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Australasian Sequestrate Fungi 16. *Gastrotylopilus*, a Synonym of *Fistulinella*

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Abstract

Examination of the holotypes of *Gastrotylopilus brunneus* T.H. Li & Watling and *Fistulinella mollis* Watling revealed them to be the same taxon, even though *G. brunneus* was originally described as a gastroid, *i.e.* sequestrate, taxon and *F. mollis* as an epigeous, nonsequestrate taxon. A new genus is accordingly needed to accommodate sequestrate, hypogeous relatives of the epigeous genus *Tylopilus* P. Karst

Introduction

In recent years J.M. Trappe and A.W. Claridge have collected several hypogeous, sequestrate species of fungi related to the epigeous genus *Tylopilus* P. Karst. in south-eastern Australia. This is not surprising, because *Tylopilus* is a relatively diverse genus in Australia (Watling & Li 1999), and its sequestrate derivatives have likely evolved in response to the warm, dry climate characteristic of much of Australia (Trappe *et al.* 2001). We compared our collections to the description of *Gastrotylopilus brunneus* T.H. Li and Watling. None fit that species, and we became aware that the description of *G. brunneus* (Li & Watling 1999) does not fully conform to the usual macromorphology associated with sequestrate boletes.

The sequestrate derivatives of the tubulose Boletaceae are characteristically hypogeous or barely emergent. Their stipes are much reduced or even lacking, and their long, contorted tubes are not vertically oriented (Thiers & Trappe 1969, Thiers, 1989), for example as in the Australian *Gymnogaster boletoides* J.W. Cribb (Fig. 1). Cribb's (1956) illustration of this species graphically portrays the contortion and nonvertical orientation of the tubes usual for sequestrate boletes. *G. brunneus* was described by Watling and Li (1999) as having a stipe 35–45 x 7–14 mm and 'Tubuli ≤ 8–9 mm longi, contorti, sinuosi ad stipen, albi vel leviter fulvo-albi, completi prope poros; pori 1–1.5 per mm, irregulares vel subangulares, rosati, depressionibus' ('Tubules ≤ 8–9 mm long, contorted, sinuous at the stipe, white to light fulvous-white, filled near the pores; pores 1–1.5 per mm, irregular to subangular, pink, with depressions). To better understand *Gastrotylopilus brunneus,* we examined its holotype*,* Watling 14741, lent by the Royal Botanic Gardens, Edinburgh (E). A second collection (Watling 17785) not included in the original protologue of the type description was also provided by E.

Taxonomy

GASTROTYLOPILUS BRUNNEUS = FISTULINELLA MOLLIS

The holotype of *Gastrotylopilus brunneus* (Figs. 2, 3) is somewhat immature, but both it and Watling 17785 appeared to be normal, dried, epigeous boletes. The slender stipes were tall enough to raise the cap above the soil. The tubes were neither unusually long nor unduly contorted and were generally oriented in the dried specimens such that they

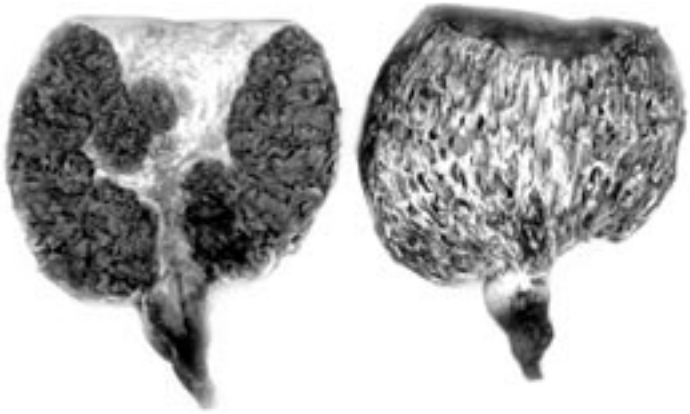
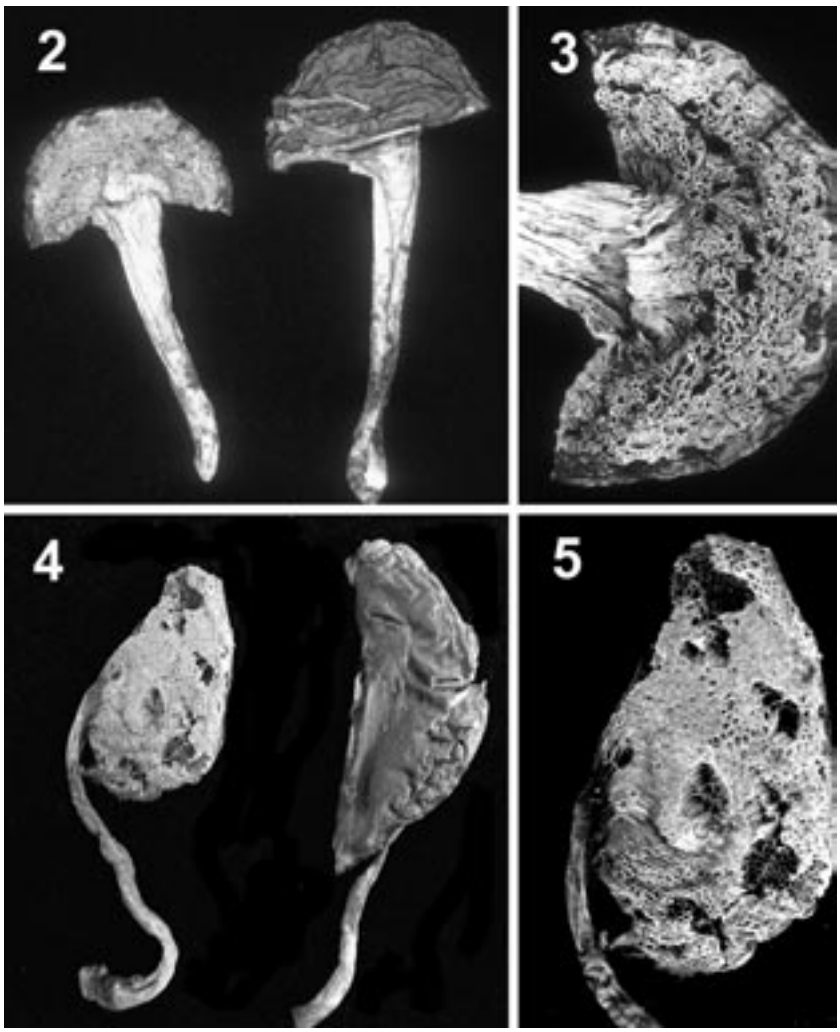


Figure 1. Fresh specimen of *Gastroboletus boletoides*; left, cross section; right, surface view, x 2.5.



Figures 2–5. Dried holotypes of *Gastrotylopilus brunneus* and *Fistulinella mollis*. **2.** *G. brunneus,* x 0.9. **3.** Tube layer of *G. brunneus,* x 2. **4.** *F. mollis,* x 0.9. **5.** Tube layer of *Fistulinella mollis,* x 1.5.

would have been vertical *in situ.* The surface of the tube layer had distinctive depressions of various sizes as noted by Watling and Li (1999). The spores were bilaterally asymmetric and thus most likely ballistospores. We accordingly judged *G. brunneus* to be a nonsequestrate, epigeous bolete.

We then used the key to Australian boletes by Watling and Li (1999) to see if *Gastrotylopilus brunneus* would equate to some other described species. By-passing the key's dichotomy choice that led to *G. brunneus,* 'Tubes contorted; pores irregular, easily collapsed or flattened, with larger or smaller depressions...' we continued through the subsequent choices, arriving finally at the determination of *Fistulinella mollis* Watling as described in Watling and Gregory (1989). Comparison of the original descriptions of both species revealed substantial similarity of macroscopic features, with differences well within the range of variation to be expected between different collections of a species; spore characters matched closely. Comparison of both descriptions with the expanded description and illustration of *F. mollis* by Bougher and Syme (1998) further evidenced conspecificity of the two taxa. Their illustration shows the depressions in the surface of the tube layer also evident on the type collection of *G. brunneus.*

To further test our hypothesis that *Gastrotylopilus brunneus* is a synonym of *Fistulinella mollis*, we examined the holotype of the latter (Watling 10404) from E. The holotype closely matches that of *G. brunneus* in all respects (Figs. 4, 5). The genus name *Gastrotylopilus,* therefore, is a later synonym of *Fistulinella* P. Henn. and thus not available for the sequestrate species related to *Tylopilus.* We shall propose a new generic name for those taxa when we monograph the sequestrate group.

The protologue of *Gastrotylopilus brunneus* contains a minor error that nonetheless is worth correcting to avoid wrong assumptions on habitat of *Fistulinella mollis*. Li and Watling (1999) cite the habitat as 'near the trunk or logs of *Eucalyptus obliqua.*' The holotype collection label in Watling's handwriting, however, reads "track to large *Eucalyptus obliqua."*

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