

Plicaria (Pezizales) in Britain, and Plicariella reinstated

B. M. SPOONER

Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AE, U. K.

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Species referred to *Plicaria* Fuckel in Britain are considered and a key provided for their identification. One of them, *Peziza radula* Berk. et Broome, the lectotype of *Plicariella* (Sacc.) Rehm, proves congeneric with *Peziza scabrosa* Cooke, the type of *Scabropezia* Dissing et Pfister. *Plicariella* (Sacc.) Rehm therefore provides an earlier name for *Scabropezia*.

Key words: Pezizaceae, *Plicaria*, *Plicariella*, *Scabropezia*, *Peziza radula*, *Peziza scabrosa*, British Isles.

Spooner B. M. (2001): *Plicaria* (Pezizales) v Británii a návrat k rodovému jménu *Plicariella*. – Czech Mycol. 52: 259–265

Hodnocení druhů řazených do rodu *Plicaria* Fuckel v Británii a návrh klíče na jejich určování. Jeden z těchto druhů, *Peziza radula* Berk. et Broome, lektotyp rodového jména *Plicariella* (Sacc.) Rehm byl zjištěn jako identický s *Peziza scabrosa* Cooke, což je typový druh rodového jména *Scabropezia* Dissing et Pfister. *Plicariella* je tudíž starším jménem pro *Scabropezia*.

INTRODUCTION

Recent and ongoing studies on British Pezizales have included an investigation of *Plicaria* Fuckel, to which four British species are currently referred (Cannon et al. 1985). *Plicaria* is closely related to *Peziza* Fr., having cupulate to discoid apothecia and amyloid asci which stain more intensely at the apex. In addition, a *Chromelosporium* anamorph is known for some species of both genera and some authors, following Korf (1961), have preferred not to separate them. However, as currently circumscribed, *Plicaria* is distinguished from *Peziza* by its globose, pigmented ascospores, less complex excipular structure, and adherent paraphyses (Dissing & Korf 1980; Dissing & Pfister 1981; Hirsch 1985). In addition, its constituent species have dark hymenial pigments and occur on burnt ground, although these characters are shared by some species of *Peziza*. A broader concept of *Plicaria* to include certain species with ellipsoid, ornamented, pigmented ascospores currently referred to *Peziza* was suggested by Moravec & Spooner (1988), and a similar conclusion was presented by Egger (1987) based on a study of extracellular tyrosinase as indicated by phenoloxidase tests. Further discussion on the delimitation of *Plicaria* is given by Rifai (1968) and Hirsch (1985).

Plicaria is also closely allied to *Scabropezia* Dissing & Pfister (Dissing & Pfister 1981) which is similar in having globose spores and amyloid asci but differs in ecology and in excipular structure. Species of *Scabropezia* are not associated with burnt ground, and the receptacle surface is unlike that of *Plicaria* in having conspicuous conical pustules composed of large, globose to angular cells (Dissing & Korf 1980; Dissing & Pfister 1981). Several other genera of Pezizaceae are also similar in having globose spore, and are reviewed by Dissing & Korf (1980). These include *Boudiera* Cooke, distinguished from the above most notably by its uniformly amyloid ascus wall, and by its small, pulvinate apothecia which occur on damp, unburnt ground. A key to distinguish these genera is given by Dissing & Pfister (1981). *Sphaerozone* Zobel, has indehiscent asci and subglobose to irregular, convoluted ascomata which are sub-hypogeous in development. Further discussion of this genus in Britain is given by Pegler et al. (1993).

Well over 100 names have been referred to *Plicaria*, though the majority of these do not belong in the genus as currently circumscribed, and others can be placed as synonyms. Only about ten species of *Plicaria* are currently recognised (Hawksworth et al., 1995).

Amongst the four species reported as British is *Plicaria radula* (Berk. & Broome) Boud., a little-known fungus that was described from England in 1846 and which has remained uncollected for almost 150 years. The species has been placed in *Plicaria* on account of its globose spores and amyloid asci but previous studies by Eckblad (1968), Dissing & Pfister (1981), and Hirsch (1985) have concluded that its true disposition is unclear. It was selected as lectotype of the genus *Plicariella* by Eckblad (1968) which he placed as a synonym of *Plicaria*. However, examination of the holotype and later collection of *P. radula* strongly suggests it is congeneric with *Peziza scabrosa* Cooke, the type of *Scabropezia* Dissing & Pfister. *Plicariella* therefore provides an earlier name for that genus.

A redescription and discussion of *P. radula* based on the holotype material preserved in K is presented here, and a combination in *Plicariella* for *Peziza scabrosa* is proposed. A comparative description of the genus *Plicaria* and a key for the identification of the three remaining British species are also provided.

***Plicariella* (Sacc.) Rehm in Rabenhorst, Krypt.-Fl. 1(3): 993 (1894)**

Lectotype: *Peziza radula* Berk. et Broome

Phaeopezia Sacc. subgen. *Plicariella* Sacc., Bot. Centralbl. 18: 218 (1884)

***Plicariella radula* (Berk. et Broome) Rehm in Rabenhorst, Krypt. Fl. Deutschland, Oesterreich und der Schweiz 1, 3: 997 (1894)**

Peziza radula Berk. et Broome, Ann. Mag. Nat. Hist. 18: 77 (1846)

Aleuria radula (Berk. et Broome) Quélet in Enchiridion Fungorum p. 281 (1886)

Phacopezia radula (Berk. et Broome) Sacc. in Syll. Fung. 8: 471 (1889)

Curreyella radula (Berk. et Broome) Masee in Brit. fung.-fl. 4: 401 (1895)

Plicaria radula (Berk. et Broome) Boud. in Hist. Class. Discom. d'Europe p. 50 (1907)

Apothecia shallow cupulate, sessile, rather thick-fleshed, c. (0.5?-) 1-2.5 cm diam., disc 'dark vinous brown', surface of receptacle 'black' when fresh (now appearing dark blackish-brown), bearing conspicuous, conical pustules. Paraphyses filiform, septate, obtuse, 4-6 μm diam., slightly enlarged towards the apex, with pale yellow-brown content. Asci 8-spored, cylindric, c. 330-400 \times 23-32 μm , 8-spored, wall amyloid throughout, more intensely stained at the apex. Ascospores globose, pale brownish, 14-17 μm diam. excluding ornament, ornamented either (at first?) with blunt, fairly regular warts 1-1.5 μm high \times 1-2 μm wide, or (at maturity?) with regular to irregular, bluntly conical spines c. 2-2.5 μm high.

Anamorph: unknown

Saprobic, on soil.

Specimens examined

ENGLAND: Gloucestershire (?), near Bristol, 'on the ground in woods', 25 Oct. 1845, ex herb M. J. Berkeley, K(M) 57723 (holotype). — Gloucestershire, Hanham, 22 Oct. 1853, C. E. Broome, K(M) 57721.

The above description is based on the cited collections, supplemented for size range and colour of the apothecia from the original description. The collector and exact locality of the type specimen is not stated. However, it is not impossible that the later collection by Broome is from the same locality, given as Hanham, then a village in Gloucestershire c. 5 km to the east of Bristol.

As noted by Eckblad (1968) there are two collections under this name preserved in K, cited above. These include the holotype which, due to an error in reading of the date of collection as 1865 rather than 1845, was not recognised as such by Eckblad. His designation of this collection as neotype is, therefore, superfluous. Furthermore, as noted by Dissing & Pfister (1981) and Hirsch (1985), part of the holotype is also preserved in Masee's herbarium in NY.

Examination of the two collections in K shows them to be conspecific. Both are now in poor condition so that details of excipular structure are impossible to fully evaluate. However, the surface of the receptacle is, as stated in the original description, clearly pustular with coarse, conical warts. These are composed of large, rounded to slightly angular, pale brown cells (20-) 25-40 (-50) μm diam. with thin or slightly thickened walls 1-2 μm thick. This structure was noted by

Massee (1895) based on an examination of the type collection, and is clearly shown in a coloured illustration by Carleton Rea. The latter was copied from Massee's drawing of the type and is held at Kew. Though paraphyses are difficult to examine, spore and ascus characters can be clearly observed. The latter are amyloid throughout their length and more intensely so at the apex, confirming the observation by Hirsch (1985). The holotype includes two packets, one with a single apothecium c. 4 mm diam. in the dried state (so noted also by Eckblad, 1968), dark brown, rather thick-fleshed and with a distinctly pustular surface to the receptacle. The second packet includes part of a single apothecium c. 7 mm diam. which is conspecific. The second, later collection contains part of a single apothecium c. 10 mm diam. This also has a distinctly pustular surface to the receptacle and, contrary to the statement by Eckblad (1968), does contain asci and spores. Asci in this specimen again have an amyloid wall more intensely stained at the apex. Ascospores, present in the asci, are uniseriate, globose, brownish, ornamented, and measure 14.5–16 μm diam. excluding ornament. The spore ornament comprises irregular, rounded to somewhat conical warts 1–1.5 μm high \times 1–1.5 μm across.

According to Hirsch (1985) two kinds of spores differing in their ornamentation are found outside the asci in the holotype collection, and he concluded that the "identity of this material is far from being clear". Also, as noted by Hirsch, Dissing & Pfister (1981) referred to this as 'mixed collection'. However, this seems not to be the case as variation in spore ornamentation from low, regular or irregular, rounded warts to conical, truncate spines has, in the present study, been observed in spores within the asci. This variation presumably reflects either the stage of development or variation in form of the ornament in this species.

Plicariella radula appears to be a distinct species which requires recollection to ascertain details of its ecology and anatomy. However, it shares with species of *Scabropezia* a rather thick-fleshed apothecium with a pustular surface to the receptacle atypical of *Plicaria* as well as globose, pigmented, verrucose ascospores. It is here considered congeneric with the type of *Scabropezia*, and the following combination is, therefore, required:

Plicariella scabrosa (Cooke) Spooner, comb. nov.

Peziza scabrosa Cooke in Mycographia p. 170 (1877) – basionym

Phaeopezia scabrosa (Cooke) Sacc., in Syll. Fung. 8: 472 (1889)

Scabropezia scabrosa (Cooke) Dissing & Pfister, Nord. J. Bot. 1: 103 (1981)

Plicaria Fuckel, Jahrb. Nass. Vereins f. Naturkunde 23-24: 325 (1870)

Lectotype: *P. trachycarpa* (Currey) Boud.

Curreyella Masee in Brit. fung.-fl. 4: 401 (1895)

Detonia Sacc. in Syll. Fung. 8: 105 (1889)

Apothecia solitary to gregarious, cupulate or discoid, sessile or with narrowed attachment. Disc concave, smooth, brown to dark brown or reddish-brown. Receptacle concolorous or paler than disc, surface almost smooth or finely pustular, rarely coarsely warted. Flesh unlayered. Excipulum comprising globose to angular, pale brown, thin-walled cells becoming more elongated and hyphal in the medullary tissue. Asci operculate, cylindric, apex truncate-rounded, blue in Melzer's Reagent, wall brownish with age. Ascospores globose, hyaline at first, becoming brownish at maturity, guttulate, sometimes with a de Bary bubble, smooth or ornamented with warts, spines or a reticulum; ornament cyanophilous. Paraphyses cylindric, apically clavate, sometimes curved, contents sometimes brownish, sometimes apically agglutinated by brown amorphous matter forming a pseudo-epithecium.

Anamorph: *Chromelosporium* Corda

Saprobic, on burnt ground or rarely on peat or sterilised soil.

British species of *Plicaria*

Plicaria carbonaria (Fuckel) Fuckel, Jahrb. Nass. Vereins Naturk. 23-24: 326 (1870)

Plicaria anthracina (Cooke) Boud. in Icon. mycol. 2, pl. 307 (1906)

Peziza anthracina Cooke in Mycographia p. 235 (1879)

Peziza trachycarpa var. *muricata* Grelet, Bull. Soc. bot. Centre-Ouest 6: 44 (1937) (nom. inval.)

Galactinia muricata (Grelet) Le Gal, Bull. Soc. mycol. France 78: 212 (1962) (nom. inval.)

For discussion and description see Breitenbach & Kränzlin (1984), Hirsch (1985), Maas Geesteranus (1967), Dennis (1978).

Plicaria endocarpoides (Berk.) Rifai, Verhand. Koninkl. Nederlandse Akad. Wet., Natuurk. 57 (3): 255 (1968)

Peziza endocarpoides Berk. in Hook. f., Fl. nov. - zel. 2: 199 (1855)

Peziza leiocarpa Currey, Trans. Linn. Soc. Lond. ser. 2, 24: 493 (1864)

Plicaria leiocarpa (Currey) Boud., Bull. Soc. mycol. France 1: 102 (1885)

Galactinia leiocarpa (Currey) Le Gal, Bull. Soc. mycol. France 78: 212 (1962)

For discussion and detailed description see Rifai (1968), Hirsch (1985), Dennis (1978).

- Plicaria trachycarpa* (Currey) Boud., Bull. Soc. mycol. France 1: 102 (1885)
Peziza trachycarpa Currey, Trans. Linn. Soc. Lond., Bot. ser. 2, 24: 493 (1864)
Curreyella trachycarpa (Currey) Masee, Brit. fung.-fl. 4: 401 (1895)
Galactinia trachycarpa (Currey) Le Gal, Bull. Soc. mycol. France 78: 212 (1962)

For a full description and discussion see Hirsch (1985), Dennis (1978).

Key to British species of *Plicaria*

1. Spores smooth, 8–9 (–10) μm diam.; apothecia 2–6.5 cm diam., exuding yellow juice *P. endocarpoides*
1. Spores ornamented, (10–) 11–16 μm (excl. ornament), apothecia 1–3 cm diam., not exuding yellow juice 2
2. Spore ornament of warts and short ridges to c. 1 μm high; spores 10–13 μm diam. excl. ornament it *P. trachycarpa*
2. Spore ornament coarser, of cylindric, truncate to conical warts and/or spines 1.5–2 (–2.5) μm high; spores 12–13 μm diam. excl. ornament ... *P. carbonaria*

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