

## Notes on British taxa referred to *Aleuria*

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British fungi currently referred to *Aleuria* have been investigated. Three species are maintained in the genus; all other names are considered and redispersed with brief explanations. Two new combinations, *Peziza flavida* and *Neobulgaria undata*, are proposed.

*Aleuria* Fuckel was established with two species, *A. aurantia* (Pers.) Fuckel and *A. rhenana* Fuckel. The former was selected as lectotype of the genus by Clements & Shear (1931), while the latter was combined in *Peziza* Willd. by Boudier (1907), and has been subsequently transferred to *Sowerbyella* Nannf. by Moravec (1986). *Aleuria* (Fr.) Gillet is a later homonym and an obligate synonym (Rifai, 1968). A quite different concept of *Aleuria* (Fr.) Gillet, based on typification by *A. vesiculosa* (Bull.) Gillet was adopted by Boudier (1907), who included over 70 taxa but not *A. aurantia*. *Aleuria* (Fr.) Gillet *sensu* Boudier is a synonym of *Peziza* (Eckblad, 1968; Rifai, 1968).

The most recent taxonomic treatment of *Aleuria* is that of Häffner (1993). The British checklist of Ascomycotina (Cannon *et al.*, 1985) contains 19 taxa referred to *Aleuria* and the status of most of these requires clarification. Revision of these taxa reveals that only three species, *A. aurantia*, *A. cestricea* (Ellis & Everh.) Seaver and *A. luteonitens* (Berk. & Broome) Gillet, can be retained in the genus; the remainder are discussed below.

Material and methods follow those outlined in Yao & Spooner (1995).

***Aleuria cerea* var. *cocotina*** (Cooke) Boud., *Hist. Classific. Discomyc. Europe.*: 44 (1907)

*Peziza cocotina* Cooke, *Grevillea* 5: 61 (1876)

*Lachnea cocotina* (Cooke) W. Phillips, *Man. Br. Discomyc.*: 206 (1887)

*Sacroscypha cocotina* (Cooke) Sacc., *Syll. Fung.* 8: 158 (1889)

*Geopyxis cocotina* (Cooke) Masee, *Br. Fung. Fl.* 4: 380 (1895)

Type material of this species, preserved in K, comprises two specimens ex Herb. Cooke and Herb. Phillips. Asci from the type stain strongly blue at the apex in Melzer's reagent, and ascospores, mostly young, are ellipsoid, eguttulate, smooth, and measure 15.0–16.0 × 8.5–9.5 µm. The taxon belongs in *Peziza*, and is probably conspecific with *Peziza micropus* Pers.

***Aleuria cerea* var. *flavida*** (W. Phillips) Boud., *Hist. Classific. Discomyc. Europe.*: 44 (1907)

*Peziza micropus* var. *flavida* W. Phillips, *Man. Br. Discomyc.*: 64 (1887)

Neotype (selected here): Moccas Park, Oct. 1881. C. B. Plowright, No. 100 (K, ex Herb. W. Phillips as *Peziza micropus* Pers.).

This variety was based on a Plowright collection from Moccas, Herefordshire. Unfortunately, no specimen labelled with this name can be located in K. However, there are three specimens in K named *Peziza micropus* from Herefordshire ex Herb. W. Phillips. These are all on rotten wood, and one of them is a collection by C. B. Plowright from Moccas Park. Examination of this specimen proves it to match the protologue of *Peziza micropus* var. *flavida*, having light yellow apothecia when rehydrated, ascospores 16.0–20.5 × 8.0–10.0 µm and asci which stain blue at the tip in Melzer's reagent. It is possible that this specimen may, in fact, be the holotype, as the locality, substratum and collector correspond to those given in the protologue. In addition, the collection date is earlier than the publication of the species. However, as it cannot be definitely shown that this collection is part of the original material from which the taxon was described, we, therefore, designate it as neotype. The other two specimens from Herefordshire in Herb. W. Phillips are conspecific and one of them is probably a part of the neotype.

This taxon is clearly a *Peziza*. However, the combination of the name in this genus given in Moser (1963) and Hohmeyer (1986) is invalid because no basionym was cited. Furthermore, Phillips never raised his variety to specific rank.

There can be little doubt that the fungus illustrated by Boudier (1910) as *Aleuria cerea* var. *flavida* (W. Phillips) Boud. is the same as that of Phillips. However, Le Gal (1941) was uncertain of their identity and introduced *Aleuria aurata* Le Gal as a 'new name' for Boudier's fungus. *Aleuria aurata* was, in fact, a new taxon at species level, over which *P. micropus* var.

*flavida* has no priority under Art. 11.4 of IBCN (1994). Le Gal (1941) did not provide a Latin diagnosis for *A. aurata*, but referred to Boudier's work which, exceptionally, did include a Latin description, thus fulfilling the requirements for valid publication. She also cited the specimen illustrated by Boudier as type. The combination of Le Gal's name in *Peziza* is therefore made below.

***Peziza aurata*** (Le Gal) Spooner & Y. J. Yao, comb. nov.

*Aleuria aurata* Le Galin *Revue Mycol., Suppl.* 6: 77 (1941)

*Peziza micropus* var. *flavida* W. Phillips, *Man. Br. Discomyc.*: 64 (1887)

*Aleuria cerea* var. *flavida* (W. Phillips) Boud., *Hist. Classific. Discomyc. Europe*: 44, (1907)

The earlier name *Peziza aurata* Berk. & Ravenel (Ravenel, 1855), later published as *Ombrophila aurata* (Berk. & Ravenel) W. Phillips (Anon., 1890), is a *nomen nudum*. The accompanying specimen label does not include a description of the fungus and, as is clear from the account by Stevenson (1971) of Ravenel's *Fungi Caroliniani Exsiccati*, the name is not validated elsewhere.

***Aleuria granulosa*** (Schumach.) Gillet, *Champ. Fr. Discomyc.*: 44 (1879)

*Peziza granulosa* Schumach., *Enum. Pl.* 2, 415 (1803)

The description of *Peziza granulosa* by Schumacher *loc. cit.* is so brief that the identity of the species has caused much confusion. Cooke (1879) adopted Boudier's concept of *P. granulosa* by publishing an illustration based on the drawing made by Boudier. The same concept was used by Boudier (1904), who published *Aleuria granulosa* (Schumach.) Boud. as a new combination. However, this was unnecessary as the combination had previously been made by Gillet *loc. cit.*

The concept of *P. granulosa* adopted by Bresadola (1898) differs from that of Cooke and of Boudier. Heim & Rémy (1932) concluded that Boudier had misinterpreted Schumacher's species, and that the concept of Bresadola was correct. *Aleuria granulosa sensu* Boud. was reported from Great Britain by Graddon (1960); there is no evidence for the occurrence of *P. granulosa* Schumach. *sensu* Bresadola in Britain.

Donadini (1977, 1979) introduced *Peziza granularis* as a new name for Boudier's fungus. However, he should have described this taxon as a new species, and supplied a Latin diagnosis; his name is, therefore, invalidly published. *Peziza boudieri* (Cooke) Donadini differs from Boudier's fungus only slightly in colour and is probably conspecific.

***Aleuria insolita*** (Cooke) Boud., *Hist. Classific. Discomyc. Europe*: 44 (1907)

*Peziza insolita* Cooke, *Mycographia* 1: 224 (1879)

The type of this species from Glamis, Scotland, amongst dead leaves, preserved in K, is exhausted. However, from the description and illustrations, it was almost certainly a pale form of *Sarcoscypha coccinea*. Another collection (K, England, Oxford, s. d., Baxter) referred to *A. insolita* is also *S. coccinea*.

***Aleuria isabellina*** (W. G. Sm.) Boud., *Icon, Mycol., Liste prélim.*: (2) [without pagination] (1904)

*Peziza isabellina* G. G. Sm. in *Grevillea* 1: 136 (1873)

The type material, from King's Lynn, Norfolk, is apparently lost (Cooke, 1877; Masee, 1895). We have searched for possible neotype material for this species in K and found that, among several specimens under this name in Herb. W. Phillips, two are from Norfolk. These two specimens agree well with the protologue, having apothecia on decayed wood, ascospores 13.5–16.5(–17.5) × 7.5–8.5 µm, and asci which stain blue, strongly so at the apex, in Melzer's reagent. The ascospores have a very fine ornament, at the limit of resolution under the light microscope.

This is a good species of *Peziza* and is different from the concept of this species adopted by Boudier (1909). The latter has been described as *Galactinia subisabellina* Le Gal, a species not reported from the British Isles. Hence, we designate here a neotype for *Peziza isabellina* to preserve the species name. England, Norfolk, Terrington, Feb. 1876, *s. leg.*, two specimens ex Herb. W. Phillips in K, the one clearly labelled ex Herb. W. G. Smith is selected as the neotype, and the other as isoneotype.

***Aleuria lilacina*** Boud., *Hist. Classific. Discomyc. Europe*: 45 (1907)

This species has been transferred to *Peziza* with a new name *Peziza moseri* Aviz.-Hersh. & Nemlich (*Israel J. Bot.* 23: 157 (1974), non *Peziza lilacina* Wulf.). *Peziza sublilacina* Svrček (*Česká Mykol.* 30: 130 (1976)) is a later synonym. British records of *A. lilacina* were reported by Hora (1954, 1955) but his material is apparently lost. No other British collections are known.

***Aleuria mellea*** (Cooke & Plowr.) Boud., *Hist. Classific. Discomyc. Europe*: 45 (1907)

*Peziza mellea* Cooke & Plowr., *Grevillea* 5, 119 (1877)

The type specimen in K is on bark of *Fraxinus*. It has apothecia 5 mm diam. when dried, and pale orange after rehydration. The asci stain strongly blue at the apex in Melzer's reagent, and the ascospores, which are mostly young, are ellipsoid, 18–20 × 9.0–10 µm, eguttulate, smooth. This is possibly a synonym of *Peziza ampliata* Pers.

***Aleuria muralis*** (Sowerby) Boud., *Hist. Classific. Discomyc. Europe*: 46 (1907)

*Peziza muralis* Sowerby, *Eng. Fung. Pl.* 251 (1800)

*Geopyxis muralis* (Sowerby) Sacc., *Syll. Fung.* 8: 72 (1889)

This has commonly been considered as a synonym of *Peziza cerea* Sowerby ex Fr. Type material is preserved in K (ex Herb. Berkeley and ex Herb. W. Phillips), but unfortunately is almost exhausted; only one apothecium remains in the specimen ex Herb. W. Phillips, and no fungal material remains in the specimen ex Herb. Berkeley. Examination of the former material reveals that there is no blue staining of the asci in Melzer's reagent, and that reference of the species to *Peziza* is dubious. Furthermore, young ascospores of this species appear to contain guttules, unlike typical *P. cerea*. Illustrations by

Sowerby (*loc. cit.*) of *P. muralis* and *P. cerea* also indicate that they may represent different species, and the true identity of *P. muralis* requires further study.

**Aleuria petaloidea** (Cooke & W. Phillips) Boud., *Hist. Classific. Discomyc. Europe.*: 47 (1907)

*Peziza petaloidea* Cooke & W. Phillips, in Phillips, *Man. Br. Discomyc.* 46 (1887)

*Geopyxis petaloidea* (Cooke & W. Phillips) Sacc., *Syll. Fung.* 8: 67 (1889)

The type is well preserved in K and is a *Sowerbyella*.

**Aleuria recedens** Boud., *Bull. Soc. Mycol. Fr.* 14: 18 (1898)

This species has been combined as *Peziza recedens* (Boud.) Sacc. & Syd. (*Syll. Fung.* 16: 704 (1902))

**Aleuria reperta** Boud., *Bull. Soc. Mycol. Fr.*: 10: 64 (1894)

Reported from Great Britain by Rea (1928), but no British collection under this name has been located. It is a synonym of *Peziza apiculata* Cooke according to Hohmeyer (1986) and Moravec (1985). The status of *P. apiculata* in Great Britain requires further investigation.

**Aleuria rhenana** Fuckel in *Jb. nassau. Ver-Naturk.* 23–24: 325 (1870)

*Sarcoscypha rhenana* (Fuckel) Sacc., *Syll. Fung.* 8: 157 (1889)

*Peziza rhenana* (Fuckel) Boud., *Hist. Classific. Discomyc. Europe.*: 54 (1907)

*Peziza aurantia* var. *stipitata* W. Phillips (syn. *Otidea aurantia* var. *stipitata* (W. Phillips) Masee) was cited as a synonym of *P. rhenana* by Ramsbottom (1914) according to 'Boudier in litt.'. This species was subsequently reported from Yorkshire by Mason & Grainger (1937) and was included in Ramsbottom & Balfour-Browne (1951).

Type material of *P. aurantia* var. *stipitata* cannot be located in K and is presumed lost. The identity with *P. rhenana* cannot be confirmed. No other British collections of this species are known, and the Yorkshire collection is also apparently lost. The presence of this species in Britain, therefore, requires confirmation.

**Aleuria subcitrina** (Bres in Rehm) Boud., *Icon. Mycol.*, Liste prélim.: (2) [without pagination] (1904)

*Plicaria subcitrina* Bres. in Rehm in *Hedwigia, Beibl.* 40: 102 (1901)

*Humaria subcitrina* (Bres.) Sacc., *Syll. Fung.* 18, 25 (1906)

*Peziza subcitrina* (Bres. in Rehm) Korf in *Mycotaxon* 14: 1 (1982)

This was reported from Britain by Rea (1928), and is included with the incorrect citation 'Bres.' in Cannon *et al.* (1985). It was shown by Korf (*loc. cit.*) to belong in *Peziza*.

**Aleuria subrepanda** (Cooke & W. Phillips) Boud., *Hist. Classific. Discomyc. Europe.*: 45 (1907)

*Peziza subrepanda* Cooke & W. Phillips in Cooke, *Mycographia* 1: 153 (1877)

Type material, preserved in K, has been examined by Dennis (unpublished). According to Dennis's notes, asci stain blue at the apex in Melzer's reagent, and ascospores are eguttulate, 16.0–20.0 × 10.0–12.0 µm. It clearly belongs in *Peziza* but its relationship with similar species in that genus needs clarification.

**Aleuria umbrina** var. **assimilata** (P. Karst.) Boud., *Hist. Classific. Discomyc. Europe.*: 46 (1907)

*Peziza assimilata* P. Karst. in *Not. Säll. Fauna Fl. Fenn. Förh.* 10: 113 (1869)

Reported from Great Britain by Rea (1928) on the basis of a single collection cited as 'Burnham Beeches, October 20th 1925, Mr A. A. Pearson'. A collection in K ex Herb. Rea is from the same locality but apparently incorrectly labelled as 20 October 1893 (*s. leg.*). This has asci which stain deep blue at the apex in Melzer's reagent, and ascospores 15.0–17.0 × 7.5–8.5 µm, finely warted, with warts vertically elongated at the poles. Although the substratum was not given, this specimen is typical *Peziza echinospora* P. Karst.

**Aleuria undata** (W. G. Sm.) Boud., *Hist. Classific. Discomyc. Europe.*: 46 (1907)

*Peziza undata* W. G. Sm. in *Grevillea* 1: 136 (1873)

The type material, preserved in K, is from tree fern stems in a greenhouse. It has apothecia up to 8.0 mm diam., with inoperculate asci, the minute pore bluing in Melzer's reagent, ascospores 6.0–7.0 × 3.5–4.0 µm with two guttules, and simple paraphyses. The medullary excipulum and outermost ectal layer are gelatinized, and the fungus clearly belongs in *Neobulgaria* Petr. The appropriate combination is therefore made below.

**Neobulgaria undata** (W. G. Sm.) Spooner & Y. J. Yao, comb. nov.

*Peziza undata* W. G. Sm. in *Grevillea* 1: 136 (1873)

It is possible that *Ombrophila microspora* (Ellis & Everh.) Sacc. & Syd. is a synonym.

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