



A–F. Dried (fungarium) specimen on dead bark of *Fraxinus excelsior* from Yorkshire, UK (K(M)). A. Colony showing clusters of ascomata and conidiomata; bar = 5 mm. B, C. Ascomata and conidiomata (latter indicated with arrow); bar = 1 mm. D, E. Asci and paraphyses mounted in lactic acid; bar = 10 μ m. F. Conidiophores and conidia mounted in lactic acid; bar = 10 μ m.

Tympanis columnaris (Wallr.) Höhn., *Hedwigia* 59(4): 283 (1917). [*IndexFungorum* 581723; *Helotiaceae*, *Helotiales*]

Sphaeronaema columnare Wallr., *Flora Cryptogamica Germaniae* 2: no. 3684 (1833). [*IndexFungorum* 215160]

Pleurophomella columnaris (Wallr.) Höhn., *Hedwigia* 59(4): 283 (1917). [*IndexFungorum* 581724]

Ascochyta columnaris (Wallr.) Wollenw. & Hochapfel, *Zeitschrift für Parasitenkunde* 8: 602 (1936). [*IndexFungorum* 251521]

Sirodothis columnaris (Wallr.) B. Sutton & A. Funk, *Canadian Journal of Botany* 53(6): 526 (1975). [*IndexFungorum* 323572]

On natural substratum. Stromata erumpent through surface layers of bark, scattered or clustered, frequently bearing conidiomata and ascomata simultaneously, black, the exposed part shortly cylindrical, to c. 500 µm long and 2 mm diam., composed of very dark brown thick-walled angular cells. *Anamorph.* Conidiomata 500–700 µm diam., formed singly or in clusters of 2 or 3 on short branches at the apex of the stroma, ± globose, dark brown to black, glabrous, very thick-walled, horny in consistency when dry, more cartilaginous when wet; wall composed of brown thick-walled *textura angularis*, darker and thicker-walled in the outer layers, non-ostiolate, breaking down irregularly in the upper part to expose the conidiophores. *Conidiophores* formed from the inner layer of the basal wall of the conidioma, sometimes branched at the base, 1.5–2 µm diam., filiform, straight or sometimes arched, closely septate. *Conidiogenous cells* terminal and intercalary, colourless, thin-walled, smooth, 1.5–2 µm diam., with conidia formed terminally and from nodes immediately below each septum; conidiogenous loci proliferating percurrently, not well differentiated, collarete and periclinal thickening inconspicuous. *Conidia* 3–3.5 × 1.2–1.5 µm, cylindrical to cylindrical-ellipsoidal, colourless, aseptate, smooth, without a gelatinous sheath or appendages. *Teleomorph.* Ascomata apothecial, appearing singly or in clusters of 2 or 3 at the apex of the erumpent stroma, 500–1000 µm diam. and 200–450 µm tall, usually ± circular but rather irregular in form, slightly narrower at the base, black, glabrous, horny in consistency when dry but more cartilaginous when wet; hymenium concave to flat, black when dry, becoming paler and more greenish when hydrated, initially surrounded by a rounded, inrolled excipular margin which may disappear with maturity; outer wall tissues composed of interwoven thick-walled gelatinized hyphae 2–4 µm diam., black and occluded in the outer part and almost colourless near the hymenium. *Asci* (110–)125–150(–160) × (13–)14–16(–18) µm, cylindrical, short-stalked, rather thick-walled, gelatinized and clearly multilayered when young, the walls later becoming thinner, apical structures not seen, initially 8-spored. *Ascospores* arranged uniseriately, 4–5 × 3.5–4.5 µm, ovoid to subglobose, 1- or 2-celled, colourless and thin-walled, dividing repeatedly to produce many secondary spores 3–5.2 × 1–2.5 µm, cylindrical to allantoid, aseptate, colourless, thin-walled, lacking a gelatinous sheath and appendages. *Interascal tissue* of simple or sparsely branched paraphyses 1.5–2 µm diam., the apices slightly swollen and embedded in a brown gelatinous matrix which forms an epithelial layer.

ASSOCIATED ORGANISMS & SUBSTRATA: **Plantae.** *Fraxinus excelsior* L. (branch, twig), *F. ornus* L., *Fraxinus* sp. (bark, branch, trunk); *Rhus typhina* L. [probably misidentified] (branch). **Associated organism of type specimen.** *Fraxinus* sp. (trunk).

INTERACTIONS & HABITATS: Each species of *Tympanis* tends to be found on one or a small number of plant genera, and at least one species, *T. confusa* Nyl., produces cankers. This has been interpreted as an indication that these fungi are weakly parasitic (GROVES, 1952). For the present fungus, however, field observations and experimental evidence of parasitism have not been found. At least by the time the fungus is producing anamorph and teleomorph fruitbodies, it is saprobic on woody parts of the associated plant. No information has been found about any interactions between this fungus and animals and other fungi.

GEOGRAPHICAL DISTRIBUTION: EUROPE: Belgium, Finland, France, Germany, Sweden, Ukraine, UK.

These records are probably within the natural distribution of this fungus. No information about altitudinal distribution was found.

ECONOMIC IMPACTS: No evaluation has been made of any possible positive economic impact of this fungus (e.g. as a recycler, as a source of useful products, as a provider of checks and balances within its ecosystem, etc.). No reports of negative economic impacts have been found.

INFRASPECIFIC VARIATION: None reported.

DISPERSAL & TRANSMISSION: Not known, but presumably by air- and/or water-dispersed conidia and ascospores.

CONSERVATION STATUS: Information base. Fewer than ten records (specimens, databases and bibliographic sources combined, excluding duplicates) from at least 1833 to 1979. The only recorded month of occurrence is November. **Estimated extent of occurrence** [calculated using <http://geocat.kew.org>]. About 2.2 million km² (Europe: 2.2 million km²). **Estimated area of occupancy** [calculated using <http://geocat.kew.org>]. Over 24 km². The method for estimating area of occupancy has produced an artificially low figure. The species is likely to be under-recorded, particularly in recent years, because of the small and declining numbers of people with the skills to search for and identify it. **Threats.** Ash dieback caused by *Hymenoscyphus pseudoalbidus* Queloz, Grünig, Berndt, T. Kowalski, T.N. Sieber & Holdenr. (better known by the synonym *Chalara fraxinea* T. Kowalski) is likely to result in significant loss of habitat as it spreads across Europe. **Population trend.** Not known. **Evaluation.** Using IUCN criteria (IUCN SPECIES SURVIVAL COMMISSION. 2006 *IUCN Red List of Threatened Species* [www.iucnredlist.org]. Downloaded on 15 May 2006), the species is assessed globally as Data Deficient. **In situ conservation actions.** None noted. **Ex situ conservation actions.** No sequences were found in a search of the NCBI GenBank database [www.ncbi.nlm.nih.gov]. No living strains of this species were found in a search of the *Culture Collection Information Worldwide* on-line catalogue [www.wfcc.info/ccinfo/home].

NOTES: *Tympanis columnaris* has been confused with two other fungi also occurring on *Fraxinus*. One is now called *Dermea tulasnei* J.W. Groves. The other is *Durandiella fraxini* (Schw.) Seaver. Both of these are known from North America, whereas the only records of *T. columnaris* are from Europe (GROVES, 1952). On the basis of cultural studies and examination of ascospore germination patterns, OUELLETTE & PIROZYNSKI (1975) suggested that *T. columnaris* is a synonym of *T. ligustri* Tul. & C. Tul., which also occurs on members of the *Oleaceae*. GROVES (1952), however, regarded them as distinct species on the basis that ascomata of *T. columnaris* were usually more than 0.5 mm high and usually produced in clusters, whereas those of *T. ligustri* were less than 0.3 mm high and usually produced singly. The treatment of GROVES (1952) is used in the present work. Some mycological databases, however, follow the treatment of OUELLETTE & PIROZYNSKI (1975). For the present work, wherever possible, the very few records in such databases where the associated organism was stated to be *Fraxinus* were tentatively attributed to *T. columnaris* rather than *T. ligustri*. In the case of the *GBIF* database, names of associated organisms are not provided, and that limited functionality has meant the records of *T. ligustri* from that source could not be considered for this work.

LITERATURE & OTHER SOURCE MATERIAL: GROVES, J.W. The genus *Tympanis*. *Canadian Journal of Botany* **30**(5): 571–651 (1952). OUELLETTE, G.B. & PIROZYNSKI, K.A. Reassessment of *Tympanis* based on types of ascospore germination within asci. *Canadian Journal of Botany* **52**(8): 1889–1911 (1974). SUTTON, B.C. & FUNK, A. Conidial states of some *Pragmopora* and *Tympanis* species. *Canadian Journal of Botany* **53**(6): 521–526 (1975).

Sources additional to those already cited from literature and the internet.

- *Checklist of Fungi of the British Isles* [www.fieldmycology.net/GBCHKLST/gbchklst.asp].
- *Cybertruffle* [www.cybertruffle.org.uk].
- *GBIF* [<http://data.gbif.org>].
- *Google* [www.google.co.uk].
- *Landcare Research New Zealand* [<http://nzfungi.landcareresearch.co.nz/html/mycology.asp>].

- *National Center for Biotechnology Information* [www.ncbi.nlm.nih.gov].
- *USDA Fungal Databases* [<http://nt.ars-grin.gov/fungaldatabases>].

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