

BLACK & BROWN *CLAVARIA* SPECIES in the British Isles

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When putting together a provisional key to British clavarioid fungi for the 2005 grassland fungi workshop in Wales, I included *Clavaria greletii* as a very rare black species known in the British Isles from just two collections at Kew, the first made in 1922 by Carleton Rea in the Wyre Forest. I was amazed, therefore, to discover that Rosemary Winnall had brought a fresh collection to the workshop from the Wyre Forest (after a gap of 83 years) and even more amazed when David Harries actually found some more black clavarioid fungi on one of the workshop forays. Three more collections were subsequently sent into Kew after the workshop and further material

has been collected in 2006. Examination of these collections brought a new surprise, since they represented not one but three separate species.

It is difficult to explain this sudden spate of specimens. It is, of course, possible to mistake black clavarioid fungi for earth-tongues (Geoglossaceae) in the field, but the latter group is keenly collected and studied microscopically by field mycologists. One can only assume that these black clavarioid fungi are genuinely rare in the British Isles, but that increased interest in grassland fungi has led to more records in recent years.

Since the literature on these species is scattered, a brief key and descriptions follow.

KEY

- 1) Basidiomes sepia, blackening with age, finely ridged and furrowed longitudinally; basidiospores smooth, oblong, c. 5 – 6.5 x 2.5 – 3.5 µm *Clavaria atroumbrina*
- 1) Basidiomes black, smooth to irregularly ridged; basidiospores smooth or decorated, most globose to ellipsoid 2
- 2) Basidiospores thick-walled, globose to subglobose, finely warted, c. 3.5 – 4 x 3 – 4 µm *Clavaria asperulispora*
- 2) Basidiospores larger, thin-walled, most subglobose to ellipsoid, smooth (rarely with . . . scattered pegs or warts), c. 7 – 10.5 x (5–)6 – 9.5 µm *Clavaria greletii*

Clavaria asperulispora G.F. Atk.,
Ann. Mycol. 6: 55 (1908) [Fig. 1]

Basidiomes simple with indistinct stipe, tubular or compressed, up to c. 60 x 5 mm, smooth to irregularly ridged or grooved, black throughout with slight olivaceous tint in stipe. Hyphae hyaline to sepia, 3 – 15 µm

wide, thin-walled, lacking clamp-connexions. Basidia clavate, c. 30 – 40 µm long, four-spored. Basidiospores globose to subglobose (Q = 1.0 – 1.1), 3.5 – 4 x 3 – 4 µm, thick-walled, finely but distinctly warted, hyaline (but often brownish when trapped on the hymenium).

Specimen examined: ENGLAND: West

Lancashire, Silverdale, Eaves Wood, in mossy soil near *Taxus baccata*, 16 Oct. 2006, J. & S. Weir, K(M) 143814.

Clavaria asperulispora is macroscopically similar to *C. greletii*, but is distinguished microscopically by its small, thick-walled, finely but distinctly warted spores.

Assigning a name to the species is something of a problem. *Clavaria asperulispora* was originally described from the USA, but the type collection has larger spores (4.9 – 7.1 x 4.9 – 6.3 µm as re-measured by Petersen & Olexia, 1969) than in British and other European material. Possibly there are two taxa involved. *Clavaria atrofusca* Velen., originally described from the Czech Republic, has been placed in synonymy by some authors, but the spores of *C. atrofusca* are oblong (Q = 1.4 – 1.6), 5.5 – 7.7 x 3.9 – 4.9 µm (as re-measured from the type by Petersen & Olexia, 1969) and are so illustrated by Corner (1967). Schild (1971) illustrated similar spores from a later German collection under this name.

For the moment, *Clavaria asperulispora* seems the best available name for the British species. A Hertfordshire collection originally determined as *C. atrofusca* has been re-determined as *C. atroumbrina* (q.v.).

***Clavaria atroumbrina* Corner,**
Monograph of Clavaria and Allied Genera:
 691(1950) [Figs. 2 & 3]

Basidiomes simple, fasciculate or occasionally single, tubular, sometimes narrowing towards apex, up to c. 100 x 5 mm, longitudinally ridged (under lens), dark sepia (blackening with age) but paling to brownish or whitish towards base. Hyphae hyaline, 3 – 15 µm wide, thin-walled, lacking clamp-connections. Basidia clavate, c. 30 – 40 µm long, four-spored, turning dark brown when old and collapsed. Basidiospores oblong (Q = 1.8 – 2.2), 5 – 6.5 x 2.5 – 3.5 µm, often ventrally depressed, thin-walled, smooth, hyaline.

Specimens examined: ENGLAND:
 Hertfordshire, Berkhamsted, Potten End, in

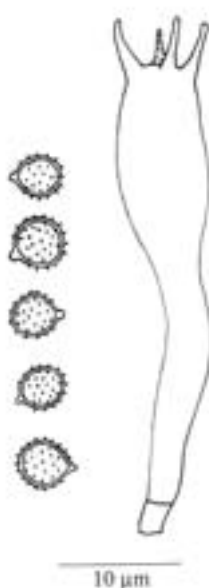


Fig. 1. *Clavaria asperulispora*: basidiospores and basidium. K(M) 143814.

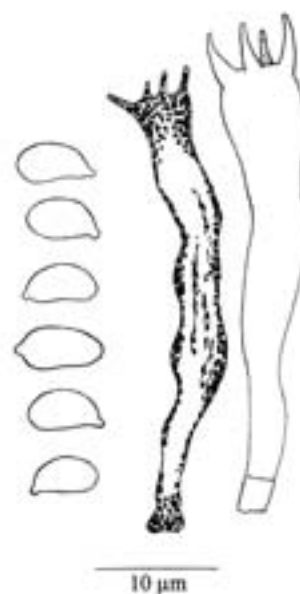


Fig. 2. *Clavaria atroumbrina*: basidiospores and basidia, one collapsing and turning dark brown. K(M) 143730.



Fig. 3. *Clavaria atroumbrina*: The Bloreng, Nov. 2005, K(M) 135920. © P.J. Roberts.

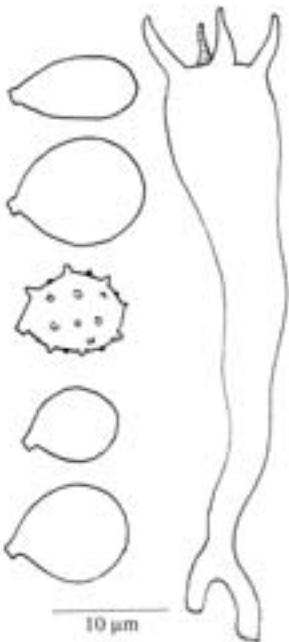


Fig. 4. *Clavaria greletii*: basidiospores (one warty) and basidium. K(M) 135942.



Fig. 5. *Clavaria greletii*: Wyre Forest, 21 Oct. 2005, K(M) 135942. © R. Winnall.

churchyard, 8 Nov. 2005, S. Kelly, K(M) 137008; Shropshire, Shrewsbury, General Cemetery, 1 Oct. 1882, ex herb. W. Phillips (sub *C. striata*), K(M) 145626; Wales: Carmarthenshire, Llanarthne, Gelli Aur Country Park, in mossy grass on terraced lawn, 24 Oct. 2006, S.E. Evans, K(M) 143730; same date and location, on lawn adjoining house, D. Griffin, K(M) 143731; Monmouthshire, Abergavenny, The Blorenge, in grass in sheep pasture, 5 Nov. 2005, D. Harries, K(M) 135920.

Clavaria atroumbrina is distinguished macroscopically by its dark brown fruitbodies which (under a lens) are markedly longitudinally ridged and furrowed. Microscopically, it can be distinguished by its oblong and comparatively narrow basidiospores and by the colour arising from collapsed basidia in the hymenium rather than from the hyphae.

The species was originally described from the USA and appears to be fairly common in Tennessee based on collections made by the present author. In Europe, the species has been synonymized with *C. pullei* Donk, originally described from the Netherlands. The latter taxon, however, was described as 2-spored and with wider, ovoid spores ($Q = 1.1 - 1.5$), '4.75 - 6.75 x 4.25 μm '. Whether *C. atroumbrina* and *C. pullei* are variations within the same species remains to be seen.

Whilst researching this piece, a single old collection from Shropshire (cited above) was found at K under the largely forgotten name *Clavaria striata* Pers. (now considered a *nomen dubium*). Why there should be a 120-year gap in British records of such a distinctive fungus is something of a mystery.

***Clavaria greletii* Boud.,**

Bull. Soc. Mycol. France 33: 13 (1917)

[Figs. 4 & 5]

Basidiomes simple, tubular, up to c. 100 x 5 mm, smooth or somewhat rugulose. Hyphae hyaline to pale sepia, 3 - 15 μm wide, thin-walled, lacking clamp-connexions. Basidia

clavate, c. 40 - 50 μm long, four-spored, with loop-like clamp at base. Basidiospores subglobose to ellipsoid, a minority oblong to cylindrical ($Q = 1.1 - 1.3 (-2.0)$), 7 - 10.5 x (5 -) 6 - 9.5 μm , thin-walled, mostly smooth but a few with scattered large warts or pegs, hyaline.

Specimens examined: ENGLAND: Leicestershire, Ashby de la Zouch, New Lount Nature Reserve, in grass, 13 Nov. 2005, R. Iliffe, K(M) 138592; same location, 7 Oct. 2006, R. Iliffe, K(M) 143840; Shropshire, Wyre Forest, Break Neck Point, on a charcoal heap, 12 Oct. 1922, C. Rea, K(M) 120240; Wyre Forest, Postenplain, Roxel Site, in mossy grass, 21 Oct. 2005, R. Winnall, K(M) 135942; South Lancashire, Southport, Ainsdale Dunes, in grass, 22 Sep. 2002, S. Weir, K(M) 104828.

Clavaria greletii is macroscopically similar to *C. asperulispora*, but is distinguished microscopically by its large, thin-walled spores. These are mostly subglobose to ellipsoid, but in some specimens a minority are elongated or misshapen. In at least two of the specimens examined, a few spores were found with sparse, peg-like warts or projections. It may be that these develop after spore release, as has been suggested for the '*C. asterospora*' form of the white species, *C. acuta* Sowerby.

The loop-like clamp at the base of basidia is difficult to see, especially in dried material, since the subhymenium tends to become agglutinated and compacted.

References

- Corner, E.J.H. (1967). Notes on *Clavaria*. *Trans. Brit. Mycol. Soc.* 50: 33-44.
 Petersen, R.H. & Olexia, P.D. (1969). Notes on clavarioid fungi XI. Miscellaneous notes on *Clavaria*. *Can. J. Bot.* 47: 1133-1142.
 Schild, E. (1971). Clavariales. *Fungorum Rar. Icon. Color.* 5: 1-44.