

Tremella aurantia & *T. mesenterica*, two British ‘Yellow Brain Fungi’ compared

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During a recent walk on Hampstead Heath I stumbled across a bright orange-yellow *Tremella* species on the branch of a large, fallen oak tree. It looked rather different to the usual *Tremella mesenterica*, Yellow Brain Fungus, which I come across fairly often and upon further examination it did indeed prove to be different; this was *Tremella aurantia*.

Coincidentally I had very recently been reading two excellent articles by Peter Roberts on British *Tremella* species in *Mycologist* (Roberts, 1995, 1999). He also wrote two further papers on *Tremella* (Roberts, 2001, 2007). As many mycologists today may not be familiar with these papers I take this opportunity to describe and comment on my collections.

Roberts remarks in the 1995 article “*T. aurantia* is something of a mystery since it appears to be fairly common yet unreported in Britain or indeed Europe, (though Weinmann (1836) used the name for a Russian collection)”. A number of widespread collections deposited as *T. mesenterica* at Kew, dating from 1822 to 1969, were re-determined by Roberts as *T. aurantia* and then in 1993 a collection was made by Roberts from Jersey and then again in the same year from

South Devon. There are now 54 records in the FRDBI after removing duplicates. This record of mine makes it 55 and new to Middlesex. However, due to the relatively low number of records compared to those of *T. mesenterica* (4,474 incl. duplicates) I can’t help thinking that *T. aurantia* has been and still is overlooked and misidentified in the field as *T. mesenterica*.

Tremella species, often referred to as a genus of Jelly Fungi, can be large and colourful enough to make them highly visible, or they can be small, drab and not so visible or totally invisible macroscopically, occurring only within their host with no recognisable fruitbody.

All *Tremella* species appear to be parasitic on other fungi or lichens, often host specific, on a variety of deciduous trees and shrubs. If the host is present and apparent this can help in separating *T. aurantia* from *T. mesenterica*, however the host is often not visible due to the parasitising influence of the *Tremella*. In that case microscopic examination is essential to help separate the two and thankfully there are enough differences between the two species to separate them with confidence.



Fig. 1. *Tremella aurantia* with *Stereum hirsutum* on *Quercus*, Hampstead Heath, Middlesex. Photograph © Andy Overall.

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Fortuitously, the almost exclusive host of *T. aurantia*, the very common *Stereum hirsutum*, was present and visible in my recent collection (see Fig. 1) so I was able to tick that box. *Stereum gausapatum* may also, albeit more rarely, be a host. The host of *T. mesenterica* is a little more difficult to observe and is exclusively a species from the resupinate genus *Peniophora*. *P. incarnata* seems the preferred, common host that often occurs on *Ulex europaeus*, Common Gorse. It is worth peering on the underside of the wood where *T. mesenterica* is fruiting to check for the *Peniophora*.

The most important microscopic differences between the two species are the size and shape of the spores and basidia, whether or not the host hyphae within the fruitbody are clamped and whether or not there are conidia and conidiophores.

The following details accompanied by photographs of both species, highlight the differences between them.

Details of illustrated collections

Tremella aurantia Schwein. (Fig. 1)

Fruitbody up to 15 cm across, in tight, convoluted folds, frondose, gelatinous, bright orange to begin with, appearing matt or pruinose and not shiny like the surface of *Tremella mesenterica*, presumably due to a thick gelatinous layer covering the hymenium containing spores and yeast-like conidia.

Host: *Stereum hirsutum* on *Quercus*, the predominant host. This usually lacks clamp connections.

Basidiospores of this collection subglobose-broadly ellipsoid, 8.3–9.5(-9.7) x 6.8–7.6(-8.0) μm , smooth, hyaline (Fig. 2). Secondary spores resembling conidia, 2.0–4.0 x 1.5–3.0 μm (Fig. 3).

Basidia 13.0–14.1 x 12.5–13.0 μm subglobose, occasionally stalked ellipsoid, 2–4 septate, the septa often diagonal.

No conidiophores present.

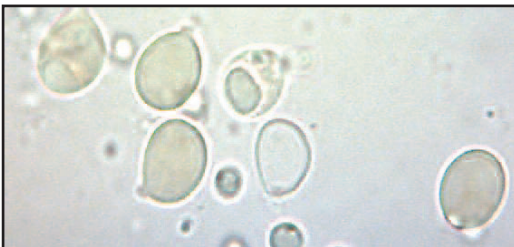


Fig. 2. *Tremella aurantia*, subglobose to broadly ellipsoid basidiospores. Photograph © Andy Overall.



Fig. 3. *Tremella aurantia*, septate, subglobose, broadly ellipsoid basidia. Numerous secondary spores budded off from the basidiospores are also visible. Photograph © Andy Overall.

Tremella mesenterica Retz. (Fig. 4)

Fruitbody up to 5–10 cm across, with tight, convoluted folds, cerebriform, partly frondose, gelatinous, bright yellow becoming more orange upon drying, shiny, glossy and not matt like the surface of *Tremella aurantia*.

Host: *Peniophora* sp. on gorse* (likely to be *Peniophora incarnata*).

Basidiospores broadly ellipsoid, ellipsoid, 13–16 (-22) x 9.3–10.6 (-12.1) μm smooth, hyaline (Fig. 5). Secondary spores (yeast-like conidia) 2.0–4.0 x 1.5–3.0 μm (Fig. 6).

Basidia 19.8–24.0 x 15.2–19.5 μm , rarely stalked ellipsoid-broadly, 2–4 septate, the septa vertical, diagonal or horizontal (Fig. 7).



Fig. 4. *Tremella mesenterica*. On branch of *Corylus* with *Peniophora* host. Photograph © Catherine Beazley.

Conidiophores and conidia abundant, the conidia indistinguishable from the secondary spores produced by the basidiospores.

* Host range believed to be confined to *Peniophora* spp., but the range of hosts within *Peniophora* is poorly known as the host rarely fruits when parasitised. Almost all *Peniophora* species have clamp connections.

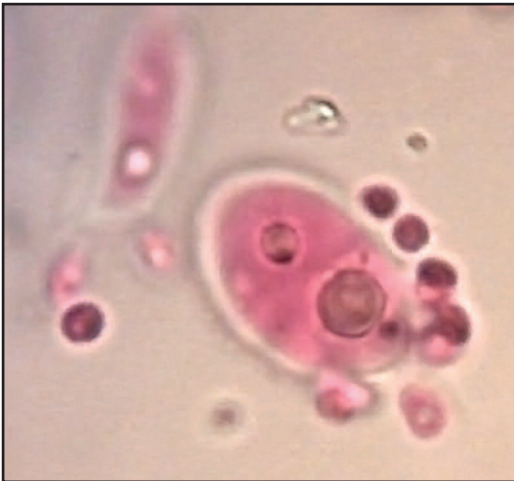


Fig. 5. *Tremella mesenterica*, basidiospore with secondary spores (identical to those produced by the conidiophores). Photograph © Andy Overall.



Fig. 7. Basidium of *Tremella mesenterica*. Photograph © Andy Overall.

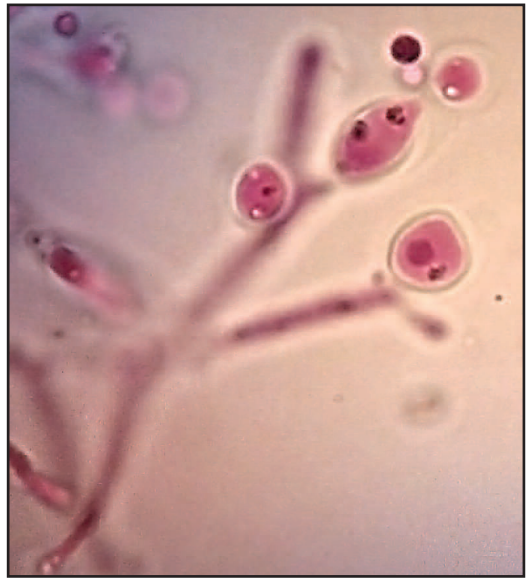


Fig. 6. *Tremella mesenterica*, conidiophore and conidia. Photograph © Andy Overall.

References

- Roberts, P. (1995). British *Tremella* species 1: *Tremella aurantia* and *T. mesenterica*. *Mycologist* 9(3): 110–114.
- Roberts, P. (1999). British *Tremella* species II: *T. encephala*, *T. steidleri* & *T. foliacea*. *Mycologist* 13(3): 127–131.
- Roberts, P. (2001). British *Tremella* species III. *Tremella callunicola* sp. nov., *T. invasa*, *T. sarniensis* sp. nov., *T. simplex*, & *T. versicolor*. *Mycologist* 15: 146–150.
- Roberts, P. (2007). British *Tremella* species IV: *Tremella obscura*, *T. penetrans*, *T. giraffa* & *T. polyporina*. *Field Mycology* 8(4): 127–133.