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CORTINARIUS BATAILLEI—NEW TO THE BRITISH LIST

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ABSTRACT. A description of *Cortinarius bataillei* (Cortinariaceae) based on British material is offered with an analysis of its anthraquinone pigments.

British members of *Cortinarius* subgen. *Dermocybe* have been reviewed by Orton (1958) who has since added an additional taxon to the group, i.e. *C. fervidus* (Orton, 1964). More recently Høiland (1983) monographed the same subgenus although two years earlier he had offered a shortened account of the Scandinavian taxa, accompanied by coloured illustrations (Høiland, 1981).

It was by reference to these last two works that a new agaric to the British list was recognized, *Cortinarius bataillei* (Favre ex Moser) Høiland.

TAXONOMY

Cortinarius bataillei (Favre ex Moser) Høiland in Opera Botanica 71:86 (1983).

Pileus 13–32mm, acutely umbonate, non-hygrophanous, silky, slightly fibrillose, pale yellow-brown, darkening towards centre and olivaceous yellow towards margin. *Stipe* 60–105 × 2·5–5mm, central, slightly flexuous, fibrillose, pale lemon-yellow, darker downwards, and bright orange at base. *Gills* serrate, lemon-yellow with ochraceous tinge, becoming rust-brown with age. *Flesh* lemon-yellow throughout except for orange tint in stipe-base. *Taste* and *smell* not recorded.

Basidiospores (7·2–)8·3–10 × (4–)4·5–5·5(–6)μm, ovoid to ellipsoid, not distinctly amygdaliform, slightly flattened adaxially in side-view, minutely but distinctly punctate, relatively thick-walled, tawny yellow in alkaline solutions, germ-pore and callus absent. *Basidia* 4-spored, sterigmata 2·5–4μm long, 15·5–24 × 6·7–7·7(–8·3)μm including sterigmata, hyaline in water and alkaline solutions but some becoming filled in age with orange tawny, granular amorphous material similar to extracellular material in pileus-trama. *Cheilocystidia* absent or reduced, when present hardly differentiated, clavate, thin-walled, hyaline in water and alkaline solutions, 10–20 × 6–7·5μm; *pleurocystidia* absent. *Hymenophoral trama* regular, of narrow, cylindric, filamentous hyphae 4·5–17·5μm broad, hyaline or pale yellow, compacted towards a poorly defined mediostratum, with bright tawny or orange-yellow aggregation of amorphous material; *sub-hymenium* narrow, of hyaline ellipsoid cells; *gill-edge* fertile. *Pileipellis* of parallel, interwoven, septate, elongate, broadly cylindric hyphae 3–15μm broad, constricted at septa, adhering in groups, with smooth or ornamented wall from minute rings of encrustation, more rarely strongly roughened, tawny brown in alkaline solutions; end-cells rounded or slightly tapered; parietal pigmentation yellow-brown, some extra-cellular

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yellowish orange material also present; *subpellis* abrupt, of inflated, shortened, hyaline or yellowish hyphae 10–22·5μm broad. *Pileus trama* of broad, shortened, hyaline, more rarely yellowish hyphae 10–20μm broad forming a pseudoparenchymatic layer in L.S. with some small open areas and some filamentous hyphae passing through (4·5–5·5μm broad), intermixed, particularly towards its base and even more so between the gills, with unusual concentrations of bright tawny amorphous material giving a pattern similar to that seen in species of *Suillus*. *Stipitipellis* of cylindric, yellow or tawny hyphae 4·5–13·2μm broad, masked only with a few undifferentiated flexuous, hyaline or pale honey-coloured hyphae of the veil 35–50 × 6·5–7·5(–8)μm from mid-way downwards. *Clamp-connections* numerous, in pileipellis and at base of basidia.

Material examined: Scotland: Perthshire, Kindrogan, near Enochdhu, in mixed woodland, amongst *Pleurozium schreberi*, *Rhytidiadelphus loreus*, *Hylocomium splendens*, *Polytrichum commune* and *Sphagnum* spp., with *Vaccinium vitis-idaea*, *Deschampsia caespitosa* and *Blechnum spicant*, 23 ix 1983, *Watling* 17342(E); Argyllshire, Connel, Fearnoch forest, x 1983 (Hb. Forensic Science Dept., Univ. Strathclyde).

CHEMISTRY

MATERIALS & METHODS

The samples were air dried at 40°C and stored over anhydrous silica gel prior to chromatographic analysis. A reference sample of *C. bataillei* was obtained by courtesy of K. Høiland. The material was finely powdered and approximately 10mg samples were extracted with a minimum volume of methanol for two hours at room temperature. Extracts were applied to pre-coated silica gel 60 thin-layer chromatographic plates (Merck) and developed using one of the following systems (Kidd *et al.*, 1985):

Solvent system 1:

Butanol:acetic acid:water:chloroform:ethanol 55:15:15:5:10

Solvent system 2:

Ethyl formate:formic acid:toluene 50:15:35

The second system was water saturated prior to use; this was achieved by shaking with 30ml of water, allowing the two layers to separate, and then taking the organic layer for chromatographic development. The chromatograms were developed for 10cm, dried and examined under ultra violet light at 360nm.

RESULTS

The chromatographic pattern obtained for *C. bataillei* is complex (Fig. 1B), and is very similar to that of *C. cinnamomeus* (L.:Fr.) Fr. sensu P. D. Orton, 1958 (Fig. 1A). Both species are considered to contain a wide range of anthraquinone pigments (Keller, 1979; Høiland, 1983), in fact they could not be distinguished when only using solvent system 2. Using solvent system 1 the only difference between *C. bataillei* and *C. cinnamomeus* is an extra weak orange spot at R.f. 0·67 when viewed under U.V. light. (Fig. 1).

Analysis of *C. bataillei* for the toxins Cortinarin A and B, so characteristic of *C. speciosissimus* Kühner & Romagnesi (Tebbett &

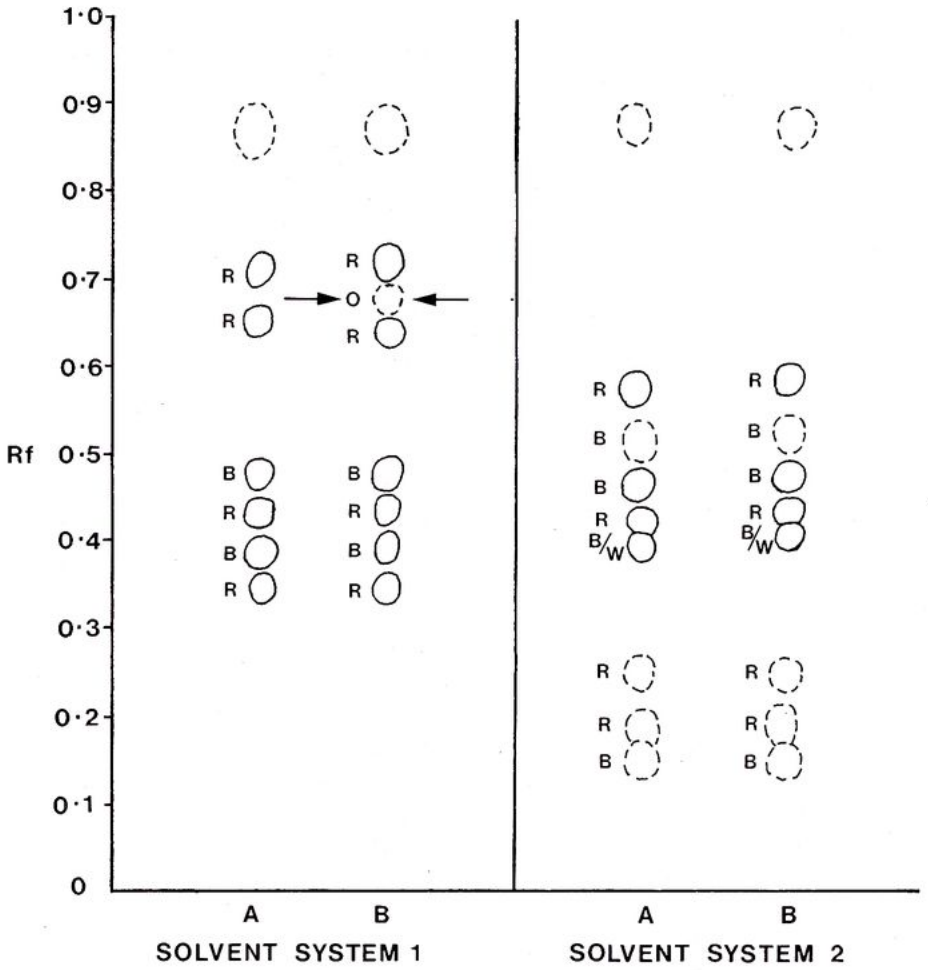

FIG. 1. Chromatographic pattern of *Cortinarius cinnamomeus* and *C. bataillei* in two different organic solvent systems. A, *C. cinnamomeus*; B, *C. bataillei*. Arrows in solvent system 1 indicate position of unique anthraquinone in *C. bataillei*. Letters denote colours visible under U.V. light: B, blue; O, orange; R, red; W, white.

Caddy, 1984), only showed the former and then in low concentration. This is consistent with results obtained for other members of subgen. *Dermocybe* particularly those of the *cinnamomeus*-group.

DISCUSSION

C. bataillei was first described by Favre (1960) without a latin diagnosis: Moser (1976) validated the name in *Dermocybe* citing a collection from Femsjö, Sweden as type. The present collection agrees well with Høiland's (1983) description of Nordic material, but differs from those of Favre (1960) and Moser (1973, 1976) in the basidiospore dimensions. However, examination of the type collection by Høiland (1983) indicates that the spore measurements do in fact agree with those from the Nordic and Scottish material.

C. bataillei is related to *C. croceus* (Schaeff.: Fr.) Høiland (syn.: *C. cinnamomeolutescens* Henry and *C. cinnamomeobadius* Henry nomina nuda fide Høiland) a British taxon, and *C. palustris* var. *huronensis* (Ammirati & Smith) Høiland from N America. The latter may be the same as *C. aureifolius* Peck as interpreted by Orton (1958) but *C. bataillei* can be easily recognized in the field by the bright orange colour to the lower part of the stipe. Apparently Orton (pers. comm.) also has found *C. bataillei* in Scotland.

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