

Cladidium Hafellner
(LECANORALES)

After Ryan, 1989

Rev. 5/94

Asci with broad axial mass. Thallus papillate to dwarf fruticose, not differentiated into layers; inside composed throughout of areas of dense, strongly conglutinated hyphae and hyphal bundles, alternating with areas of looser tissue containing algae; surface strongly palespotted, brownish (Chem.: usually usnic acids, with or without unknowns). Apothecia mostly terminal; discs pruinose. On rocks at the coast.

C. bolanderi (Tuck.) Ryan

THALLUS dwarf fruticose, caespitose, starting as small granules or verrucae; in the typical and most widespread form, becoming loosely tufted, much branched \pm dichotomously, the branches erect (or decumbent towards thallus margin), forming irregularly rounded "sods" (to 210 cm across) which are continuous to fissured and have an uneven surface; in "C. thamnitidis" form, branches densely crowded, mostly erect and similar in height, giving patches a more even surface; forming either extensive crustlike mats without definite margin, or discrete hemispherical to irregular peltate clumps 515 mm diam., with branches radiating from a central main trunk, attached to rock by a single irregular area 14 mm wide; **branches** terete, to irregularly compressed near thallus margin (or terete throughout in "C. thamnitidis"), 510(15) mm long, irregularly thickened (0.51 mm); tips papilliform (usually scarcely widened, 2550 per square cm, narrower and up to 100200 per square cm in "C. thamnitidis"); **surface** mostly light to dark grayish olive or grayish greenish yellow, with irregularly shaped pale whitish or yellowish areas (pseudocyphellae or maculae in a broad sense), especially toward lobe tips (in "C. thamnitidis", mainly the strongly whitened branch tips are visible from above), little changed when wet; matt, continuous and \pm even, not verrucose or granular, but pale spots often slightly raised and roughened; without vegetative propagules; undersides and basal parts mostly pale yellowish green, pale to moderate yellow to moderate orangeyellow or moderate yellowish brown, without pale spots; in old herbarium, turning moderate orange to various shades of brown or yellowish brown, paler below, darker and more grayish towards base; **consistency** cartilaginous, brittle but not crumbly; **internal anatomy** composed of irregular areas of

dense medullary tissues, alternating with loose tissues containing aglae; with network of irregular elongated areas appearing opaque due to yellowish granules (insoluble in K), partly associated with algae; **cortex** true (without empty algal cells), continuous, ca. 2545 um thick, inspersed towards outside with yellowish granules (partly soluble in K); hyphae mostly anticlinal, otherwise similar to those of medulla; epinecral layer 23 um thick; **photobiont** trebouxoid, 7.510(15) um diam., arranged in irregular, often radially elongated clumps in areas of optimal light, occurring within areas of loosely arranged tissue with gaps in it (aerenchyma), which consist of hyaline, thinwalled hyphae (ca. 2 um diam.) and penetrate to the surface as pseudocyphellae; **medulla** prosoplectenchymatous (scleroplectenchymatous); hyphae densely interwoven and agglutinated, irregularly thick walled, ca. 2 um diam., with indistinct outer boundaries, nongranular yelloworange wall pigmentation, and distinct lumina.

APOTHECIA usually common, 0.54 mm diam., terminal or subterminal, sessile to somewhat constricted at base (in "C. thamnitidis" appearing to be partly immersed within thallus patch); **disc** concave to plane, usually yellowish to whitish or grayish pruinose (at least when young), mostly various shades of yellow or yellowish brown under pruina, little changed when wet, sometimes turning blackish or reddish due to parasites; **thalline margin** usually swollen (to 0.5 mm thick), entire or (especially in "C. thamnitidis") becoming crenate and irregularly lobed; even with disc or somewhat raised and inflexed when young, persistent, concolorous with upper parts of thallus, usually strongly palespotted and somewhat roughened above; proper margin not visible; **internal structure** "thamnitidisTyp" of Eigler; **amphithecium** similar in structure to the thallus; cortex ca. 50 um thick; **algal layer** present in margin and below hypothecium, to 65 um thick, divided into clumps of algal cells; **true exciple** 2590 um thick, of parallel hyphae; **hypothecium** to 500 um thick, of agglutinated hyphae with threadlike lumina, randomly oriented to mostly anticlinal, colorless to yelloworange, not inspersed; **subhymenium** ca. 50 um thick, colorless; **hymenium** (50)7090(100) um high, colorless, not inspersed; **epihymenium** pale; epipsamma 1020 um thick, mostly superficial, composed of yellowish granules (partly soluble in K); **paraphyses** "atryneaTyp" of Eigler, somewhat loosely coherent, not strongly gelatinized; simple to furcate, septate, 11.5 um thick; apical cells only slightly thickened (to 22.5 um), colorless, thinwalled; **asci** clavate to subcylindrical, ca. 50 x 812 um; outer wall layer and gelatin strongly amyloid; tips with amyloid ring, with axial mass very broad toward the outside and appearing almost nonamyloid; **spores**

ellipsoid to oblongellipsoid or ovoidellipsoid (L:W = 1.52.5:1), mostly (8)1014(16) x 56(8) um, moderately thinwalled, mostly uniseriate, 8 per ascus, simple, hyaline, usually with one or two oil drops.

SPERMOGONIA present on or near tips of branches, completely immersed; ostiole pale; cavity 150200 um diam.; wall hyaline; **spermatia** threadlike, curved, (12)1525 um long.

SPOT TESTS AND CHEMISTRY: Cortex C, partly K+ yellow, KC+ yellowish, P, N; medulla C0, K, KC, P, N, I; discs C, K, P. Containing usnic or isousnic acid (occasionally both), usually with several unknown (probably phenolic) substances in almost all possible combinations (typical morph variable, often containing isousnic acid and unknown CBL2; "C. thamnitidis" morph usually contains usnic acid and unknown CBL1).

DISTRIBUTION AND ECOLOGY: On seashore rocks, central coast of California to southernmost Oregon.

Ryan, B. 1989. The genus Cladidium. Mycotaxon.