

## Finnish records of discomycetes: *Cudoniella viridula* and a new species of *Orbiliaster*

SEPPÖ HUHTINEN

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*Cudoniella viridula* Grelet, formerly known only from the type collection from France, has been re-collected and an emended description is given. Study of the holotype showed that the type contains no mature apothecia. A potential earlier name, *Helotium proximellum* P. Karst. is best treated as a nomen dubium. A new species, *Orbiliaster paradoxa*, is described. The type of the genus *Orbiliaster* Dennis, *O. pilosa*, is re-examined and the description emended.

Key words: Ascomycetes, *Cudoniella viridula*, Finland, *Orbiliaster*, taxonomy

Seppo Huhtinen, Department of Biology, University of Turku, SF-20500 Turku, Finland

The two rarities (Ascomycetes: Leotiales) treated in this paper were collected in SW Finland. Neither the substrates nor the sites were in any way special, but the inconspicuousness of these fungi may explain the minimal amount of collections. The descriptions given below are based on dead herbarium specimens and unfortunately do not meet the recommendation that observations be made on living material (Huhtinen 1990, Baral 1992). The character combinations, however, are remarkable enough to allow recognition based on dead herbarium material alone. The colours are given according to the code of Cailleux (1981). The reagents and colour reactions are abbreviated according to Huhtinen (1990).

### *Cudoniella viridula* Grelet

— Fig. 1

Material studied: Finland. *Satakunta*: Punkalaidun, Vanttila, grid 27°E 6790:282, on cortex of *Pinus*, 12.XI.1983 Huhtinen 83/415 (TUR). — France. *Loir-et-Cher*: Mesland, La Touche, I. 1933 Buisson (PC, holotype).

Apothecia stipitate-turbinate with a long stalk, hymenium strongly convex, up to 300  $\mu\text{m}$  in diam; margin deflexed, sharply delimited but not incurved, even to minutely uneven, rarely lobate. Stipe 200–500  $\mu\text{m}$  long, 30–50  $\mu\text{m}$  wide when dry, equal, smooth, irregularly bent when dry, slightly widened at the

extreme base. In fresh material colour first whitish, turning clearly green with age; when dry even juvenile apothecia faintly greenish in all parts, mature apothecia olivaceous throughout (T87, N87), more rarely disc Buff (N80).

Ectal excipulum of textura prismatica, cells on middle flanks elongated, 13–28  $\times$  4–6  $\mu\text{m}$ ,  $\bar{x}$  = 17.4  $\times$  4.8  $\mu\text{m}$  ( $n$  = 20),  $\bar{Q}$  = 3.6, prismatic towards margin. Inner excipulum of similar to slightly narrower textura prismatica. Walls in ectal parts 0.4  $\mu\text{m}$  thick, CB–, MLZ–, fragmentarily with deep amyloid inclusions; these concentrated to stipe base, becoming sparser upwards. Margin composed of cylindrical hyphal ends, 11–16  $\times$  2.5–3.0  $\mu\text{m}$ . In 10% KOH excipular cells characterized by dull, roundish vacuoles, in MLZ these mostly disappear, a few being left as golden inclusions.

Asci 16–23  $\times$  3.2–4.0  $\mu\text{m}$ ,  $\bar{x}$  = 20.2  $\times$  3.6  $\mu\text{m}$  ( $n$  = 20),  $\bar{Q}$  = 5.7 in CB, eight-spored, cylindrical-clavate, with a conical apex. Apical pore moderately MLZ+. Asci arising from croziers. Some ascial bases rarely with strongly amyloid inclusions, similar to those in the excipulum, fragments of amyloid matter present in subhymenium also.

Spores 4.0–6.2  $\times$  1.2–1.8  $\mu\text{m}$ ,  $\bar{x}$  = 4.8  $\times$  1.3  $\mu\text{m}$  ( $n$  = 20),  $\bar{Q}$  = 3.6 in CB, cuneiform, aseptate, with two minute guttulae in CB, these highly refractive in 10% KOH, spores appearing aguttulate in MLZ.

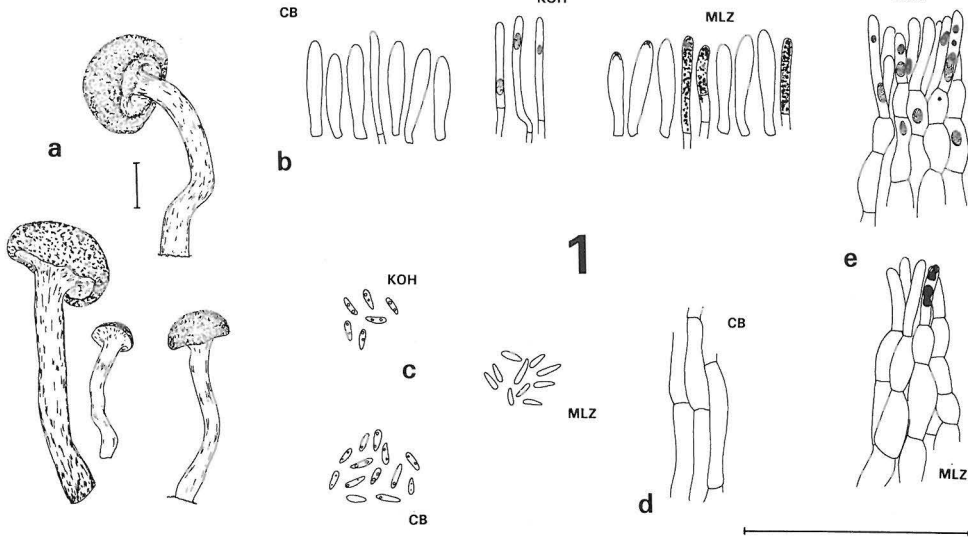


Fig. 1. *Cudoniella viridula*. a) dry apothecia, b) asci and paraphyses, c) spores, d) ectal excipulum from middle flanks, e) margin. Scale 50  $\mu\text{m}$ , for apothecia 100  $\mu\text{m}$ . Specimen S. Huhtinen 83/415.

Paraphyses cylindrical to apically slightly widened, 1.8–2.6  $\mu\text{m}$  wide, containing dull vacuoles in KOH similar to those in the excipulum, in MLZ ca. 1/3 of the paraphyses with distorted, golden yellow contents, strongly cyanophilous and distorted in CB, the contents once strongly amyloid in MLZ.

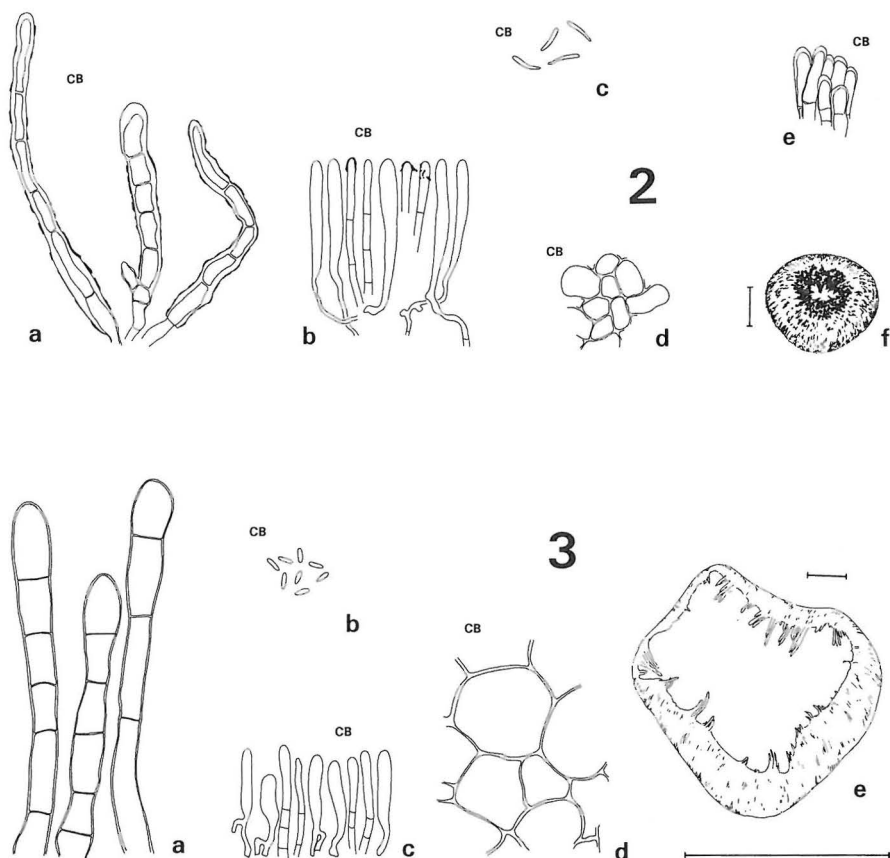
The original description of *Cudoniella viridula* (Grelet 1947) matches the present material almost perfectly. The only notable differences are the somewhat stouter apothecia in Grelet's material and the budding of ascospores specifically mentioned and depicted by him. Study of the holotype specimen showed that the type consists of only one, very juvenile apothecium. This was left unmounted. As the type is not empty, *C. viridula* is not neotypified. The new, abundant collection thus allows only an emended description of the species.

The original description of *Helotium proximellum* P. Karst. matches the present material rather well. A convex hymenium, short stipe and white to greenish-olivaceous colours were among the macroscopic characters given by Karsten. A major difference is seen in the ecology: Karsten (1871) gave pine needles as substrate. No original material exists under that name in Karsten's herbarium (in H). There are, however, two collections which possibly belong to those cited by Karsten (1871). The collection data and ecology fit the original diagnosis well. Karsten labelled both specimens *Peziza tenerrima* Fr., a name which he listed under the synonymy of *Helotium acuum* (Alb. & Schw.: Fr.) Fr. One convolute is

empty, but Karsten has depicted a *Cudoniella*-like fungus on the front cover. The stipe is shown as fairly long, which is in contrast to the original diagnosis of *Helotium proximellum*.

The other convolute (Herb. Karsten 2808) bears a sketch of a cup-shaped, sessile discomycete accompanied by the words "albida vel hyalino alba". Dr. W.-R. Arendholz has determined the collection as *Dasyscyphus acuum* (Alb. & Schw.: Fr.) Sacc., and this is apparently the species depicted and observed by Karsten. Thus, neither collection can with certainty be linked to *H. proximellum*, which is best considered a dubious name. Basing his opinion on the description, Carpenter (1981) suggested that the species belongs to *Hymenoscyphus* S. F. Gray. *Peziza tenerrima* sensu Karsten embraced two clearly different taxa.

Clements and Shear (1931) lectotypified *Cudoniella* with *C. acicularis* (Bull.: Fr.) Schroet., but, as pointed out by Dennis (1963), this had been done by Boudier (1907). Cannon et al. (1985) write of the genus "type not designated". The present day concept of the type species embraces a fungus resembling Grelet's species in the apothecia, excipular structure, marginal structure and spore shape. The differences are found in the volume of the hymenial characters and in the presence of vacuolar pigment in *C. viridula*. This substance, which in CB and MLZ mounts is seen as totally distorted globules, looks similar to the yellow pigment of *Phialina*, becoming golden yellow in MLZ. In 10% KOH these vacuoles were seen as



Figs. 2–3. Holotypes of *Orbiliaster*, scale 50  $\mu\text{m}$ , for apothecia 100  $\mu\text{m}$ . — 2: *O. paradoxa*. a) marginal hairs, b) asci and paraphyses, c) spores, d) ectal excipulum from middle flanks, e) margin, f) dry apothecium. — 3: *O. pilosa*. a) marginal hairs, b) spores, c) asci and paraphyses, d) ectal excipulum from middle flanks, e) dry apothecium.

faintly refringent but more regular in shape. Such vacuoles were termed refractive vacuoles by Baral (1989), who emphasized that, although constant and frequent in living material, they are partly lost in herbarium material. Consequently, fresh material of *C. viridula* is likely to differ markedly in the contents of the paraphyses and marginal hyphal ends.

The spores are regularly guttulate in CB mounts, whereas in MLZ they appear totally aguttulate. In 10% KOH they mostly contain two clearly refringent bodies. These are much more easily observed in this mountant than the larger vacuoles in the paraphyses and at the margin.

The Finnish collection was made from an erect, partly dried conifer trunk fairly late in the season. In spite of repeated frosts the apothecia were growing undamaged under the loose cortex.

### *Orbiliaster paradoxa* sp. nov. — Fig. 2

Apothecia cupulata, sessilia, in statu vivo usque ad 1 mm in diametro, minute pilosa, rosea; specimina exsiccata usque ad 0.7 mm in diametro, ochracea vel armeniaca, margine albopilosa. Excipulum externum textura angulari vel textura globulosa, instructum cellulis circa 6–11  $\times$  4–7  $\mu\text{m}$ , aliquantum crassotunicatis, hyalinis, non amyloideis. Pili 40–85  $\times$  3.5–7.0  $\mu\text{m}$ , cylindracei vel irregulariter constricti, crassotunicati, multiseptati, hyalini, in iodo non colorati, leves vel minuter granulosis; granulis cyanophilis. Asci 30–50  $\times$  2.5–4.0  $\mu\text{m}$ , octospori, non amyloidei, in basi valde elongati, saepe bifurcati. Sporae 7–9  $\times$  1  $\mu\text{m}$ , tenuiter aciculares vel subfusoidae, aseptatae. Paraphyses cylindraceae vel subclavatae, 2  $\mu\text{m}$  latae, cellulis terminalibus 11–25  $\mu\text{m}$  longis, in apice epithecio hyalino, fragmentato, cyanophilis tectae.

Holotype: Finland. *Varsinais-Suomi*: Parainen, Skräbböle, grid 27°E 66955:2394, on inner side of cortex of *Populus tremula* or *Salix*, 19.X.1985 Huhtinen 85/157 (TUR 99719).

Apothecia cupulate, sessile, up to 1 mm in diam, pink, margin minutely hairy. Ectal excipulum composed of *textura angularis*–*textura globulosa*, lacking clear intracellular spaces, walls slightly thickened, cells ca. 6–11 × 4–7 µm, hyaline. Hairs 40–85 × 3.5–7.0 µm, cylindrical, typically slightly constricted at the septa, multiseptate, often glued together; wall hyaline, MLZ-, CB- but covered with a fragmentary cyanophilous layer forming irregular, low warts. Asci 30–50 × 2.5–4.0 µm, eight-spored, apex MLZ-, base very long, filiform, often bifurcate.

Spores 7–9 × 1 µm, cuneiform, aseptate. Paraphyses cylindrical to subclavate, 2 µm wide, terminal cells 11–25 µm long, often apically covered with amorphous, CB+ material.

The genus *Orbiliaster* was erected by Dennis (1954) to accommodate one tropical species with a resemblance to *Orbilina* Fr. but with cylindrical paraphyses and clear hairs at the cup margin. Since the type was collected, little has happened in the genus: no new taxa have been described or transfers to the genus proposed.

Recently Spooner (1987) discussed *Orbiliaster* and suggested, without being able to study the type, that *Patinella tenebricosa* Svrček could belong to the genus (Svrček 1977). Unfortunately the type was still unavailable for study, but judging from the description, *P. tenebricosa* may indeed belong to *Orbiliaster*. The hairs were, however, illustrated as thin-walled, clavate and one-celled. Other differences are found in the apothecial colours, which in *P. tenebricosa* are dark violaceous, whereas the two known species of *Orbiliaster* have much lighter pigmentation. Seen under the microscope, the excipular cells and hairs were stated to be hyaline to pale brown, whereas in *O. pilosa* and *O. paradoxa* they are hyaline.

Study of the type of the genus (*Orbiliaster pilosa* Dennis; Trinidad, River Estate, Diego Martin, 22.IX.1949 Dennis 30; K, holotype) resulted in some emendations to Dennis' description (Fig. 3). The paraphyses were found to be clearly wider than those depicted by Dennis. The asci measure 18–26 × 3.0–3.6 µm and are MLZ-. They often arise from a clearly bifurcate base.

Although occurring far apart geographically, *O. pilosa* and *O. paradoxa* are similar and clearly congeneric. The cyanophilous hair wall coating is also seen in the former species, but only in juvenile hairs.

It apparently disintegrates fairly soon and finally disappears. However, mature hairs were studied only on an old mount attached to the type specimen. No epithecium was observed in *O. pilosa*.

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