



Tubeufia cerea. A, ascospores; bar = 10 μm . B, cells and setae on outer surface of ascoma; bar = 20 μm . C, asci; bar = 20 μm .

Tubeufia cerea (Berk. & Curtis) Höhnelt, *Sitz. Kaiserl. Akad. Wiss. Wien Mat-nat. Kl., Abt 1*, **128**: 562 (1919).

Sphaeria cerea Berk. & Curtis, *Grevillea* **4**: 108 (1876).

Calonectria cerea (Berk. & Curtis) Sacc., *Syll. Fung.* **2**: 551 (1883).

Dialonectria cerea (Berk. & Curtis) Cooke, *Grevillea* **12**: 111 (1884).

Ophionectria cerea (Berk. & Curtis) Ell. & Everh., *North American Pyrenomycetes*: 118 (1892).

Helicosporium virescens (Pers.) Sivan., *Bitunicate Ascomycetes*: 591 (1984) [anamorph].

Dematium virescens Pers., *Römers Neues Mag. Bot.* **1**: 121 (1794).

Helicosporium vegetum Nees, *Syst. Pilze Schwämme*: 68 (1817).

Visible initially as conspicuous mats of yellow-green felty mycelium on the surface of effete wood-inhabiting ascomycetes, from which conidiophores are formed, and later as scattered superficial rugose yellowish-brown ascomata, with the superficial mycelium largely degraded.

Anamorph: conidiophores 180-400 μm in length, 4-5 μm diam at the base, dark brown and thick-walled, paler at the apex, erect, the upper part sterile. Conidiogenous cells hardly modified morphologically from lower cells of the conidiophore, proliferation absent or sympodial with 1(-3) fertile loci. Conidia formed from small lateral denticles, 1-2 μm diam, helically coiled 2-3 times in one plane with a diameter of 10-20 μm , with 4-6 indistinct septa, appearing hyaline individually but yellow-green in mass, smooth, thin-walled.

Teleomorph: ascostromata 140-230 µm diam, perithecial, unilocular, globose to obpyriform with a constricted base, superficial, covered with a bright yellow-brown scurfy layer which often degenerates so that overmature ascostromata appear almost black, the periphysate ostiole minutely papillate and visible as a dark brown dot. *Ascomatal wall* composed of an outer layer of thin-walled yellow *textura globulosa* with cells to 12 µm diam, rarely with a few short golden brown setae, a principal wall layer of thick-walled yellow-brown *textura angularis* with cells to 9 µm diam, and an inner layer of thin-walled hyaline flattened cells. *Interascal tissue* of very thin-walled and rather irregular cellular pseudoparaphyses with filaments to 2.5 µm diam, sometimes degenerating by maturity of the asci. *Asci* 72-83 x 9-11 µm, cylindric-clavate with the apical portion sometimes slightly attenuated, short-stalked, thick-walled when young, fairly thick-walled when mature, fissitunicate, the apex obtuse to rounded with and inconspicuous ocular chamber, 8-spored. *Ascospores* arranged fasciculately, 39-47 x 2.5-4 µm, fusiform to filiform, widest slightly above the mid-point and tapering smoothly to the acute apices, 7- to 10-septate, not constricted at the septa, the primary septum not distinguishable morphologically, often strongly guttulate, hyaline, smooth- and thin-walled, without a gelatinous sheath or appendages.

HOSTS: developing on effete stromata of bark-inhabiting ascomycetes, especially members of the *Diatrypaceae*, probably also obtaining nutrition from the bark tissues.

DISEASE: probably none, the fungus living saprobially on dead fungal tissues for at least most of its life cycle. No detailed studies of its biology in nature have been carried out.

GEOGRAPHICAL DISTRIBUTION: widely distributed in the north temperate zone with a few records from the tropics. Recorded from Austria, Belgium, Canada, Guyana, India, Netherlands, Portugal, Russia, UK, USA (Florida, Illinois, Iowa, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Vermont, Utah).

PHYSIOLOGIC SPECIALIZATION: nothing is known.

TRANSMISSION: the ascospores are presumably air-dispersed and the conidia transmitted via water-splash, but there is no experimental evidence to support these suppositions.

NOTES: The classification of *Tubeufia* remains uncertain despite recent monographs, and some names are of uncertain application. The presence of short setae on the ascomatal wall of some collections of *T. cerea* emphasizes similarities with members of section *Tubeufia*, especially *T. cylindrothecia* (Seaver) Höhnelt, but this species has white to pinkish rather than yellow-green superficial mycelium. Further synonyms of *T. cerea* are given in the references below.

The Tubeufiaceae is one of the few families of the Dothideales characterized by thin-walled brightly coloured ascostromata, and can therefore be confused with species of the Hypocreales. However, ascomatal form and ascus structure is quite different.

LITERATURE: Barr, *Mycotaxon* **12**: 137-167, 1980; Booth, *Mycol. Pap.* **94**, 1964; Goos, *Mycologia* **81**: 356-374, 1989; Hughes, *Can. Jour. Bot.* **36**: 727-836, 1958; Rossman, *Mycologia* **69**: 355-391, 1977; *Mycol. Pap.* **157**, 1987; Samuels, Rossman & Müller, *Sydowia* **31**: 180-193, 1979; Sivanesan, *Bitunicate Ascomycetes and their Anamorphs*, 1984.

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[Numbers in brackets, e.g. [62, 5055] refer to abstracts in Review of Plant Pathology

Issued by CABI Bioscience, Bakeham Lane, Egham, Surrey TW20 9TY, U.K.

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