A spring gall – *Taphrina johansonii*

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Through a contact to the Hampshire Fungus Recording Group, Jon Stokes reported a find of *Taphrina johansonii* Sadeb. from Portchester, not far from where I live on the south coast of Hampshire. So I took the opportunity for a guided tour (which was wise, because it turns out that you can only find the gall when you know what you are looking for). Jon had been writing a book about trees, and was looking for the catkins on female clones of *Populus* ×*canescens*. Most of the clones of this hybrid in Britain have been planted, and are male (Meikle 1984, p170, Johnson & More 2004, p150). But at Portchester Jon discovered female clones with catkins, and in the process spotted several catkins infected with a *Taphrina* which causes the fruits to become swollen and bright yellow. And having found it on *P.* ×*canescens*, it was also on the adjacent *P. tremula*, in one case an impressive infestation (see front cover), though more often only a few fruits in an inflorescence are infected.

Taphrina is currently the subject of some work by the Welsh Microfungus Recording Group to gather and collate records as part of their next volume on parasitic microfungi in Wales and the UK. The gauntlet having been thrown down by an English record on *P.* ×*canescens*, the race was then on to find a first record for Wales on this host, and it wasn't too long before Ray Woods turned up *T. johansonii* on *Populus* ×*canescens* in Radnorshire (vc43) (Fig. 2). There were previous Welsh records on *P. tremula*, of which fruiting female plants are also less frequent than males in central Wales, though there are conflicting reports about sex ratios in *P. tremula* more generally.

Taphrina is an interesting genus, whose hosts comprise a range of tree species and some ferns. *Taphrina* species have two forms, the multicellular version which parasitizes a host plant, and a yeast formed from the conidia which is capable of independent existence, and can therefore be cultured. There is a monograph of *Taphrina* by Mix (1949, 1954), who recognises 98 species (worldwide). There is also a flora of Taphrinomycetes in Slovakia (Bacigálová 2010) available online, which covers 36 species in *Taphrina* (and more in other related genera). On the other hand, Fonseca & Rodrigues (2011) recognise only 28 species based on an investigation of the DNA (which is challenging because *Taphrina* is not variable in some of the areas commonly used in taxonomy); this

looks to be too reductionist, based on only available cultures and therefore not really investigating the full range of variation within the genus. This was already remedied in part by Petrýdesová *et al*. (2013).

Figure 1: *Taphrina johansonii* on *Populus* ×*canescens*, Penybont Common, Rads (SO1164). Photo: Ray Woods.

Taphrina johansonii is reported from *Populus tremula* and *P.* ×*canescens* in the UK, and from *P. tremuloides* in N America (among a range of other species, see Mix (1949)), but there are also similar infections on *P. alba*. These were actually described first, as *T. rhizophora* Johanson, which has larger asci, although there is considerable overlap. Mix (1949) maintained *T. rhizophora* and *T. johansonii* as separate species, but noted their similarity, and Fonseca & Rodrigues (2011) synonymised them under *T. johansonii* (which is a somewhat odd choice since *T. rhizophora* seems to have priority). But Petrýdesová *et al*. (2013) examined specimens from Slovakia infecting *P. alba* and *P. tremula* and found sufficient differences in the DNA to support them as separate species, with overlapping ascus sizes.

Taphrina johansonii forms asci, but the ascospores are rarely seen, because they quickly divide to form numerous blastospores inside the asci. In the Portchester

Figure 2: Asci of *Taphrina johansonii* with ascospores (the large circles).

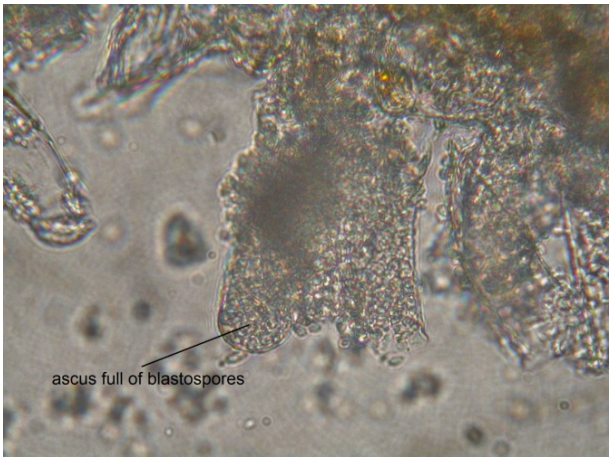

Figure 3: Asci of *Taphrina johansonii* with blastospores.

specimens, the ascospores were present (Fig. 2), but there were also asci filled with blastospores (Fig. 3). The asci were clearly most similar in size to the ranges given for *T. johansonii* rather than *T. rhizophora*.

Redfern *et al*. (2023) report that *T. rhizophora* has been recorded once in Britain, but without further details. However, an iNaturalist report https://www.inaturalist.org/observations/155662538, also from spring 2023, looks plausible – though a check of the microscopic characters and host id would be a valuable confirmation. It would be worthwhile making particular efforts to check the catkins of different species of *Populus* in spring, to see whether both *Taphrina* species are actually more widespread but overlooked.

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