

***Acanthophora spicifera* (Vahl) Børgesen**

1910: 44

Figs 26A; 182

REFERENCES: Tseng (1984: 142, pl. 74, fig. 2), Lewmanomont & Ogawa (1995: 90, + fig.), Cribb (1996: 65, middle fig. p. 64), Calumpong & Meñez (1997: 167, + fig.), Trono (1997: 255, fig. 159), Abbott (1999: 355, figs 102D-E), Huisman (2000: 154, + fig.), Payri *et al.* (2000: 270, fig. p. 271), Littler & Littler (2003: 142, bottom fig. p. 143), Oliveira *et al.* (2005: 126, + figs), Huisman *et al.* (2007: 139, + figs), Ohba *et al.* (2007: 120, + figs), Skelton & South (2007: 170, figs 455-458).

TYPE LOCALITY: St. Croix, Virgin Islands.

Description - Plants gregarious, erect, about 10 cm high, stiff-brittle, greenish to purplish red; thalli attached by digitate holdfasts that may produce rhizomatous branches; main branching irregular, from sparse to dense, axes cylindrical, 2-3 mm in diameter; determinate branches spirally arranged, bearing spirally arranged spine-like laterals; branch apices pyramidal with branched trichoblasts which are fugacious. Structure seemingly pseudoparenchymatous but in fact polysiphonous, with 5 pericentral cells covered by a thick cortex; outer cortical cells rectangular and longitudinally oriented. Lenticular thickenings in walls of pericentral and inner cortical cells may occur. Reproductive structures borne on the short, spine-like branchlets; tetrasporangial branchlets swollen, very spiny, without trichoblasts; 1 tetrasporangium per fertile segment, developing in tiers in the 'stichidium'.

'Loose-lying' specimens in the lagoon of Chilaw are ball-like, up to 30 cm in diameter, with much more slender and supple branches which are less branched.

Ecology - Best developed in the subtidal, on dead coral heads or coral fragments on sand, in lagoons; smaller, tougher and more densely branched specimens in low intertidal pools.

Distribution - Pantropical.

Fig. 182. *Acanthophora spicifera*.

***Bostrychia tenella* (J.V. Lamouroux) J. Agardh**

1863: 869-871

Figs 16E; 183

REFERENCES: Tseng (1984: 144, pl. 75, fig. 3), Lewmanomont & Ogawa (1995: 96, + fig., as *B. binderi*), Cribb (1996: 71, top fig. p. 70), Trono (1997: 259, fig. 161, as *B. binderi*), Calumpong & Meñez (1997: 159, 160, + figs), Huisman (2000: 156, + fig.), De Clerck *et al.* (2005b: 248, fig. 250), Oliveira *et al.* (2005: 128, + figs p. 129), Skelton & South (2007: 169, figs 451-454).

TYPE LOCALITY: St. Croix, Virgin Islands.

Description - Plants prostrate, forming mats up to 40 cm in diameter, dark purple to brown; attached by rhizoids developing from the ventral side of the prostrate axes, associated with bifurcations of the axes; axes cylindrical, to 500 µm in diameter; up to 3-4 orders alternately branched, from every to every fourth axial cell. Internal structure polysiphonous except for ultimate and penultimate branches; composed of an axial filament surrounded by 5-7 pericentral cells; major axes covered by a cortex 2-3 cells thick; pericentral cells dividing transversely, resulting in 2 tiers of pericentral cells per axial cell. Tetrasporangia formed in series in inflated ultimate branchlets (stichidia), produced in whorls of 4 and covered by (2-)3 cover cells, tetrahedrally divided, 30-70 µm in diameter.

Ecology - On shaded vertical and overhanging walls, upper intertidal zone (supralittoral fringe).

Distribution - Pantropical.

Fig. 183. *Bostrychia tenella*. A. Habit *in situ*; B. Detail of a herbarium specimen with various branch morphologies.



Bryocladia thwaitesii (Harvey ex J. Agardh) De Toni

1903: 968

Figs 23E; 184

REFERENCES: Durairatnam (1961: 70, pl. xviii, figs 1-3).**TYPE LOCALITY:** Sri Lanka.

Description - Plants growing as almost continuous, monospecific populations of isolated tufts; individual plants composed of intricately branched, prostrate axes, attached by unicellular rhizoids with pad-like tips and erect branches, 3 to 5 cm long, having a percurrent axis with few secondary axes. Stolons ramified and bending upwards at their apices, giving rise to the erect thalli; all axes ecorticate, densely clothed with isolated groups of short, determinate, spine-like, upwardly directed, exogenous, polysiphonous branchlets, spirally arranged, and with a variable number of pericentral cells (up to 11 in vigorous specimens). Secondary, endogenous branchlets bearing trichoblasts, adventitiously formed in axils of some spine-like branchlets on upright axes. Reproductive structures borne on secondary, endogenously derived branchlets. Tetrasporangia single in a segment, in a straight series, stichidia in clusters on short axes.

Ecology - On (frequently sand-covered) rocks, close to the sandy substratum at about low tide level; sometimes together with *Grateloupia lithophila*.

Distribution - India, Sri Lanka.

Fig. 184. *Bryocladia thwaitesii*. A. Habit *in situ*; B. Microscopic detail of apical part; C. Cystocarp.

Chondria armata (Kützinger) Okamura

1907: 69-71, pl. XVI, figs 9-19

Figs 22H; 185

REFERENCES: Tseng (1984: 144, pl. 75, fig. 4), Cribb (1996: 75, middle fig. p. 74), Calumpong & Meñez (1997: 166, + fig. p. 167), Trono (1997: 260, fig. 162), Huisman (2000: 157, + fig.), Littler & Littler (2003: 144, bottom fig. p. 145), De Clerck *et al.* (2005b: 248, fig. 251), Oliveira *et al.* (2005: 130, + fig. p. 131).

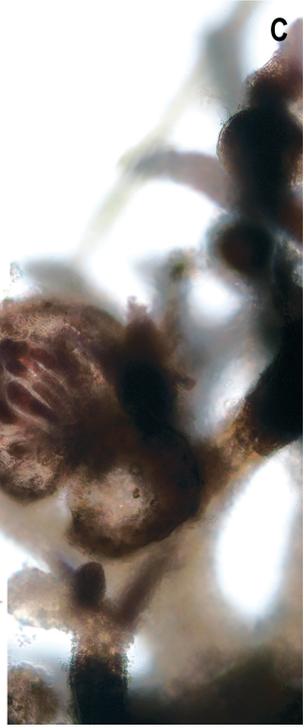
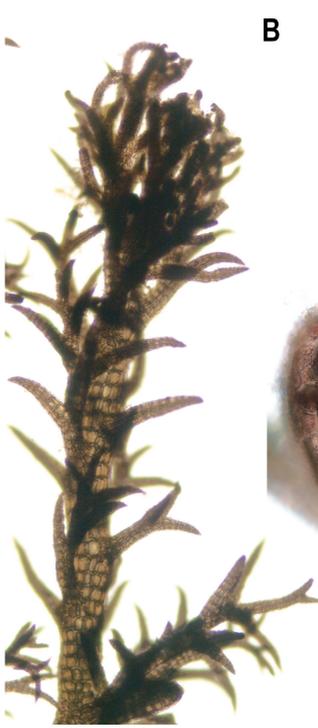
TYPE LOCALITY: Wagap, New Caledonia.

Description - Plants generally gregarious, more rarely isolated, up to 4 cm high, the basal parts rather stiff, the upper parts more supple, all axes being cylindrical; pinkish red, sometimes with creamy tips, turning dark brown upon drying; very well attached by thick, fleshy discoid holdfasts; individual thalli composed of irregularly branched prostrate axes, up to 1.5 mm in diameter bearing closely placed perennial upright axes, ca 1 mm in diameter near the base, gradually tapering to the apex, bearing markedly thinner, annual branches, provided with radially placed side branches of rather uniform length; these ultimate branchlets 3-5 mm long and 400 µm in diameter, not tapered proximally; apices acute, with a prominent apical cell, not depressed; trichoblasts caducous, but present in the distal thallus parts. Internal structure composed of an axial filament surrounded by 5 pericentral cells which remain discernable throughout the thallus, and a medulla composed of isodiametric cells decreasing in size toward the periphery; cortical layer cells 20 µm in diameter wide and 60-80 µm long. Tetrasporangia formed in ultimate branchlets, tetrahedrally divided, ca 100 µm in diameter.

Ecology - Epilithic, just above low water level, along surf-exposed coasts and thus continuously wave-swept.

Distribution - Widespread in the Indian Ocean and the tropical western Pacific Ocean.

Fig. 185. *Chondria armata*.



Laurencioids

Fig. 186

Recently, several papers have been published on representatives of the *Laurencia*-complex. Morphological and anatomical characters as well as molecular data led to the description or resurrection of three additional genera (*Chondrophyucus*, *Osmundea* and *Palisada*) and the subsequent transfer of many species formerly placed in *Laurencia*. As an example, *Laurencia papillosa* (C. Agardh) Greville was transferred to the genus *Chondrophyucus* by Garbary & Harper in 1998. In 2006, Nam transferred it to the genus *Palisada*. Most of these studies were based on specimens from a given area or selected specimens worldwide, not including material from Sri Lanka. Awaiting a thorough study of Sri Lankan representatives of the *Laurencia*-complex, we are using tentative identifications for some entities and illustrate some unidentified representatives.

Silva *et al.* (1996: 503-521) mention 13 species of *Laurencia* as being reported from Sri Lanka (some of which with several varieties), but many more from India.

***Laurencia natalensis* Kylin**

1938: 24, pl. 8: fig. 21

Figs 11D; 22I; 186E

This is the most abundant *Laurencia*-species just above low tide level, growing in extensive vegetations with the basal parts being greenish and the apices orangy-red. The Sri Lankan specimens agree morphologically with the description and illustration of *L. natalensis* in De Clerck *et al.* (2005: 256, fig. 263). This taxon has been recorded from South Africa (type locality), Mozambique, Kenya and Mauritius. Additional research is needed to ascertain conspecificity of the Sri Lankan specimens with the *L. natalensis* from southern Africa.

***Laurencia* sp.**

Fig. 186D

This representative has only been collected on deep water rock boulders, between 18 and 20 m depth. The specimens agree well with material from Papua New Guinea housed in GENT, identified as *Laurencia pediculariodes* Børgesen (see Millar *et al.* 1999: 573, fig. 6D and Coppejans & Millar, 2000: 333). Interestingly, a recent study of the species by Furnari *et al.* (2004) indicates that our specimens may after all not belong to this taxon.

***Palisada papillosa* (C. Agardh) K.W. Nam**

2007: 54

Fig. 186F

Our specimens grossly resemble typical specimens of this taxon, but they are smaller and rather repent than erect.

Fig. 186. Laurencioids (*Chondrophyucus* / *Laurencia* / *Osmundea*-complex). A. Prostrate cushion-like Laurencioid; B. Iridescent, coarse cushion-like Laurencioid; C. Laurencioid with long, perpendicularly placed side branches; D. Deepwater Laurencioid; E. *Laurencia natalensis*; F. *Palisada papillosa*.



Chondrophyucus ceylanicus (J. Agardh) M.J. Wynne, Serio, Cormaci
et G. Furnari 2005: 499, figs 1-4

Fig. 187

REFERENCES: Svedelius (1906: fig. 2, 8, as *Laurencia ceylanica*), Durairatnam (1961: 74, pl. xvii, figs 6, 7, as *Laurencia ceylanica*), Wynne *et al.* (2005: 499, figs 1-4).

TYPE LOCALITY: Sri Lanka.

Description - Thalli gregarious, composed of densely arranged robust, rigid, cartilaginous, compressed axes arising from aggregated discoid holdfasts, 3-5 cm high, dark red; axes 3-4 mm wide and 2.2-2.4 mm thick, irregularly ramified (up to two orders), bearing upwardly directed, alternate and distichous to sub-opposite branches and branchlets. Axes and branches often provided with short wart-like branchlets. Epidermal cells not secondarily pit-connected, radially arranged in palisades on transverse section, 24-26 μm long by 5-8 μm broad; no lenticular thickenings on the medullary cells; two pericentral cells per axial cell.

Ecology - Epilithic just above low water mark, on rocks exposed to severe surf.

Distribution - Indian Ocean and western tropical Pacific Ocean.

Note - Numerous species of *Chondrophyucus* and *Laurencia* occur along the Sri Lankan coasts. They are actually under study.

Fig. 187. *Chondrophyucus ceylanicus*.

Leveillea jungermannioides (Hering et G. Martens) Harvey
1855: 539

Fig. 188

REFERENCES: Tseng (1984: 156, pl. 81, fig. 3), Lewmanomont & Ogawa (1995: 129, + figs), De Clerck & Coppejans (1996: 265, figs 127-128), Calumpong & Meñez (1997: 165, + fig.), Abbott (1999: 396, figs 116A-D), Huisman (2000: 173, + fig.), Oliveira *et al.* (2005: 140, + fig. p. 141), Skelton & South (2007: 181, figs 480-484).

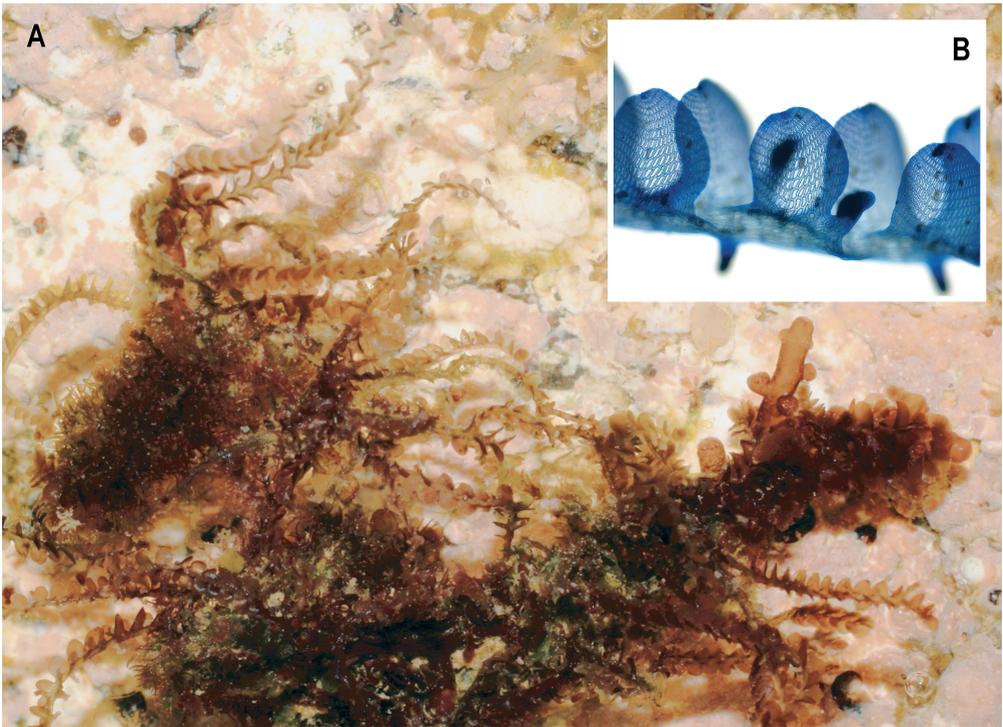
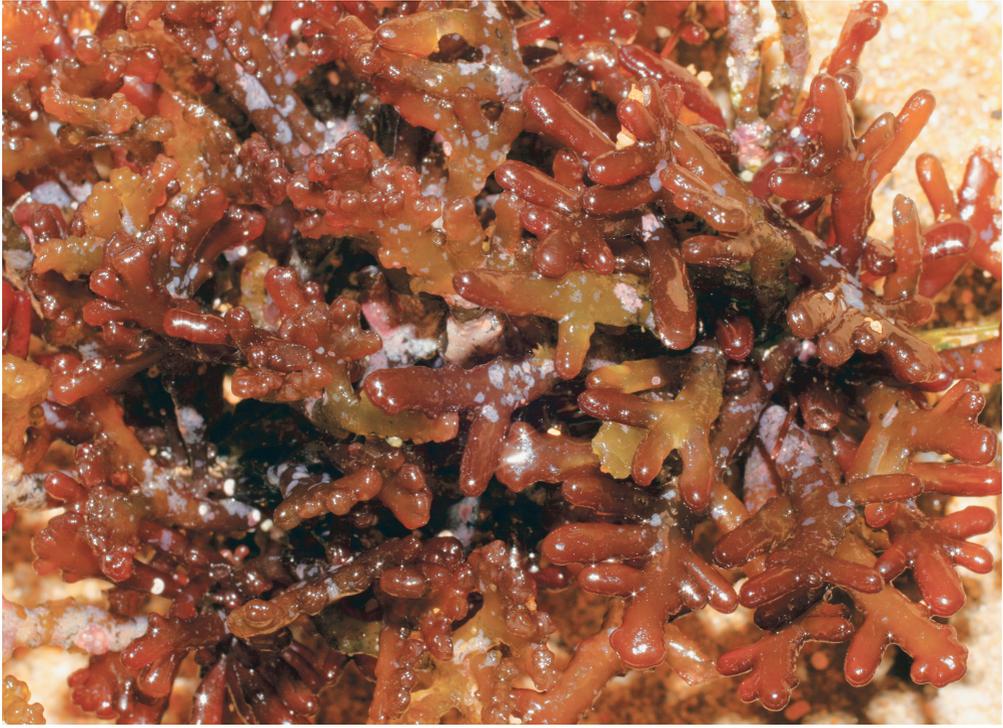
TYPE LOCALITY: Tor, Sinai Peninsula, Egypt.

Description - Plants prostrate, up to 5 cm long, blackish red, composed of branched axes bearing 2 rows of erect, broadly ovate, membranous branches; thallus decumbent, with cylindrical main axes with inrolled apices cutting off alternate indeterminate side axes with similar morphology; these axes with 4 pericentral cells in the juvenile parts and 7 pericentral cells in mature parts; attachment at intervals by groups of multicellular rhizoids with well-adhering terminal pad-like structures; prostrate axes bearing bilaterally arranged, erect, asymmetrical, broadly ovate, monostromatic (except midrib) bladelets, 650-800 μm broad and 500-1000 μm high, arranged in an alternate sequence, partly overlapping one another and bearing colourless, deciduous trichoblasts at the apices; cells of these bladelets more or less arranged in vertical and horizontal rows. Four to eight tetrasporangia formed in short, curved, stichidia-like branchlets that replace indeterminate branches; each tetrasporangium in own 'chamber' demarcated by vertical elongate cells and surrounded distally by 2-3 cover cells: only 4-6 tetrasporangia mature.

Ecology - Epiphytic, mostly on *Sargassum* in low intertidal rock pools. Mostly overlooked as a result of its small size and similar colour to the phorophyte.

Distribution - Widespread in the Indian Ocean and western tropical Pacific Ocean.

Fig. 188. *Leveillea jungermannioides*. A. Habit, epiphytic on *Laurencia* sp.; B. Microscopic detail.



***Murrayella periclados* (C. Agardh) Schmitz**

1893: 227 footnote

Figs 16F; 189

REFERENCES: Littler & Littler (2000: 222, top figs p. 223), Oliveira *et al.* (2005: 142, + fig. p. 143), Skelton & South (2007: 184, figs 488-492).

TYPE LOCALITY: Mahé Island, Seychelles.

Description - Thalli forming densely felted coverings in which the individual filamentous plants are not recognizable with the naked eye; dull dark red-brown. Filaments composed of a prostrate system giving rise to erect filaments to 2 cm tall; attachment by rhizoids produced by the ventral periaxial cells, terminating into a disc; main axes polysiphonous, dichotomous below, alternate higher up, with 4 periaxial cells, slightly corticated near the base, ecorticate above; spirally placed branchlets monosiphonous, originally one per segment, deciduous, slightly upcurved, very thin (25-30 µm) and slender, unbranched or branched at their basis.

Ecology - Epilithic on shaded vertical and overhanging walls of fossil coral platforms at high water level, just under the *Bostrychia*-zone.

Distribution - Pantropical.

Fig. 189. *Murrayella periclados*. A. Whole plant; B. Detail of branching pattern.

***Tolypocladia calodictyon* (Harvey ex Kützing) P.C. Silva**

1952: 308

Fig. 190

REFERENCES: Oliveira *et al.* (2005: 147), Ohba *et al.* (2007: 124, + figs).

TYPE LOCALITY: Tonga.

Description - Plants forming hemispherical tufts of up to 20 cm in diameter, composed of radially placed, entangled, supple, spongy branches; dark red, becoming black upon drying; main axes irregularly branched, longer and shorter indeterminate side branches mixed; total diameter of the branches at the basis up to 5 mm, gradually tapering towards the pointed apices; all axes polysiphonous, with 4 pericentral cells, devoid of any cortication; segments shorter than wide; axes and indeterminate branches densely clothed with numerous determinate, branchlets, perpendicularly placed on the axes; branchlets exogenously formed on most segments in a 1/4 spiral sequence, dichotomously branching at wide angles, the distal ends being divided 1-2 (or more) times into 1-several short spine-like branchlets; unbranched trichoblast borne on branchlet in early stages, young cells of trichoblast pigmented, later becoming colourless and deciduous; apices of a determinate branchlet anastomosing with those of the previous and following determinate branchlet, resulting in a three-dimensional network and a spongy texture in the major part of the thallus, but some thinner indeterminate branches of the same thallus with isolated (non-anastomosing) determinate branchlets.

Ecology - Epiphytic on seagrasses (mainly *Halodule wrightii*) just under low water level on a sandbank in Puttalam lagoon; locally abundant.

Distribution - Indian Ocean and western tropical Pacific Ocean.

Note - In *T. calodictyon* most of the determinate side branchlets are anastomosing whereas they remain completely free in *T. glomerulata* (C. Agardh) F. Schmitz. Skelton & South (2007: 191) state that the features used to distinguish the four species of *Tolypocladia* are yet to be properly tested. Falkenberg (1901) already suggested they may all be conspecific, belonging to *T. glomerulata*.

Fig. 190. *Tolypocladia calodictyon*. A. Habit (herbarium specimen); B. Apex with numerous hairs; C. Intercalary portion with anastomoses; D. Branch with tetrasporangia.



11. Glossary

abaxial: away from the axis

abutting: lying adjacent or bordering on

acropetal: in the direction from the base toward the apex

acuminate: tapering gradually to a point

acute: with a sharp angle; ending in a point

adaxial: towards the axis

adherent: (well) attached or sticking

adventitious (branching): supplementary to the normal (branching) pattern

air bladder = aerocyst: air-filled vesicle in several brown algae

algal turf: short vegetation mats composed of several intricate seaweed species

alpha diversity: or local diversity, is the species diversity within a site

alternate-distichous: branches on two rows but the individual branches of both rows on different levels, not opposite to each other

anastomosing: locally (regularly or irregularly) united, resulting in a network

anastomosis: point of junction of two branches

annular: ring-like

anticlinal(ly): perpendicular to the surface or periphery of a structure

apex (apices): tip, summit

apical: at or near the summit

apiculate: with a short, abrupt point

arcuate: like an arch of a bridge, bent or curved like a bow

articulated: jointed; composed of stiff parts attached to each other by (more or less) flexible parts

ascending: basal part horizontally spread, apical part upwardly directed (= decumbent)

aseptate: without transverse walls

assimilator: in *Caulerpa* used as the upright frond

auriculate: with ear-like appendages

axis (axes): main stem or major branch (theoretically with infinite growth)

basipetal: from the apex downward toward the base

beta diversity: or species turnover, the change in species composition from site to site

bifurcate: divided into two branches; forked

bilocular: composed of two parts (cells, compartments or lobes)

bipinnate: with two opposite rows of branches which again bear two opposite rows of branchlets

blade: a relatively broad, thin part of the thallus; leaf-like (or foliar) portion of an alga (sometimes also called lamina)

branch: main side structure on the axes (with limited growth)

branchlet: smaller side structure on the branches (with limited growth)

bulbous holdfast: rhizoids getting densely intricated and holding large amounts of sand, resulting in (sub-)cylindrical structures submerged in the sand

bullose: markedly inflated

bushy: densely branched, forming small bushes

caducous: falling off easily

caespitose: forming a dense, short turf; matted

calcareous: with obvious calcification

capitate: having a globular or spherical apical part

carpogonial branch: the short, specialised branch bearing the female reproductive cell (carpogonium) in red algae

carpogonium: female reproductive cell, egg cell in red algae

carposporangium: sporangia producing diploid carpospores, developed after the fertilisation of the carpogonium in red algae

carpospore: diploid spore formed in carposporangia, by the carposporophyte

carposporophyte: the diploid generation developing on the female gametophyte after fertilisation of a carpogonium and producing diploid carpospores

cartilaginous: firm, tough but flexible

cauline leaves: blade-like structures in juveniles, or on stolons and the basal portion of the stipe of fully grown specimens of *Sargassum* spp. and *Turbinaria* spp. They (mostly) have a different morphology than the 'adult' leaves

cerebriform: in the shape of brains

cervicorn: resembling the antlers of a deer; dichotomous branching where repeatedly one branch of the dichotomy is less developed on the same side of the main axis which can become recurved

circalittoral: continuously submerged part of the coastal zone, from the lower limit of seagrass development down to the lower limit of seaweed growth

classification: delimitation of natural groups of organisms (taxa) which are placed in a category of a hierarchic system (species, genus, family, order, class, division)

clavate: club-shaped

coenocytic: possessing a cell or a filament without septa between the numerous nuclei

complanate: strongly flattened (with parallel sides in transverse section)

complanate branching: branching in a single plane

compressed: slightly flattened (oval in transverse section)

conceptacle: a hollow structure or a cavity enclosing reproductive structures

conduplicate: folded together lengthwise

constriction: contraction, narrower part

contiguous: touching, adjoining, neighbouring

contorted: sinuous, with numerous bends

convolute: twisted and rolled up longitudinally

coralline (alga): calcified red alga

corrugated: undulated

cortex: outer tissue layers of algae

crenate: margin with shallow, rounded or blunt teeth

crenulate: (margin) provided with small teeth

cruciate (division): with transverse walls perpendicular to each other; in the same plane, resulting in a cross-like appearance

crustose: forming a crust

cryptic diversity: organisms with a similar morphology appear to belong to different taxa, based on their DNA-information

cryptic species: different species on a molecular basis, but morphologically and anatomically (almost) indistinguishable

cuneate: wedge-shaped; broad at one end, tapering by nearly straight lines to the tip

cylindrical: circular in transverse section

cystocarp: the complex structure resulting from fertilization in red algae, composed of the internal gonimoblast and the enveloping sterile involucre branches or the pericarp

cystolith: an isolated calcified cell

deciduous: falling off easily; not permanent

decumbent: lying flat and loose on the substratum, with an upright apical part (= ascendent; ≠ prostrate: flat and well attached)

decussate division: a sporangium with alternating pairs of sporangia, crossing at right angles to the next pair above or below

dentate: toothed, with rather large, sharp teeth directed outwards (\neq crenate: blunt teeth)

determinate (lateral, - branch): lateral or branch with a limited growth, fixed in length

diagnosis: description of a new species in Latin (mainly including which are the characters of this species, distinguishing it from other species of the same genus)

dichotomous: forked into two similar parts as a result of the equal division of the apex

digitate: branching like the fingers on a hand, with numerous branches radiating from the same point

dioecious: unisexual; male and female reproductive structures produced on separate individuals

diploid: with two homologous sets of chromosomes in each nucleus ($2n$)

discoid: having the form of a disc, being flat and circular

distal: away from the place of attachment; towards the apex

distichous: on two opposite rows and therefore in one plane; the branchlets of both rows can then either be opposite or alternate

distromatic: having two cell layers

divaricate: branching at wide angles, widely divergent

emarginated: shallowly notched (generally at the apex)

encrusting: forming a crust

endemic: a species only occurring in a single region

endogenous: originating from the internal part of the thallus, not from the surface

entire: with a smooth margin

epilithic: growing attached to rocks and stones (including corals)

epiphytic: growing on another plant (seaweed, seagrass, mangrove), but not as a parasite

epipsammic: growing on sand

epithet: last part of a scientific name of a species, of a variety and of a forma

epizoic: growing on animals (barnacles, shells of gastropods, ...)

eradication: uprooting

erect: upright

estipitate: without a stipe, sessile

eulittoral: see intertidal

euryhaline: tolerant of changing salinity

eurionic: tolerant of changing concentrations in ions

eurytherm: tolerant of changing temperatures

exsiccata: a set of dried specimens, usually provided with printed labels

falcate: branch system curved like a sickle

fasciculate: arranged in small clusters or bundles

fastigate: with numerous branches spreading from a compactly clustered point of origin; when the branches are parallel and all point upward

felt: densely intricated mass of thin filaments

fertile: being or containing a reproductive structure

fibrous: consisting of structures resembling fibers (holdfast)

filamentous: thin, elegant, supple threadlike structure composed of a single or a few rows of cells

filiform: thread-like

flabellate: fan-shaped

labellum: fan-shaped part of the thallus

foliose: leaf-like

forcipate: markedly incurved, like a forceps or pincers

fragmentation: some branches break off from the mother plant, stay alive, attach to the substratum and go on growing to new plants

frond: erect (upright), mostly compressed part of an alga

fusiform: spindle-shaped, thicker centrally and tapering to both ends

gametangium (-angia): structure from or in which the gametes (sexual reproductive cells) are formed

gamete: a sexual reproductive cell having the haploid number of chromosomes, e.g. a sperm or an egg cell

gametophyte: the gamete-producing phase of a plant

gamma diversity: or regional diversity, is the diversity of a landscape, or of all sites combined

ganglionic cell: a darkly staining cell in certain red algae (e.g. *Halymenia*, *Cryptonemia*) characterized by a central swelling and long and slender arms

gelatinous: with large amounts of jelly, gluey

geniculum (-ula): the uncalcified joint(s) between segments (intergenicula) of coralline algae

glabrous: smooth, containing no hairs or projections

gland cell: a small cell with highly refractive content in red algae

globose: (sub-)spherical, rounded

gonimoblast: diploid structure, developed after fertilization of the carpogonium, composed of branched filaments producing carposporangia

gregarious: growing in groups; clustered

haploid: with only one set of chromosomes in each nucleus (n)

hapters: branched, multicellular attachment structures

heteromorphic: with a different morphology, often used with regard to gametophytic and sporophytic phases in a life cycle

hirsute: covered with stiff, long, straight hairs

holdfast: basal attachment structure

holocarp: when the entire cytoplasmic content of a thallus is being transformed in gametes

holotype: the single specimen on which an author based the description of a new taxon

hue: tinge, colour

hyaline: colourless, transparent

hydrophyte: plant growing (partly) submerged in water

incurved: bent towards the main axis

indeterminate (- lateral, - branch): lateral or branch with a (theoretically) unlimited growth

infralittoral: subtidal

infralittoral fringe: coastal zone between mean and spring low tide levels

infraspecific epithet: scientific name for a variety or a forma

intercalary: between the basis and the apex

interdichotomy: part of the thallus between two dichotomies

intergeniculum (-ula): the calcified segments of articulated coralline algae; parts between the uncalcified joints

internodium: part of a stem or rhizome between 2 nodes

intertidal: the coastal zone between mean high and mean low tide levels

involute (involucrum): radially arranged and generally incurved filaments surrounding reproductive structures in red algae

iridescence: glowing or shining; reflecting an interplay or rainbow-like colours as when seen from different angles

isodiametric: with (approximately) equal dimensions in two or more directions

isomorphic: with the same (or similar) morphology; often used with regard to gametophytic and sporophytic phases in a life cycle

isotype: duplicate specimen of the holotype

juvenile: young specimen

lacerate: irregularly divided by deep incisions

lateral (adj.): on the side of

lateral (subst.): a side axis or side branch

leathery: tough, but still flexible

lectotype: a specimen or illustration designated from the original material as the nomenclatural type if no holotype was indicated at the time of publication, or if it is missing, or if it is found to belong to more than one taxon

lenticular: looking like a lens, double convex

ligulate: strap-shaped, relatively broad when compared to its length

linear: narrow, with parallel sides and several times longer than broad, like a grass-leaf

lobed: with rounded (fan-shaped) parts or margins

lubricous: smooth and slippery

lumen: central cavity in a cell or a thallus

macroalgae: algae visible with the naked eye, as opposed to microalgae for which a microscope is needed for their observation

maculate: speckled, spotted, with darker or lighter dots on a lighter versus darker background

mangrove: evergreen forest growing in the upper intertidal in estuaries or coastal zones

medulla: inner tissue, the central region of the thallus, internal to the cortex; the pith

meiosis: nuclear division by which the number of sets of chromosomes is reduced from two ($2n$) to one (n)

membranous: (membranaceous), forming a thin blade or membrane

midrib: a central, longitudinal thicker part of a (mostly strap-like) blade

moniliform: resembling a string of beads

monoecious: bisexual; male and female reproductive structures produced on a single individual

monosiphonous: composed of a single tubular structure

monospecific: composed of a single species

monostromatic: composed of a single layer of cells

morphology: form

mucronate: abruptly ending in a short, stiff point

multinucleate: with numerous nuclei

muricate: rough, provided with short and hard tubercles

nemathecium (-cia): an elevation on the thallus surface containing reproductive structures

node: place of the axes where laterals or branches arise; in *Ceramium*: where the pericentral cells are placed around the central axis

nomenclature: giving a name to an organism; this happens according to rules which have been internationally recognized. For Algae the International Code of Botanical Nomenclature applies

notched: with marginal indentations (angular cuts)

opposite: a type of branching in which there are two structures (branchlets) at the same level

orbicular: circular and flat

ostiolum: a narrow pore-like opening (in a reproductive structure as e.g. a conceptacle)

ovoid: egg-shaped in outline

palmate: divided in the manner of an outspread hand

parasite: an organism that lives and grows at the expense of a host organism

paraphyse: sterile filament between or around reproductive cells

pectinate: with closely packed side branchlets on one side, like the teeth of a comb

pedicel: short stalk

pedicellate: provided with a short stalk

peg-like: like a pin, a nail

peltate: umbrella-shaped, horizontal disc with a perpendicular stalk attached at the center

pendulous: hanging down from a vertical wall or an overhang

penicillate: like an artist's paint brush

penultimate: before last

percurrent: extending through the entire length

perforated: presenting holes

periaxial cell: a cell cut off from an axial cell but shorter and orientated obliquely or at right angles to it (e.g. *Ceramium*)

pericarp: a sterile envelope surrounding the gonimoblast in a cystocarp

pericentral cell: a cell cut off from an axial cell and remaining similar in size and orientation to it (e.g. *Polysiphonia*, *Dasya*)

perithallus: the upper layer of tissue of a crustose alga

phaeophycean hair: a filament (without phaeoplasts) of uniseriate cells developing from a basal meristem

phorophyte: plant that carries epiphytes

phycobilins: water soluble, accessory pigments in the red algae, mainly phycoerythrin (red) and phycocyanin (blue)

phycologist: scientist studying macroalgae (as opposed to protistologist, studying microalgae)

phycology: the study of macroalgae (as opposed to protistology, the study of microalgae)

pinna(e): a compressed to complanate side branch

pinnate: feather-like, with a main axis and branchlets on two opposite rows in one plane

pinnule: a lateral (branchlet) of a pinnate branch

pitted: provided with small depressions

plastid: cell organelle in which photosynthesis takes place

plumose: like a plume, feather-like

pluricellular: composed of several cells

plurilocular: many-celled, each cell containing a single spore

pneumatophore: a (mangrove) root growing vertically and upwardly

polychotomous: dividing in several (sub)equal parts from a single point

polygonal: a plane geometric figure with numerous sides

polyphyletic: descended from several, unrelated ancestors

polysiphonous: axes composed of a central axis surrounded by a series (at least 3) pericentral cells (eventually covered by a cortex), visible on a transverse section. In surface view, those algae without a cortex, seem to be composed of several, closely packed filaments ('siphons')

primitive plant body: with a relatively simple structure

procumbent: horizontally spread over the substratum but only attached at the basis

prokaryotic: organism lacking a nuclear membrane around the chromosomes