIAACEAE

- 54. *Valonia ventricosa* J. AGARDH  
 in OKAMURA, K., Descr. Jap. Alg. (in Jap.), p. 32, text-fig. 13, 1956; TAYLOR, W. R., Mar. Alg. E. Trop. Subtrop. Coasts Am., p. 110, pl. 9, fig. 4–5, 1960.  
*Japanese name*: Ō-baronia.  
*Habitat*: 30 m, on *Lithothamnium* sp.: Off Akasaki.

CAULERPALES  
CAULERPACEAE

55. *Caulerpa okamurai* W. v. BOSSE  
 in OKAMURA, K., Alg. Ogasawara-jima (Bonin Isls.), pp. 5–7, pl. 1, fig. 13–14, 1897; Descr. Jap. Alg. (in Jap.), pp. 104–105, fig. 53, 1956; Icon. Jap. Alg. Vol. IV., pp. 11–14, pl. 154, fig. 1–8, 1951; KAJIMURA, M., swarm. prod. disch. *Caulerpa okamurai* WEBER VAN BOSSE Shimane Pref., pp. 8–13, fig. 1–6, 1969.  
*Japanese name*: Fusa-iwazuta.  
*Habitat*: 0.5 m, on rocky bottom: Hyūga.

CODIALES  
BRYOPSISACEAE

56. *Bryopsis hypnoides* LAMOUROUX  
 in COLLINS, F. S., Green Alg. N. Am., p. 403, 1909; TOKIDA, J., Mar. Alg. S. Saghalien, p. 71, 1954.  
*Japanese name*: Obana-hanemo.  
*Habitat*: 1 m, on *Laurencia intermedia*: Mikuni.
57. *Bryopsis plumosa* (HUDSON) C. AGARDH

in COLLINS, F. S., Green Alg. N. Am., pp. 403-404, pl. 17, fig. 155, 1909; BORGESSEN, F., Mar. Alg. Da. W. Ind. I. Chlorophyceae, pp. 117-118, 1913.

*Japanese name:* Hanemo.

*Habitat:* 1 m, on *Laurencia intermedia*: Mikuni.

## CODIACEAE

58. *Codium adhaerens* (CABRERA) C. AGARDH

in COLLINS, F. S., Green Alg. N. Am., p. 387, 1909; SETCHELL, W. A. and GARDNER, N. L., Alg. N.W. Am., p. 231, 1903; OKAMURA, K., Icon. Jap. Alg. Vol. III., pp. 140-141, pl. 134, fig. 1-3, 1951.

*Japanese name:* Hai-miru.

*Habitat:* At low-tide-level, on rocky bottom: Sotomo, Akasaki.

○59. *Codium contractum* KJELLMAN

in OKAMURA, K., Icon. Jap. Alg. Vol. III., pp. 70-73, pl. 120, fig. 1-8, 1951; Descr. Jap. Alg. (in Jap.), pp. 124-125, 1956.

*Japanese name:* Sakibuto-miru.

*Habitat:* 1 m, on rocky bottom: Sotomo.

60. *Codium divaricatum* HOLMES

New Mar. Alg. Jap., p. 250, pl. 7, fig. 2a-b, 1895; OKAMURA, K., Icon. Jap. Alg. Vol. III., pp. 155-160, pl. 136, fig. 1-8, 1951; Descr. Jap. Alg. (in Jap.), pp. 125-126, 1956.

*Japanese name:* Kuro-miru.

*Habitat:* 15 m, on shell of molluscs: Off Ogi.

61. *Codium fragile* (SURINGAR) HARIOT

in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part II Chlorophyceae, pp. 171-172, pl. 28-29, 1920; *Codium mucronatum* J. AG. var. *Californicum* J. AG., OKAMURA, K., Icon. Jap. Alg. Vol. III., pp. 117-119, pl. 130, fig. 1-9, 1951; Descr. Jap. Alg. (in Jap.), p. 123, fig. 62, 1956.

*Japanese name:* Miru.

*Habitat:* At low-tide-level, on shell of molluscs: Sotomo, Tassha.

○62. *Codium saccatum* OKAMURA

Icon. Jap. Alg. Vol. III., pp. 145-147, pl. 135, fig. 1-5, 1951; Descr. Jap. Alg. (in Jap.), p. 121, 1956.

*Japanese name:* Fukuro-miru.

*Habitat:* 15 m, on *Lithothamnium* sp.: Off Ogi.

## DERBESIALES

### DERBESIACEAE

○63. *Derbesia marina* (LYNGBYE) KJELLMAN

in OKAMURA, K., Descr. Jap. Alg. (in Jap.), p. 127, 1956; TAYLOR, W. R., Mar. Alg. E. Trop. Subtrop. Coasts Am., pp. 128-129, 1960.

*Japanese name:* Hosu-tsu-yuno-ito.

*Habitat*: 30 m, on *Lithothamnium* sp.: Off Akasaki.

PHAEOPHYTA  
PHAEOPHYCEAE  
ECTOCARPALES  
ECTOCARPACEAE

- 64. *Ectocarpus indicus* SONDER  
in OKAMURA, K., Descr. Jap. Alg. (in Jap.), p. 137, fig. 66, 1956.  
*Japanese name*: Naga-shiomidoro.  
*Habitat*: 0.5 m, 4 m, on *Polysiphonia tokidae* and rope: Hyūga, Tassha.
- ◎65. *Ectocarpus laurenciae* YAMADA  
Notes Some Jap. Alg. II., p. 66, text-fig. 1, pl. 17, fig. 1, 1931.  
*Japanese name*: Chabo-shiomidoro.  
*Habitat*: At low-tide-level, on *Gracilaria* sp.; 15 m, on *Sargassum piluliferum*: Tsuruga, Off Ogi, Tassha.
66. *Ectocarpus siliculosus* (DILLWYN) LYNGBYE  
in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, pp. 410–412, 1925; OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 137–138, fig. 67, 1956.  
*Japanese name*: Shiomidoro.  
*Habitat*: 1 m, on *Gelidium amansii*: Hyūga.
67. *Ectocarpus socialis* SETCHELL et GARDNER  
Phycol. Contrib. II to VI, pp. 412–413, pl. 46, fig. 12, 13, 1922.  
*Habitat*: At low-tide-level, on *Ceramium japonicum*: Hyūga.
68. *Ectocarpus sorocarpoides* TAKAMATSU  
in NODA, M., Sp. Phaeophyta Sado Isl. Jap. Sea, p. 16, fig. 16, 1969.  
*Habitat*: Drifting, on plastic sheet: Urasoko.
69. *Giffordia mitchellae* (HARVEY) HAMEL  
in TAYLOR, W. R., Mar. Alg. E. Trop. Subtrop. Coasts Am., p. 206, pl. 29, fig. 1–2; *Ectocarpus Mitchellae* HARV., in OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 138–139, fig. 68, 1956.  
*Japanese name*: Tawaragata-shiomidoro.  
*Habitat*: At low-tide-level, on *Gelidium amansii*: Hyūga.
- ※70. *Streblonema anomalum* SETCHELL et GARDNER  
Phycol. Contrib. II to VI, pp. 392–394, pl. 43, fig. 1–3, 1922.  
*Habitat*: 0.5 m, in *Champia bifida*: Hyūga.
- ※71. *Streblonema corymbiferum* SETCHELL et GARDNER  
Phycol. Contrib. II to VI, pp. 391–392, pl. 43, fig. 8, 1922.  
*Habitat*: 0.5 m, in *Champia bifida*: Hyūga.
- ※72. *Streblonema rugosum* SETCHELL et GARDNER  
Phycol. Contrib. II to VI, pp. 390–391, pl. 43, fig. 5–7, 1922.  
*Habitat*: 0.5 m, in *Cystophyllum sisymbrioides*: Hyūga.

## MYRIONEMATACEAE

73. *Componema nummuloides* SETCHELL et GARDNER  
Phycol. Contrib. II to VI, pp. 359–360, pl. 35, fig. 5, 6, 1922.  
*Habitat*: Drifting, on plastic sheet: Urasoko.
- ※74. *Componema pusillum* SETCHELL et GARDNER  
Phycol. Contrib. II to VI, p. 356, pl. 37, fig. 3, 1922.  
*Habitat*: 0.5 m, on *Grateloupia filicina*: Hyūga.
- ※75. *Componema secundum* SETCHELL et GARDNER  
Phycol. Contrib. II to VI, pp. 361–362, pl. 37, fig. 1, 2, 1922.  
*Habitat*: 0.5 m, on *Laurencia hamata*: Hyūga.
76. *Hecatonema maculans* (COLLINS) SAUVAGEAU  
in TAYLOR, W. R., Mar. Alg. N.E. Coast N. Am., pp. 129–130, 1966.  
*Habitat*: 0.5 m, on *Laurencia hamata*: Hyūga.

## SPHACELARIALES

## SPHACELARIACEAE

- 77. *Sphacelaria caespitosa* TAKAMATSU  
Sp. *Sphacelaria* Jap. I, pp. 167–169, pl. 10, fig. 3–4, text-fig. 7, 1943.  
*Habitat*: 15 m, on *Chorda filum*: Off Ogi.
78. *Sphacelaria furcigera* KÜTZING  
in TAKAMATSU, M., Sp. *Sphacelaria* Jap. I, p. 163, pl. IX, fig. 3–4, pl. X, fig. 2, text-fig. 5, 1943;  
OKAMURA, K., Descr. Jap. Alg. (in Jap.), p. 152, 1956.  
*Japanese name*: Waiji-gata-kurogashira.  
*Habitat*: At low-tide-level, on *Cystophyllum* sp.: Hyūga, Akasaki, Tassha.
79. *Sphacelaria prostrata* TAKAMATSU  
Sp. *Sphacelaria* Jap. I, pp. 160–163, pl. 9, fig. 1–2, text-fig. 4, 1943.  
*Habitat*: Drifting; 0.5 m, on *Codium adhaerens* and *Sargassa*: Sotomo, Tassha.
- ◎80. *Sphacelaria tenuis* TAKAMATSU  
Sp. *Sphacelaria* Jap. I, pp. 156–158, pl. 8, fig. 2, text-fig. 2, 1943.  
*Habitat*: 1 m, on *Sargassum tortile*: Hyūga.
81. *Sphacelaria variabilis* SAUVAGEAU  
in YAMADA, Y., Rep. Biol. Surv. Mutsu Bay. 9. Mar. Alg. Mutsu Bay Adj. Waters II., pp. 504–505, fig. 7, 1928; OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 152–153, fig. 78, 1956.  
*Japanese name*: Matazaki-kurogashira.  
*Habitat*: 1.5 m, on *Dictyota* sp.: Sotomo, Akasaki.
- 82. *Sphacelaria yamadae* SEGAWA  
New Noteworthy Alg. Izu I., pp. 256–257, text-fig. 4, 1941.

*Japanese name*: Tsukubane-kurogashira.

*Habitat*: 0.5 m, on *Sargassum patens*: Tassha.

- 83. *Halopteris filicina* (GRATELOUP) KÜTZING Plate I, Fig. 2  
 in OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 154–155, fig. 79, 1956; SEGAWA, S., mar. alg. Susaki, Prov. Idzu, its vicin., p. 66, 1935.  
*Japanese name*: Kashirazaki.  
*Habitat*: 40 m, on stone: Off Tassha.

## CUTLERIALES CUTLERIACEAE

- 84. *Cutleria adspersa* (ROTH) DE NOTARIS  
 in OKAMURA, K., Icon. Jap. Alg. Vol. I., pp. 84–86, pl. 19, fig. 1–10, 1951; Descr. Jap. Alg. (in Jap.), p. 158, fig. 81, 1956.  
*Japanese name*: Keberi-gusa.  
*Habitat*: 15 m, on *Lithothamnium* sp.: Off Ogi.
- 85. *Cutleria cylindrica* OKAMURA  
 Man. names Jap. alg. (in Jap.), p. 383, 1902; Descr. Jap. Alg. (in Jap.), pp. 156–157, fig. 81, 1956.  
*Japanese name*: Muchi-mo.  
*Habitat*: 20 m, on sand: Off Ogi.
- ◎86. *Cutleria multifida* (SMITH) GREVILLE Plate I, Fig. 3–4  
 in FRITSCH, F. E., Struct. Reprod. Alg. Vol. II Foreword, Phaeophyceae, Rhodophyceae, Myxophyceae, p. 157, fig. 51, 1959.  
*Japanese name*: Hira-muchimo.  
*Habitat*: Drifting: Urasoko

## DICTYOTALES DICTYOTACEAE

87. *Dictyota dichotoma* (HUDSON) LAMOUROUX  
 in HARVEY, W. H., Ner. Bor.-Am. I, Melanospermae, pp. 109–110, 1852; OKAMURA, K., Icon. Jap. Alg. Vol. III., pp. 39–46, pl. 111, fig. 1–9, pl. 112, fig. 1–10, pl. 113, fig. 1–5, 1951; TAYLOR, W. R., Mar. Alg. E. Trop. Subtrop. Coasts Am., pp. 218–219, pl. 31, fig. 5, 1960.  
*Japanese name*: Amiji-gusa.  
*Habitat*: At low-tide-level, 10 m, on rocky bottom and *Sargassum patens*: Okazaki, Akasaki, Tassha, Off Tassha.
- 88. *Dictyota dilatata* YAMADA  
 Stud. Meeresalg. Ins. Formosa 2. Phaeophyceae, pp. 252–253, fig. 6, 1925; OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 163–164, 1956.  
*Japanese name*: Sakibiro-amiji.  
*Habitat*: 15 m, 20 m, on *Lithothamnium* sp. and shell of molluscs: Off Ogi.

89. *Pachydictyon coriaceum* (HOLMES) OKAMURA  
 Contrib. Knowl. Mar. Alg. Jap. III., pp. 39–41, 1899; Icon. Jap. Alg. Vol. I., pp. 105–109, pl. 23, fig. 1–6, pl. 24, fig. 6–12, 1951; *Glossophora coriacea* HOLMES, New Mar. Alg. Jap., p. 251, 1895.  
*Japanese name:* Sanada-gusa.  
*Habitat:* 0.5 m, on rocky bottom: Tassha.
90. *Dilophus okamurai* DAWSON  
*Dictyota marginata* OKAMURA, in OKAMURA, K., Icon. Jap. Alg. Vol. III., pp. 33–36, pl. 108, fig. 9, pl. 109, fig. 1–7, 1951; *Dilophus marginatus* (non J. AGARDH) OKAMURA, in Descr. Jap. Alg. (in Jap.), pp. 167–168, fig. 85, 1956.  
*Japanese name:* Fukurin-amiji.  
*Habitat:* 1.5 m, on rocky bottom: Sotomo.
91. *Spathoglossum pacificum* YENDO  
 Nov. Alg. Jap., Dec. I–III, pp. 2–3, 1920; OKAMURA, K., Descr. Jap. Alg. (in Jap.), p. 171, 1956.  
*Japanese name:* Komon-gusa.  
*Habitat:* Drifting: Tsuruga.
92. *Dictyopteris divaricata* (OKAMURA) OKAMURA  
 Distrib. Mar. Alg. Pac. Waters, p. 75, 1932; TOKIDA, J., Mar. Alg. S. Saghalien, p. 128, 1954.  
*Japanese name:* Ezo-yahazu.  
*Habitat:* At low-tide-level, on rocky bottom: Okazaki.
93. *Dictyopteris prolifera* (OKAMURA) OKAMURA  
*Halysieris prolifera* OKAMURA, in DE TONI, J. B. und OKAMURA, K., Neue Meeresalg. Jap., pp. 74–76, 1894; *Halysieris prolifera* OKAMURA, in Icon. Jap. Alg. Vol. I., pp. 55–57, pl. 12, fig. 1–6, 1951.  
*Japanese name:* Hera-yahazu.  
*Habitat:* At low-tide-level, on rocky bottom: Okazaki, Akasaki, Tassha.
94. *Dictyopteris undulata* (HOLMES) OKAMURA  
*Dictyopteris undulata* HOLMES, in HOLMES, M., New Mar. Alg. Jap., p. 251, pl. 8, fig. 1, 1895; *Halysieris undulata* HOLMES, in OKAMURA, K., Icon. Jap. Alg. Vol. I, pp. 51–55, pl. 11, fig. 1–10, 1951.  
*Japanese name:* Shiwa-yahazu.  
*Habitat:* 1 m, 15 m, 30 m, on rocky bottom and *Lithothamnium* sp.: Sotomo, Off Ogi, Off Akasaki.
95. *Padina arborescens* HOLMES  
 New Mar. Alg. Jap., pp. 251–252, pl. 12, fig. 1, 1895; OKAMURA, K., Icon. Jap. Alg. Vol. VI., pp. 3–4, pl. 252, fig. 1–13, 1961; Descr. Jap. Alg. (in Jap.), pp. 182–183, fig. 94, 1956.  
*Japanese name:* Umi-uchiwa.  
*Habitat:* 1 m, on rocky bottom: Hyūga.
96. *Padina crassa* YAMADA  
 Notes Some Jap. Alg. II., pp. 67–68, pl. 17, fig. 2, 1931; OKAMURA, K., Icon. Jap. Alg. Vol. VI., pp. 87–88, pl. 294, fig. 5–11, 1961; Descr. Jap. Alg. (in Jap.), p. 183, 1956.  
*Japanese name:* Konaumi-uchiwa.  
*Habitat:* 1 m, 30 m, on rocky bottom and *Lithothamnium* sp.: Mikuni, Off Akasaki.
- 97. *Distromium decumbens* (OKAMURA) LEVRING

*Chlanidote repens* OKAMURA, Icon. Jap. Alg. Vol. I., pp. 112–116, pl. 24, fig. 13–18, 1951;  
*Chlanidote decumbensa* OKAMURA, Contrib. Knowl. Mar. Alg. Jap. III., pp. 38–39, fig. 23–25, 1899.

*Japanese name:* Futae-oogi.

*Habitat:* 30 m, on *Lithothamnium* sp.: Off Akasaki.

## CHORDARIALES

### ELACHISTACEAE

98. *Elachista tenuis* YAMADA

Rep. Biol. Surv. Mutsu Bay. 9. Mar. Alg. Mutsu Bay Adj. Waters. II., pp. 511–513, fig. 11, 1928.

*Japanese name:* Hosonamimakura.

*Habitat:* 0.3 m, 10 m, on *Sargassum patens*: Urasoko, Akasaki, Tassha.

○99. *Halothrix lumbricalis* (KÜTZING) REINKE

in YENDO, K., Notes Alg. New Jap., p. 123, 1909; OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 147–148, fig. 73, 1956.

*Japanese name:* Hinano-somewake-gusa.

*Habitat:* At low-tide-level, 15 m, on *Sargassa*: Sotomo, Off Ogi.

### LEATHESIAACEAE

100. *Petrospongium rugosum* (OKAMURA) SETCHELL et GARDNER

Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, pp. 509–510, pl. 39, fig. 42–43, 1925;  
 OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 186–187, fig. 96, 1956; INAGAKI, K., Syst. Stud. Order  
 Chordariales Jap. its Vicin., pp. 97–100, fig. 1–3, 1958.

*Japanese name:* Shiwanokawa.

*Habitat:* 0.5 m, on rocky bottom: Hyūga.

101. *Leathesia difformioides* TAKAMATSU

Sp. *Leathesia* N.E. Honshū, Jap., pp. 6–8, pl. 1, fig. 3, text-fig. 4, 1939.

*Habitat:* 0.5 m, on *Laurencia hamata*: Hyūga.

102. *Leathesia difformis* (LINNÉ) ARESCHOU

in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae,  
 pp. 511–512, pl. 40, fig. 52, pl. 43, fig. 65–66, 1925; TAYLOR, W. R., Mar. Alg. N.E. Coast N. Am.,  
 p. 149, pl. 12, fig. 5, pl. 14, fig. 8, 1957.

*Japanese name:* Nebarimo.

*Habitat:* At low-tide-level, on rocky bottom and *Alatocladia modesta*:  
 Sotomo, Akasaki, Tassha.

◎103. *Leathesia globosa* TAKAMATSU

Sp. *Leathesia* N.E. Honshū, Jap., pp. 12–14, pl. 3, fig. 2, text-fig. 8, 1939.

*Habitat:* 0.5 m, on *Cystophyllum sisymbrioides*: Hyūga.

○104. *Leathesia primaria* TAKAMATSU

Sp. *Leathesia* N.E. Honshū, Jap., pp. 5–6, pl. 1, fig. 2, text-fig. 3, 1939.

*Habitat:* 0.5 m, on *Sargassum patens*: Tassha.

105. *Leathesia sphaerocephala* YAMADA

Notes Some Jap. Alg. IV., pp. 269–270, text-fig. 2, 1932.

*Japanese name:* Hime-nebarimo.*Habitat:* 1 m, on *Cystophyllum sisymbrioides*: Hyūga.

## CHORDARIACEAE

106. *Sphaerotrichia divaricata* (C. AGARDH) KYLIN

in INAGAKI, K., Contrib. Knowl. Chordariales Jap. I, pp. 9–13, fig. 8–9, 1954.

*Japanese name:* Ishi-mozuku.*Habitat:* 0.5 m, on rocky bottom: Tassha.107. *Papenfussiella kuromo* (YENDO) INAGAKISyst. Stud. Order Chordariales Jap. its Vicin., pp. 128–129, 1958; *Myriocladia kuromo* YENDO, in Nov. Alg. Jap., Dec. I–III, pp. 1–2, 1920.*Japanese name:* Kuromo.*Habitat:* At low-tide-level, 20 m, on rocky bottom: Sotomo, Off Ogi.

## ACROTHRICEAE

108. *Acrothrix pacifica* OKAMURA et YAMADA

Notes Some Jap. Alg. III., pp. 113–114, pl. 24, text-fig. 2, 1932.

*Japanese name:* Nise-mozuku.*Habitat:* Drifting, on *Chorda filum*: Akasaki, Tassha.

## NEMACYSTACEAE

109. *Nemacystus decipiens* (SURINGAR) KUCKUCKin INAGAKI, K., Syst. Stud. Order Chordariales Jap. its Vicin., pp. 182–185, fig. 80–83, 1958; *Cladosiphon decipiens* (SURING.) OKAM., in Icon. Jap. Alg. Vol. II., pp. 136–140, pl. 89, fig. 1–5, 1951.*Japanese name:* Mozuku.*Habitat:* At low-tide-level, on *Sargassa*: Futagojima Islet, Akasaki.

## ISHIGEACEAE

110. *Ishige okamurai* YENDO

Fucaceae Jap., pp. 154–155, pl. II, fig. 1–8, 1907; OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 238–239, fig. 130, 1956.

*Japanese name:* Ishige.*Habitat:* At low-tide-level, on rocky bottom: Sodezaki.



SPOROCHNALES  
SPOROCHNACEAE

111. *Sporochnus scoparius* HARVEY

in OKAMURA, K., Icon. Jap. Alg. Vol. IV., pp. 177-178, 183-184, pl. 195, fig. 1-11, 1951; Descr. Jap. Alg. (in Jap.), p. 212, 1956.

*Japanese name:* Keyari.

*Habitat:* 15 m, 20 m, on *Lithothamnium* sp.: Off Ogi.

DESMARESTIALES  
DESMARESTIACEAE

112. *Desmarestia viridis* (MÜLLER) LAMOUROUX

in OKAMURA, K., Icon. Jap. Alg. Vol. II., pp. 84-86, pl. 73, fig. 1-3, pl. 75, fig. 5-6, 1951; TAYLOR, W. R., Mar. Alg. N.E. Coast N. Am., pp. 153-154, pl. 13, fig. 3, 1966.

*Japanese name:* Ke-urushi-gusa.

*Habitat:* 0.3 m, 10 m, 30 m, on rocky bottom: Sotomo, Tassha, Off Tassha, Off Akasaki.

SCYTOSIPHONALES  
SCYTOSIPHONACEAE

113. *Scytosiphon lomentarius* (LYNGBYE) J. AGARDH

in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, pp. 531-533, pl. 44, fig. 72, 74, 1925; TAYLOR, W. R., Mar. Alg. N. E. Coast N. Am., pp. 168-169, pl. 15, fig. 2, pl. 16, fig. 3, 1966.

*Japanese name:* Kayamo-nori.

*Habitat:* At low-tide-level, on rocky bottom: Hyūga, Tassha.

114. *Colpomenia bullosa* (SAUNDERS) YAMADA

*Colpomenia sinuosa* f. *deformis* SETCHELL and GARDNER, in Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, p. 542, 1925; TAYLOR, W. R., Mar. Alg. E. Trop. Subtrop. Coasts Am., p. 261, pl. 36, fig. 5, 1960.

*Japanese name:* Watamo.

*Habitat:* 30 m, on shell of molluscs: Off Akasaki.

115. *Colpomenia sinuosa* (ROTH) DERBÈS et SOLIER

in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, pp. 539-540, pl. 45, fig. 82-86, 1925; TAYLOR, W. R., Mar. Alg. E. Trop. Subtrop. Coasts Am., p. 260, pl. 36, fig. 1, 1960.

*Japanese name:* Fukuro-nori.

*Habitat:* At low-tide-level, 10 m, 15 m, 20 m, on *Sargassa* and *Lithothamnium* sp.: Hyūga, Off Ogi, Tassha.

116. *Hydroclathrus clathratus* (BORY) HOWE

in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, p. 543, 1925; TAYLOR, W. R., Mar. Alg. E. Trop. Subtrop. Coasts Am., p. 261, pl. 36, fig. 5, 1960.

*Japanese name:* Kagome-nori.

*Habitat:* Drifting; At low-tide-level, 20 m, on rocky bottom: Tsuruga, Tassha, Off Ogi.

117. *Endarachne binghamiae* J. AGARDH

in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, pp. 538-539, pl. 38, fig. 37-38, pl. 83a, 1925; OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 233-234, fig. 126, 1956.

*Japanese name:* Haba-nori.

*Habitat:* At low-tide-level, on rocky bottom: Hyūga.

118. *Petalonia fascia* (O. F. MÜLLER) KUNTZE

*Laminaria Fascia* AG., in HARVEY, W. H., Ner. Bor.-Am. I, Melanospermae, p. 91, 1852; TAYLOR, W. R., Mar. Alg. N.E. Coast N. Am., pp. 167-168, pl. 14, fig. 5, pl. 15, fig. 3, 1966.

*Japanese name:* Seiyō-haba-nori.

*Habitat:* 0.5 m, on *Cystophyllum sisymbrioides*: Hyūga.

## PUNCTARIACEAE

119. *Punctaria latifolia* GREVILLE

in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, p. 519, 1925; TAYLOR, W. R., Mar. Alg. N.E. Coast N. Am., p. 166, pl. 15, fig. 5, 1966.

*Japanese name:* Haba-modoki.

*Habitat:* 0.5 m, 10 m, 20 m, on *Sargassa*: Hyūga, Akasaki, Tassha, Off Tassha, Off Ogi.

## LAMINARIALES

### CHORDACEAE

120. *Chorda filum* (LINNÉ) LAMOUROUX

in SETCHELL, W. A. and GARDNER, N. L., Mar. Alg. Pac. Coast N. Am. Part III Melanophyceae, pp. 592-593; TAYLOR, W. R., Mar. Alg. N.E. Coast N. Am., p. 176, pl. 14, fig. 3, pl. 15, fig. 1, 1966.

*Japanese name:* Tsurumo.

*Habitat:* Drifting; 20 m, on shell of molluscs: Tsuruga, Akasaki, Tassha, Off Ogi.

## LAMINARIACEAE

121. *Ecklonia kurome* OKAMURA

Icon. Jap. Alg. Vol. V., pp. 137-140, 149-151, pl. 236, fig. 8, pl. 237, fig. 1-4, 1951; Descr. Jap. Alg. (in Jap.), pp. 271-272, fig. 152, 1956.

*Japanese name:* Kurome.

*Habitat:* Drifting: Urasoko.

122. *Eoklonia stolonifera* OKAMURA

Mar. Alg. Chosen., pp. 20–21, pl. 140, fig. 1–6, 1913.

*Japanese name*: Tsuru-aramé.

*Habitat*: Drifting; 0.5 m, 40 m, on rocky bottom: Tassha, Off Tassha, Wajima.

## ALARIACEAE

123. *Undaria pinnatifida* (HARVEY) SURINGAR

in OKAMURA, K., Icon. Jap. Alg. Vol. V., pp. 118–120, 127–128, pl. 231, fig. 1–3, pl. 235, fig. 1–10, 1951; Descr. Jap. Alg. (in Jap.), pp. 281–282, fig. 157, 1956.

*Japanese name*: Wakame.

*Habitat*: At low-tide-level, on rocky bottom: Sotomo, Tassha.

## FUCALES

## SARGASSACEAE

124. *Cystophyllum caespitosum* YENDO

Fucaceae Jap., pp. 42–43, pl. 3, fig. 12–13, 1907.

*Japanese name*: Kaifu-moku.

*Habitat*: 1 m, on rocky bottom: Akasaki, Tassha.

125. *Cystophyllum sisymbrioides* J. AGARDH

in YENDO, K., Fucaceae Jap., pp. 36–40, pl. III, fig. 1–6, 1907; OKAMURA, K., Icon. Jap. Alg. Vol. V., pp. 21–23, 35–36, pl. 206, fig. 1–4, 1951.

*Japanese name*: Joro-moku.

*Habitat*: 1 m, on rocky bottom: Hyūga.

126. *Sargassum confusum* C. AGARDH

in YENDO, K., Fucaceae Jap., pp. 106–112, pl. 14, fig. 1–12, 1907; OKAMURA, K., Descr. Jap. Alg. (in Jap.), p. 335, 1956.

*Japanese name*: Fushi-suji-moku.

*Habitat*: 1 m, 10 m, on rocky bottom: Okazaki, Akasaki, Off Tassha.

○127. *Sargassum filicinum* HARVEY

in YENDO, K., Fucaceae Jap., pp. 80–81, pl. 11, fig. 8, 1907; OKAMURA, K., Descr. Jap. Alg. (in Jap.), p. 329, 1956.

*Japanese name*: Shida-moku.

*Habitat*: 40 m, on rocky bottom: Off Tassha.

128. *Sargassum fulvellum* AGARDH

*Sargassum enerve* AG., in YENDO, K., Fucaceae Jap., pp. 96–98, pl. XIII, fig. 1–6, 1907; OKAMURA, K., Descr. Jap. Alg. (in Jap.), pp. 335–337, fig. 169, 1956.

*Japanese name*: Hondawara.

*Habitat*: At low-tide-level, 10 m, on rocky bottom: Sotomo, Off Tassha.

129. *Sargassum hemiphyllum* C. AGARDH

in YENDO, K., *Fucaceae Jap.*, pp. 99–102, pl. XIII, fig. 7–17, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 48–51, 61–62, pl. 213, fig. 1–7, 1951.

*Japanese name:* Iso-moku.

*Habitat:* At low-tide-level, on rocky bottom: Hyūga, Akasaki.

130. *Sargassum horneri* (TURNER) C. AGARDH

in YENDO, K., *Fucaceae Jap.*, pp. 74–80, pl. X, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 3–5, 15–16, pl. 202, fig. 1–8, 1951.

*Japanese name:* Aka-moku.

*Habitat:* 1 m, on rocky bottom: Hyūga, Tassha.

131. *Sargassum micracanthum* (KÜTZING) YENDO

*Fucaceae Jap.*, pp. 123–127, pl. XV, fig. 10–21, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 51–54, 63–65, pl. 214, fig. 1–11, 1951.

*Japanese name:* Toge-moku.

*Habitat:* At low-tide-level, on rocky bottom: Aoshima Islet, Akasaki, Tassha.

132. *Sargassum nigrifolium* YENDO

*Fucaceae Jap.*, pp. 127–129, pl. XVI, fig. 1–3, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 8–10, pl. 204, fig. 1–7, 1951.

*Japanese name:* Narasamo.

*Habitat:* At low-tide-level, on rocky bottom: Sotomo.

133. *Sargassum patens* C. AGARDH

in YENDO, K., *Fucaceae Jap.*, pp. 64–69, pl. VIII, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 80–81, pl. 218, fig. 1–7, 1951.

*Japanese name:* Yatsumata-moku.

*Habitat:* 1 m, 10 m, on rocky bottom: Matsuzaki, Akasaki, Tassha, Off Tassha.

134. *Sargassum piluliferum* C. AGARDH

in YENDO, K., *Fucaceae Jap.*, pp. 54–60, pl. VI, fig. 1–7, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 69–70, 78–79, pl. 216, fig. 1–6, 1951.

*Japanese name:* Mame-tawara.

*Habitat:* 1 m, 10 m, on rocky bottom: Matsuzaki, Akasaki, Tassha, Off Tassha.

135. *Sargassum ringgoldianum* HARVEY

in YENDO, K., *Fucaceae Jap.*, pp. 146–150, pl. XVIII, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 32–34, 41–42, pl. 210, fig. 1–4, 1951.

*Japanese name:* Ooba-moku.

*Habitat:* 0.5 m, on rocky bottom: Tassha.

136. *Sargassum serratifolium* C. AGARDH

in YENDO, K., *Fucaceae Jap.*, pp. 81–85, pl. XI, fig. 1–7, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 23–26, 36–38, pl. 207, fig. 1–3, 1951.

*Japanese name:* Nokogiri-moku.

*Habitat:* Drifting; 1 m, 10 m, on rocky bottom: Hyūga, Akasaki, Tassha.

Wajima, Off Tassha.

137. *Sargassum thunbergii* (MERTENS) O. KUNTZE

in YENDO, K., *Fucaceae Jap.*, pp. 114–119, pl. XV, fig. 5, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 6–8, 16–18, pl. 203, fig. 1–9, 1951.

*Japanese name*: Umi-toranoo.

*Habitat*: Drifting; At low-tide-level, on rocky bottom: Matsuzaki, Tassha, Wajima.

138. *Sargassum tortile* C. AGARDH

in YENDO, K., *Fucaceae Jap.*, pp. 85–88, pl. XII, fig. 1–8, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 26–29, 38–39, pl. 208, fig. 1–6, 1951.

*Japanese name*: Yore-moku.

*Habitat*: 1 m, on rocky bottom: Hyūga.

139. *Sargassum yendoi* OKAMURA et YAMADA

in YAMADA, Y., *Notes Some Jap. Alg. VIII.*, pp. 121–123, fig. 1–2, 1938.

*Japanese name*: Yendo-moku.

*Habitat*: Drifting; 15 m, on stone: Hyūga, Off Ogi.

140. *Coccophora langsdorfii* (TURNER) GREVILLE

*Coccophora* (?) *Imperata* YENDO, YENDO, K., *Fucaceae Jap.*, pp. 53–54, pl. 4, fig. 8–12, 1907; OKAMURA, K., *Icon. Jap. Alg. Vol. V.*, pp. 1–3, 12–14, pl. 201, 1951.

*Japanese name*: Sugi-moku.

*Habitat*: At low-tide-level, on rocky bottom: Matsuzaki, Tassha.

### Acknowledgements

The writer wishes to acknowledge his indebtedness to Professor Emeritus Jun Tokida of Hokkaido University, for his helpful suggestions and critical reading of the manuscript, and to Dr. Tomitaro Masaki, Faculty of Fisheries, Hokkaido University, for his kindness in affording him with the copies of some important papers.

### Literature

- BØRGESEN, F. (1913) The Marine Algae of the Danish West Indies. I. Chlorophyceae. *Dansk Bot. Arkiv* 1 (4): 1–158.
- COLLINS, F. S. (1909) The Green Algae of North America. *Tufts Coll. Stud.* 2 (3): 77–480.
- COLLINS, F. S. and HERVEY, A. B. (1917) Contributions from the Bermuda Biological station for Research, No. 69. The Algae of Bermuda. *Proc. Am. Acad. Art. Sci.* 53 (1): 1–195.
- DESIKACHARY, T. V. (1959) Cyanophyta. *Ind. Coun. Agric. Res., New Delhi*: 1–686.
- DE TONI, J. B. und OKAMURA, K. (1894) Neue Meeresalgen aus Japan. *Ber. Deutsch. Bot. Ges.* 12: 72–78.
- FRIEDEL, F. E. (1959) The Structure and Reproduction of the Algae II Foreword, Phaeophyceae, Rhodophyceae, Myxophyceae. *Cambridge Univ. Press, London*: 1–939.
- HARVEY, W. H. (1852) *Nereis Boreali-Americana* I, *Melanospermae*. *Smiths. Contrib. Knowl.* 3 (4): 1–144.

- (1858) *Nereis boreali-americana*. III, Chlorospermae, including supplements. *Ibid.* 10: 1-140.
- HOLMES, E. M. (1895) New Marine Algae from Japan. *Linn. Jour. Bot.* 31: 248-260.
- INAGAKI, K. (1954) Contributions to the Knowledge of the Chordariales from Japan I. *Sci. Pap. Inst. Algal. Res., Fac. Sci., Hokkaido Univ.* 4 (1): 1-14.
- (1958) A Systematic Study of the Order Chordariales from Japan and its Vicinity. *Ibid.* 4 (2): 87-197.
- KAJIMURA, M. (1969) On swarmer production and discharge in *Caulerpa okamurai* WEBER VAN BOSSE from Shimane Prefecture. *Bull. Jap. Soc. Phycol.* 17 (3): 98-103.
- KAWAI, H. (1972) Hydrography of the Kuroshio Extension. in *Kuroshio*. Univ. Tokyo Press, Tokyo: 235-352.
- NODA, M. (1969) The Species of Phaeophyta from Sado Island in the Japan Sea. *Sci. Rep. Niigata Univ., Ser. D* 6: 1-64.
- (1974) On the Marine Algae of Sado Island in the Japan Sea (2). *Ann. Rep. Sado Mar. Biol. Sta., Niigata Univ.* 4: 15-25.
- OKAMURA, K. (1897) On the Algae from Ogasawara-jima (Bonin Islands). *Bot. Mag. Tokyo* 11: 1-10.
- (1899) Contributions to the Knowledge of the Marine Algae of Japan. III. *Ibid.* 13 (143): 35-43.
- (1902) Manual of the names of the Japanese algae (in Jap.). *Keigyōsha*, Tokyo: 1-274.
- (1913) On the Marine Algae of Chosen. *Rep. Imp. Bur. Sci. Invest.* 2: 17-30.
- (1932) The Distribution of Marine Algae in Pacific Waters. *Rec. Oceanogr. Wk. Jap.* 4 (1): 30-150.
- (1951) *Icones of Japanese Algae I*. Kazama Shobō, Tokyo: 1-258.
- (1951) *Icones of Japanese Algae II*. Kazama Shobō, Tokyo: 1-191.
- (1951) *Icones of Japanese Algae III*. Kazama Shobō, Tokyo: 1-218.
- (1951) *Icones of Japanese Algae IV*. Kazama Shobō, Tokyo: 1-205.
- (1951) *Icones of Japanese Algae V*. Kazama Shobō, Tokyo: 1-203.
- (1961) *Icones of Japanese Algae VI*. Kazama Shobō, Tokyo: 1-96.
- (1962) *Icones of Japanese Algae VII*. Kazama Shobō, Tokyo: 1-116.
- (1956) Description of the Japanese Algae (in Jap.). *Uchida Rōkaku Ho*, Tokyo: 1-964.
- SAKAI, Y. (1964) The Species of *Cladophora* from Japan and its Vicinity. *Sci. Pap. Inst. Algal. Res. Fac. Sci., Hokkaido Univ.* 5 (1): 1-104.
- SEGAWA, S. (1935) On the marine algae of Susaki, Prov. Idzu, and its vicinity. *Ibid.* 1 (1): 59-90.
- (1938) On the marine algae of Susaki, Prov., Izu, and its vicinity III. *Ibid.* 2 (1): 131-153.
- (1941) New or Noteworthy Algae from Idzu I. *Ibid.* 2 (2): 251-271.
- SETCHELL, W. A. and GARDNER, N. L. (1903) Algae of Northwestern America. *Univ. Calif. Publ. Bot.* 1: 165-418.
- (1919) The Marine Algae of the Pacific Coast of North America Part I Myxophyceae. *Ibid.* 8 (1): 1-138.
- (1920) The Marine Algae of the Pacific Coast of North America Part II Chlorophyceae. *Ibid.* 8 (2): 139-374.
- (1922) Phycological Contributions II TO VI. *Ibid.* 7 (11): 333-426.
- (1925) The Marine Algae of the Pacific Coast of North America Part III Melanophyceae. *Ibid.* 8 (3): 387-898.
- (1930) Marine Algae of the Revillagigedo Islands Expedition in 1925. *Proc. Calif. Acad. Scis.* 4th Ser. 19 (11): 109-215.

- TAKAMATSU, M. (1939) The Species of *Leathesia* from Northeastern Honshū, Japan. Saito Ho-on-Kai Mus. Res. Bull. 17: 1-19.
- (1943) The Species of *Sphacelaria* from Japan, I. Jour. Sigenk. Kenkyū. 1 (2): 153-187.
- TAYLOR, W. R. (1960) Marine Algae of the Eastern Tropical and Subtropical Coasts of the Americas. Univ. Michigan Press, Ann Arbor: 1-870.
- (1966) Marine Algae of the Northeastern Coast of North America. Univ. Michigan Press, Ann Arbor: 1-509.
- TOKIDA, J. (1954) The Marine Algae of Southern Saghalien. Mem. Fac. Fish., Hokkaido Univ. 2 (1): 1-264.
- TOKIDA, J. and MASAKI, T. (1959) A List of Marine Algae Collected in the Vicinity of Oshoro Marine Biological Station, at Oshoro, Hokkaido, Japan. Bull. Fac. Fish., Hokkaido Univ. 10 (3): 173-195.
- UMEZAKI, I. (1961) The Marine Blue-green Algae of Japan. Mem. Coll. Agr. Kyoto Univ. 83: 1-149.
- WEBER-VAN BOSSE, A. (1913) Liste des Algues du Siboga I Myxophyceae, Chlorophyceae, Phaeophyceae. Siboga-Exped. 59a: 45-186.
- YAMADA, Y. (1925) Studien über die Meeresalgen von der Insel Formosa 2. Phaeophyceae. Bot. Mag. Tokyo 39 (465): 239-254.
- (1928) Report of the Biological Survey of Mutsu Bay. 9. Marine Algae of Mutsu Bay and Adjacent Waters. II. Sci. Rep. Tohoku Imp. Univ. 3 (4): 497-534.
- (1931) Notes on Some Japanese Algae II. Jour. Fac. Sci., Hokkaido Imp. Univ., Ser. 5 1 (2): 65-76.
- (1932) Notes on Some Japanese Algae III. Ibid. 1 (3): 100-123.
- (1932) Notes on Some Japanese Algae IV. Ibid. 2 (2): 267-276.
- (1938) Notes on Some Japanese Algae VIII. Sci. Pap. Inst. Algol. Res., Fac. Sci., Hokkaido Imp. Univ. 2 (1): 119-130.
- YENDO, K. (1907) The Fucaceae of Japan. Jour. Coll. Sci. Imp. Univ. Tokyo 21 (12): 1-174.
- (1909) Notes on Algae New to Japan. Bot. Mag. Tokyo 23 (270): 117-133.
- (1914) Notes on Algae New to Japan. II. Ibid. 28 (333): 263-281.
- (1916) Notes on Algae New to Japan. V. Ibid. 30 (355): 243-263.
- (1920) Novae Algae Japoniae. Decas I-III. Ibid. 34 (397): 1-12.

## Explanation of Plate

### Plate I

#### *Microdictyon japonicum* SETCHELL

- Fig. 1. Part of a specimen preserved in formalin-seawater, collected from deep sea off Akasaki, on June 29, 1978.

#### *Halopteris filicina* (GRATELOUP) KÜTZING

- Fig. 2. Part of a sterile plant preserved in formalin-seawater, collected from deep sea off Tassha, on May 26, 1978.

#### *Cutleria multifida* (SMITH) GREVILLE

- Fig. 3. Habit of a mature male gametophyte preserved in formalin-seawater, collected at Urasoko, on March 22, 1977.
- Fig. 4. Fertile part of a gametophyte, showing male gametangia pointed by arrow.



