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The oldest sequenced fungal specimen

In science, it is easier to discover something than to find out if someone else discovered it before. For example, it is perhaps no surprise that, on average, each currently accepted fungus species has about 2·5 names (Hawksworth 1992). With the advent of DNA technology and the explosion of molecular systematics, mycologists may need to ascertain to what taxon a dried specimen preserved in a fungarium (the name commended for collections of dried fungi over the botanical 'herbarium'; Spooner & Cannon 2010) belongs. This is especially so for name-bearing types, where the inability to recover DNA from the specimens has meant that interpretative types, termed epitypes, have to be designated, as was done for the mid-18th century lectotype of *Lichen saxatilis*, the basionym of *Parmelia saxatilis*, by Molina *et al.* (2004). This will be an ongoing problem to be addressed where cryptic speciation is involved, a phenomenon that is apparently not infrequent in macrolichens (Crespo & Lumbsch 2010).

It was therefore encouraging to find that Redchenko *et al.* (2012) had been able to obtain ITS sequences from DNA recovered from a 151 year-old specimen of *Caloplaca conversum* collected in 1859. This, and other reports included in their paper of success with 19th and early 20th century material, indicates that mycologists should not be too quick to designate epitypes, but to first try and recover sequences from the already designated types where ample material exists. It would, of course, be irresponsible to destroy irreplaceable type material on the off-chance that DNA might be obtained from it, especially as in many cases direct or microscopic study of the specimens enables them to be unequivocally recognized as the same as recently collected ones.

However, in claiming that their sequencing of a 151 year-old specimen was a record for all members of kingdom *Fungi*, Redchenko *et al.* (2012) unfortunately appear to have overlooked the report of Larsson & Jacobsson (2004) detailing the recovery of the complete ITS region of the Sowerby type material of *Agaricus cossus*, the basionym of *Hygrophorus cossus*, in the fungarium of the Royal Botanic Gardens Kew (K), which had been collected 210 years earlier in 1794. This report indicates that success had been obtained with material 59 years older than that of *Caloplaca conversum*, and that the record for *Fungi* remains that of the *Agaricus cossus* type. The *Caloplaca* does, however, appear to be the oldest ascomycete fungus from which DNA has been successfully recovered.

These results reinforce the value of fungaria as a source of fungal material that can be sequenced, as previously reported by, for example, Bruns *et al.* (1990) and Brock *et al.* (2009); neither of these studies was cited by Redchenko *et al.* (2012).

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David L. Hawksworth

D. L. Hawksworth: Departamento de Biología Vegetal II, Facultad de Farmacia, Universidad Complutense de Madrid, Plaza Ramón y Caja, Madrid 28040, Spain; and Department of Life Sciences, The Natural History Museum, Cromwell Road, London SW7 5BD, UK. Email: d.hawksworth@nhm.ac.uk

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