

An Extraordinary species of *Anthracobia*, *A. subatra*, new to Britain, with a Key to British species of the Genus

Y. J. YAO¹, B. M. SPOONER¹ & N. W. LEGON²

¹The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AE

²12 Clifden House, Windmill Road, Brentford, Middlesex TW8 0PD

Anthracobia subatra, a species with blackish apothecia, is reported here as new to Britain. It is characterised by clavate to capitate paraphyses, which are apically encrusted by amorphous, dark brown pigment, contributing to the dark disc of the apothecium. The microscopic characters, such as excipulum structure, hair, ascus and ascospore form of this species are typical of *Anthracobia*, although the disc colour is unique amongst known species of the genus, and perhaps even within the family *Otideaceae*. A key for the identification of the five known British species of *Anthracobia* is provided.

Keywords: *Anthracobia subatra*, Otideaceae, discomycetes

Anthracobia Boud. was established to accommodate discoid species akin to *Peziza melaloma* Alb. & Schwein., having smooth, biguttulate ascospores and growing on burnt ground (Boudier, 1885). Boudier failed to make the formal combination of the type species of the genus and the combination of *P. melaloma* in *Anthracobia* was proposed by Arnould (1893). Eight species and a variety were included in *Anthracobia* by Boudier (1907a), and three species were illustrated in his *Icones Mycologicae* (Boudier, 1907b), namely *A. melaloma* (Alb. & Schwein.) Arnould (as *A. melaloma* (Alb. & Schwein.) Boud.), *A. nitida* Boud. (possibly a synonym of *A. macrocystis* (Cooke) Boud., see Yao & Spooner, 1995) and *A. maurilabra* (Cooke) Boud. The disc colour of these species ranges from yellowish orange or ochraceous orange, to reddish orange. A species with blackish disc, *Lachnea subatra* Rehm, was later combined in this genus by Moser (1963). A collection of this extraordinary species was recently made from Witley Common, Surrey, UK and is here reported as new to Britain. A full description of *A. subatra* based upon this collection is provided below.

Anthracobia subatra (Rehm) M. Moser in Helmut Gams' *Kleine Kryptogamenflora*, IIa, p. 109 (1963). (Figs 1, 2)

Lachnea subatra Rehm in Rabenhorst *Kryptogamen-Flora* Bd I, Abh. III, p. 1045 (1895).

Apothecia 4.0 - 10.0 mm diam., scattered to densely gregarious. *Disc* concave to flat, dark brown to blackish, smooth. *Receptacle* shallow cupulate, sessile, externally slightly paler, with hairs densely present surrounding the margin, conspicuous even on dried material. *Hairs* superficial, brown to dark brown, cylindrical with apical cell somewhat clavate, blunt, 50.0-100 x (10.0-) 14.0-22.0 μm , (0-)1-2(-3)-septate, walls thick, up to 1.5 μm . *Ectal excipulum* of *textura globulosa* to *textura angularis*, cells isodiametric to irregularly ellipsoid, 25.0-40.0 (-60.0) μm across, more elongate and narrower towards the margin, walls 0.5-1.5 μm thick, sub-colourless to pale brown, becoming darker towards the margin. Superficial, anchoring hyphae arising from outermost cells on lower excipulum, pale yellowish to almost colourless, 8.0-12.0 μm wide, sparsely septate. *Medullary excipulum* of *textura globulosa* to *textura intricata*, cells 16.0-35.0 x 12.0-20.0 μm , thin-walled. *Asci* operculate, not blueing in iodine, cylindrical, tapering towards the base, 180-210 x 13.0-18.0 μm , 8-spored. *Ascospores* unicellular, colourless, ellipsoid, smooth, 18.0-22.5 x 10.0-12.0 μm , 2-guttulate, often with a de Bary bubble in dried material, uniseriate. *Paraphyses* filiform, slender, septate, sometimes branched towards the base, straight, 1.5 - 2.5 μm diam., enlarged at the apex to 5.0-8.0 (-10.0) μm , mostly capitate, containing yellow-



Fig 1 Apothecia of *Anthracobia subatra* in situ. Witley Common, November 1996. Photo © N. W. Legon.

brown granules, apically usually encrusted with dark brown matter.

Specimen examined: Surrey, Witley Common, on burnt ground, 6 Nov. 1996, N. Legon (K(M) 42749).

Species of the genus *Anthracobia* are characterised by sessile, usually gregarious apothecia, which occur on burnt ground; the presence of carotenoid pigments which cause an orange coloured disc; superficial, brown, obtuse marginal hairs with 0-4 septa; an ectal excipulum composed of subglobose to angular cells and medullary excipulum of broad, interwoven hyphae; iodine-negative, typically 8 spored, operculate asci; and ellipsoid, colourless, smooth, biguttulate ascospores often with a de Bary bubble. The species reported here is unlike typical *Anthracobia* in its distinct blackish discs, unique in the genus. However, coloration of the disc in *Anthracobia* tends to be variable. Rifai (1968) recorded 'yellowish, ochraceous orange, reddish orange or brown' disc in his description of the genus, and fawn coloured discs were also documented in *A. maurilabra* (Cooke) Boud. from British collections (Dennis, 1978). Hohmeyer & Schnackertz (1987) concluded that disc colour in *Anthracobia* varies according to the relative

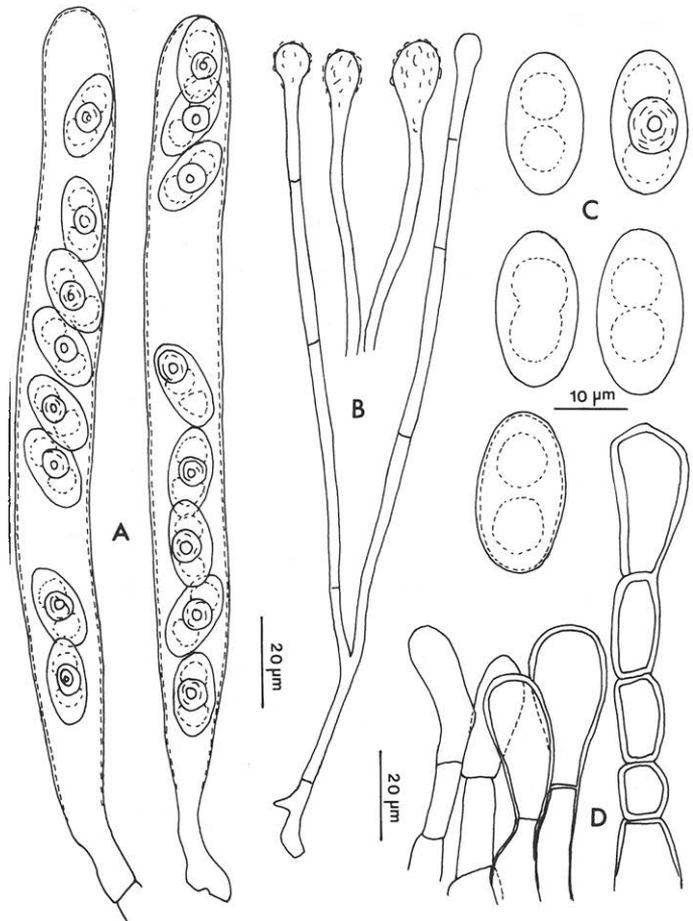


Fig 2 Microscopic characters of *Anthracobia subatra*. (A) asci; (B) paraphyses; (C) ascospores; (D) marginal hairs.

abundance of carotenoid and melanin pigment. *Lachnea subatra* seems correctly placed in *Anthracobia*, although further understanding of disc coloration in *Otideaceae* may lead to revision of the generic position of this species.

It appears that *Anthracobia subatra* has been collected so far only from continental Europe. It has not previously been reported from the British Isles, but due to the dark disc and its inconspicuous appearance, the species may have been overlooked in the past. Known collections are from June to November, although the fungus may have a longer season, perhaps throughout the year. The British collection reported here occurred with the moss *Funaria* on burnt ground; a few apothecia of *Trichophaea hemisphaerioides* (Mouton) Graddon were also present.

British species of *Anthracobia* were previously

discussed by Yao & Spooner (1995); two of them were profiled earlier (Yao & Spooner, 1994, 1996). The fresh state of *A. subatra* is also figured here (Fig 1) and the microscopic characters are illustrated in Fig 2. Comparison of the British collection with a specimen distributed by Sydow (labelled as 'Sydow, *Mycotheca Marchica*. 1058 *Humaria subatra* Rehm n. sp. in litt. 1885. Auf einer Brandstelle im Grunewald by Berlin. 6. 1886. leg. P. Sydow.', now in K) shows they are conspecific. The German collection also clearly exhibits the characteristic apically capitate and encrusted paraphyses, and has ascospores that measure 19.0-23.5 x 10.0-11.0 µm. An earlier collection (same locality, June 1885, leg. Sydow) cited by Hohmeyer & Schnackertz (1987) is presumably the holotype.

A key for identification of the known British species of *Anthracobia* follows.

Key to British Species of *Anthracobia*

1. Paraphyses strongly coiled, hooked or curved above; ascospores 10.0-12.0 x 5.0-5.5 µm - - *A. uncinata* (Velen.) Spooner
1. Paraphyses straight or slightly curved above; ascospores larger than 14.0 x 7.0 µm - - - - - 2
2. Apothecia dark brown to blackish; paraphyses apically clavate to capitate and encrusted with brown matter - - - - - *A. subatra* (Rehm) Moser
2. Apothecia yellowish orange, reddish orange, ochraceous orange to fawn; paraphyses lacking brown encrustation - - - - - 3
3. Marginal hairs inconspicuous, thin-walled, often collapsing when dried, 40.0-60.0 x 5.0-20.0 µm; ascospores 16.0-22.0(-25.0) x 8.0-10.0(-11.0) µm - - - - - *A. macrocystis* (Cooke) Boud.
3. Marginal hairs conspicuous, mostly thick-walled, well-preserved in dried material, 40.0-120 x 3.0-10.0 µm; ascospores 14.0-21.0(-23.0) x 7.0-9.5 (-10.5) µm - - - - - 4
4. Ascospores ellipsoid, 14.0-17.0 x 7.0-9.5 µm; apothecia orange to pale orange - - *A. melaloma* (Alb. & Schwein.) Arnould
4. Ascospores oblong-ellipsoid, 17.0-21.0(-23.0) x 7.0-9.5(-10.5) µm; apothecia pale orange to fawn - - - - - *A. maurilabra* (Cooke) Boud.

References

Arnould, L. (1893) Liste des espèces de Champignons récoltées en Picardie. *Bulletin de la Société Mycologique de France* 9: 98 - 122.

Boudier, M. (1885) Nouvelle classification naturelle des discomyètes charnus. *Société Mycologique Bulletin* 1: 91 - 120.

Boudier, M. (1907a) *Histoire et Classification des Discomycètes d'Europe*. Paul Klincksieck: Paris.

Boudier, M. (1907b) *Icones Mycologicae* Sér. 4, Livr. 16. Paul Klincksieck: Paris.

Dennis, R. W. G. (1978) *British Ascomycetes*. J. Cramer: Vaduz, Liechtenstein.

Hohmeyer, H. H. & Schnackertz, H. (1987) Die Gattung *Anthracobia* Boud. (Pezizales, Pyronemataceae). *Beiträge zur Kenntnis der Pilze Mitteleuropas* 3: 427 - 438.

Moser, M. (1963) *Ascomyceten (Schauchpilze)*. In Helmut Gams Kleine (Kryptogamenflora, Band II. Gustav Fischer Verlag: Stuttgart.

Rifai, M. A. (1968) The Australasian Pezizales in the Herbarium of the Royal Botanic Gardens, Kew. *Verhandelungen der Koninklijke Nederlandse Akademie van Wetenschappen, Afd. Natuurkunde II*, 57: 1 - 295.

Yao, Y.-J. & Spooner, B. M. (1994) Profiles of Fungi 63: *Anthracobia macrocystis*. *Mycologist* 8: 107 - 108.

Yao, Y.-J. & Spooner, B. M. (1995) Notes on British species of *Anthracobia*. *Mycological Research* 99: 1519 - 1520.

Yao, Y.-J. & Spooner, B. M. (1996) Profiles of Fungi 76: *Anthracobia melaloma*. *Mycologist* 10: 37 - 38.