Dictyopteris repens
ra) Børgesen 1924, p. 265, fig.13

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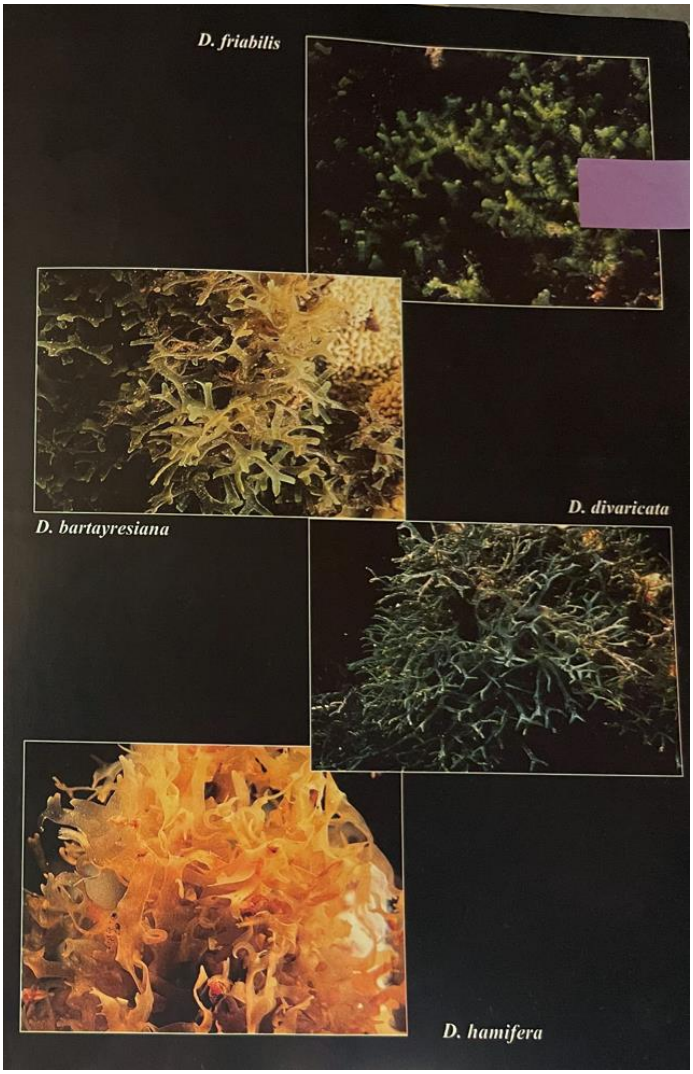
Moorea).

Thallus ribbon-like, up to 3 cm long, light brown ; branching dichotomous with blades 1-3 mm broad ; blade two-cell thick with a prominent midrib 4-8 cells thick throughout.
Growing on dead corals and on coral rubbles along the reef crest. May be confused with small Dictyota, but differs in having the midrib (Moorea).

Dictyopteris repens : 30 mm



1a - *Main branches with curved, hook-like side branchlets* ..... ***D. hamifera***

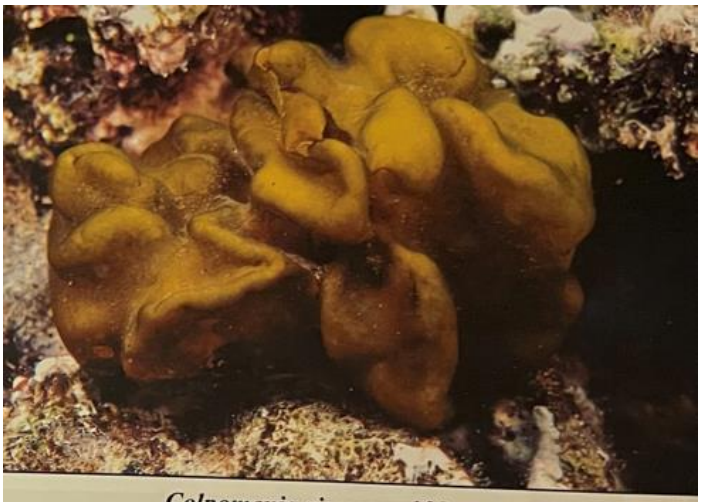
1b - *Main branches without curved, hook-like side branchlets* 2

2a - *Branches 1-2 mm wide, branching at an angle of more than 90°* ..... ***D. divaricata***

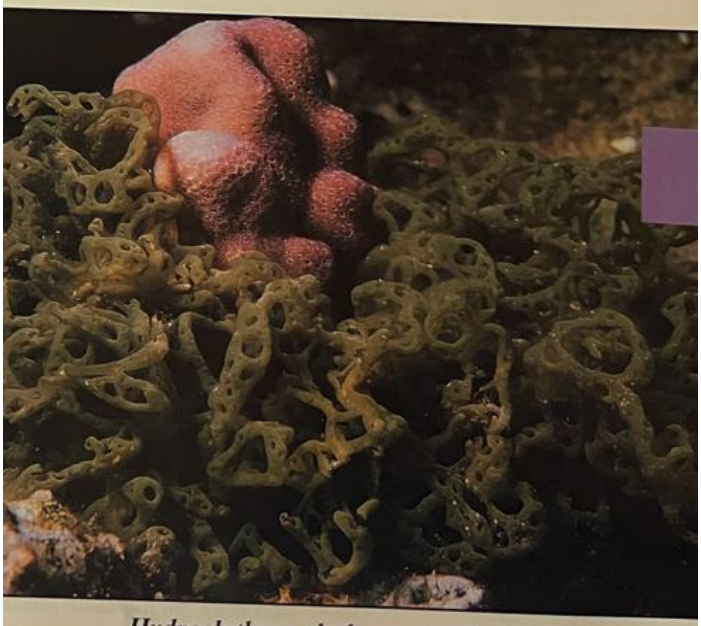
2b - *Branches 2-5 mm wide, branching at an angle of less than 90°* 3

3a - *Thallus iridescent green with horizontal stripes when alive, branches thin and friable, 2-3 mm wide, marginal proliferations absent* ..... ***D. friabilis***

3b - *Thallus not iridescent or striped, branches relatively tough, 2-5 mm wide, marginal proliferations sometimes present* ..... ***D. bartayresiana***

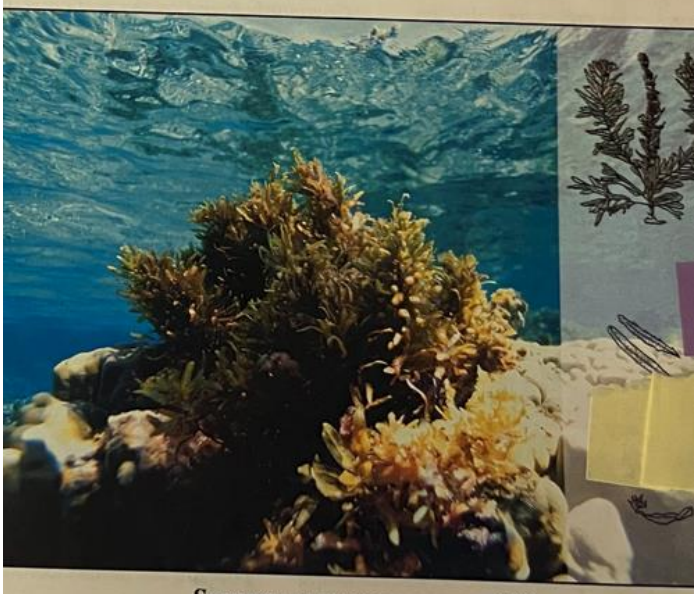


Colpomenia sinuosa : 100 mm

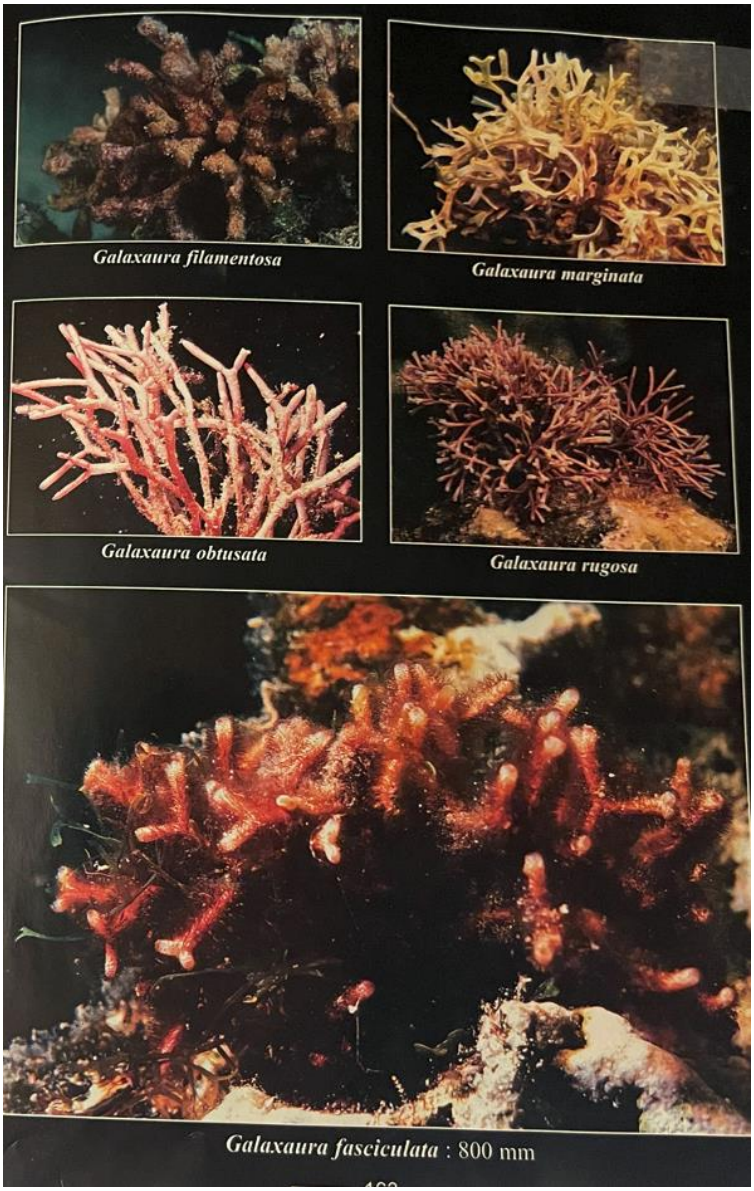


Hydroclathrus clathratus : 150 mm

Rosenvingea intricata : 200 mm



Sargassum mangarevense : 200 mm



Galaxaura filamentosa

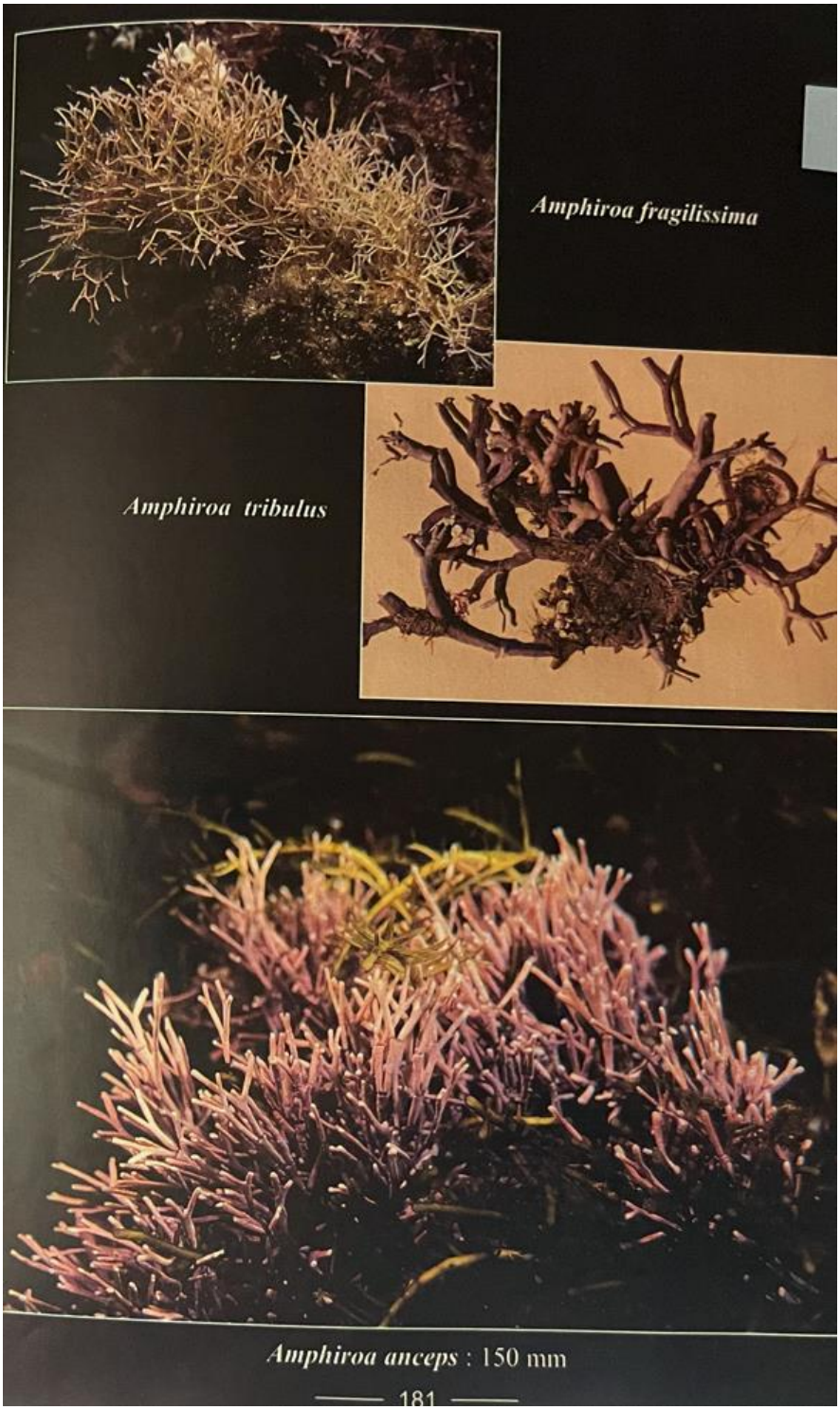
Galaxaura marginata

Galaxaura obtusata

Galaxaura rugosa

Galaxaura fasciculata : 800 mm

1a - *Thallus flattened* ... **G. marginata**
1b - *Thallus terete.* 2
2a - *Branches with hair-like filaments* 4
2b - *Branches glabrous* 3
3a - *Branch segments ovoid to elongate, without annulations near branch tips* ..... **G. obtusata**
3b - *Branch segments truncate, with distinct annulations near branch tips* ..... **G. rugosa**
4a - *Branches sparsely covered with filaments which are both long and short* .....**G. fasciculata**
4b - *Branches densely covered with filaments of uniform length*..... .....**G. filamentosa**



Amphiroa fragilissima

Amphiroa tribulus

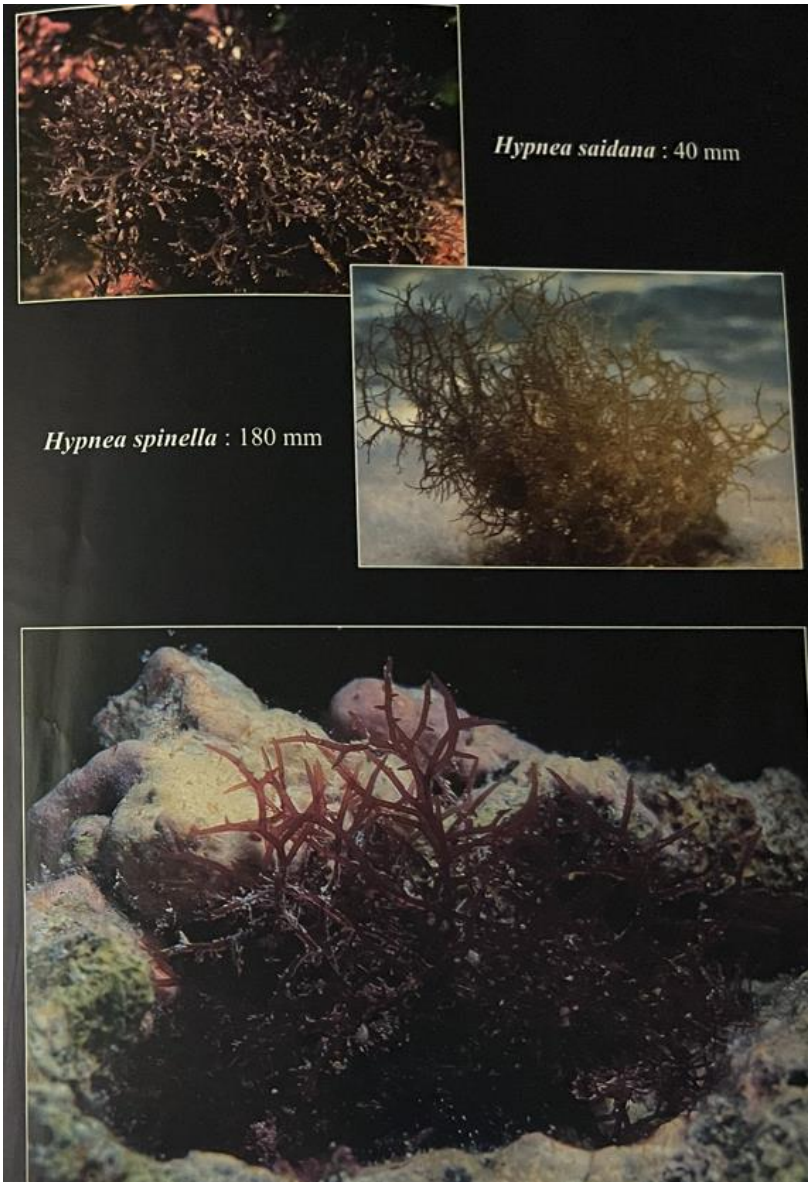
Amphiroa anceps : 150 mm

1a - *Branches terete* ... ***fragilissima***

1b - *Branches flattened* *2*

2a - *Thallus bushy and divaricate, violet. Side of segments irregularly heavyly flattened* .... ***A. tribulus***

2b - *Thallus erect deep pink, regularly dichotomous, articulations clearly visible; segments regularly complanate and smooth* ..... ***A. anceps***

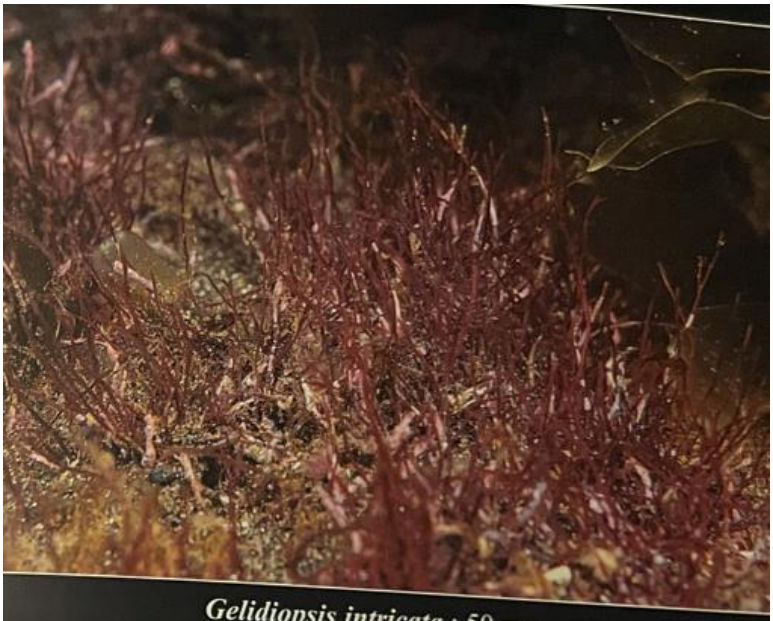


1a - Thallus compressed, branching mostly in one plane ... ***H. saidana***

1b - Thallus terete, branching in more than one plane 2

2a - Branches to 0.5 mm in diameter, with abundant small proliferous side-branchlets ..... ***H. spinella***

2b - Branches to 1.5 mm in diameter, without proliferous side-branchlets ..... ***H . pannosa***



Gelidiopsis intricata : 50 mm

Gelidiopsis repens : 40 mm

…es de *Gelidiopsis* de Polynésie française.
…nch Polynesian species of Gelidiopsis.

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1a - Thallus entirely terete, not palmately branched ..... **G. intricata**
1b - Thallus flattened and palmately branched above ..... **G. repens**

…liopsis intricata

…) Vickers 1905, p. 61

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Thallus to 50 mm high, reddish-green to purple, stiff and wiry in texture. Creeping basal axes give rise to terete, sparsely branched erect axes 250-300 µm in diameter which are often laterally fused in several places. The branch tips are blunt and tapered. Internal structure is wholly cellular.
A common alga found growing on coral bommies in the lagoon (Tahiti, Moorea).

…psis repens

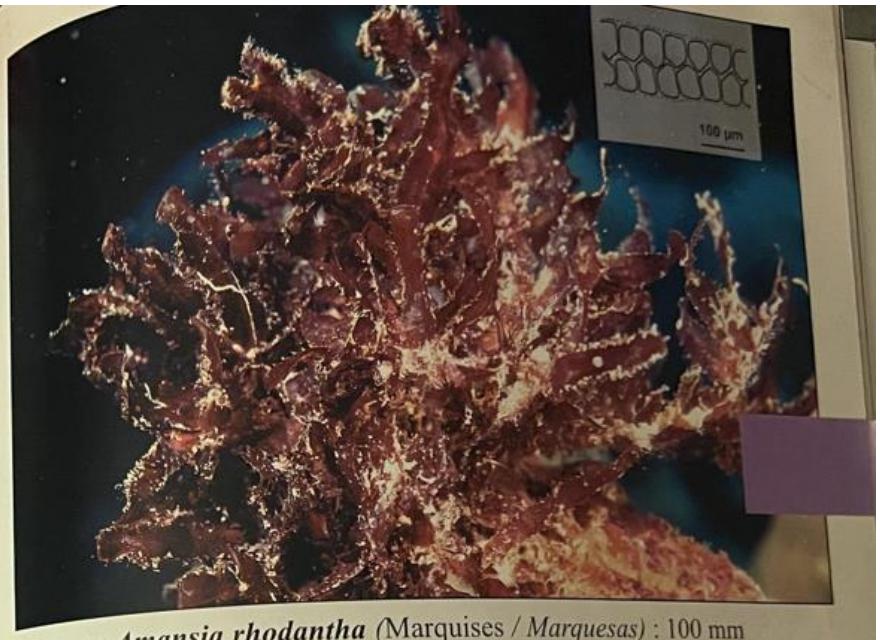
…an Bosse 1928, p. 425

Thallus to 40 mm high, deep reddish-maroon, wiry and flexible. Axes ligulate, compressed below and distally flattened ; dichotomously branched and palmate above. Branch tips usually forked and sharp. Tetrasporophyte with reproductive structures in bulb-like swellings at the end of erect branches. Internal structure cellular.
Commonly found growing on coral bommies and hard surfaces, in the lagoon and up to 20 meters depth (Society, Tuamotu).

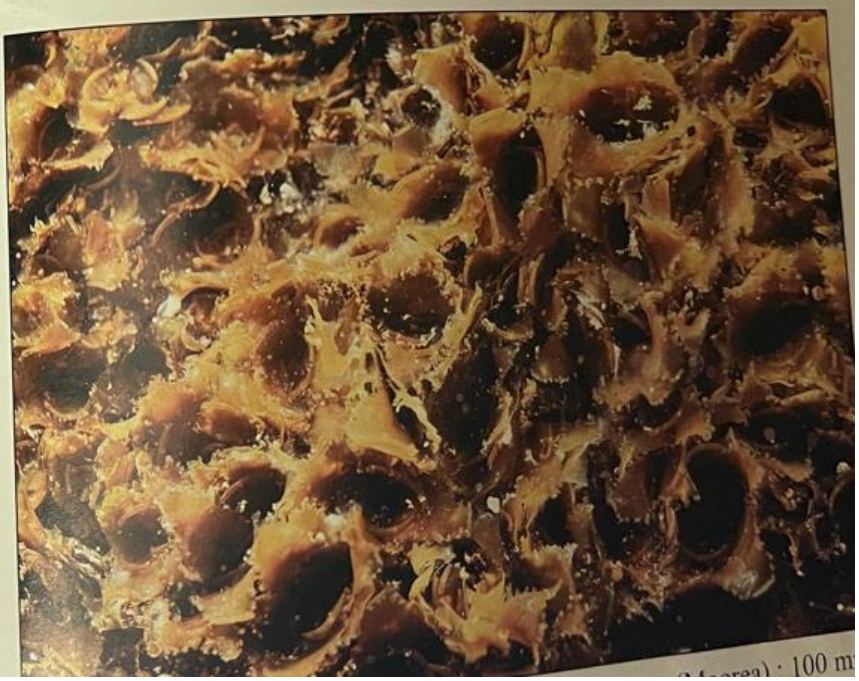
tha (Harvey) J. Agardh 1841: 26

Thallus to 10 cm across, branching lax when young and forming deep-red leafy rosettes when mature. The blades are crisped and lanceolate, up to 35 mm long and 6 mm wide, with serrated edges, a distinct midrib in lower half and characteristically inrolled tips. Main axis irregularly branched, stem-like in basal portions, to 0.8 mm in diameter. Internal structure cellular, with a central axial cell surrounded by five pericentral cells, and two displaced rows of regularly arranged cells on either sides. Tetrasporangia in stichidia to 340 µm long, on upwardly-curved proliferations borne marginally on the blades.

Plant locally abundant, growing in the barrier reef, and on coral debris on the outer reef slope to depths of 15 meters (Tahiti, Moorea, Marquesas). This species was previously known as Amansia glomerata, but that name became obsolete after the discovery that the Hawaiian Type specimen of A. glomerata actually represents another genus (Melanamansia), based on the presence of pseudopericentral cells (R. E. Norris 1995). The French Polynesian plants lack pseudopericentral cells and thus belong to Amansia ; a comparison of these with the type of A. rhodantha from the Indian Ocean revealed them to be similar (N'Yeurt, in prep.).



Amansia rhodantha (Marquises / *Marquesas)* : 100 mm



(Moorea) : 100 m

Dictyosphaeria
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ench Polynesian species of Dictyosphaeria

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1a - *Thallus hollow, intracellular spines absent* ..... ***D. cavernosa***
1b - *Thallus solid, intracellular spines present* ..... ***D. versluysii***

osphaeria cavernosa
ørgesen 1932, p. 2, pl. 1, fig. 1

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Thallus 8-13 cm in diameter; shiny light green, sessile, sometimes spherical and often irregularly lobed. Internal structure hollow, the walls one-cell thick, with angular or polygonal cells clearly seen with the naked eye. Intracellular spines absent. Thallus lightly attached to the substratum via small rhizoids. Commonly found growing on coral and other hard substrata in the lagoon of high islands and atolls (Tuamotu), where it can reach large sizes.

osphaeria versluysii
sse 1905, p. 114, pl.611, fig 6

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Thallus to 4 cm in diameter, shiny dark green, sessile and cartilaginous, with angular or polygonal cells clearly seen with the naked eye. Internal structure solid throughout, with sparse intracellular spines 60-88 µm long. Attached to the substratum via sparse basal rhizoids. Commonly found growing affixed to coralline surfaces and in interstices on coral (Moorea, Tahiti).

Dictyosphaeria cavernosa : 130 mm

Dictyosphaeria versluysii : 40 mm

Valonia C. Agardh

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n French Polynesian species of Valonia.

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*1a - Thallus forming mostly erect clumps..... **V. fastigiata***
1b - Thallus forming encrusting mats 2
*2a - Vesicles ovoid to ocellate, solitary or in colonies, mostly unbranched ..... **V. macrophysa***
*2b - 2b - Vesicles cylindrical to clavate, much branched ..... **V. aegagropila***

Valonia aegagropila
Agardh 1822, p. 429

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Thallus encrusting, light yellowish to olive-green, composed of cylindrical to clavate vesicles 3-13 mm long and 1.5-2 mm broad, subdichotomously branched from the sides or the ends of the cells. Young plants attached to each other, the older ones more or less free. Forms extensive mats at the base of coral bommies and on flat surfaces, in the lagoon (Moorea, Tahiti).

Valonia fastigiata
Agardh 1887, p. 101, pl. I fig. 5

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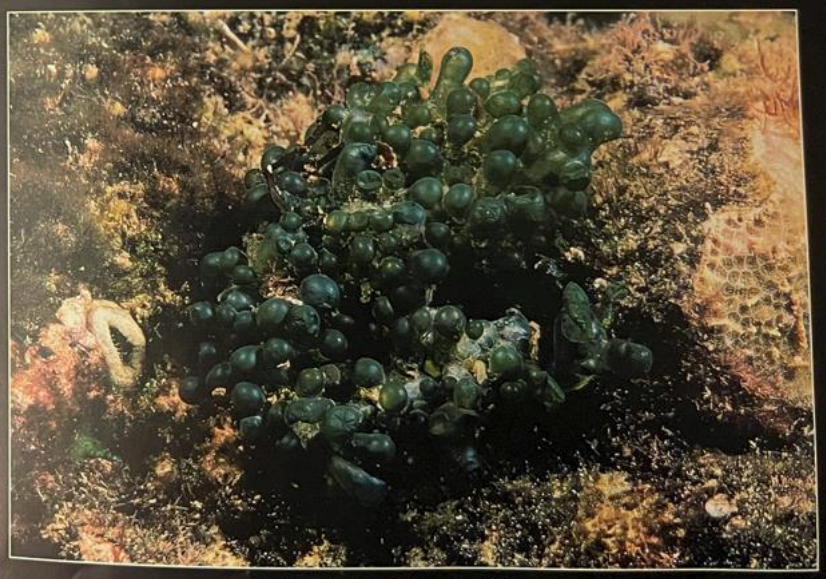
Thallus dark olive green, forming erect clumps or cushions to 3 cm high and 10 cm across. Individual vesicles elongate-ovoid, hollow, irregularly branched, to 10 mm long and 5 mm wide, loosely attached to each other. Growing as clumps between branches of coral and crevices in hard substratum, in the lagoon and on the reef flat (Moorea, Tahiti).

Valonia aegagropila : 13 mm



Valonia fastigiata : 100 mm

Valonia macrophysa
Kützing 1843, p. 307

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Thallus to 10 cm across, shiny dark olive green, composed of irregularly ovoid to ocellate, bubble-like vesicles 5-20 mm in diameter, which are mostly unbranched.
Forming tightly adhering mats on flat coral, usually Favites sp. in shallow lagoon waters (Moorea, Tahiti).

Ventricaria ventricosa
Olsen et West 1988, p. 104, fig. 11

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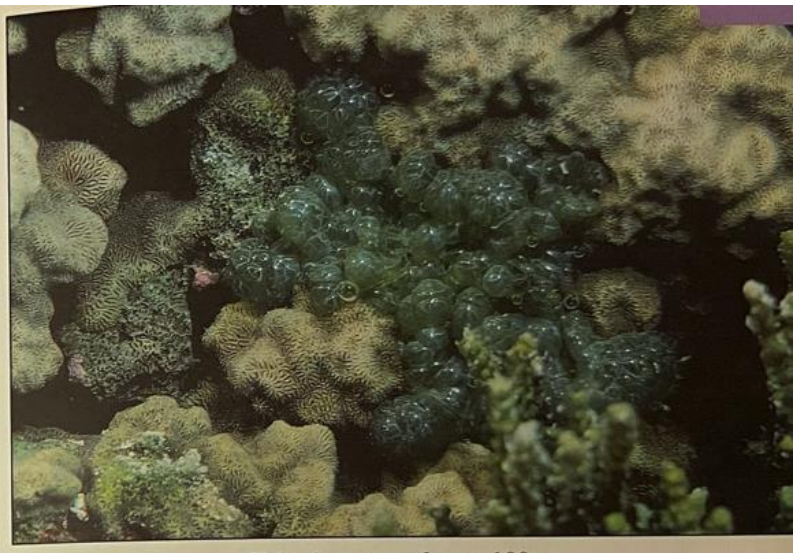
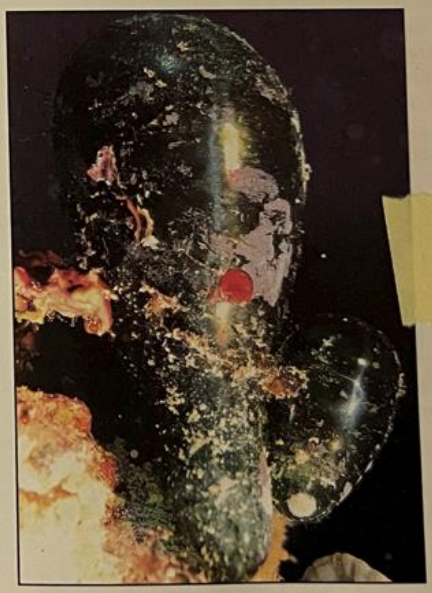
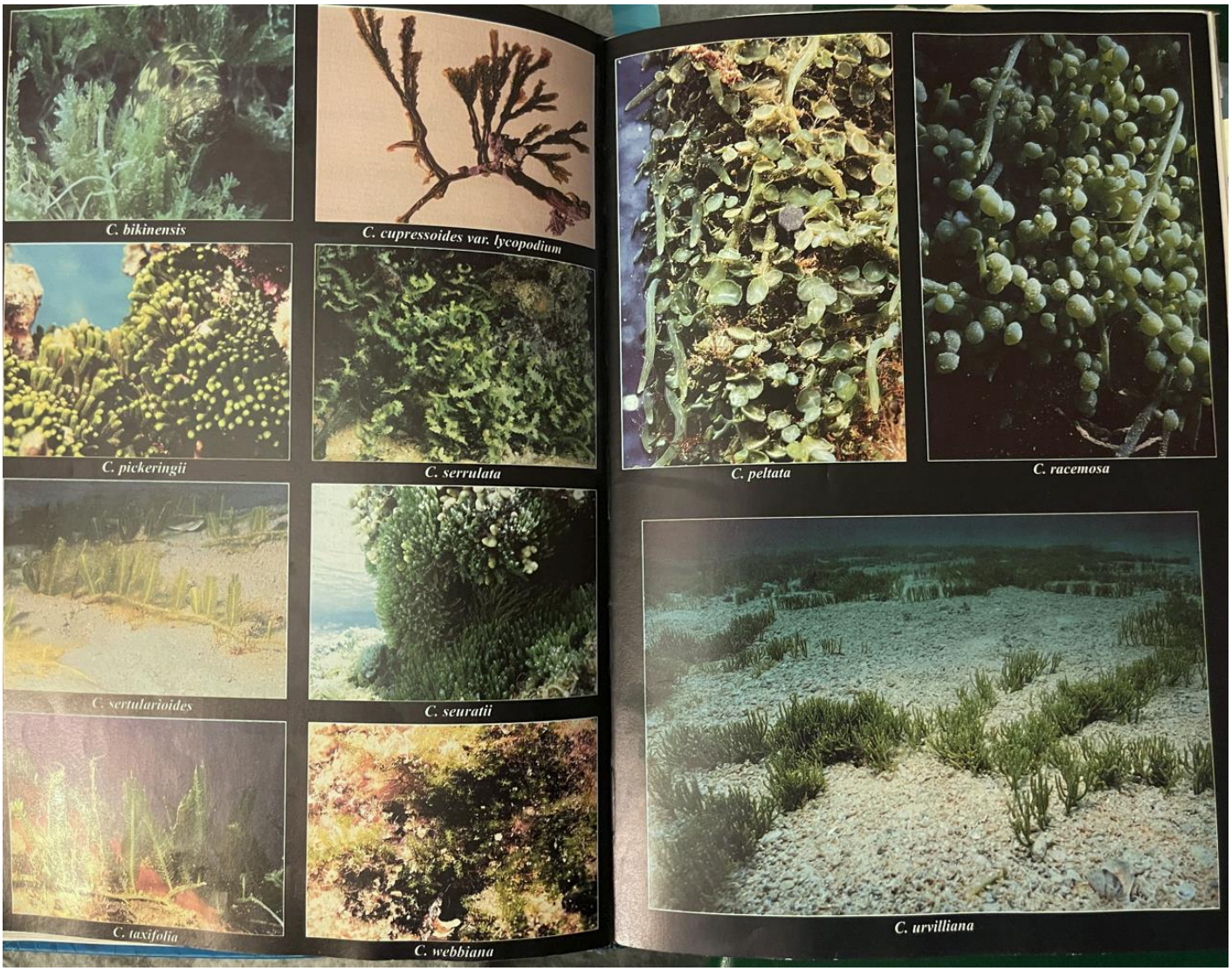
Thallus to 5 cm in height, shiny dark green, consisting of a tough thin-walled, fluid-filled, subspherical, spherical or pyriform marble-like single cell. Attached to the substratum via minute basal rhizoids. The cell does not rupture if the cell wall is punctured.
Common in the lagoon, growing in interstices on coral bommies or epiphytic on algae such as Galaxaura fasciculata; or on coral debris to a depth of 20 meters on the outer reef slope (Society, Tuamotu).



Valonia macrophysa : 100 mm



Ventricaria ventricosa : 50 mm



Caulerpa peltata

…mouroux 1809*a*, p. 332

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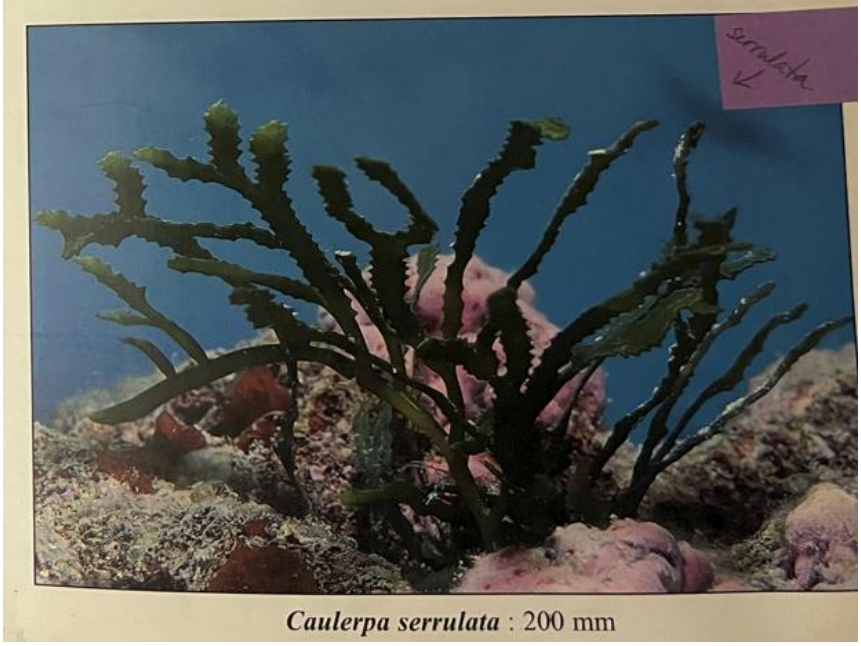
Plants small and delicate, occurring as single stolons up to 1 mm in diameter, occasionally forming clumps 5-10 cm across of densely intermingled plants, each about 8 cm long and sparingly provided with short rhizoides. Spreading stolon bearing short cylindrical erect branchlets 1-1. 5 cm long at 2-3 mm intervals, these producing thin peltate discs 3-5 mm in diameter either singly at the end, or several discs axially arranged around the main foliar branches. Growing in sheltered crevices on the fringing reef and on coral bommies in the lagoon, creeping on hard surfaces to depths of 3 meters (Moorea, Tahiti).

Caulerpa peltata : 100 mm

Caulerpa racemosa : 150 mm



Caulerpa serrulata : 200 mm

rpa racemosa

Agardh 1873, pp. 35-36

Thallus light green, up to 15 cm long, with spreading stolon 3 mm in diameter and ventral branchlets beset with rhizoids. Erect axes up to 3 cm disposed secondary branchlets with subspherical, inflated ends 2-4 mm in diameter.

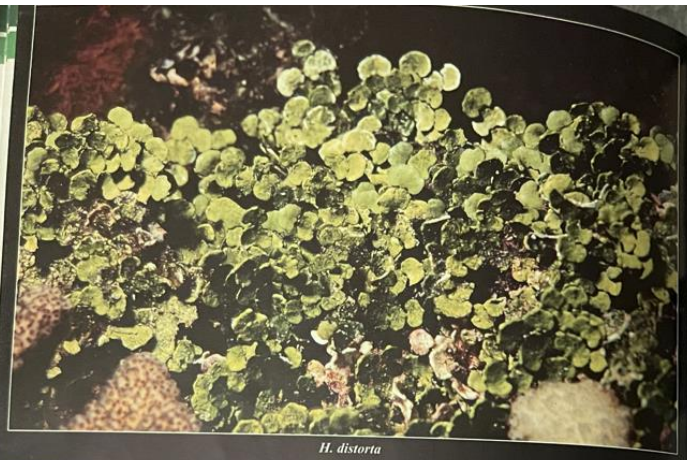
Common on the reef flat, growing on coral bommies, sponges and soft corals in shallow waters (Moorea, Tahiti). This alga is edible, being eaten as a salad in Australes and Marqueses and by many Pacific islanders.

a serrulata

ardh 1837, p. 174

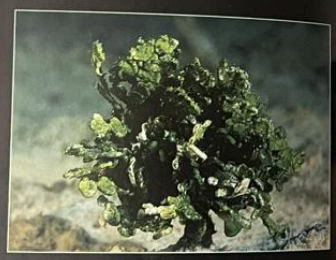
Thallus light to dark green, with spreading stolon up to 20 cm long and 2 mm wide, bearing flattened to compressed erect branches up to 7 cm tall at 1-4 cm intervals along the spreading stolon. The erect branches are several times dichotomously or irregularly branched, terete below up to point of dichotomy, the rest compressed (1-2 mm broad) with moderate to strong twisting and serrated margins; the serrations more pronounced on the outwardly facing edge of the twist.

Growing in shallow waters, on the fringing and barrier reef of high islands (Moorea, Tahiti) and in the lagoon of atolls (Tikehau, Harahiki).



H. distorta

H. discoidea

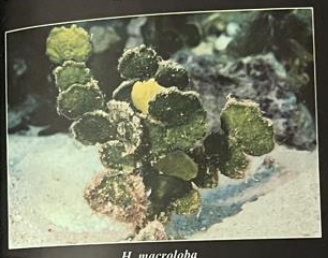


H. incrassata

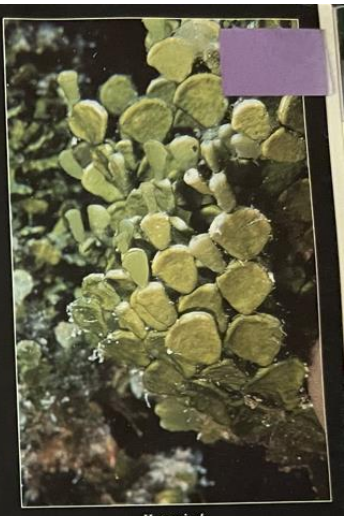
H. opuntia

H. lacunalis

H. micronesica



H. macroloba



H. taenicola

H. minima

Halimeda discoidea

Decaisne 1842, p. 102

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Thallus to 10 cm tall, with a single short stalk-like segment at the base; lightly calcified, light green to cream in colour. Segments large (up to 20 mm broad and 15 mm high) and in a single plane, mostly branching dichotomously. Peripheral utricles (a) hexagonal in surface view, between 42-43 µm in diameter. Secondary utricles (b) up to 128 µm in diameter, distinctly inflated, supporting up to five primary utricles. Cortex generally two-layered. Nodal filaments (c) united in twos or threes.

Growing on the barrier reef flats and outer reef slope to a depth of 10 metres (Society, Tuamotu, Marquesas).

Halimeda distorta

is- Colinvaux, 1968, p. 33, figs 1, 6 (2)

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Thallus to 70 cm long, heavily calcified, with thick, smooth segments which are often ribbed, keeled and contorted. Habit lax and sprawling, with multiple attachment points. Peripheral utricles (a) 30-36 µm in diameter, with long secondary utricle (b) 28-47 µm in diameter. Medullary filaments (c) united at the nodes in twos or threes.

A species commonly found on hard and detritic substrata, it is distinguished from H. opuntia by its more lax habit and thicker, smoother and contorted segments, never forming compact clumps (Moorea, Tahiti, Gambier, Rangiroa).

a macroloba

1841, p. 118

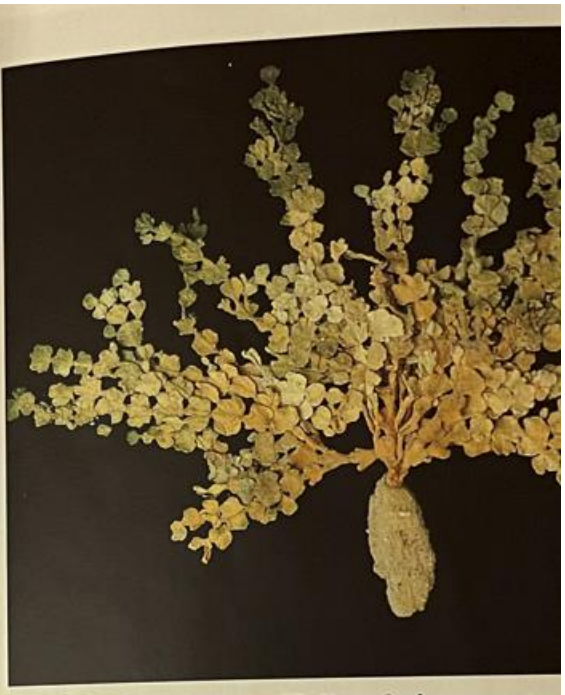
Thallus up to 15 cm high and 20 cm broad, with a large bulbous and incrustated holdfast 30-40 mm long and 15-20 mm wide. Segments subcuneate to reniform, not ribbed, about 1 to 2 mm thick and up to 30 mm wide and 20 mm high. Branching planar to bushy, di- to polychitomous. Calcification moderate; basal segment compressed and supporting several separate or laterally consolidated segments forming a fan-shaped unit. Cortex of 3-4 layers of utricles (a) the last layer (b) 25-45 µm in diameter, rounded and remaining separate in surface view following decalcification (c). Nodal filaments (d) united and porous. Common in sandy areas or turbid, muddy estuarine habitats where it can be quite abundant (Tahiti).

da incrassata

Lamouroux 1816, p. 307

Thallus to 10 cm high, with a distinct bulbous holdfast up to 3 cm long and 1.5 cm wide. Branching polychitomous from a basal segment about 1 cm broad and 5 mm high; upper segments 2-4 mm wide and 3-6 mm tall, cuneate to trilobed, sometimes cylindrical; not distinctly ribbed. Cortex 2-3 layered, primary utricles (a) hexagonal in surface view, 40-50 µm in diameter, remaining loosely attached following decalcification. Tertiary utricles (b) 64-71 µm in diameter, dichotomously branched, bearing a pair of secondary utricles 36-43 µm in diameter, in turn bearing 2-3 primary utricles each. Well-developed nodal fusion plate (c) present.

Growing in sandy areas on the fringing and barrier reefs, in small tidepools and cavities in the coral (Society, Tuamotu, Marquesas).



Halimeda incrassata

a lacunalis

, p. 50, pl. 51

Thallus erect or hanging, flaccid, up to 18 cm tall, arising from a minute holdfast. Calcification light to moderate, colour whitish-green. Branching mainly planar, commonly dichotomous, with several segments arising from a single one ; basal segments small, cylindrical to subcuneate, upper segments discoïdal to reniform, to 15 mm long and 20 mm broad, and 0.5-0.7 mm in thickness. Cortex 2-4 layered, primary utricles hexagonal in surface view, 20-55 µm in diameter, remaining attached after decalcification, secondary utricules 15-50 µm broad, in turn bearing 2, 4 up to 5 primary utricules. Nodal filaments united in twos or threes.

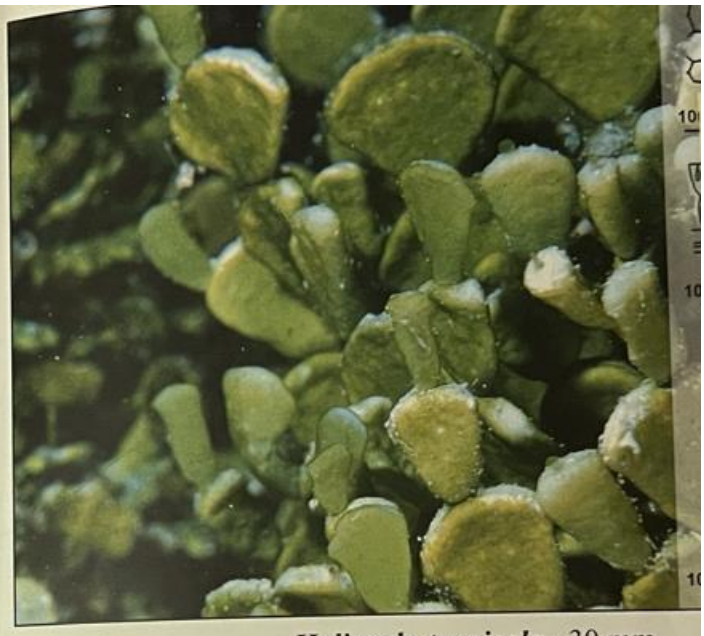
Found on coral bommies in lagoon of atolls (Maroko).

Halimeda lacunalis

la taenicola

0, p. 86, pl. 46, fig. 1

Thallus light green to yellowish, to 8 cm tall, with a small fibrous holdfast. Branching in one plane; segments to 2 mm thick. Lower segments often fused; upper segments to 8 mm wide and 10 mm high, deltoid to reniform. Peripheral utricles (a) hexagonal in surface view, 28-32 µm in diameter, remaining attached after decalcification. Secondary utricles (b) to 120 µm long, bearing 4-6 primary utricules. Nodal filaments (c) fused in twos or threes. Growing on the barrier reef, on the reef crest, in the passes and on the outer slope to a depth of 10 meters (Society, Tuamotu).



Halimeda taenicola : 30 mm

Avrainvillea Decaisne

nmunes d' *Avrainvillea* de Polynésie française.
n French Polynesian species of Avrainvillea.

épaisse et
ns orange
être.....
A. erecta
, lacérée ;
23 µm de
. lacerata

*1a - Blade relatively thick and felted, entire; siphons bright orange, 30-50 µm in diameter ..... **A. erecta***

*1b - Blade thin and papery, lacerate; siphons yellowish green, 12-23 µm in diameter ..... **A. lacerata***

Avrainvillea erecta

et E. S. Gepp 1911, p. 29-32, pl. 10, fig. 89

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Thallus solitary, to 6 cm high, consisting of a flabellate, relatively thick and felted reniform blade 3-4 cm wide and a prominent unbranched stipe 1-2 cm long. Margins smooth, faintly zonate and not lacerate. Siphons bright orange to yellowish brown, 30-50 µm in diameter; cylindrical with deeply constricted equal dichotomies and rounded apices. Growing in sandy substratum in the lagoon and outer reef (Moorea, Tahiti).

Avrainvillea erecta : 60 mm