



## Redescription of *Clitocybe umbrinopurpurascens* (Basidiomycota, Agaricales) and revision of *Neohygrophorus* and *Pseudoomphalina*

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### Abstract

*Clitocybe umbrinopurpurascens*, a rare species thus far known only from Morocco, is redescribed based on fresh collections made in Calabria (South Italy). Photographs of fresh material and drawings of the main micromorphological features of the species are provided. The type collection, in poor condition and not suitable for molecular analysis, was restudied macro- and micromorphologically and was found fully identical with the collections from Calabria. Based on molecular data, this species belongs to the genus *Pseudoomphalina* (type *Omphalia kalchbrenneri*) and the genus *Neohygrophorus* is treated as a synonym of *Pseudoomphalina*. A collection from Calabria is chosen as an epitype for *P. umbrinopurpurascens*. Our morphological and molecular revision of other *Pseudoomphalina* species did not provide evidence supporting the placement of *Agaricus pachyphyllus* in *Pseudoomphalina*, or any other of the allied genera, therefore, for this species the new genus *Pseudolaccaria* is introduced. As there are no extant original herbarium specimens, a lectotype and epitype for *Omphalia kalchbrenneri* and a neotype for *Agaricus pachyphyllus* are designated.

**Key words:** *Agaricomycetes*, tricholomatoid clade, amyloid spores, ITS and nuLSU sequences, taxonomy

### Introduction

Subgen. *Pseudohygrophorus* (nom. nud.) of *Hygrophorus* Fr. was established by Smith & Hesler (1942) for the new species *Hygrophorus angelesianus* A.H. Sm. & Hesler, an American snowbank agaric showing two peculiar and puzzling features for a *Hygrophorus* species: amyloid spores and hyphae of the context and interwoven hymenophoral trama turning vinaceous red to haematite red in KOH. A few decades later, for this species Singer (1961) introduced the genus *Neohygrophorus* with the following brief statement: “*A Camarophyllis differt sporis amyloideis*”. The genus was accepted by Heinemann (1963), but Hesler & Smith (1963) treated it as a synonym of *Hygrophorus* subgen. *Pseudohygrophorus*. Finally, Singer (1986) recognized *Neohygrophorus* as monotypic and considered it intermediate between *Camarophyllus* (Fr.) P. Kumm. and *Hygrocybe* (Fr.) P. Kumm.

Based on the morphological analysis of the type specimens, Redhead *et al.* (2000) regarded *H. angelesianus* and *Clitocybe mutabilis* H. E. Bigelow (the latter being the type species of *Clitocybe* subgen. *Mutabiles* H. E. Bigelow) as conspecific. They also included *Clitocybe cokeri* Hesler and *Clitocybe umbrinopurpurascens* Maire in *Neohygrophorus* as additional species. However, the transfer of *Clitocybe umbrinopurpurascens* to *Neohygrophorus* proposed by Redhead *et al.* (2000), was not based on morphological evidence from type revision or sequence data, but solely on the analysis of the protologue.

The molecular analysis of nuLSU sequences by Moncalvo *et al.* (2002) highlighted that *Neohygrophorus angelesianus* clusters with *Clitocybe felleoides* Kauffm. (for a modern description see Bigelow 1982) forming an independent phyletic line (the /neohygrophorus clade) which is phylogenetically distinct from the *Hygrophoraceae* Lotsy.