

Studies on Some Marine Algae from Southern Japan-VI

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Abstract

The studies of the marine algae in deep sea by dredging have been made by the writer in the Southwestern-sea of Japan and Ryukyu Islands since 1957. In the following papers some descriptions have been made of nine species; of these nine, four are new species and two are new to Japanese waters, and the other two species were ascertained, this time, to be the plants with reproductive organs, though these two were reported by Dr. Okamura in 1921 and 1931 respectively.

Caulerpa scalpelliformis (R. Brown) Weber van Bosse

Fig. 1, and Pl. I, A.

Monog. des *Caulerpes* (1898) p. 286; Reinke, Ueber *Caulerpa* (1899) p. 13; Svedelius, Ceylon species of *Caulerpa* (1906) p. 109; Okamura, Icones of Japanese Algae, vol. 4 (1921) p. 106, pl. 175; Boergesen, Some Indian green and brown algae especially from the shores of the presidency of Bombay, II (1932) p. 55, fig. 1, pl. 1

Caulerpa scalpelliformis C. Agardh, Spec. Algarum (1821) p. 437, Harvey, Phycologia Australica (1858) pl. 17.

forma denticulata (Decaisne) Weber van Bosse

Monog. des *Caulerpes* (1898) p. 228, pl. 28, figs. 8-10.

Caulerpa denticulata Decaisne, "Plantes de Arabie heureuse, p. 120, tab. VI, figs. 1-3."

Japanese name. Amamino-kurokizuta.

Hab. Kamikatetsu, Kikai Island, Amami Islands (Col. by Isao Matsuda).

March, 27th, 1964. Growing on sandy bottom in the sublittoral zone.

Distribution. Red Sea; Indian Ocean; Japan.

Plants with sparingly forking, wide spreading stolons to 10 cm. long, usually 1.5-2 mm. diam., giving off short descending rhizoid bearing branches at intervals 0.5-1.5 cm., and at slightly greater intervals bearing ascending foliar branches; foliar branches comparatively short stalked, oblong or broadly lanceolate, 3-6 cm. tall, 0.6-1.4 cm. broad, usually simple and not forked, subpinnately divided, with a flat midrib about 0.3-0.5 cm. broad and with closely placed, sometimes overlapping lobes opposite or alternate, usually irregular oblong in shape, arcuated upwards and basally little narrowed, gradually attenuated towards the apical portion where several minute spines are clearly observed; colour of the frond deep green or little yellowish green; deep green coloured small striation or hair often observed on the midrib of the foliar branches (reproductive organ?).

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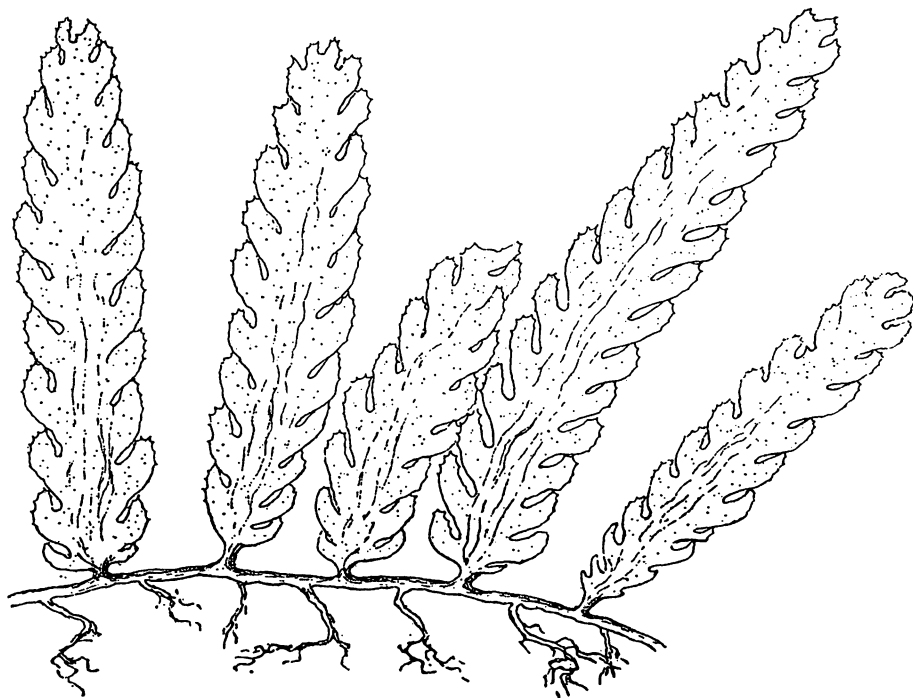


Fig. 1. *Caulerpa scalpelliformis* (R. Brown) Weber van Bosse *forma denticulata* W. v. B. Habit of a plant. $\times 1.4$.

The present reaches a size of about 6 cm. and the foliar branch is about 1.4 cm. broad. The lobes are about 0.5 cm. long and 0.3–0.4 cm. broad near the base.

In *Caulerpa scalpelliformis* Weber van Bosse, the foliar branches of *forma denticulata* Web. van Bosse, compared with *forma typica* or *intermedia*, are not so long, but the blades are shorter and broader and of variable shapes and are always supplied with minute spines.

The present alga from Kikai Island, Amami Islands seems to be the same as *Caulerpa scalpelliformis* W. v. B. *forma denticulata* W. v. B., as it seems to agree quite well with the plates of Weber van Bosse (1. c. pl. 28, 8–10). The writer was fortunate enough to examine and compare this one with some specimens from Ama, Beppu Bay, Oki Islands, Japan sea. One of the specimens from the Japan sea was observed to be wanting in the minute spines of the lobes. (Pl. II, lower specimen).

Judging from the specimens of the Japan sea and also from Okamura's figures in *Icones of Japanese Algae*, vol. 4, pl. 175, the form of the plant from the Japan sea seems to be closely related to *forma typica* or *f. intermedia* and not to *forma denticulata*. In Japan, *Caulerpa scalpelliformis* Web. van Bosse was recently reported by Mr. Nomura (1957, 1959) from Ehime Pref. and also Okinoshima, Tosa Prov. respectively.

But the writer has not yet examined these plants and therefore the proper form of these plants were uncertain.

***Gelidium amamiense* Tanaka et K. Nozawa spec. nov.**

Figs. 2-3.

Frons parva, rigidula, linearis, erecta, 0.8–1.2 cm. alta, ancipitocompressa, rhizomatibus filamentibus adfixa, margine regulariter pinnatim ramosa; pinnis brevis, erectis 0.8–1.5 mm. longis et 300–500 μ latis, apicibus pinnarum acutis vel obtusis, pinnis et pinnulis ad basin leviter constrictis vel non constrictis; soris tetrasporangiis tumido-rotundatis, prope partes apicem pinnulis inflatis, tetrasporangiis ovatis vel elliptico-ovatis, 20–28 μ diam., cruciatis divisis; cystocarpiis et antheridiis ignotis. Planta typica in loco dicto Naze, Amamioshima, legit Tanaka et K. Nozawa, no. 19651, 6 Aug. 1963.

Japanese name. Shinkai-himebuto.

Habitat. Naze, Amamioshima, Amami Islands. August, 6th, 1963. Dredged from 60 meter's depth on coral rock.

Frond small, linear, somewhat rigid, purplish red, erect, 0.8–1.2 cm. high, ancipito-compressed, attached to the substratum by means of short creeping branched filaments; pinnately branched in regular manner from both margins of the



Fig. 2. *Gelidium amamiense* Tanaka et K. Nozawa. Habit of the tetrasporic plants. $\times 5$.

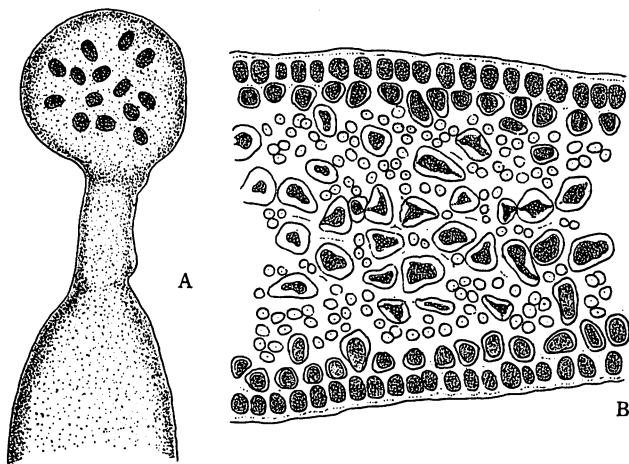


Fig. 3. *Gelidium amamiense* Tanaka et K. Nozawa.

A. The tetrasporangia sorus of the branchlets. $\times 260$.

B. Transverse section of the frond. $\times 100$.

single main axis; pinnae single, straight and short, usually 0.8–1.5 mm. long and 300–500 μ wide, slightly constricted or no constriction towards the base, usually acute or blunt at the apex, often again branched to short pinnulae; main axis 500–800 μ in breadth, gradually narrower towards the apex; structure in transverse section, cortical layer composed of rather square cells and 2–3 layers, medullary cells round or elliptical, scattered, about 17×19 – $27 \times 29 \mu$ in size, having thick membrane, rhizoidal filaments chiefly aggregated at the inner side of subcortex, about 3–4.5 μ in diam., comparatively scanty in the central tissue; tetrasporangial sorus usually rounded and swollen, 250–400 μ in diam., forming in the apical portion of pinnae or pinnulae, tetrasporangia ovate or elliptical-ovate, 20–28 μ in diameter, cruciate divided; cystocarps and antheridia unknown.

The present species seems to be one of the smallest among the genus *Gelidium*.

This species is assumed to be allied to *Gelidium nanum* Inagaki (1950, p. 20, fig. 1.), in its outer appearance, but it differs from that in its regular pinnate branching and the round-shaped tetrasporic branchlets, and also in the rhizoidal filaments in subcortex tissue which are located comparatively closer in the margin.

The rhizoidal filaments in the frond are usually aggregated at the inner side of the subcortex and also in the central tissue.

Gelidium isabelae Taylor

Figs. 4–5.

Pacific Mar. Alg. Allan Hancock Expedit. Galapagos Islands (1945) p. 154, pl. 5, figs. 8–12.

Japanese name. Herahimebuto.

Habitat. Kubura, Yonakuni Island, Ryukyu Islands (Oct. 30th, 1959); Koniya,



Fig. 4 *Gelidium isabelae* Taylor. Portions of several branches showing the tetrasporangial sorus. $\times 8$.

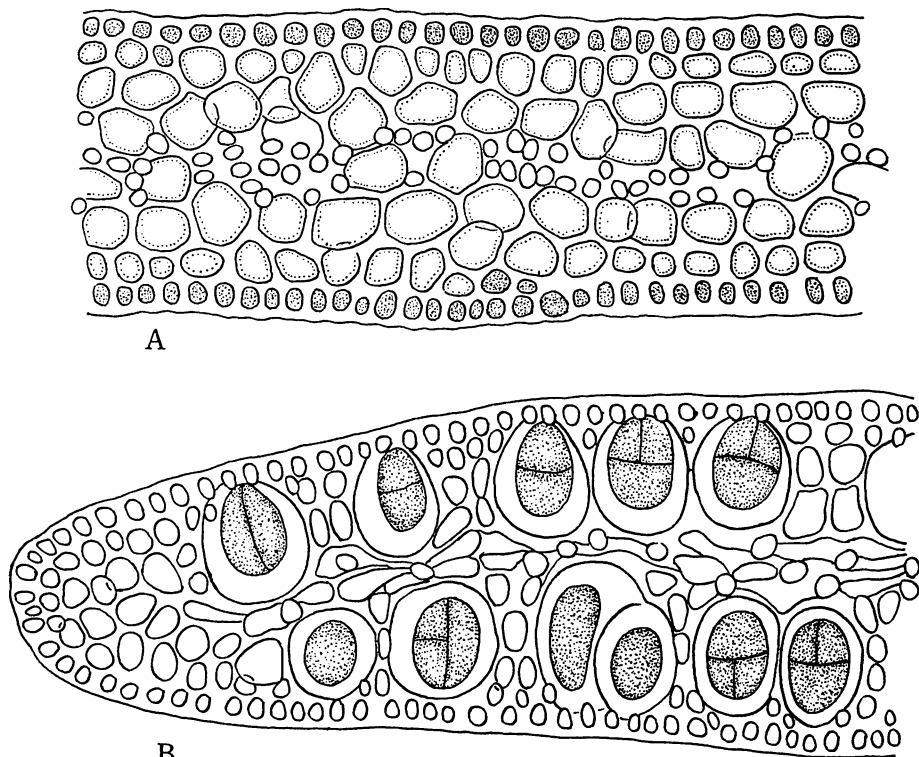


Fig. 5 *Gelidium isabelae* Taylor.

A. Transverse section of the frond. $\times 400$.

B. Transverse section of the tetrasporangial sorus. $\times 400$.

Amamioshima, Amami Islands (August 6th, 1962).

Distribution. Ecuador; Colombia.

Plant small and slender, 1–1.5cm. high, 1.5–2mm. broad, carnosose or membranaceous, attaching to the coral by means of cylindrical slender creeping rhizomes; blades erect and complanate, 3–5mm. high, 500–800 μ broad, ligulate to spatulate or linear lanceolate, blunt or obtuse at the apex, with a short cylindrical stalk, branching chiefly fröiferous from the margin, sparingly and loosely pinnate or rarely palmate; structurally showing the medullary cells scattered, elliptical in shape, cortical cells forming 2–3 layers, roundish in shape and 4–7 μ in size, rhizoidal cells usually scanty and comparatively aggregated forming a mass in the central tissue; tetrasporangia irregularly dispatched in rounded sorus near the upper end of the ordinary branchlets, usually elliptical, 35–45 μ in diameter, cruciate divided; colour of the frond dull red.

The Japanese plants seem to be a little larger than the Ecuadorian ones.

The most characteristic feature of this plant is that it is rather more fleshy and carnosose than other species of small *Gelidium*.

The present species is most allied to *Gelidium pusillum* (Stack.) Le Jolis, but it

differs from the latter in its membranaceous in texture and also in the smaller size of the plant.

***Jania capillacea* Harvey**

Fig. 6.

Nereis Boreali Americana (1853) p. 84; Boergesen, Mar. Alg. Danish West Indies (1917) p. 198, fig. 188; Taylor, Mar. Alg. of Florida, with spec. ref. Dry Tortugas (1928) p. 206, pl. 29, figs. 2, 10, Caribbean Mar. Alg. of the Allan Hancock Exp., 1939 (1942) p. 94, Pacific Mar. Alg. Allan Hancock Exp. Galapagos Islands (1945) p. 195, Plants of Bikini (1950) p. 133, Mar. Alg. Eastern Tropical and Subtropical Coasts of the Americas (1960) p. 412, pl. 49, fig. 4; Dawson, Mar. Alg. Pacific Mexico, pt. 1 (1952) p. 116, pl. 9, fig. 1, Mar. Plants in the Vicinity of Nha-Trang, Viet-Nam (1954) p. 432, fig. 41, An annotated List of Mar. Alg. from Eniwetok Atoll, Marshall Islands (1957) p. 114, Literature of Benthic algae from the Eastern Pacific (1961) p. 419.

Japanese name. Ke-himemosazuki.

Habitat. Tatugo, Amami Island (August 10th, 1963): Mageshima, Tanegashima (June 9th, 1963). Dredged from 20 meter's depth or more deep sea on coral.

Distribution. Bikini; Viet-Nam; Marshall Islands; Galapagos; Mexico; Brazil; Atlantic Coast of America.

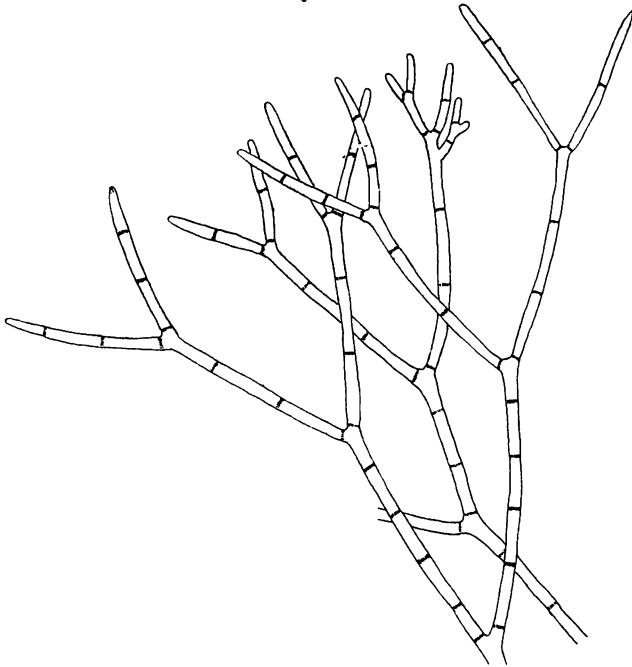


Fig. 6 *Jania capillacea* Harvey. Habit of part a plant. $\times 12$.

Plant minute, erect, capillaceous and cushion-like, 4–8mm. high, growing intermingled with other small algae in tufts, branching regularly dichotomous at very wide angle of 45° – 95° , branches often recurved, segments usually 80 – 120μ in diameter, subcylindrical or somewhat flattened cylindrical, 4–10 times as long as broad; conceptacle found as flattened swellings at or near the end of the ultimate branchlets; colour of the frond light red.

Among genus *Jania*, the present species most closely resembles *Jania decussatodichotoma* Yendo, but it differs from the latter by its smaller and slender segments of the frond. The present species seems to be distributed widely in the South-western sea of Japan, though it has never previously been reported from Japanese waters.

***Rhodymenia prostrata* Tanaka spec. nov.**

Figs. 7–8.

Frons parva, repens, cripata, subcoriacea, complanata, 3–5cm. long., irregulariter ramosa intricataeque, brevissime stipitata; segmentis plus minus linearis irregulariter, 2–5mm. lata et 170 – 250μ crassa, apicibus rotundatis; cystocarpiis ad vel prope marginem vel ad superficiem segmentorum productis, fere hemisphericis, sessilibus; 0.3–0.6mm. diam., frons ex duobus stratis cellularum magnarum interiorum et uno stratis cellularum subcorticarum, uno vel duobus stratis cellularum parvarum colatum perifericarum constructa. Planta typica in loco dicto Mageshima, Tanegashima, legit Tanaka, no. 19652, 7 Jun., 1964.

Japanese name. Shinkai-himedarusu.

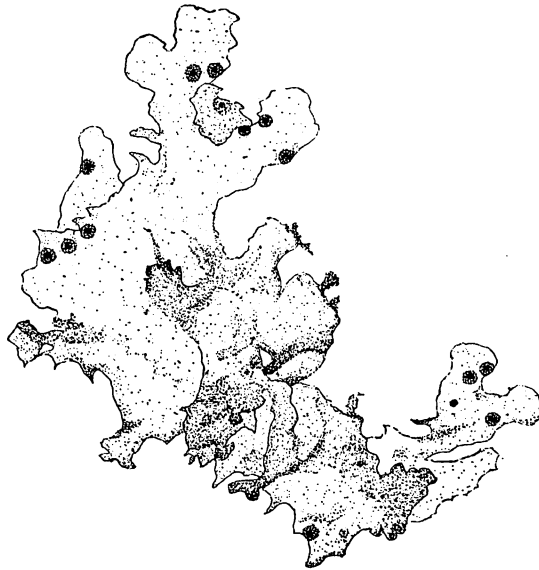


Fig. 7 *Rhodymenia prostrata* Tanaka. Habit of a fertile plant. $\times 4$.

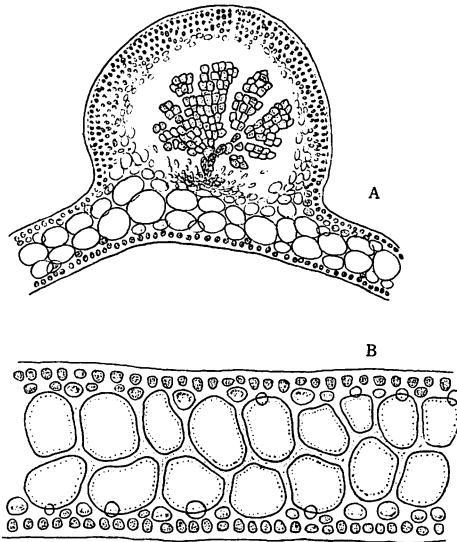


Fig. 8 *Rhodymenia prostrata* Tanaka

A. Transverse section of a cystocarpic plant. $\times 30$.

B. Transverse section of the frond. $\times 110$.

Habitat. Mageshima, Tanegashima, June 7th, 1964. Dredged from 50 meter's depth on coral bottom.

Frond repens, small, subcoriaceous, complanate, crispate, 3–5cm. long, irregularly branched and branches often one above another, attached to the substratum by means of small stipe from innerside of the frond; segments more or less linear, usually 2–5mm. wide and $170\text{--}250\mu$ thick, round at the apex; structurally showing a medulla of two layers of somewhat larger and compressed cells, about 120μ diam., a subcortex on each side of usually one layer of cells about $15\text{--}18\mu$ diam., and one or two layered cortex of rounded cells, $3\text{--}4.5\mu$ diam.; cystocarps usually marginal or on surface in both side of the segments, prominent, semi-spherical, $0.3\text{--}0.6\text{mm}$. diam., with a thick ostiolate pericarp, carpospores basally attached with a small celled loose placental tissue, and without netlike filamentous investment; colour of the frond deep red.

The present species stands near *Rhodymenia parva* Yamada and also *Faucheia crispata* Taylor, but in outer habit as well as in anatomical character, the former can be distinguished from the previous two by the prostrate and creeping habit of the frond.

***Faucheia rhizophylla* Taylor**

Fig. 9, pl. III, B.

Pacific Mar. Alg. Allan Hancock Exped. Galapagos Islands (1945) p. 247, pl. 79, fig. 2.

Japanese name. Hime-hisigatanori.

Habitat. Mageshima, Tanegashima. July 6th, 1964. Dredged from 40 meter's depth on coral bottom.

Distribution. Ecuador.

Plant repent and spreading, membranaceous, very thin, about 180–220 μ thick, light yellowish red, producing rhizoidal holdfast from the marginal portions; blades disciform, 3–5 angled with concave sides, and each angles at their end connecting oval to obtriangulate secondary blades; structu ally showing a medulla with usually two central cell layers with colourless thick walled cells to 85 μ diam., reproductive organ unknown.

The only plant collected at Mageshima, Tanegashima in 1964 by dredging in deep sea was a sterile specimen. We are not quite certain whether the present plant should be referred to *Faucheia rhizophylla* Taylor, but we identify it with this species because of its peculiar character of the outer appearance of the frond.

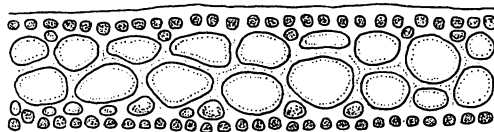


Fig. 9 *Faucheia rhizophylla* Taylor. Transverse section of the frond. $\times 200$.

***Microcladia leptophyllum* Tanaka spec. nov.**

Figs. 10–11, pl. I, B.

Frons erecta, membranaacea, 15cm. alta et ultra, cylindrica, 0.2–0.5mm. crassa in partibus inferioribus, assurgentes ex filametes prostratis repentibus vel epiphyticae in alias algas, ramulisque alternis subdistichiis decomposito-pinnulatis; ramulis inferioribus in ramis satis elongatis, incruvis et saepe hamatis in parte superiore, 1–2cm. longis; tetrasporangiis in partibus superioribus ramulorum uniseriatis, globosis vel elliptocis, ca. 320–380 μ diam., tripartite divis; cystocarpiis numerosis sparsis in partibus superioribus ramulorum, late oblongato-ovatis, 700 \times 800–800 \times 1200 μ , breve pedicelatis; colore fusco-purpureo; specimina exsiccatione chartae adhaerent. Planta typica in loco dicto Mageshima, Tanegashima, legit Tanaka, no. 19653, 5 Jul., 1964.

Japanese name. Nankai-saeda.

Habitat. Mageshima, Tanegashima. July 5th, 1964. Dredged from 40 meter's depth on coral rock.

Frond erect, membranaceous, 15cm. high or more, filiformis and cylindrical, 0.2–0.5mm. diam. in the lower portion of the frond, assurgent from prostrate creeping filaments or epiphytic on other algae, with a percurrent axis branching into several orders and all the branches lying in one plane, erect axis alternately or subdistichously branched, more or less zig-zag, very slightly constricted at the



Fig. 10 *Microcladia leptophyllum* Tanaka. Habit of the upper portion of the plant. $\times 20$

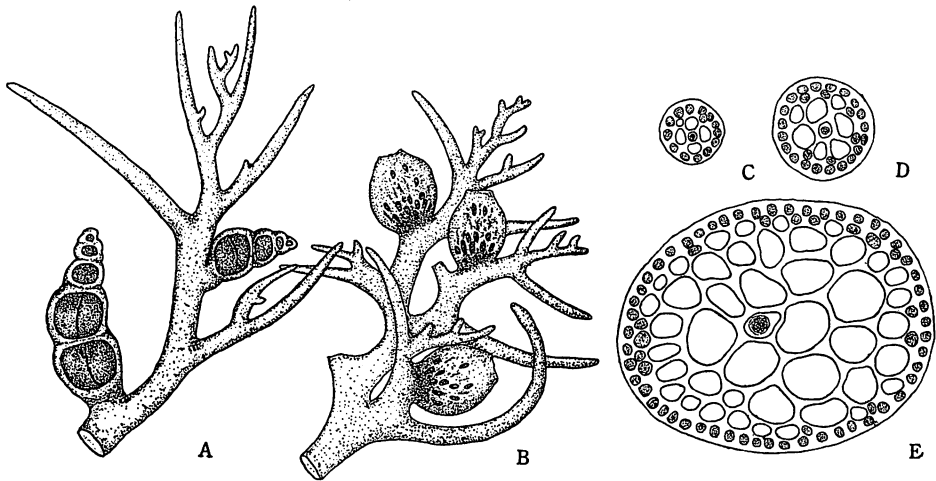


Fig. 11 *Microcladia leptophyllum* Tanaka.
 A. Tetrasporic branchlet. $\times 25$.
 B. Cystocarpic branchlet. $\times 25$.
 C-E. Transverse sections of the fronds. $\times 75$.

lower portion, branches in series of 3-4, lowermost branchlets of the branches usually single and very elongated, about 1-2cm. long, usually curved or hamate at the apex; structurally showing a central axial cell with five or six pericentral cells, cells of the inner layer, excepting central cell, large, gradually smaller towards periphery, lenticular thickenings in the walls of the medullary cell very rarely present; tetrasporangia usually elliptical or globular, $320-380\mu$ in diameter, formed in a single row in swollen stichidial branchlets, these stichidial branchlets short and often little curved, tetraspores irregularly tetrahedrally divided; cystocarps scattered on the upper branchlets, oblong-ovate, $700 \times 800-800 \times 1200\mu$, very short pedicellate, containing comparatively large but few carpospores; antheridium unknown; colour of the frond light purplish red; specimens adhering to paper in drying.

Among genus *Microcladia*, the present species shows some likeness to *Microcladia coulteri* Harvey in its outer appearance. The most characteristic feature of the present species consists in its having elongated hamate branchlets and peculiar structure of the reproductive organs. The structure of cystocarp of this plant reminds us not of the other species of genus *Microcladia* but of some genus of Rhodomelaceae.

The branchlets which are issued from the lowest portion of the branches are always longer than those from the upper and not ramified and usually curved and often forming tendrils at the apex. Every branchlet which is to be issued from the lowest basis of the respective branch is always larger than those branchlets shooting from the upper part of the branch, and is simple and curved, and hooked at the apex.

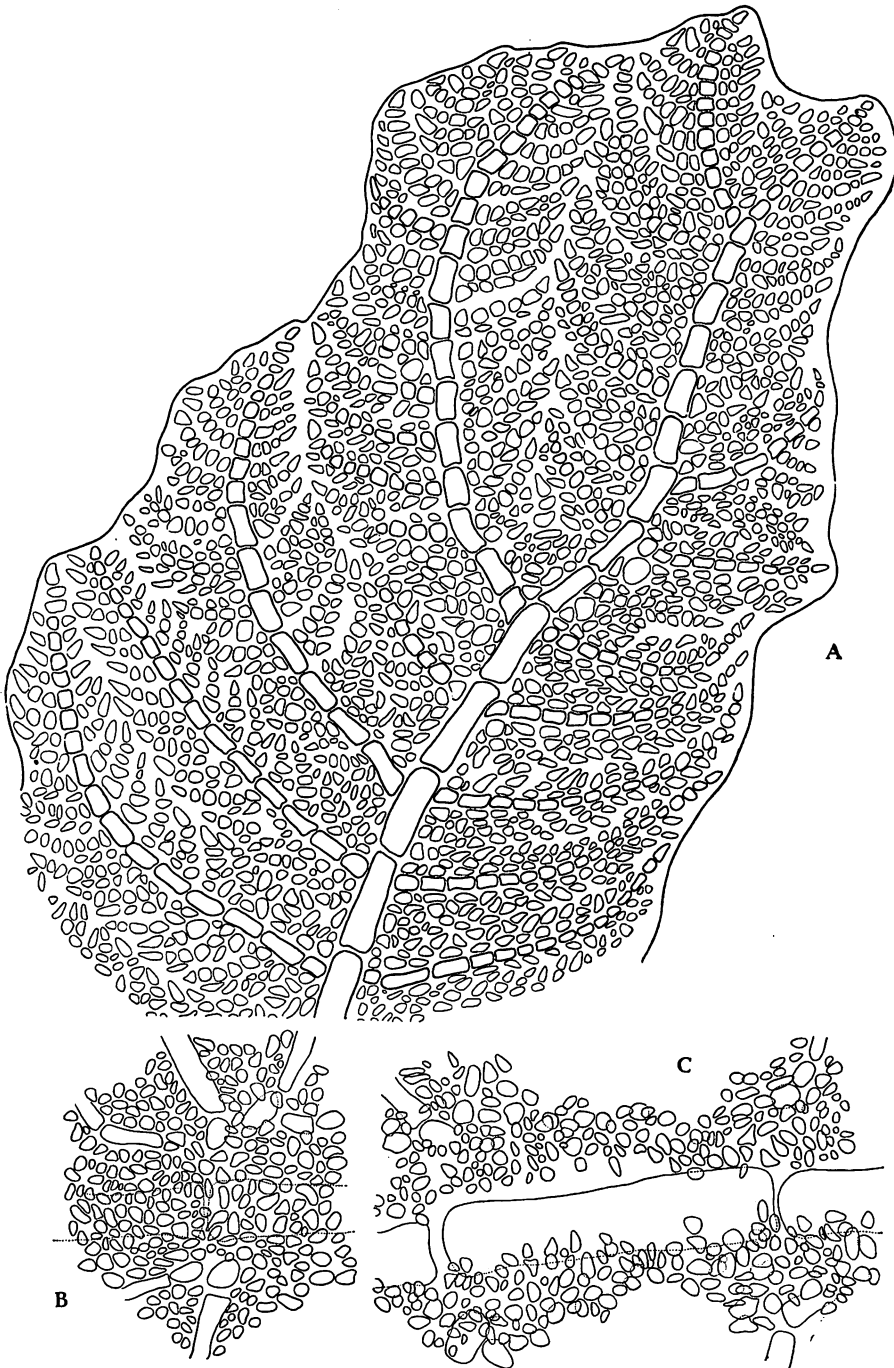


Fig. 12 *Delesseriopsis elegans* Okamura. A. Details of the upper portion of a blade. $\times 150$. B. Details of the lower portion of a blade showing the venation and the arrangement of the intercalary calls. $\times 200$. C. Details of the middle portion of a blade. $\times 150$.

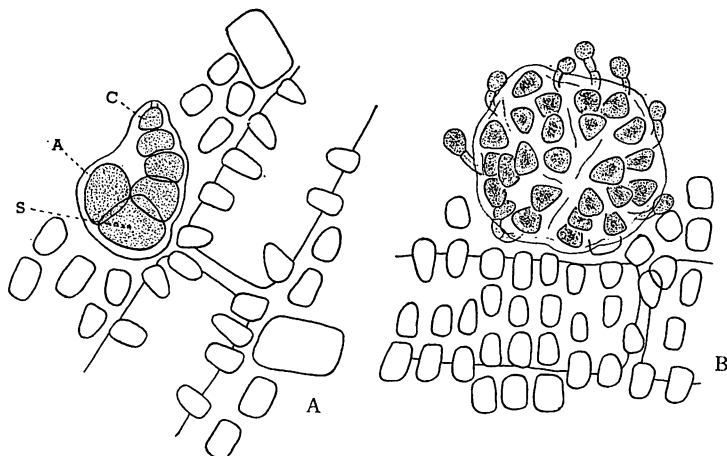


Fig. 13 *Delesseriopsis elegans* Okamura.

A. A procarp (A. Auxiliary cell, C. Carpopogonial branch, S. Supporting cell). $\times 200$.
 B. Matured cystocarp seen from the surface. $\times 200$.

Delesseriopsis elegans Okamura

Figs. 12-13, pl. III, A.

Icones of Japanese Algae, vol. 6 (1931) p. 43, pl. 274, Nipponkaisoshi (1936) p. 715, fig. 341; Kylin, Die Gattungen der Rhodophyceen (;956) p. 395, fig. 309.

Japanese name. Usumurasaki.

Habitat. Mageshima, Tanegashima. July 6th, 1964. The plants were collected by dredging from about 50 meter's depth on coral.

Distribution. Kashiwazima, Tosa Prov.; Mageshima, Tanegashima.

Genus *Delesseriopsis* was established by Dr. Okamura in 1931, and it belongs to subfamily *Delesseriopsidae* in family Ceramiaceae. The characters of the frond of this plant are very peculiar and characteristic among the genus in family Ceramiaceae.

The frond is leaf-like and thinly membranaceous, and traversed by a faint slender midrib. The midrib consists of monosiphonous row of larger cylindrical cells.

The opposite and distichous monosiphonous pinnae issuing from the every shoulder of the respective articulation of midrib, form a very wide patent manner. Each pinna gives rise to pinnulae in the same manner as that of pinnae and pinnulae does the same to secondary pinnulae and so on. All the cells being loosely united at the places where they come in contact with each other, lying on one and the same plane, and the interspaces become completely filled by smaller cells of primary and secondary pinnulae. By such a mode of branching, the delicate membrane is made up.

The upper part of the midrib is one cell layer. However, in the lower part of the frond the midrib is covered by several rhizoidal cells, and forms several

layers.

The writer, here, collected several female plants of this species by dredging in deep sea at Mageshima, Tanegashima in 1964. The carpogonial branch consists usually of four cells, although fragmentary found with three, and is almost always curved. The procarp is borne upon the basal cell, perhaps playing also the part of supporting cell, in the lateral pinnae, which are issued in opposite manner from the midrib. The character of development in gonimoblast and carpospores show quite the same feature as that of genus *Antithamnion* or genus *Plathythamnion*. The young cystocarp is often covered with several involucre like filaments. The matured cystocarp is nearly spherical in outline, often reaching more than 450μ in diameter.

The colour of the frond is light purplish red. The antheridial or tetrasporic organs are unknown.

***Chondria mageshimensis* Tanaka et K. Nozawa spec. nov.**

Figs. 14–16, pl. III, C.

Frons erecta, linearis, 10–14cm. alta textura mollis membranaeaeque, complanata, 8–12 dichotome ramosae angulis latis; segmentis 1–2mm. latis, 300–420 μ crassis, attenuatis ad apicem; cellulae pericentrales 5–6 cellularum ornatis, tela corticalis comparare tenuis, e 3–4 stralis cellularum parvarum composita, cellulae



Fig. 14 *Chondria mageshimensis* Tanaka et K. Nozawa.

Habit of a plant with tetrasporagial stichidia (s.). $\times 1.5$.

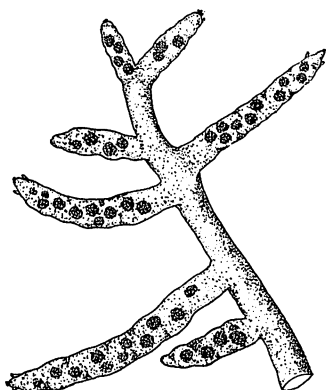


Fig. 15. *Chondria mageshimensis* Tanaka et K. Nozawa.
Tetrasporangial sorus of the branchlets. $\times 12$.

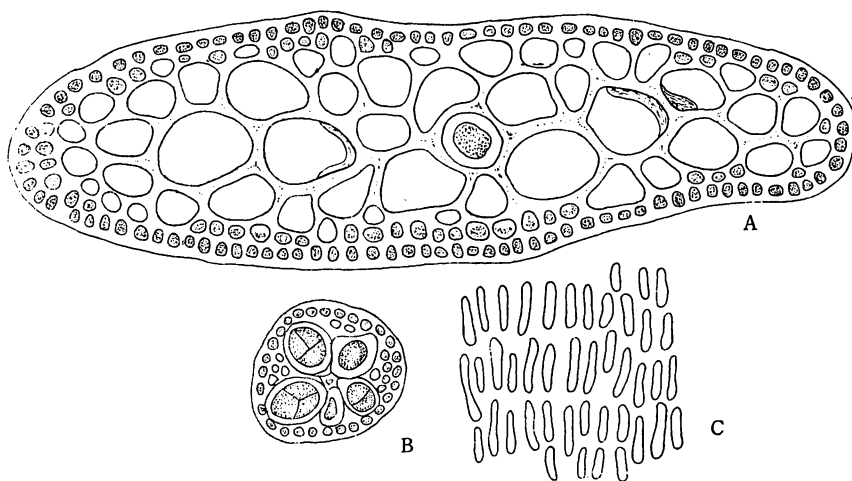


Fig. 16 *Chondria mageshimensis* Tanaka et K. Nozawa.
A. Transverse section of the frond. $\times 110$.
B. Transverse section of the tetrasporangial stichidium. $\times 50$.
C. Cortical cells seen from the surface of the frond. $\times 110$.

peripheriae longitudinaliter nonnihil elongatae, partem incrassatam lenticulatum ad parietem cellularum medullarem ostendenti; tetrasporangiis in brevissime subcylindricis specialiter ramurorum compositis, ovatis, $100-160\mu$ diam., irregulariter tripartite divisis; colore fusco-roseo.; cystocarpiis et antheridiis ignotis.

Planta typica in loco dicto Mageshima, Tanegashima, legit Tanaka et K. Nozawa, no. 19654, 8 Aug., 1964.

Japanese name. Shinkai-yuna.

Habitat. Mageshima, Tanegashima. August 8th, 1964. Dredged from 30 meter's depth on coral bottom.

Frond erect, linear and slender, to 10–14 cm. high, somewhat fleshy and

membranaceous, purplish red, usually complanate throughout except at the base and the attenuate tip, 8-12 times dichotomously branched at wide angles of 45° - 120° ; segments about 1-2mm. broad and $300-420\mu$ thick, apex of the branchlets usually having a terminal depression; structurally showing the axis with five or six pericentral cells surrounded by a loose subcortex and cortex of branching cell series which in small cells approximate as an epidermal layer, lenticular thickenings abundant in the walls of the medullary cells; tetrasporangia clustered in special smaller subcylindrical branchlets, tetraspores usually ovate, $100-160\mu$ in diam., tripartitely divided; male and female organs unknown.

The present species of *Chondria* is a rather distinct one among the Japanese species, its frond being slender flattened or complanated throughout except at the base and the attenuate apex of the frond. The branches are dichotomously and extremely divergent, commonly under 2mm. in width, without distinctive cylindrical stalk. The stichidial branch differs from the other normal branch as it shows smaller and slender, and also subcylindrical constitution.

— 摘 要 —

日本南海産海藻類の研究 (その六)

田 中 剛

今回は近年実施しているドレッヂ採集による深海性の海藻類の調査のうち、本邦南西方海域および琉球列島近海のものの中から、興味あると思われる9種について報告する。

アマミノクロキヅタ：奄美群島、喜界島、上嘉鉄産のクロキヅタの一変種と思われるものは、従来、日本海の隠岐島産のものとは一見非常な差異があり、Weber van Bosseの本種の記載や図版等から判断すると、奄美島産のものが本種の *forma denticulata* に当り、岡村博士の報告された日本海、隠岐島のものは反って *f. typica* か或は *f. intermedia* に近いのではないと思われる。なお本邦では本種は四国近海からも報告されているが、これは隠岐産のものに近いのではないと思われるが、これは今後の研究にまちたい。

シンカイヒメブト：奄美大島、名瀬近海の60米の深所から採集された最小形のテングサ属の一種で、外見、ヒメヒラと酷似するが、枝の分岐、四分孢子囊の形成場所、根様糸細胞の位置の様子等に差異が認められる。

ヘラヒメブト：テングサ属の小形の一種で、一見ハイテングサに似ているが、体制がごく柔軟であること、小形で直立していること等で異なっている。

ケヒメモサズキ：本邦南海でごく普通に見られるヒメモサズキ (*Jania decussato-dichotoma* Yendo) とよく類似しているが、体節が非常に繊細 (直径約 120μ 以下) であることで差異がある。南西方海域では広く分布していると思われる。

シンカイヒメダルス：馬毛島近海の50米の深所から採集されたダルス属植物中のごく小形で匍匐性の体制を有する一新種である。

ヒメヒシガタノリ：特異の外形を示すヒシブクロ属の一種であるが，生殖器官を有しない唯一個の材料により査定されたので多少の疑問が残るが，一応 *Faucheia rhizophylla* Taylor に当てたいと思う。

ナンカイサエダ：外観はサエダ属の *Microcladia coulteri* Harvey に似ているが，枝の分岐，生殖器官の構造等で異なる。本種の生殖器官は四分孢子囊および囊果ともに他のサエダ属のものとはやや異なっていて，この点，本種の特徴と見られる。

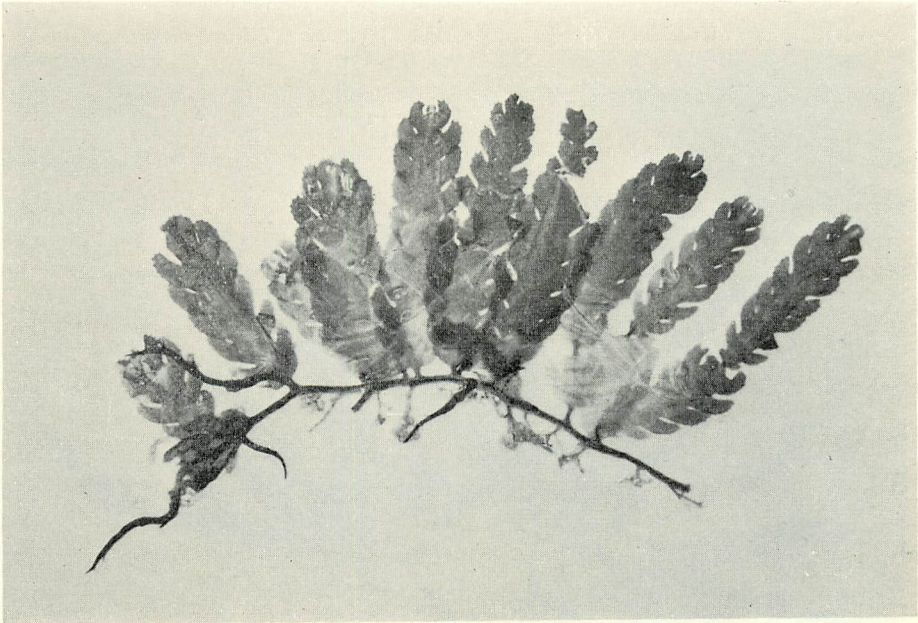
ウスムラサキ：この植物は岡村博士（1931）により，イギス科の一新亜科，一新属植物として発表された小形の美しい特殊な体制を示す珍稀な紅藻で，今回は特にこれの雌性器官の構造について観察された。

シンカイユナ：馬毛島近海の30米のやや深所から発見された，繊細な体制を示すユナ属の一新種である。本種は四分孢子囊を具える小枝が他の普通枝とはやや異なった性状を示すことも一特徴だと云えよう。

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A



B



Plate I

- A. *Caulerpa scalpelliformis* (R. Brown) W. v. B. f. *denticulata* W. v. B. Slightly reduced.
B. *Microcladia leptophyllum* Tanaka. $\times 1$.

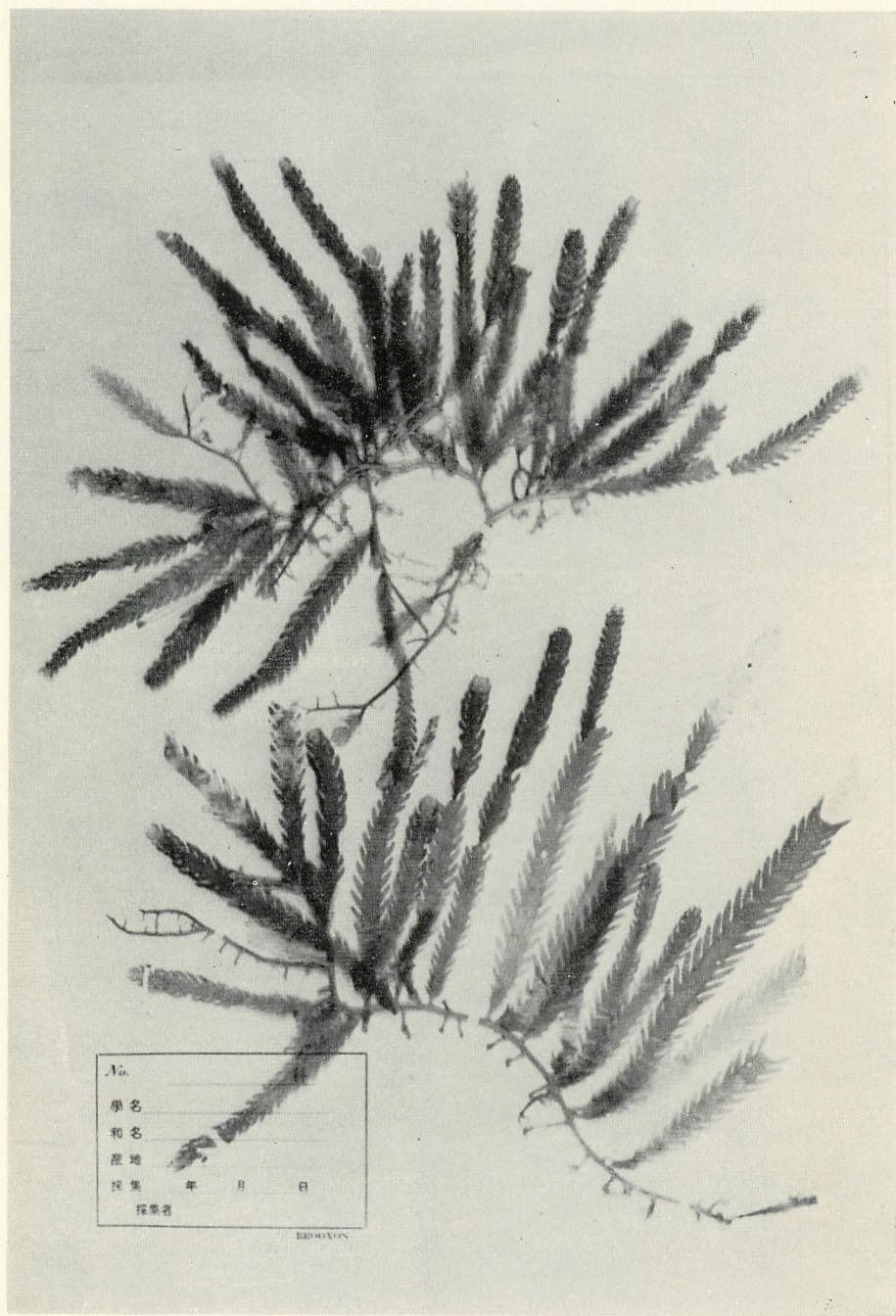
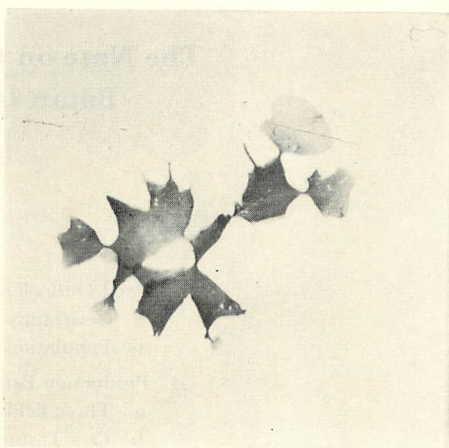


Plate II

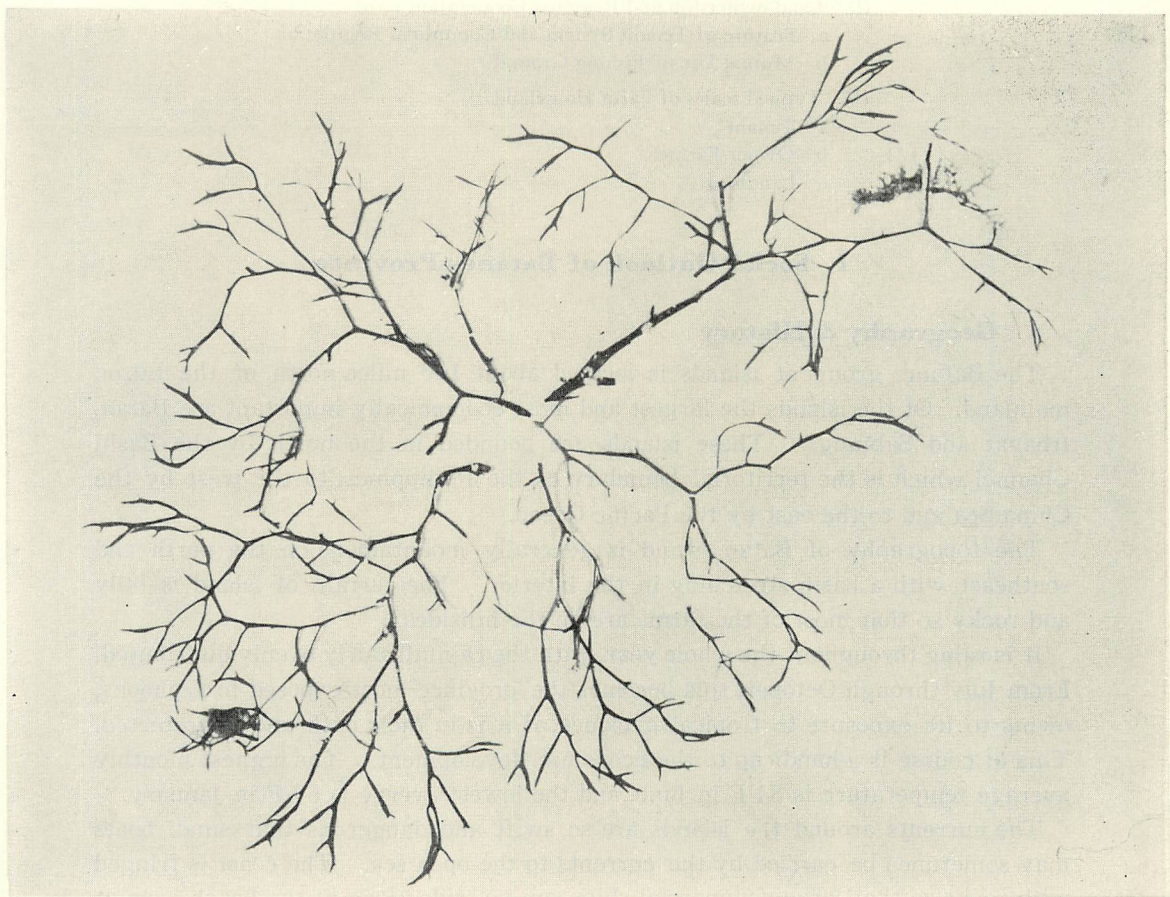
Caulerpa scalpelliformis (R. Brown) W. v. B. f. *denticulata* W. v. B. Specimens from Ama, Oki Islands, Japan sea. $\times \frac{1}{2}$.



A



B



C

Plate III

- A. *Delesseriopsis elegans* Okamura. Slightly reduced.
 B. *Fauchea rhizophylla* Taylor. $\times 1.2$.
 C. *Chondria megeshimensis* Tanaka et K. Nozawa. Slightly reduced.