

THE LARGER CUP FUNGI IN BRITAIN - part 2

Pezizaceae (excluding *Peziza* & *Plicaria*)

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The first part of this series (Spooner, 2000) provided a brief introduction to cup fungi or 'discomycetes', and considered in particular the 'operculate' species, those in which the ascus opens (dehisces) via an apical lid or operculum. These constitute the order Pezizales and include most of the larger discomycete species. A key to the 12 families of Pezizales represented in Britain was given. In the present part, a key to the British genera of the Pezizaceae is provided, together with brief descriptions of the genera and keys to the species of all genera other than *Peziza* and *Plicaria*. These two genera, which include over sixty species in Britain alone, will be considered in Part 3. A glossary of technical terms is given at the end of the article.

Pezizaceae Dumort.

Characterised by operculate, thin-walled, amyloid asci and uninucleate spores with thin or rarely somewhat thickened walls.

Key to British Genera of Pezizaceae

1. Asci indehiscent; ascomata subhypogeous or developed in litter, subglobose or irregular in form; spores globose, ornamented, purple-brown at maturity, eguttulate *Sphaerozone*
1. Asci dehiscent; ascomata epigeous, rarely hypogeous at first, on various substrates, cupulate to discoid or pulvinate, sometimes short-stipitate, rarely sparassoid; spores globose or ellipsoid, smooth or ornamented, hyaline or brownish, guttulate or eguttulate 2
2. Ascus apex strongly blue in iodine, rest of wall diffusely blue in iodine or not 3
2. Ascus apex not strongly blue in iodine, whole wall diffusely blue in iodine 6
3. Spores globose, brown or brownish at maturity, sometimes with a de Bary bubble; ascus wall brownish with age; flesh unstratified; apothecia on burnt ground or not 4
3. Spores ellipsoid, hyaline, lacking de Bary bubble; ascus wall remaining hyaline; flesh stratified or not; apothecia on various substrates 5
4. Apothecia thin-fleshed, surface smooth or scurfy; on burnt ground *Plicaria*
4. Apothecia thick-fleshed, surface bearing conspicuous conical pustules; on damp soil *Plicariella*
5. Apothecia hypogeous in development, closed at first and splitting open at maturity; spores ellipsoid, biguttulate, appearing smooth under light microscope; paraphyses usually branched near apex *Sarcosphaera*
5. Apothecia epigeous, rarely partly hypogeous in development, not closed; spores if biguttulate rarely appearing smooth under light microscope; paraphyses rarely branched near apex *Peziza*
6. Spores globose, coarsely ornamented with spines or reticulum; apothecia pulvinate, on damp soil *Boudiera*
6. Spores ellipsoid, smooth or variously ornamented; apothecia cupulate to discoid, on various substrates 7

7. Apothecia discoid, broadly attached to substrate, large, 0.5 - 5 cm diam., on wet, rotten wood or on soil; spores guttulate; ectal excipulum partly gelatinised or with surface hairs embedded in gel. *Pachyella*
7. Apothecia pulvinate, sessile but not broadly attached, small, 1 - 2 mm diam., on vegetable debris, dung or soil; spores eguttulate; ectal excipulum not gelatinised, lacking hairs *Iodophanus*

***Boudiera* Cooke, 1877**

Type: *B. areolata* Cooke & W. Phillips

Apothecia small, 2 - 3 mm diam., pulvinate, purple-brown, occurring on damp soil. Ascus wall entirely diffusely blue in iodine stain; ascospores globose, ornamented with spines or a reticulum. Both of the known British species are rare, *B. acanthospora* being as yet known from only a single locality in Suffolk.

Literature: Dissing & Schumacher (1979); Hirsch (1984); Spooner (in press)

British species: *B. areolata* Cooke & W. Phillips, *B. acanthospora* Dissing & Schumacher

Key to British species of *Boudiera*

1. Spores 25 - 30 µm diam. (excl. ornament), ornamented with a broken reticulum with walls 5 - 6 µm deep; paraphyses apically with brownish pigment *B. areolata*
1. Spores 21 - 26 µm diam. (excl. ornament), densely ornamented at maturity with discrete spines 4 - 6 µm high; paraphyses hyaline. *B. acanthospora*

***Iodophanus* Korf, 1967**

Type: *I. carneus* (Pers.) Korf

Small, pinkish or pale apothecia 1 - 2 mm diam., with convex disc. Asci with wall diffusely blue throughout in iodine stain; ascospores lacking guttules, broadly ovate and finely warted. The single British species is fairly common on old dung, rich soil and sometimes other substrates such as rotting card or paper.

Literature: Kimbrough (1969); Prokhorov (1997)

British species: *I. carneus* (Pers.) Korf (spores 18 - 22 x 10 - 13 µm). Anamorph: *Oedocephalum* sp.

***Pachyella* Boud.**

Type: *P. barlaeana* (Bres.) Boud.

Apothecia flattened, broadly attached, on rotten, often water-soaked wood, rarely on soil. Asci with wall entirely diffusely blue in iodine stain; ascospores hyaline, usually guttulate, broadly ovate or ellipsoid, sometimes finely ornamented, rarely budding secondary spores. Of the three known British species, *P. subisabellina* is as yet known from a single locality in Hertfordshire.

Literature: Pfister (1973); Spooner (in press)

British species: *P. babingtonii* (Berk.) Boud. (= *P. depressa* (Rehm) Boud.; *P. depressa* var. *pallida* Rea; *Humaria oocardii* (Kalchbr.) Sacc.), *P. subisabellina* (Le Gal) Trimbach (= *Galactimia subisabellina* Le Gal), *P. violaceonigra* (Rehm) Pfister (= *P. barlaeana* (Bres.) Boud.)

Key to British species of *Pachyella*

1. Apothecia mostly < 1 cm diam.; spores (18 - 22 x 10 - 13 µm) broadly ellipsoid, with ends blunt and often somewhat truncate, wall rather thickened *P. babingtonii*
1. Apothecia 2 - 4 (-7) cm diam.; spores ovate to ellipsoid, ends rounded and tapered, wall not or only slightly thickened 2
2. Apothecia reddish-brown; ascospores obscurely guttulate, 21 - 27 x 12 - 15 µm, forming secondary spores 8 - 13 x 5 - 7 µm *P. subisabellina*
2. Apothecia dark purple-brown; ascospores biguttulate, 18 - 25 x 10 - 13 µm, not forming secondary spores *P. violaceonigra*

***Plicariella* (Sacc.) Rehm, 1894**

= *Phaeopezia* Sacc. subgen. *Plicariella* Sacc., 1884. Lectotype: *Peziza radula* Berk. & Broome

Apothecia on damp soil, shallow cupulate, rather thick-fleshed, brownish; surface of receptacle bearing coarse, conical pustules. Ascus wall blue throughout in iodine stain, more intensely so at the apex; ascospores globose, ornamented. The single British species is little-known and perhaps extinct. It was

described from a collection made 'near Bristol' in October 1845, and recollected at Hanham in Gloucestershire by C.E. Broome in October 1853. No other collections are known.

Literature: Dissing & Pfister (1981); Hirsch (1985); Spooner (in press)

British species: *P. radula* (Berk. & Broome) Rehm (= *Peziza radula* Berk. & Broome, 1846) (Apothecia 1 – 2.5 cm diam., spores 14 – 17 µm diam. (excl. ornament), ornamented with bluntly conical spines 2 – 2.5 µm high)

Sarcosphaera Auersw.

= *Caulocarpa* Gilkey. Type: *Peziza macrocalyx* Riess (= *S. coronaria*)

Apothecia hypogeous in development, closed, becoming superficial, opening at maturity. Disc violaceous. Receptacle whitish or pale violaceous. Asci apically blue in iodine stain; ascospores cylindrical-ellipsoid, hyaline, smooth, containing 2 guttules. Uncommon, occurring on calcareous soils mostly in southern England.

Literature: Brandrud et al. (1986); Trappe (1975, 1979)

British species: *S. coronaria* (Jacq.: Fr.) Schroet. (= *S. crassa* (Santi) Pouzar; *S. eximia* (Dur. & Lév.) Maire) (Apothecia 3 – 10 cm diam.; spores 13 – 15 x 7 – 8 µm)

Sphaerozone Zobel

Type: *S. ostiolatum* (Tul. & C. Tul.) Setchell

Apothecia subhypogeous or developed in litter, subglobose or convoluted and irregular in form, becoming partially hollow, with superficial hymenium. Asci cylindrical, 3 – 7-spored, wall staining blue throughout in iodine; ascospores globose, ornamented with coarse, blunt, angular warts. *Sphaerozone ostiolatum* was described from near Hanham in Gloucestershire, but appears to be very rare and perhaps now extinct in Britain; it has not been collected since 1882.

Literature: Dissing & Korf (1980); Pegler et al. (1993)

British species: *S. ostiolatum* (Tul. & C. Tul.) Setchell. (Spores (13 –) 15 – 17.5 µm diam., excluding ornament, lacking guttules, at first hyaline, becoming purplish-brown at maturity, warts 2 – 4.5 µm high, 2 – 5 (-7) µm wide).

Glossary

Anamorph asexual state.

Asci the spore-producing cells of an ascomycete.

Ascoma the entire fruiting-body of an ascomycete (plural = ascomata).

Apothecium the fruiting body of a cup fungus, usually cup or saucer-shaped.

biguttulate with two oil droplets or 'bubbles' inside the spores.

cupulate with cup-shaped structure.

de Bary bubble . . . gas bubble inside a spore (appears dark under the microscope).

dehiscent term used of asci that release their spores under pressure (forcible discharge).

ectal excipulum . . . outermost layer of tissues in the apothecium.

eguttulate without droplets or 'bubbles' inside the spores.

guttulate with droplets or 'bubbles' within the spores.

hypogeous growing below the soil.

indehiscent term used of asci not forcibly discharging their spores.

paraphyses sterile, usually thread-like structures between the asci and parallel to them, often of distinctive shape and of taxonomic importance.

pulvinate cushion-like.

receptacle sterile tissue which supports the hymenium in an apothecium.

reticulum a network or mesh of ridges or lines.

sparassoid with cauliflower-like fruiting-body resembling *Sparassis crispa*.

subhypogeous . . . growing partially submerged in the soil.

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AN UNUSUAL USE FOR NOTHING

It is said by ex-miners in the Forest of Dean in Gloucestershire that they used an underground fungus on wounds sustained during their work. They called it "Nothing" because, according to the local historian Brian Johns, himself an ex-miner, when a handful was gathered and squeezed, it would vanish and there would be nothing left in the hand, except a strong mushroom smell.

This may be Dry Rot fungus, *Serpula lacrymans**, which from personal experience, has a very unsubstantial texture and a strong smell. It was the smell that gave it away and caused us to look under the floorboards of the sitting room of our house in the Forest. We had bought it a year before we could move in and would motor up from Kent most weekends to work on it. The cause was bad plumbing (not mine!) of a downstairs toilet. We dealt with the infestation ourselves, using the special chemicals available and replacing some of the joists.

Another fungus used in the Forest for the treatment of wounds was the Giant Puffball,

Langermannia gigantea: farmers would puff the spores onto the wounds of their horses. One was still strung up on the wall of the stable of my father-in-law's farm in 1943. Although the fungus has been said to contain an antibiotic, I believe that its main effect was the staunching of the flow of blood by the millions of spores.

I would be interested to hear of other suggestions regarding the identity of 'Nothing'.

Jack Marriott

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* John Ramsbottom in *Mushrooms and Toadstools* (1969) points out that the commonest fungi on pit props is *Poria* (now *Antrodia*) *vaillantii*, forming white mycelial sheets and cords, often hanging from the roof-timbers of mines; this could be another source of 'Nothing' [Editor].