Studies on Some Marine Algae from Southern Japan, III

Takesi TANAKA

Recently, marine algal surveys were made by the writer around the islands of Southern Japan; Amami Islands, Tanegashima and Yakushima, Uji Islands, Tokara Islands and others. Furthermore, on board the training ship of our Faculty of Fisheries, other surveys were executed in the Ryukyu Islands, twice in 1957 and 1959.

The result of the investigation seems to the writer, to be of interest and may contribute, to some extent, to the further study of the marine algal flora of the southern parts of Japan and also of the Ryukyu Islands. Among the specimens of marine algae from these islands, collected by the writer since 1947, there are many interesting ones, some of which are described in the following pages.

Certain specimens of these were taken to the University of California in 1958 and were compared with those kept in the Herbarium of that University.

Here the writer wishes to express his most sincere thanks to Prof. G. F. PAPENFUSS of the University of California for his valuable suggestions and kind guidance. Thanks are also due to Mr. Koji NOZAWA, Assistant Professor and Mr. Yuzo HAYASHIDA, Assistant of our Faculty, and Mr. Yasushi NAKAMURA, Officer of our training ship, the Keitenmaru, for their help and co-operation in this research.

This is intended to be an article for the memorial publication of Prof. Yukio YAMADA and Hajime MATSUURA's sexagenary birthday anniversary.

Punctaria mageshimensis TANAKA, spec. nov.

Pl. I, A, Pl. II, A. and Text-fig. 1.

Frons foliacea, subcoreacea, perforata, altitudine major 40 cm alta, 280–450 μ crassa, stipite brevissimo, irregulariter ramosa; laminis latioribus infra saepe lobularis, supra 2-3-chotomis; segmentis ultimis plus minus ligulatis; cellulis laminaris 4–5 stratosis, duabus vel triabus mediis multo majoribus quam corticalibus, illis 100–170 μ his 40–55 μ altis; cellulis corticalibus parietalibus tenuibus, a superficie visis 4–5-angulatis, 15–28 μ diam.; sporangia solitaria vel 2–3 aggregata, subglobosa vel obovata, 90–150 μ diam.; colore fulvo vel lurido.

Japanese name. Goanme.

Habitat and localities. Mageshima Island, Tanegashima (Col. Aug. 14th, 1959 and Aug. 10th, 1960). The plants were collected by Mr. Yazo GOAN from about 20 meter's depth at rocky bottom.

Frond broadly foliaceous, subcoreaceous, more or less perforate, 40 cm in height, 280–450 μ in thickness, somewhat stupose at the base, ending below in short stipes, irregularly ramified, lower part of the blade often lobular, but often dividing di-to trichotomous in upper part; ultimate segments more or less ligulate; blade consisting of 4–5 layers of cells, of which the cells in the inner layers much larger than those of the cortical layers, measuring 100 μ to 170 μ diam. for the former and 40 μ to 55 μ for the latter; cortical cells 4–5 sided in surface view, 15–28 μ in diam.; sporangia usually solitary, sometimes 2–3 together aggregate, subglobose or obovate, 90–150 μ in diam.; colour of the frond brown or dirty brown.

This large, broad *Punctaria* is very distinct and characteristic of large size species. In this present new species, the blade is ramified in a peculiar and irregular manner.

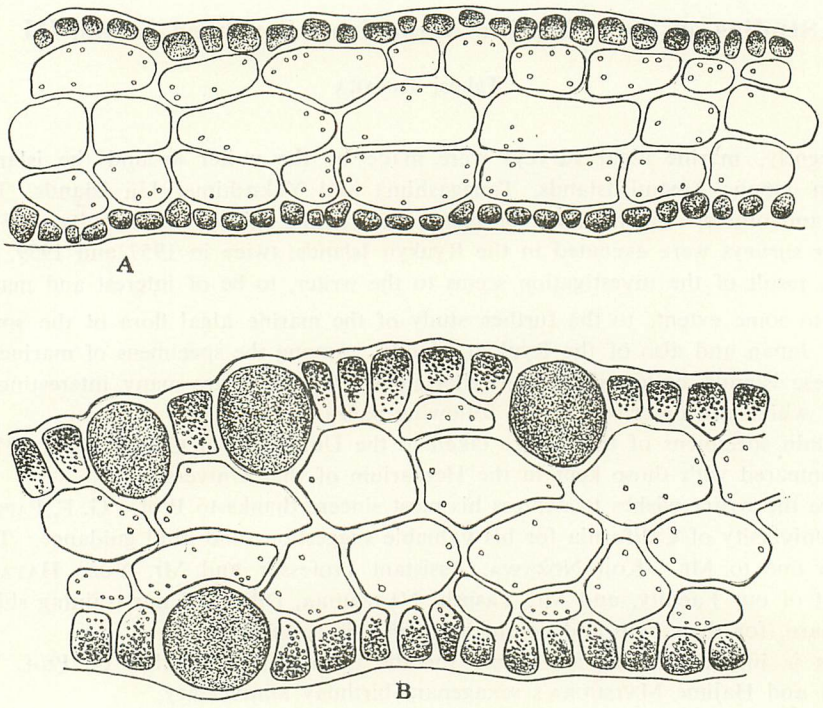


Fig. 1. *Punctaria mageshimensis* TANAKA.

A. Portion of a cross section of the young frond. ×150. B. Portion of a cross section of the frond, showing sporangia. ×150.

Therefore, this is distinguishable from the other species of *Punctaria*, in its having a blade which is ramified at the above portion into di-to trichotomous. The base of the frond is generally simple and somewhat broadly cuneate, but is often lobular marginally. The perfarations do not so often appear in young plants, but are abundantly found in the old. The sporangia are scattered promiscously on both sides of the frond, in single or small groups. The hair and paraphyses are usually absent.

The Japanese name for the above species is Goanme. after Mr. Yazo GOAN, a fisherman of Mageshima Island, to whom I give my hearty thanks for his help and kindness to the writer.

Trematocarpus pygmaeus YENDO v. *elongatus* TANAKA, var. nov.

Pl. I, B. and Text-fig. 2.

Frons pulvinatim caespitosa, 3–5 cm alta, 0.5–0.8 mm lata, radice nodoso implicata, parce dichotoma, ramulis ad basin leviter subcomplanata, ramis ramulisque saepe teretiusculis in parte superiore, ultimis ramulis elongatis et plus minus acutis; cystocarpiis globosis vel subglobosis infra apicem ramulorum inflatis; colore bruneo-rubro vel luteo-rubro; substantia subcoreacea.

Japanese name. Hoso-mianagusa.

Habitat and localities. Mageshima Island, Tanegashima (Col. July 5th, 1950). Growing on rocks in the lower littoral zone.

Frond erect, pulvinate-caespitose, subcoreaceous, 3–5 cm high, 0.5–0.8 mm broad,

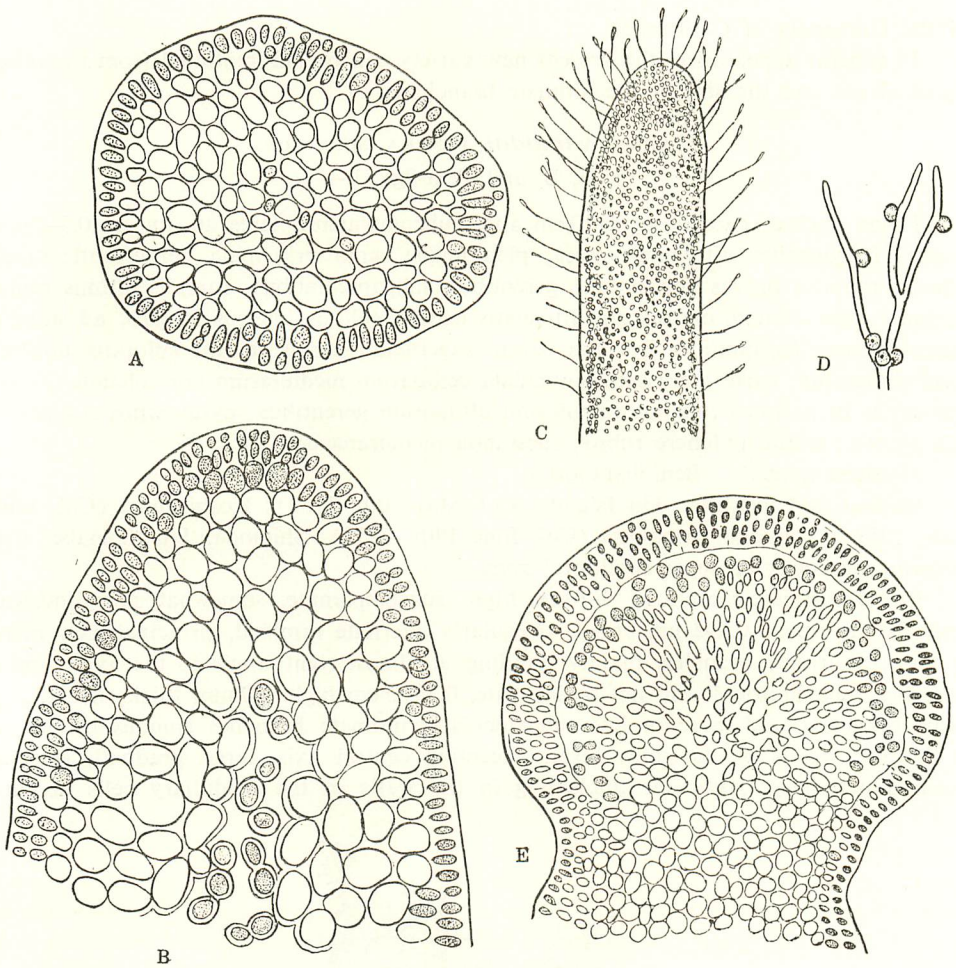


Fig. 2. *Trematocarpus pygmaeus* YENDO *v. elongatus* TANAKA.

A. Cross section of a young frond. ×250. B. Cross section of a frond. ×450. C. Apex of a ultimate branchlet, showing colourless hairs. ×50. D. A portion of the cystocarpic ultimate branchlets. ×2.5. E. cross section of a cystocarp. ×450.

forming a globular tuft, standing a short subcylindrical stem from a callus disc, more or less dichotomously branched, branches usually subcomplanate below, ultimate branchlets elongate and cylindrical, often with colourless hair-like cells; proliferous branches very few and not so developed; medullary tissue consisting of loosely packed, elongated, vertically oblong small cells, with diameter of ca. 17 μ; cortical layer consisting of 2–3 layers of coloured cells, intermediate, of a dense layer of larger roundish cells, glandular cells absent; cystocarps almost globose or subglobose, sessile, on the surface of the upper part of the branchlets; colour of the frond brownish red or yellowish red.

YENDO, in 1920 first described *Trematocarpus pygmaeus* which was found in Nomo, Nagasaki. Later it was also reported by OKAMURA in his Icones of Japanese Alage, Vol. V, pl. 243, figs. 1–8 (1927). The writer got the chance of comparing his specimens with OKAMURA's authentic materials collected from Misaki, preserved at the Herbarium

of the University of California.

In general appearance, the present new variety can be differentiated from the other by its shape and the size of the ultimate branchlets.

Hypnea yamadai TANAKA, spec. nov.

Pl. II, B, and Text-figs. 3–4.

Frons intricato-caespitosa, 4–10 cm alta, subcomplanata, teres ad apicem 0.7–2 mm crassa, irregulariter alternato-ramosa, pleurumque ramo principale percurrenti; ramis alternis ramulos breves horizontales gerentibus, subpaniculatibus; ramulis ultimis ramosissima, apice abrupte obtusis aut attenuatis acutis; cellulis internis magnis, ad superficiem diminuendis, omnibus hyalines, strato superficiali parvis cellulis coloratis unistratosis composito; parte incrassata lenticulata cellularum medullarum non adeunte; tetrasporangiis in partibus tumidus ramulorum ultimorum gerentibus; cystocarpiis et antheridiis ignotis; colore pulchere rubro; substantia membranacea.

Japanese name. Beni-ibaranori.

Habitat and localities. Uji Islands (Col. May 30th, 1953); Koshikijima (Col. June 10th, 1959); Tomioka, Amakusa (Col. June 19th, 1959); Shimoda, Izu; Tanabe, Kii. Growing on rocks in upper sublittoral zone.

Frond intricate-caespitose, 4–10 cm high, subcomplanate, somewhat subcylindrical towards the apex, 0.5–2 mm broad, irregularly alternate ramified, principal axis more or less percurrent, branches mainly standing at almost right angle to the axis; upper branches subcylindrical and not so intricate, 0.5–1.5 cm high, 0.7 mm thick, irregularly much branched and more or less subpaniculate; ultimate branches spinous or obtuse at the apex; cells of the inner layer, excepting central axis, large, gradually smaller towards periphery; lenticular thickening in the walls of the medullary cells absent;

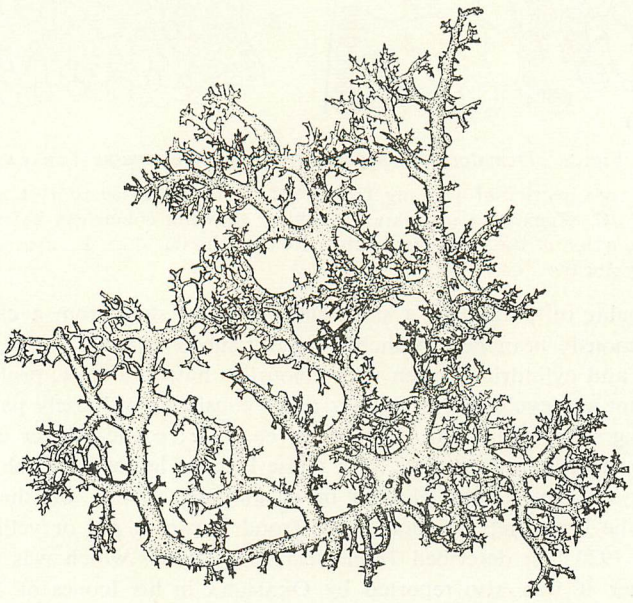


Fig. 3. *Hypnea yamadai* TANAKA.
Habit of a fertile plant. ×2.

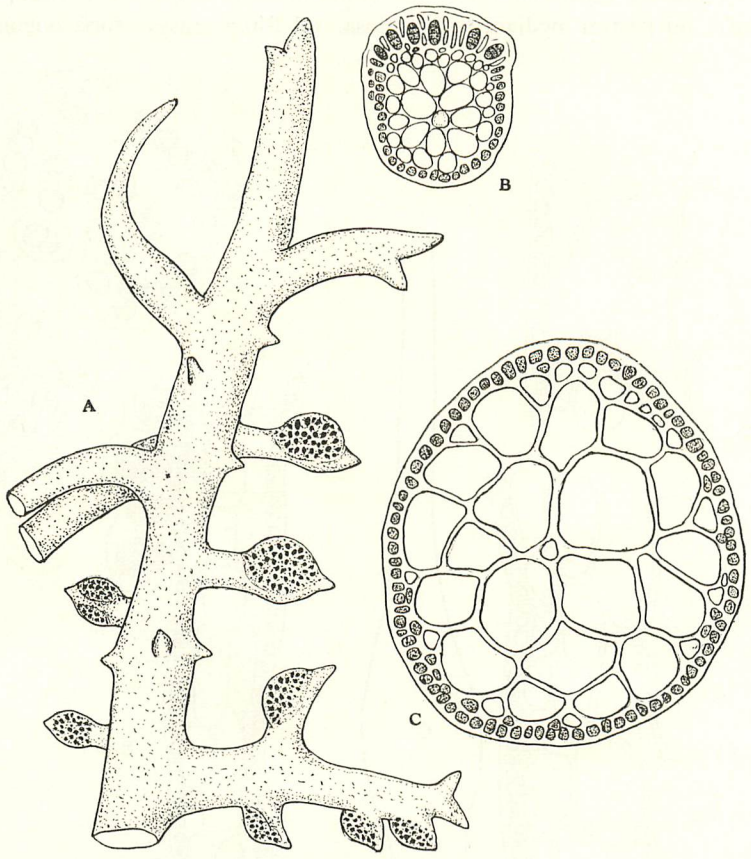


Fig. 4. *Hypnea yamadai* TANAKA.

A. A portion of a tuft showing the upper stichidial branches. ×20. B. Portion of the cross section of the stichidia. ×250. C. Portion of the cross section of the lower frond. ×250.

tetrasporangia on one side (afterwards gradually around) of the swollen part of the ultimate branchlets, tetraspores irregularly zonate, 16–20 μ×28–36 μ; cystocarps and antheridia unknown; colour of the frond pretty red; substance membranaceous.

The present plant of *Hypnea* is a rather special one among the Japanese *Hypnea* species. In general appearance, this has some resemblance to H. *cervicornis* J. AG., but differs from it in its ramification and in the shape of the branchlets. *Hypnea yamadai* belongs to the Section Spinuligerae. This species is distributed widely in the warmer parts of Honshu and Kyushu, Japan.

Dictyopteris fucoides TANAKA, spec. nov.

Pl. III, and Text-fig. 5.

Frons ad 35 cm altitudine, foliacea, subcoreacea, 3–4es regulariter dichotoma, stipitata; stipite longo, ad basin stuposo, 2–5 cm longo, ca. 1.8 mm diam., raro diviso;

segmentis subcuneatis, 1.5–3.4 cm latis; membrana in supra parte 4–5 stratosa, 240–300 μ crassa, in infra ad partim mediam 6–7 stratosa, ad 540 μ crassa; soris oogonialibus in

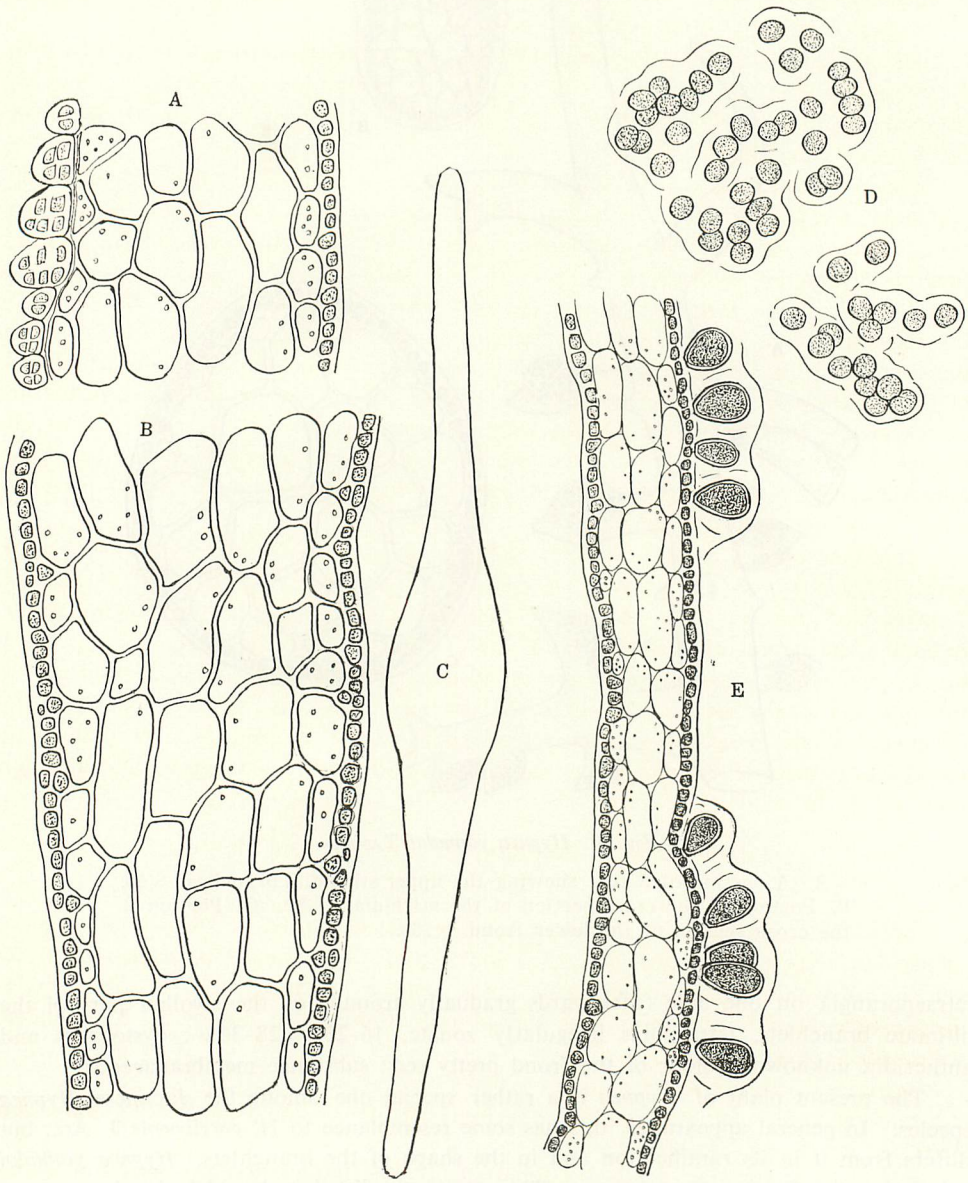


Fig. 5. *Dictyopteris fucoides* Tanaka.

A. Portion of the cross section of the antheridial frond. ×450. B. Portion of the cross section of the lower branches ×450. C. Cross section of a frond ×20. D. Oogonial patches seen from above. ×250. E. Portion of the cross section of the female frond, showing the oosporic sorus. ×250.

superficie unaque laminae irregulariter lateque evolutis; oogonia aggregata, ellipsoidea vel obovata, 40–46 μ×65–85 μ; antheridia cuboidea, ca. 65 μ alta, 75 μ lata; colore brunneo vel umbrino.

Japanese name. Ooba-yahazu.

Habitat and localities. Funauke, Iriomote Island, Ryukyu Islands (Col. Oct. 25th, 1959); Koniya, Amami Islands (Col. Oct. 18th, 1959); Mageshima Island and Nishinoomote, Tanegashima (Col. Aug. 20–25th, 1960). Dredged from 20–40 meter's depth off a rocky or coral bottom.

Frond exceeding 35 cm in height, foliaceous, 3 or 4 times regularly dichotomous, stipitate; stipe rather long, subterete, 2–5 cm long, about 1.8 mm thick, one or two times regularly ramified, with remnants of the marginal membranes attached, segments subcuneate, 1.5–3.4 cm wide, 240–300 μ thick; midrib relatively broad, distinct in the middle part of the frond, consisting of 4–5 layers above, increasing to 6–7 layers in the lower part and about 540 μ in thickness; stalks continued into the blade and its divisions as definite though distinct midribs which divide notably far down in advance of the divisions of the blade, so that two forkings of the midribs occur before the first corresponding division of the margin; oogonial sorus scattered, in groups of 4–10, ellipsoidal or obovate, 40–46 μ×65–85 μ, usually only on one side surface of the frond; antheridia nearly cubic, ca. 65 μ broad, and 75 μ high; colour of the frond brown or dark brown and black on drying.

This new species is very distinct. In point of size, this stands in the same rank, with *Dictyopteris justii*, *D. anstralis*, *D. melleri*, *D. membranaceous*, *D. cokii*, *D. diaphana* TAYLOR etc. Among these species of *Dictyopteris*, the shape of the present species resembles the figures of *Haliseris Justii* (LAMX.) KG., in Tabulae Phycologicae, vol. 9, no. 55, but can be distinguished from those figures by the shape of blades and also by the situation of the sorus. The sorus are developed on only one side of the blade, occupying almost the whole surface of the frond, except the midribs, according to the writer's examination. The segments are rather broad, mostly subcuneate, and are more than 1.5 cm in width.

Dictyopteris papenfussii TANAKA, spec. nov.

Pl. IV, B. and Text-fig. 6.

Frons ad 15 cm altitudine, delicata, foliacea, membranacea, ad basin stuposa, sparse dichotomeque ramosa, furcatae intervalis 2–3 cm angulisque angustatis; segmentis linearis vel lineari-spathulatis ad apicem plus minus obtusis, 4–6 mm latis, 80–100 μ crassis; membrana crassitudine duarum cellularum in parte stipites 6–7 stratosa, ca. 350 μ crassa; sorus ignotis; colore aureo-fusco.

Japanese name. Ribon-yahazu.

Habitat and localities. Shodon, Kakeroma Island, Amami Islands (Col. May 25th, 1954).

Frond to 15 cm high, somewhat foliaceous, regularly dichotomous, membranaceous, sparingly branched, stalk-like base narrow and stupose, gradually expanding to about 4 mm in width below the first forking, branches dichotomous, often unequal, at intervals of 2–3 cm; angle below narrow acute or slightly rounded, in the upper portion 45°–60° and a little rounded; segments linear or linear-spathulate, usually same width, 4–6 mm broad, 2–3 cm long, consist of two layers of cells, together measuring 80–100 μ, in thickness; midrib relatively narrow, distinct in the whole part of the frond, consist of 6–7 layers of cells; reproductive organ unknown; colour of the frond golden brown.

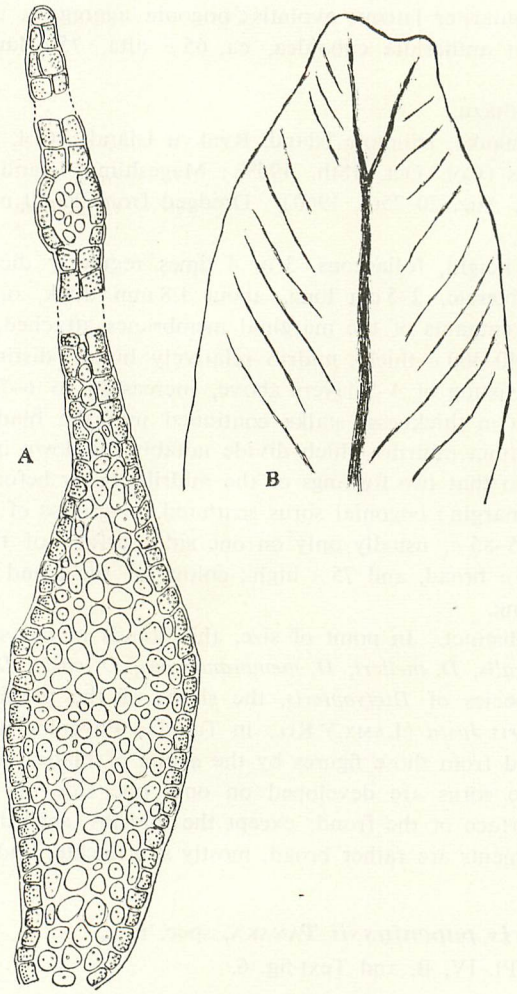


Fig. 6.

Dictyopteris papenfussii TANAKA.

A. Portion of the cross section of the frond. ×250.

B. Portion of the ultimate branchlet, showing the midrib and indefinite side ribs. ×20.

Generally, the present species is allied to *Dictyopteris delicatula* LAMX., but differs from it in its longer segments and in its narrow angle of branching. And also, this very delicate *Dictyopteris* has a taller and broader thallus than. *D. repens* OKAM. The thallus consists of two layers of cells, with the exception of the ribs in the middle and sides of the frond where the ribs are composed of several layers of thick wall cells, measuring 350 μ in total thickness. The hair grow on one side of the thallus. In this plant, there are no creeping fibers from the under surface of the thallus, according to the writer's examination.

Galaxaura yaeyamensis TANAKA, spec. nov.

Pl. IV, A. and Text-fig. 7.

Frons arborescentes, ca. 9 cm lata, regulariter dichotomo-ramosa, stipitata; stipes subteretis, dichotomis, velutinos; internodia complanata, plus minus canaliculata, 0.5 cm longa, 2.6–3.5 mm lata, 240–320 μ crassa, calce forte incrassata; tela assimilatoria e cellularum stratis tribus contexta, ca. 75 μ crassa; cellulis epidermalibus angulatis in

aspectu, superficiali, circiter ca. 20 μ diam.; cellulis papillosis minutes, 12–14 μ latis, 30–40 μ longis, solum ad margines; colore albo-roseo.

Japanese name. Usuyuki-garagara.

Habitat and localities. Funauke, Iriomote Island, Ryukyu Islands (Col. Oct. 25th, 1959); Nishinoomote, Tanegashima (Col. Aug. 25th, 1960). Dredged from 20–30 meter's depth at coral bottom.

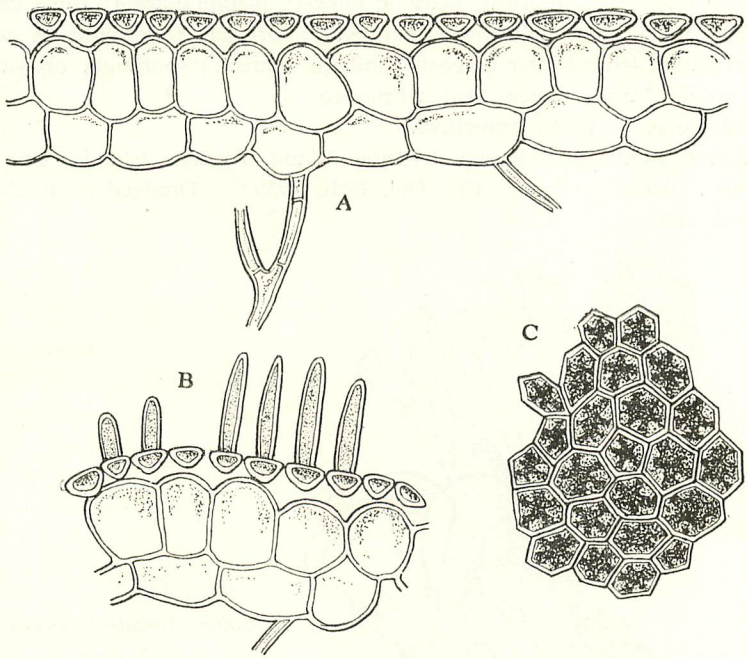


Fig. 7. *Galaxaura yaeyamensis* TANAKA.

A. Section of the frond to show tristromatic cortical cells. ×200. B. Portion of the cortex from the margin, showing the spinulose cells. ×250. C. Epidermal layer seen from above. ×450.

Frond arborescens, 9 cm high, regularly dichotomous, strongly calcified, stipitate; stipe long, cylindrical and velvety, about 4 cm long, 3 mm in diam., giving rise cuneately to the complanate blades; internode complanate, and more or less canaliculate, 0.5–2 cm long, 2.6–3.5 mm wide, and 230–320 μ thick, without any striations on the surface of the internode, apices blunt and rounded, scarcely taperd; medullary filaments ramifying very rarely, entangleing in a irregular manner, about 15 thick; cortex consisting of three layers of cells, parenchymatic, and about 50–75 μ in thickness; epidermal cells consisting well developed stellate chromatophores, lens-like or obconical in cross section, but but 5–6 gonal when seen from surface, 20 μ in diam.; papillate processes very rare, small, 12–14 μ × 30–40 μ, usually aggregated only at the marginal portion of the frond; reproductive organ unknown; colour of the frond reddish white.

The present species is allied to *Galaxaura vetnamensis* DAWSON in its general characteristics, but differs from it in its somewhat well developed stipe, and in its tristromatic cortical tissue. It bears some resemblance also to *G. elegans* TANAKA, having a well developed stipe, but, in this species, the width of the frond is broader than that of *G. elegans* TANAKA.

Padina stipitata TANAKA et K. NOZAWA, spec. nov.
Pl. V, A. B. and Text-figs. 8–10.

Frons 3–12 cm alta, 80–100 μ crassa, longe stipitata, flabelliformis, plerique 3 stratosis cellularum, ad basin saepe 4 stratosis composita; stipites cylingraceo-teretis, 2–3.5 cm longo, 0.6–0.8 mm diam.; parenchymaties, ad basin plus minus discalis pilloso adfixis; segmentis flabellatis, subfissus, margine integris, membranaceis; zonis interpilaribus latioribus, ca. 3 mm latis; calce leve incrassatis; sori tetras orangiorum ad quamque zonam interpilarem irregulariter dispositi, indicio contecti; sporangia obovata, 40–60 μ ×45–70 μ; colore flavido, autem postea brunneo.

Japanese name. Etuki-umiuchiwa.

Habitat and localities. Funauke, Iriomote Island, Ryukyu Islands (Col. Oct. 25th, 1959); Koniya, Amami Islands (Col. Oct. 19th, 1959). Dredged from 25–40 meter's depth at coral bottom.

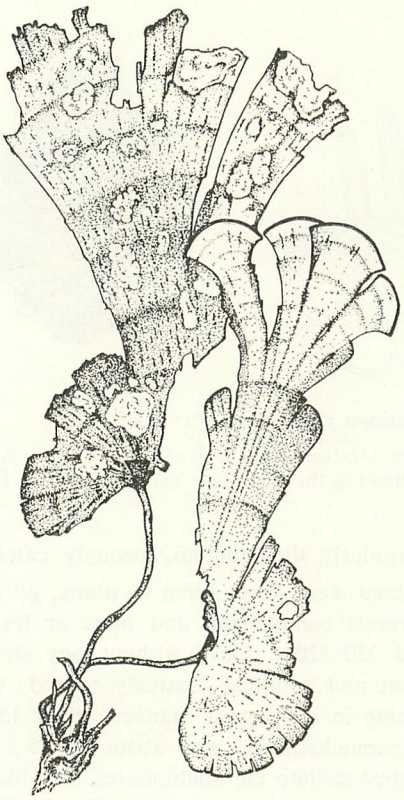


Fig. 8.
Padina stipitata TANAKA et K. NOZAWA.
Habits of the matured plants, showing inrolled and not-inrolled marginal portions. ×1.5.

Frond 3–12 cm high, 80–100 μ thick, flabellate, provided wtih a long stipe, often dividing into many small segments in old, composed of three layers of cells, but often four toward the base; stipe very long, cylindrical, 2–3.5 cm long, 0.6–0.8 mm diam., composed of parenchymatic tissue, basal part of the stipe somewhat disc, hairy, often divided; segments flabellate, membranaceous, entire or often shallowly split at the margin, incrusted very slightly with chalk on the dorsal surface; interpilar zones rather wide, about 3 mm in width; sori of tetrasporangia usually produced on the upper side

of every hair-line on the ventral surface, making a discontinous line, provided with a well marked indicium; sporangia usually obovate, densely gathered in irregular roundish sori, 40–60 $\mu \times 45$–70 μ; colour of the frond yellow, but yellowish brown in old.

The most clearly distingushing characteristics of Padina stipitata is that it is a clearly stipitate species among the genus. This stem-like stalk is usually divided into two portions, namely, the base segment which is short hairy and the other one which is long and cylindrical. The hairy part is more or less discoidal and is often divided several times. The long stem-like portion is straight and not ramified, reaching the length of no less than 3.5 cm.

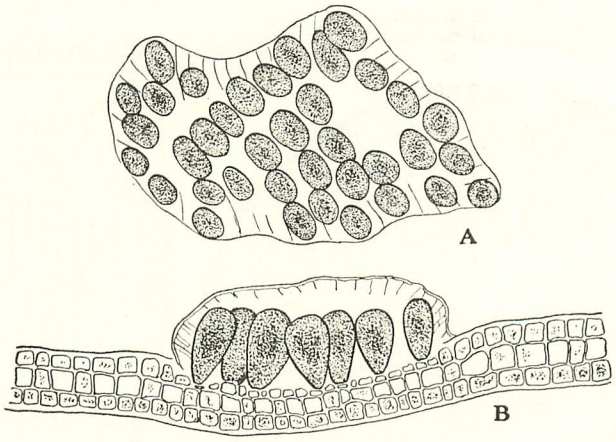


Fig. 9. *Padina stipitata* TANAKA et K. NOZAWA.
A. Sorus seen from the surface of the frond. ×200. B. Vertical section through a sorus. ×250.

Structually, the stalk consists of parenchymatic tissue, and medullary layers consists of somewhat vertically elongated cells. The marginal part of the frond is always inrolled, showing the characteristic of genus *Padina*, but in its old stage, this margin often disappeared, showing the general appearance like Section Zonarieae of Dictyotaceae. The frond consists of three layers of cells, but often of four layers in the lower part of the frond. At the surface layer of the ventral side, the frond is covered with very thin chalk, the surface cells of which store the more developed chromatophores than those on the dorsal surface. The cells of the medullary layers are larger than those of the cortical cells, showing a square or rectangular figure in cross section. The tetrasporangial sorus range concentrically on the middle parts in every interpilar space. Tetrasporangia are irregular, usually obovate in shape, with remarkably clear indicium.

Rosenvingea intricata (J. AGARDH) BOERGESEN

Fig. 11.

Marine Algae Danish West Indies, vol. 1 (1914) p. 182, Some Marine Algae from Mauritius II (1941) p. 65; TAYLOR Plants of Bikini and Northern Marshall Islands (1950) p. 97, Pacific Marine Algae Allan Hancock Foundation to the Galapagos Islands (1945) p. 83; DAWSON, Mar. Algae Gulf of California (Allan Hancock Pacific Expedition, vol. 3, no. 10, 1944) p. 233, pl. 52, fig. 1, An annotated List Marine Algae Eniuetok Atroll, Marshall Islands (Pacific Science, vol. 9, 1957) p. 111, fig. 15.

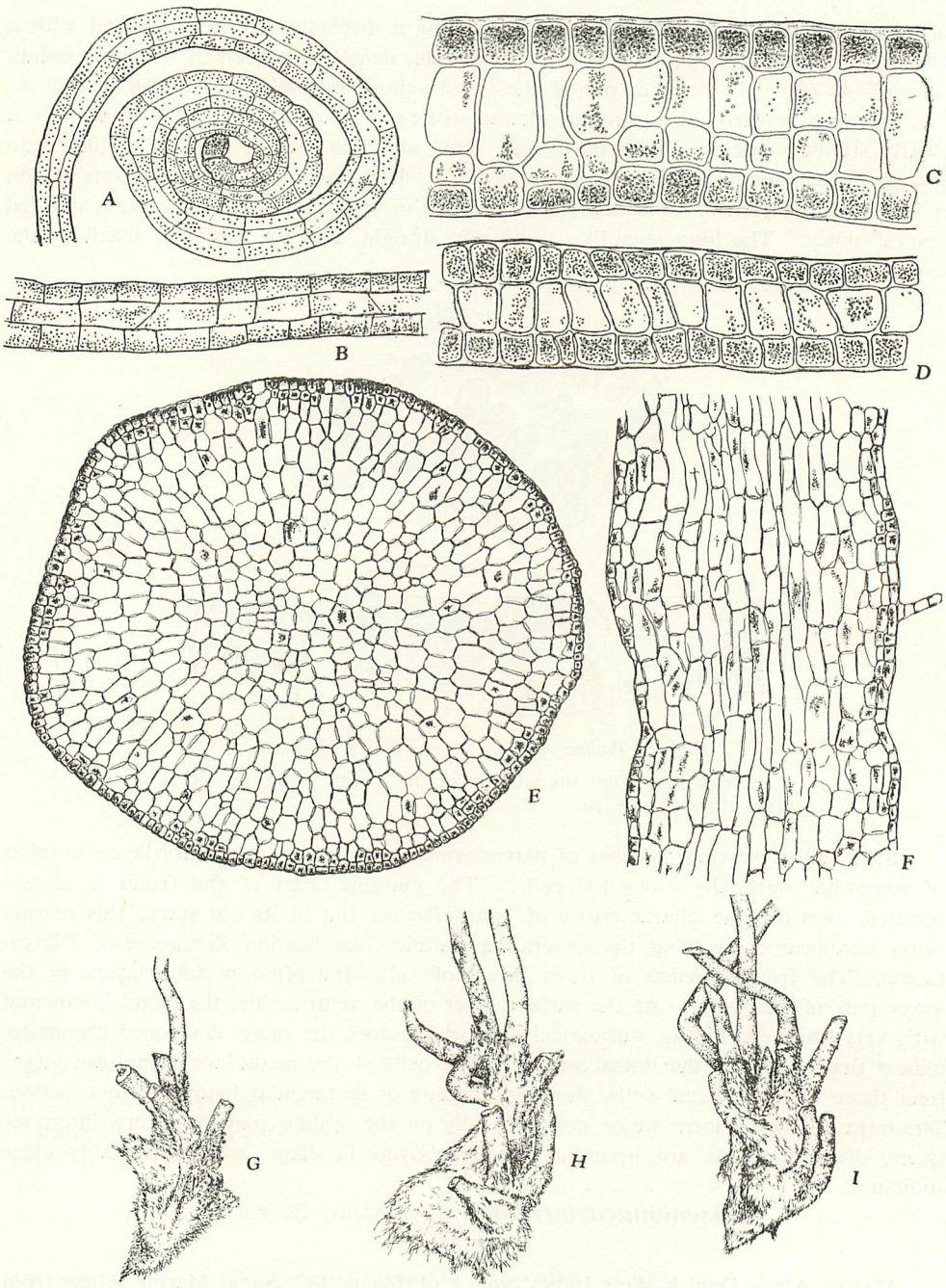


Fig. 10. *Padina stipitata* Tanaka et K. Nozawaa.

A. Radial lomgitudinal section of the marginal portion. ×250. B. portion of the vertical section of the young frond ×250. C. Portion of the vertical section of the frond. ×450. D. Portion of the vertical section of the lower part of the frond. ×450. E. Portion of the cross section of the stipe. ×100. F. Fortion of the vertical section of the stipe. ×50. G, H, I. Basal parts of the stipes. ×6.

Syn. *Asperococcus intricata* J. AG., Nya Alga från Mexico (1847) p. 137, Spec. Alg., vol. 1 (1848) p. 77; WEBER VAN BOSSAE, Liste des Algues du Siboga (1913) p. 137.

Syn. *Encoelium intricatum* KUETZ., Spec. Alg. (1849) p. 551, Tab. Phycol., vol. 9, tab. 5.

Japanese uame. Mosa-kudafukuro.

Habitat and localities. Nishinomote, Tanegashima (Col. Aug. 24th, 1960). Dredged from 25 meter's depth off Sandy Bottom.

Distribution. Mexico, Gulf of California; India; Marshall Islands, Bikini; Galapagos Islands, Bikini; Galapagos Islands; Ecuador; Barbadoes.

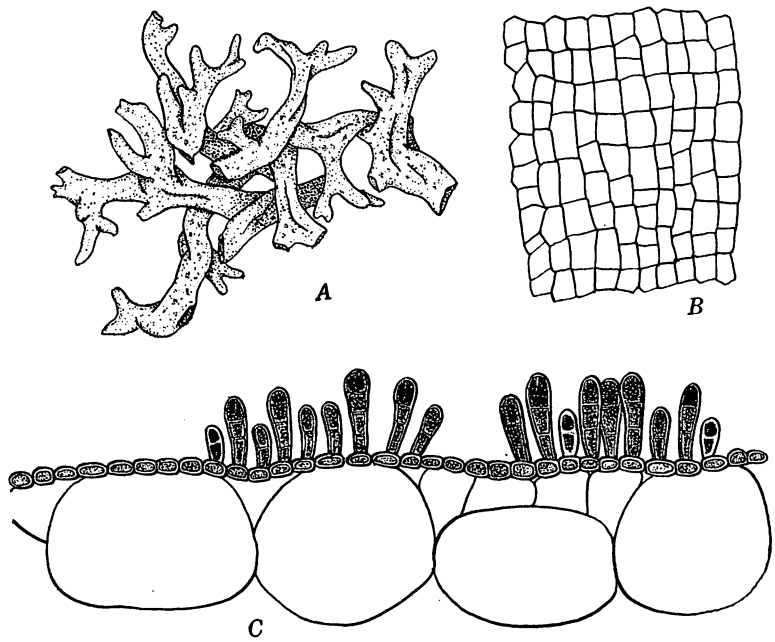


Fig. 11. *Rosenvingea intricata* (J. Ag.) BOERGESEN.

A. Habit of part of a plant. ×20. B. Surface cells. ×250. C. Transection of a thallus through a sorus of plurilocular sporangia. ×250.

Frond small, to 3 cm tall, bushy, intricate, membranaceous, much and very irregularly dichotomously branched, terete or subcomplanate, hollow, about 1–1.5 mm wide below, about 0.5 mm above, but the tips obtuse, marked by minute darker sori; frond wall 70–100 μ thick, consisting of a single surface layer of small, somewhat periclinally elongated, densely pigmented cells mostly 10–13 μ in length, and a subsurface tissue of thin-walled, rounded, colourless cells up to 80 m in diameter; gametangia unaccompanied by paraphyses or hairs, 20–30 μ long, 7–9 μ diameter; colour of the frond yellowish brown.

The writer has been able to examine the Mexican specimens of *Rosenvingea* from Gulf of California, collected by Dr. E. Y. DAWSON. In outer appearance and anatomical structure of the frond, our plants fairly agree with the Mexican ones. In the specimens at hand, however, the frond is more slender and more intricate than those of the Mexican ones. This plant is here reported for the first time in Japan.

In 1954, the writer collected, at Kakeroma Island, Amami Islands, small fragments

of *Rosenvingea*, which is assumed by the writer to be *Rosenvingea orientalis* (J. AG.) BOERGESEN.

和 文 摘 要

日本南海産海藻類の研究（其三）

田　中　　剛

日本南海の奄美群島，屋久島，種子島，宇治群島，トカラ列島等の諸島の海藻類については，筆者は茲 10 年間継続調査研究中である．更に 1957 年及び 1959 年の 2 回，沖縄諸島の海藻の調査を行う機会を得た．これらの調査による採集品中には学術上興味深いものが多数あり，これらの研究は今後に俟つものが多いが，今回はそのごく一部を茲に発表したいと思う．

この研究を行うに当り，種々研究上の援助を与えられた，米国カリホルニア大学のパーペンフス教授に深甚なる感謝の意を表したいと思う．更に又海藻採集に助力された，本学，野沢助教授，林田補手及び本学練習船敬天丸，航海士中村靖君に感謝の意を表する次第である．

この報告は筆者の恩師，北海道大学，松浦 一，山田幸男両教授の還暦記念出版の一編としたいと思う．

ゴアンメ：体長 40 cm を越える長大なハバモドキ属の一新種で，体は多少の分岐が見られ，馬毛島周辺の深海に生育する．和名は本植物の最初の発見者，後庵弥蔵氏に因んで命名した．

ホソミアナグサ：これも馬毛島周辺に生育するミアナグサの一変種で，体の小枝及び末小枝が細長く，円柱状を呈するので，ミアナグサと区別出来る．

ベニイバラノリ：本州中南部の太平洋岸，九州西南部に広く分布するが，体の外観が他のイバラノリとは異なつている．美しい紅色を呈するイバラノリの一種である．

オーバヤハズ：体長 35 cm を越える長大なヤハズグサの一新種で，藻体は古くなると相当厚くなり，黒褐色を呈し，一見ヒバマタの如き外形となる．沖縄，西表島，船浮，奄美大島，古仁屋，及び馬毛島等の深海（20～40m）に生育する．

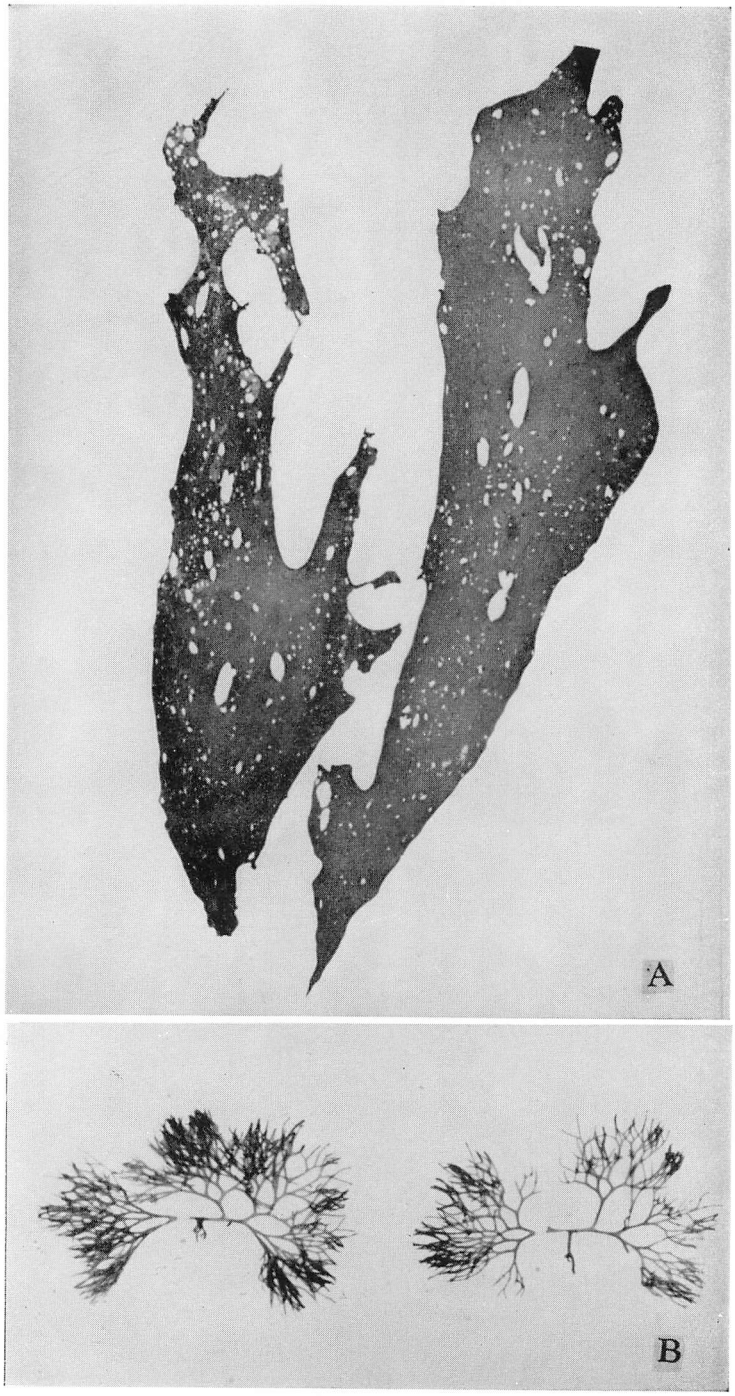
リボンヤハズ：繊細なヤハズグサ属の一種で，全藻体に等幅の葉片を有し，縁辺全縁で，波縮しない．ヒメヤハズと多少似ているが，体が長いのと葉片の様子が異るので区別される．奄美大島，加計呂麻島，諸鈍産．

ウスユキガラガラ：ガラガラ属植物中，*G. vetnamensis* Dawson, ヒメガラガラと近似の種と思われるが，長茎を有する事と皮層細胞が 3 層である事で，*G. vetnamensis* と異なる．又体に横紋がない点と石灰質の厚層の点とでヒメガラガラと差異がある．沖縄，西表島，船浮及び種子島，西之表の深海より採集．

エツキウミウチワ：茎状の長柄を有する特種のウミウチワの一新種である．体は殆んど

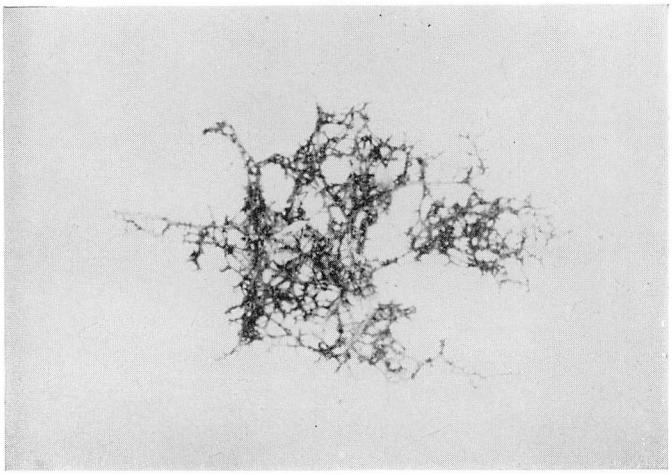
3層より成るが，体の下部では4層になる事もあり，子嚢群は各毛線間帯に形成せられ，皮膜を存する．沖縄，西表島，船浮及び奄美大島，古仁屋の25～40mの深海からドレッジにて採集されたもの．

モサクダフクロ：種子島，西之表海岸の25mの海底よりドレッジにて採集したもので砂質の所に他の海藻と混生している．筆者は先年米国カリホルニア大学腊葉室に所蔵される *Rosenvingea* 属の種類を調査する事が出来たが，本種は *Rosenvingea intricata* (J. Ag.) Boergesen と査定出来ると思う．メキシコ産のものに比して藻体が細く，枝及び小枝がもつと互に錯綜している．尚，奄美大島，加計呂麻島，諸鈍にて1954年採集した他の *Rosenvingea* 属の一種は *Rosenvingea orientalis* (J. Ag.) Boergesen と思われる．



A. *Punctaria mageshimensis* TANAKA. ×2/5.
B. *Trematocarpus pygmaeus v. elongatus* TANAKA. ×2/3.

A



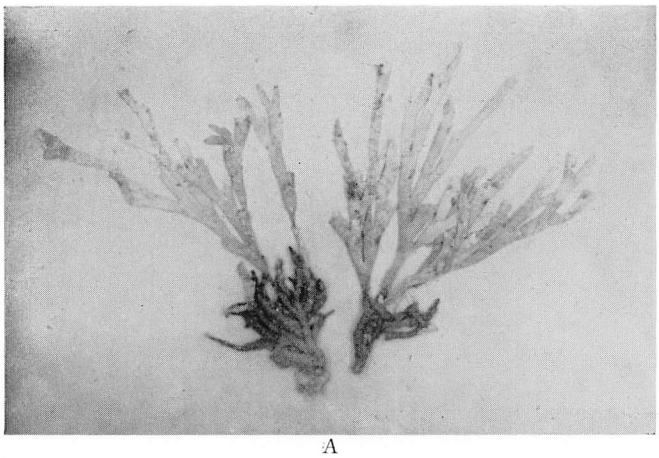
B

A. *Punctaria mageshimensis* TANAKA. ×2/5.
B. *Hypnea yamadai* TANAKA. ×1.

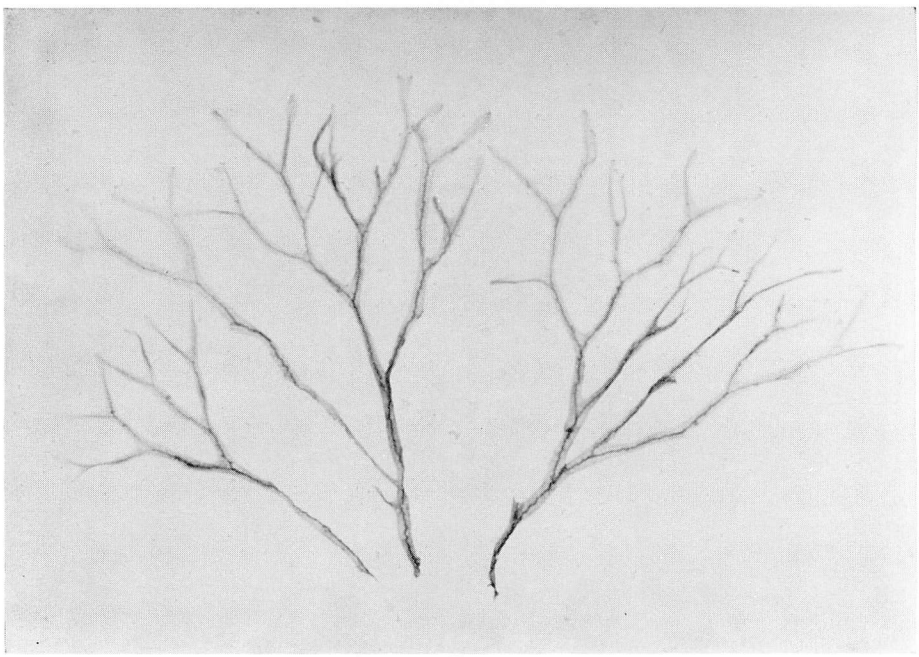
A

B

A, B. *Dictyopteris fucoides* TANAKA. ×1/2.

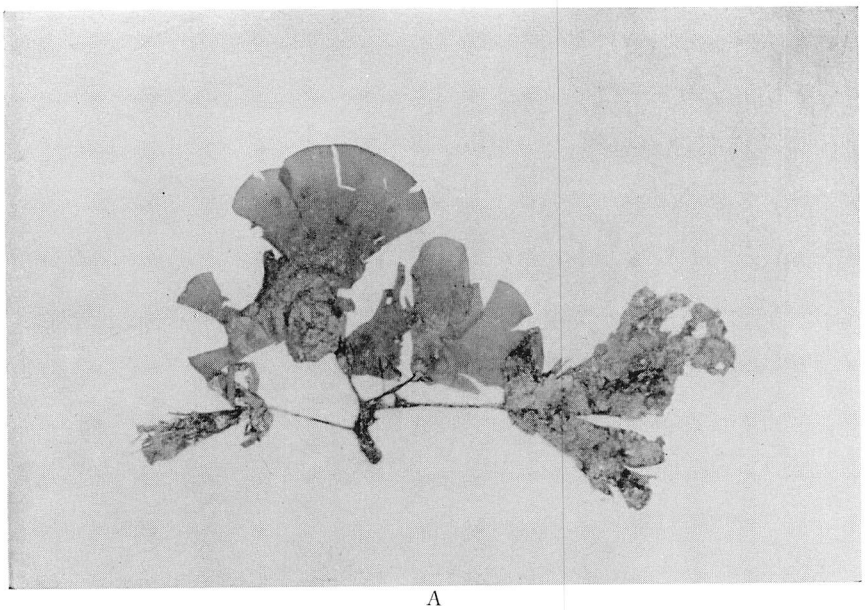


A

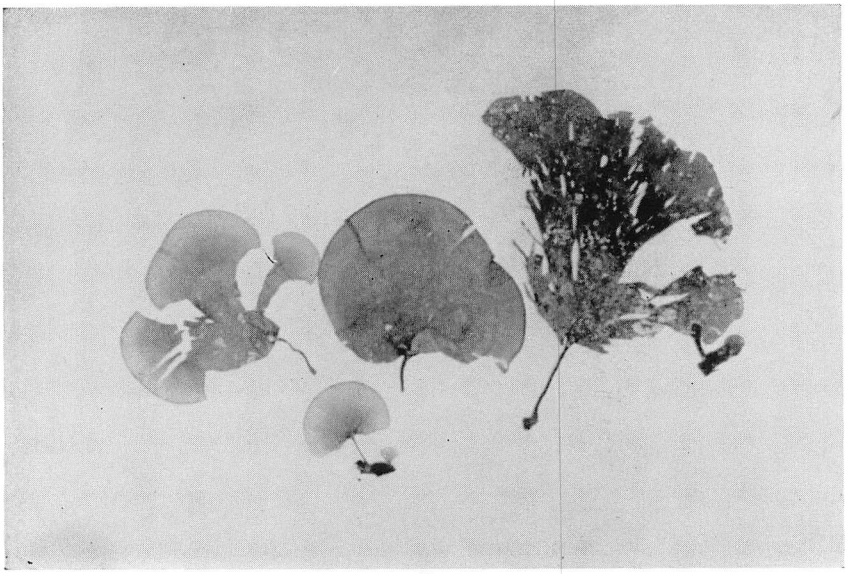


B

A. *Galaxaura yaeyamensis* TANAKA. ×2/3.
B. *Dictyopteris papenfussii* TANAKA. ×1/2.



A



B

A, B. *Padina stipitata* Tanaka et K. Nozawa. ×2/3.