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TAXONOMY AND NOMENCLATURE OF BISPORELLA CLAROFLAVA (LEOTIACEAE)

PAVEL LIZON & RICHARD P. KORF

Plant Pathology Herbarium, Cornell University
Ithaca, NY 14853.4203, USA
E-mail: PL18@cornell.edu & RPK1@cornell.edu

ABSTRACT

Examination of the type specimens have proved *Helotium citrinicolor* P. & H. Crouan, *Helotium discedens* P. Karst., and *Peziza claroflava* Grev. are conspecific. *Peziza claroflava* has priority for this Discomycete and its placement in the genus *Bisporella* is proposed.

KEYWORDS: *Helotium citrinicolor*, *H. discedens*, *H. pezizoideum*, *Peziza claro_ava*, *Bisporella claro_ava*, Leotiaceae.

HELOTIUM CITRINOCOLOR

Helotium citrinicolor was introduced by the Crouan brothers for a discomycete collected on twigs of *Rubus* in west France (Bretagne) with a "Réceptacle de 2 à 4 milim., sessile, couleur citron," (P. & H. Crouan, 1867). Later, the species was reported by Saccardo (1889), Boudier (1907), who transferred it to *Calycella*, and by Grelet (1947). All three have cited the specific name erroneously as '*citrinicolor*' and, since no additional data were presented, it is evident that they were not familiar with the fungus from their own experience. The only known recent record of *Helotium citrinicolor* was reported by Svrček (1962, as '*citrinicolor*') who collected the fungus in Nízke Tatry Mountains, Slovakia, in 1960. An investigation of the specimen at PRM by the senior author, while studying Slovak species of the genus *Hymenoscyphus* (Nees) S. F. Gray (Lizoň, 1992), has indicated that *Helotium citrinicolor* is clearly not a member of *Hymenoscyphus*.

Authentic material of *Helotium citrinocolor* P. & H. Crouan at CO includes 5 specimens. The “type” specimen of *Helotium citrinocolor* is a mixture of three collections, of which one apothecium, packed separately, was marked by Le Gal as lectotype. The collection on *Rubus* twig(s) “Sur ...de Ronce” (P. & H. Crouan, 1867) should be separated after recognizing the host and designated as a lectotype. Apothecia of the lectotype and other specimens of the Crouans’ collections are shallow cupulate, sessile, bright yellow, the disc is bright yellow to golden yellow, the receptacle is paler and naked. The excipulum is not clearly divided to ectal and medullary layers and is composed of thick-walled cells with gelatinized walls, forming a refractive tissue of interwoven to parallel hyphae. Ascospores are ellipsoid to fusoid, 0–1-septate, 7.0–8.0 x 2.0–2.5 μm and 8–11 x 2–2.5–3 μm according to Le Gal (1953), and paraphyses extend above the asci. A few hyaline phialides, up to 5 μm long, were observed by us on the outer surface of the receptacle.¹

The Slovak specimen of *Helotium citrinocolor* appears to be conspecific, and has golden yellow apothecia when dry, becoming straw yellow when rehydrated, 1–2 mm diam., sessile to subsessile. The ectal and medullary excipulum is composed of parallel to interwoven cells 5–11.5 μm long, with clearly gelatinized walls, elongated toward the margin. Asci are 56–81.5 x 5.3–7 μm , pore blue in Melzer’s reagent. Ascospores are ellipsoid, ellipso-clavate or inequilateral, nonseptate, 0–3-guttulate, (8.4–) 10.4–12.4 (–13.4) x (2.4–) 2.7–3.4 (–3.7) μm .

HELOTIUM DISCEDENS

Helotium discedens P. Karst. was described from a Brazilian collection on the bark of an unidentified broad-leaved tree. Carpenter considered *Helotium citrinocolor* synonymous with *Bisporella descendens* (P. Karst.) S. E. Carpenter judging by his notes on the type specimen of the former. We have examined a lectotype (designated by Carpenter, 1975) and another Karsten specimen at H and a specimen of *Bisporella discedens* collected in Puerto Rico (CUP-PR 4164) as identified by him and agree with his conclusion. We have not studied type specimens of *Niptera subiculata* Seaver or of *Trichopeziza aurea* Rick, and we accept

¹ All observations based on dry specimens.

Carpenter's decision (Carpenter, 1975) that they are synonymous with *Bisporella discedens*.

HELOTIUM PEZIZOIDEUM

We have studied the holotype of *Helotium pezizoideum* M. C. Cooke & W. Phillips which contains probably only one apothecium. It has similar characters to *Peziza claro_ava* but we have some reservations on the excipular structure and thus we report it as a synonym with a question mark.

PEZIZA CLAROFLAVA

The Crouans (on the type specimen label and on drawings at CO) annotated their new *Helotium citrinocolor* as "*Helotium claroflavum* Berk. Outlines?" and as "*Helotium claroflavum* (Grev.) Berk." Le Gal (1953) has pointed out that the name *Peziza claroflava* Grev. [= *Helotium claro_avum* (Grev.) Berk.] could have priority if the names are synonyms.

Greville's collections at E, labeled *Peziza claroflava*, consist of three specimens. The type specimen envelope includes two collections (syntypes), both from Braid Hermitage [near Edinburgh], one dated September 1821 and the other November 1821. Nannfeldt (1936) "saw what may be the specimen referred to by Masee, viz. in Cooke's handwriting: *Helotium claroflavum* – ex Grev." at K (which is a portion of one of the syntypes) and has noted "this specimen is typical young *Calycella citrina* (Hedw. ex Fr.)." Dennis (1956) examined probably the same "authentic material at Kew" of *Peziza claro_ava* and agreed with Nannfeldt's conclusion. Nannfeldt's (and Dennis') conclusion was followed by Cannon, Hawksworth & Sherwood-Pike (1985).

Greville did not designate the type (holotype) specimen in his collection at E and the collection at K is presumably (as noted on the label) a part of one of these specimens removed by M. C. Cooke: thus both the September and November portion of the type collection at E, as well as the portion of one of these at K are syntypes.² Since both at E are immature we designate the specimen at K, which possesses mature characters, as the lectotype.

² Art. 9.7 of the 1994 International Code of Botanical Nomenclature (ICBN).

The structure of the excipulum and other characters clearly show that all collections studied of *Helotium citrinocolor*, *Helotium discedens*, *Peziza claro_ava*, and probably also *Helotium pezizoideum*, are conspecific, and have to be placed in *Bisporrella*. The correct name for this fungus must be based on *Peziza claroflava*.

FORMAL TAXONOMY OF BISPORELLA CLAROFLAVA

Bisporrella clarflava (Grev.) Lizoň & Korf, comb. n.

≡ *Peziza claroflava*³ Grev., Fl. edin. p, 424, 1824 [basionym].

≡ *Helotium claro_avum* (Grev.) Berk., Outl. Brit. fungol. p. 372, 1860.

≡ *Calycella claro_ava* (Grev.) Boud., Hist. classific. discomyc. Europe p. 95, 1907 [“*caro_ava*”].

= *Helotium citrinocolor* P. & H. Crouan, Fl. Finistère p. 48, 1867.

≡ *Calycella citrinocolor* (P. & H. Crouan) Boud., Hist. classific. discomyc. Europe. p. 95, 1907 [“*citrinicolor*”].

= *Helotium discedens* P. Karst., Hedwigia 28:191, 1889.

≡ *Calycella discedens* (P, Karst.) Dennis, Kew Bull. 1954:320, 1954.

≡ *Bisporrella discedens* (P. Karst.) S. E. Carpenter, Mycotaxon 2:124, 1975.

= ? *Helotium pezizoideum* Cooke & W. Phillips, Grevillea 19:72, 1891.

= *Niptera subiculata* Seaver, Mycologia 16:8, 1924.

= *Trichopeziza aurea* Rick, Brotéria, Ser. Bot., 25:103, 1931.

Le Gal (1953) reported *H. citrinocolor* as a “connu et cosmopolite” species even though not reporting any out-of-France collections. Carpenter (1975) has reported several collections of *Bisporrella discedens* from the tropics and only one from temperate regions. Our present knowledge of the distribution of *Bisporrella claro_ava* includes in Europe: Belgium (Saccardo, 1889, as *Peziza claro_ava*), England, U. K. (Ramsbottom & Balfour-Browne, 1951, as *P. claro_ava*), France (P. & H. Crouan, 1867, as *Helotium citrinocolor*), Ireland (Muskett & Malone, 1983, as *P. claroflava*), Scotland, U. K. (Greville, 1824, as *P. claro_ava*), Slovakia (Svrček, 1962, as *H. citrinocolor*), Switzerland (Carpenter, 1975, as *Bisporrella discedens*); in the western Hemisphere: Bolivia (Dennis, 1959, as *Calycella discedens*), Brasil (Karsten, 1889, as *H. discedens*), Colombia, Dominica, Guadeloupe, Haiti, Puerto Rico,

³ Hyphen deleted according to Art. 60.9 of the 1994 ICBN.

Venezuela (Carpenter, 1975, as *B. discedens*), Cuba (Dennis, 1954, as *C. discedens*); in Asia: China (Korf & Zhuang, 1985, as *B. discedens*), Philippines (Carpenter, 1975, as *B. discedens*); in New Zealand (Dennis, 1961, as *C. discedens*, Carpenter, 1975, Johnston, 1988, as *B. discedens*); in South Africa (Saccardo, 1889, as *P. claroflava*).

As pointed out by Carpenter (1975) there is great variability in some characters, such as the coloration (white to bright yellow) and the shape of the apothecia (sessile to strongly stipitate). The species fruits on twigs of *Coprosma grandifolia*, *Corylus avellana*, *Muehlbeckia australis*, *Piper*, *Populus tremula*, *Prunus*, *Rubus*, *Salix*, *Ulmus*, palms and other unidentified species.

SPECIMENS EXAMINED: France, Sur ramule de ronce, février 1862, Sur ramule mort de prunellier, Avril 1862, Sur ramule mort de Saule, 26 Novembre 1863 (CO – “specimen I.” as designated by Le Gal, 1953, LECTOTYPE of *Helotium citrinocolor*); Sur ronces pourries, le 6 Mai 1865 (CO, *H. citrinocolor* – “specimen II.” as designated by Le Gal, 1953); Sur branche décortiquée et pourrie de tilleul à Coatodon, le 2, 9^{bre} 1868 (CO, *H. citrinocolor* – “specimen III.” as designated by Le Gal, 1953); le 12 février 1869, sur Orme (CO, *H. citrinocolor* – “specimen IV.” as designated by Le Gal, 1953); sur branches mortes décortiquées d’Orme, le 26 février 1869 (CO, *H. citrinocolor* – “specimen V.” as designated by Le Gal, 1953). Slovakia, Nízke Tatry: in valle rivi Trango_ska, *Rubus idaeus*, 1200–1500 m, 8.IX.1960, M. Svr_cek (PRM 614218, as *H. citrinicolor*). [Scotland, U. K.] [no data on the label] “ex Grev” (K – LECTOTYPE of *Peziza claro_ava*, M. C. Cooke collection); Braid Hermitage, Sept. 1821 (E, LECTOPARATYPE, or probably ISOTYPE of *P. claro_ava*); Braid Hermitage, Nov. 1821 (E, LECTOPARATYPE, or probably ISOTYPE of *P. claro_ava*); on Hazel, from A. Jerdon (E, as *P. claro_ava*); Appin, leg. Carmichael (E, as *P. claro_ava*). Brasilia, Minas Geraes, Sitio, 1885, E. Wainio (H – herb. P. Karsten 1268, LECTOTYPE of *Helotium discedens* designated by Carpenter, 1975); Brasilia, Minas Geraes, Sitio, E. Wainio (H – herb. P. Karsten 1267, ISOTYPE of *H. discedens*). Puerto Rico, On twig, Along Rio Nueve Pasos, Dr. Luis Roure’s property near Rosario, 140 m, 17.VI.1970, R. P. Korf & al. (CUP-PR 4164, as *Bisporrella discedens*). [New Zealand] Waitaki [on dead wood, amongst mosses]. (K – herb. M. C. Cooke 281, HOLOTYPE of *Helotium pezizoideum*).

RELATIONSHIPS WITHIN THE GENUS

Many species of *Bisporella* are associated with other fungi (Korf & Carpenter, 1974). Although there are several perithecia of *Nectria magnusiana* Rehm in the specimen of *Helotium clarflavum* collected by Carmichael (E), no connection between these two fungi has been found.

Carpenter (1975) has assigned the anamorph of *Bisporella discedens* to *Cystodendron* Bubák, but Johnston (1988) stated that it should be placed in the genus *Bloxamia* Berk. & Br. The junior author (unpublished data) studied anamorphs in several *Bisporella* species and also concluded that *Bloxamia* is the logical genus for them. We have observed similar phialides in specimens we studied determined as *Helotium citrinocolor* and *Bisporella discedens*.

Korf & Zhuang (1985) expressed doubt if *B. discedens* can be really distinguished from the common *Bisporella sulphurina* (Quélet) S. E. Carpenter. This species seems to be really closely related to *B. claro_ava* and it may be conspecific. Quélet's collections were partly destroyed (Gilbert, 1949) and also the type specimen of *Helotium sulphurinum* Quélet. is missing at PC (R. Cailleux, in litt.). Until a lectotype or neotype is chosen for Quélet's species, no conclusions can be made.

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