Typhula phacorrhiza in all its forms

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When one of us (FF) found numerous white button-shaped fungi with depressed surfaces on decaying ash leaves at Beeston Common, Norfolk, the assumption was made that they would be discomycetes (Fig. 1). The first indication that they were not came from their firm, almost rubbery, texture; the second from the total lack of asci or any other reproductive structures. Some of the leaves also bore dark brown 'buttons'; these too lacked asci (Fig. 2). Sclerotia were contemplated but still the penny did not drop.

Another of the authors (AE) is a molecular biologist at the John Innes Centre, Norwich, with a particular interest in ash dieback disease.

Fig. 1. Young white sclerotia of *Typhula phacorrhiza* on ash leaf. Beeston Common, Norfolk. Photograph © Tony Leech.

Fig. 2. Brown sclerotium of *Typhula phacorrhiza* on ash leaf. Beeston Common, Norfolk. Photograph © Francis Farrow.

Having sequenced part of the DNA from *Hymenoscyphus pseudoalbidus* and *H. albidus* as part of this work, she offered to investigate the mystery fungus as it was also on ash leaves. To our surprise, sequencing the internal transcribed spacer in the 18s ribosomal RNA gene revealed that both the white and the brown fungi were *Typhula phacorrhiza*, a spindle fungus arising, as do other members of the genus, from sclerotia. Although one of us (TL) was familiar with this fungus from a collection in North Norfolk in 2003 (Figs 3 & 4) the young white sclerotia were so different in shape and colour from those at the base of fruiting bodies that the link was not made.

Albertini & Schweinitz (1805) had described the white sclerotia as an independent species *Sclerotium scutellatum*. Perusal of images on the internet showed white sclerotia rather less regular in shape than those found. Anne herself had previously investigated the DNA of a stalked, buff-coloured fungus on ash leaves which she had found to be *T. phacorrhiza* but in this case the structure and colour were somewhat more similar to the mature spindles (Fig. 5).

The white sclerotia varied in size from 2–4 mm in diameter, but not in shape except that the larger ones were more depressed at their centres. They were attached narrowly to the leaf, often, but not always at the midrib, but had no true stalk. Presumably as the sclerotium develops it darkens. The surface is covered with small and slightly sinuous, hairs approximately 10 x 2 µm. These may have been responsible for the exudation of water droplets seen on many specimens. Also noted were ribbon-like mycelial strands criss-crossing the leaf surface.

The diversity of forms assumed during development of the sclerotia, and their contrast in appearance with the spindle-shaped basidiome, sets traps for the unwary field mycologist.

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Fig. 3. *Typhula phacorrhiza* on ash litter, Edgefield, Norfolk. Photograph © Tony Leech.

Fig. 4. *Typhula phacorrhiza* showing sclerotia, Edgefield, Norfolk. Photograph © Tony Leech.

Photo 5 Young *Typhula phacorrhiza*, Lower Wood Ashwellthorpe, Norfolk, March 2013. Photo: Anne Edwards.

Reference

Albertini, J.B. & Schweinitz, L.D. (1805). *Conspectus fungi Lusitanici*. Lisbon.