

species mostly having a yellow medulla containing pulvinic acid pigments and fernene triterpenoids as major medullary compounds and pedicellate apothecia with a well-developed thalline margin as pointed out by Kondratyuk & Galloway (in Biblioth. Lichenol. 57: 343–345. 1995) and Thomas & al. (in Biblioth. Lichenol. 82: 123–138. 2002), somewhat modified by Högnabba & al. (l.c.). The taxonomy of the remaining majority (to which most of the other synonyms belong) is still in need of further study. Although a small number of yellow-medulla species apparently still need accommodation in separate genera, most appear unambiguously to belong in one genus that is characterised by a white medulla and hopane triterpenoids.

With its present type, *Pseudocyphellaria* would be the correct name for the small genus comprising *Ps. aurata* and its relatives, since it is taxonomically distinct from the great majority of species currently included in *Pseudocyphellaria*. However, that would result in a great number of new combinations needing to be made, so we believe it would serve the stability of the nomenclature best to conserve *Pseudocyphellaria* with another type, one that is part of the largest group of some 85 species that are characterised by having a white medulla, white or yellow pseudocyphellae on the lower surface, hopane triterpenoids and a range of orcinol depsides and depsidones as medullary compounds, sessile apothecia, and 1–3-septate, yellow-brown to brown ascospores.

We accordingly propose the change detailed above to the conservation of *Pseudocyphellaria* in App. IIIB of the *Code* (McNeill,

l.c.): Among the many temperate species referred to *Pseudocyphellaria* in the past, we have chosen *Ps. crocata* since the older generic name *Saccardoia* is typified by this species name, and the types of the other competing names are of much rarer and restricted species that are not so well known. *Pseudocyphellaria crocata* (L.) Vain., combined into the genus by Vainio eight years after the establishment of the genus (Vainio in Hedwigia 37: 34. 1898), is widely distributed in the Palaetropics and Neotropics and in temperate zones of both Northern and Southern Hemispheres. The name is based on *Lichen crocatus* L., with a type from India collected by Koenig, one which is present in LINN (Jørgensen & al. in Bot. J. Linn. Soc. 115: 299. 1994). The generic name *Crocodia*, previously listed as a synonym of *Pseudocyphellaria* is, for taxonomic reasons, no longer a threat to the latter name when typified as proposed, although it needs listing among the suppressed generic names for those still wanting to keep all taxa in one genus for which the name *Pseudocyphellaria* will still be available.

As a result of this retypification the majority of species are still kept in the genus *Pseudocyphellaria* and only a small (less than 6) group around *Pseudocyphellaria aurata* need to change to *Crocodia* Link (described as monospecific for *Crocodia aurata*, see Link, Handbuch 3: 177. 1833), the oldest generic name for this unit. If our proposal fails, the majority of species (about 85) would need to be transferred to *Phaeosticta* Trevis., a name that has hardly been in use since it was coined in an exsiccate in 1869.

## (2033) Proposal to conserve *Armillariella ostoyae* (*Armillaria ostoyae*) against *Agaricus obscurus*, *Agaricus occultans*, and *Armillaria solidipes* (*Basidiomycota*)

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- (2033) *Armillariella ostoyae* Romagn. in Bull. Soc. Mycol. Fr. 86: 265. 1970, nom. cons. prop.  
 Typus: Herb. Romagnesi No. 69.220 (PC).  
 (=) *Agaricus obscurus* Schaeff., Fung. Bavar. Palat. Nasc. 4: 32. 1774. nom. rej. prop.  
 Lectotypus (hic designatus): [icon in] Schaeffer, Fung. Bavar. Palat. Nasc. 1: t. LXXIV. 1762.  
 (=) *Agaricus occultans* Batsch, Elench. Fung.: 55. 1783, nom. rej. prop.  
 Lectotypus (hic designatus): [icon in] Schaeffer, Fung. Bavar. Palat. Nasc. 1: t. LXXIV. 1762.  
 (=) *Armillaria solidipes* Peck in Bull. Torrey Bot. Club 27: 611. 1900, nom. rej. prop.  
 Typus: U.S.A. Colorado: Gunnison Co., Mill Creek, *E. Bartholomew* 2690, 2 September 1899 (FH).

*Armillaria ostoyae* (Romagn.) Herink (in Hásek, Symp. Václ. Ob. *Armillaria mellea*: 42. 1973) is a well-known forest pathogen that for many years along with nearly all other species of *Armillaria* (Fr.) Staude s.str. was classified under the name *Armillaria mellea* (Vahl: Fr.) P. Kumm. s.l. Currently accepted species are based on the biological species first recognized in the 1970–80s (Korhonen in Karstenia 18: 31–42. 1978; Anderson & Ullrich in Mycologia 71: 402–414. 1979; Anderson & al. in Exp. Mycol. 4: 87–95. 1980; Roll-Hansen in Eur. J. Forest Pathol. 15: 22–31. 1985; Anderson in Mycologia 78: 837–839. 1986; Bérubé & Dessureault in Canad. J. Bot. 66: 2027–2034. 1988, and in Mycologia 81: 216–225. 1989). A contemporary classification adopting the generic name *Armillaria* rather than *Armillariella* (P. Karst.) P. Karst. and also the name *Armillaria ostoyae*, has become standard in forest pathology and genetic literature (Morrison & al. in Canad. J. Pl. Pathol. 7: 242–246. 1985; Shaw & Kile

in Agric. Handb. U.S.D.A. 691: 1–9. 1991; Blodgett & Worrall in Pl. Dis. 76: 166–170. 1992; Guillaumin & al. in Eur. J. Forest Pathol. 23: 321–341. 1993; Scharpf, Dis. Pacific Coast Conifers: 141–144. 1993; Marxmüller in Mycotaxon 44: 268. 1995; Ota & al. in Pl. Dis. 82: 537–543. 1998; Tsopelas in Eur. J. Forest Pathol. 29: 103–116. 1999; Zolciak in Mańka & Łakomy, Proc. 11th Int. Conf. Root & Butt Rots: 47–51. 2005; Bérubé in Guillaumin, L'armillaire Pourridié-agaric Vég. Lign.: 68. 2005; Sinclair & al., Dis. Trees Shrubs, ed. 2: 326–330. 2005; Hanna & al. in Forest Pathol. 37: 192–216. 2007; Qin & al. in Mycologia 99: 430–441. 2007; Selochnik & Korhonen in Garbelotto & Gonthier, Proc. 12th Int. Conf. Root & Butt Rots: 11–14. 2008; Keča & al. in Forest Pathol. 39: 217–231. 2009) as well as in mushroom field guides and regional mycotaxa (e.g., Termorshuizen in Fl. Agaric. Neerl. 3: 334–39. 1995; Horak, Röhrlinge und Blätterpilze Eur.: 128–129. 2005; Legon & Henrici, Checkl. Brit. Irish Basidiomyc.: 14. 2005; Vesterholt in Knudsen & Vesterholt, Funga Nord.: 253. 2008). We note also, that *Armillaria ostopayae* is cited using this name in quarantine regulations in several countries, such as Australia (<http://www.daff.gov.au/animal-plant-health/pests-diseases-weeds/plant/forestry>) and New Zealand (<http://www.maf.govt.nz/biosecurity-animal-welfare/pests-diseases/boric.aspx>).

In addition GenBank (<http://www.ncbi.nlm.nih.gov/Taxonomy/> accessed 17 Oct 2011) lists 6 nucleotide sequences under *Armillaria solidipes* and 529 under *Armillaria ostopayae*.

Despite nearly 40 years of relatively stable application of the name *Armillaria ostopayae*, Burdsall & Volk (in N. Amer. Fungi 3(7): 261–267. 2008) following an examination of the type of *Armillaria solidipes*, decided the latter was an earlier name for the same taxon. While noting that others might wish to conserve the name *Armillaria ostopayae*, in the absence of such a proposal they concluded that *Armillaria solidipes* was the earliest available name. Prior to their work the type had been located by Baroni (in Mycologia 73: 186–187. 1981) at FH via the disposition of the personal herbarium of the collector (Bartholomew). Baroni redescribed it and consequently published a new combination *Armillariella solidipes* (Peck) Baroni but without synonymizing it with any recently recognized biological species. Note: Peck's herbarium at NYS is apparently lacking type material of *Armillaria solidipes* as documented in their type database ([http://collections.nysm.nysed.gov/mycology/databaseRD\\_AB.cfm](http://collections.nysm.nysed.gov/mycology/databaseRD_AB.cfm)) and notably also that of a second species, *Armillaria macrospora* Peck both described at the same time with materials later located in FH (<http://www.huh.harvard.edu/collections/farlow.html>).

Replacing *Armillaria ostopayae* with *Armillaria solidipes* has created publication problems in the U.S.A. and has led to at least one recent publication using both names intermingled (Keča & Solheim in Forest Pathol. 41: 120–132. 2011) and in listing *Armillaria solidipes* in the USDA fungal databases as the correct name (<http://nt.ars-grin.gov/fungaldatabases>). Whereas there remain some doubts about whether *Armillaria solidipes* actually is conspecific with *Armillaria ostopayae* (Hunt & al. in Forest Pathol. 41: 253–254. 2011), *Armillaria ostopayae* itself is known to occur in Colorado where *Armillaria solidipes* was first described (Worrall & al. in Forest Ecol. Managem. 192: 191–206. 2004). The conflict in application of different names is leading to instability in naming this important pathogen which is still listed as *Armillaria ostopayae* in CABI's Crop Protection Compendium (<http://www.cabi.org/cpc/>).

Additionally, Burdsall & Volk (l.c.) underestimated the facts that at least two older names may still be available but for convenience

have not been adopted by recent authors. *Agaricus obscurus* Schaeffer (l.c. 1774), more recently treated as *Armillaria obscura* (Schaeffer) Herink (in l.c.: 42, inaccurately attributed to Secretan in a suppressed publication [Secretan, Mycogr. Suisse 1833, Art. 32.9] but correctable under Art. 33.5, 33.7), has been considered to be conspecific (Roll-Hansen, l.c.) among others. Notably CABI's Crop Protection Compendium (l.c., accessed in 2011) also continues to list *Armillaria obscura* as a synonym of *Armillaria ostopayae* without qualification and therefore this name remains a nomenclatural threat.

Except for Tab. LXXIV Schaeffer (l.c. 1762) and possibly Micheli (Nov. Gen. Pl.: 172. 1729), no original materials exist for *Agaricus obscurus*, hence our designation of Tab. LXXIV as lectotype. Similarly, *Agaricus occultans* Batsch (l.c.) also was based upon Tab. LXXIV in Schaeffer (l.c. 1762) but not on *Agaricus obscurus* itself by name. Hence it was not a new name per se, contrary to such a listing in MycoBank, and therefore it too remains available and must be rejected if *Agaricus obscurus* is rejected. Although doubts have been cast over the identities of the taxa *Armillaria obscura* and *Agaricus occultans* (Volk & Burdsall in Syn. Fungorum 8. 78, 87. 1995; Termorshuizen & Arnolds in Mycotaxon 30: 101–106. 1987; Watling & Kile in Trans. Brit. Mycol. Soc. 78: 271–285. 1982) we note the continual linking of the name *Armillaria obscura* with *Armillaria ostopayae*. Furthermore, we note that application of names is dependent upon types (Principle II) rather than continual debate regarding ambiguous concepts for untypified names. Hence, following the intent of Art. 14, we here propose conservation of the name *Armillaria ostopayae* over these older names in order to stabilize usage.

Other linked or suspected synonymous names of *Armillaria ostopayae* are unavailable. Burdsall & Volk (l.c.) listed *Agaricus polymyces* Pers. and *Agaricus congregatus* Bolton. As noted by Termorshuizen & Arnolds (l.c.) *Agaricus polymyces* Pers. (Tent. Disp. Meth. Fung.: 19. 1797) is an illegitimate new name for the oldest of several available listed synonyms, namely *Agaricus obscurus* Schaeffer (l.c. 1774). *Agaricus congregatus* Bolton (Hist. Fung. Halifax: 140. 1791) is both an illegitimate homonym of *Agaricus congregatus* Bulliard (Herb. France 2: tab. 94. 1782) and a superfluous new name for *Agaricus annularius* Bulliard (Herb. France 8: tab. 377. 1788). Contrary to the opinion of Termorshuizen & Arnolds (l.c.), the last-named is not a superfluous name. They misinterpreted *Boletus annularius* Bull. as a nonexistent name “*Agaricus annularius* Schaeffer” incorrectly reading the list by Petersen (in Mycotaxon 6: 133. 1977) which they cited.

The negative effects of conservation of the name *Armillariella ostopayae*, basionym of *Armillaria ostopayae*, are minimal if action is taken relatively soon. It is always possible that other older names may apply to this fungus but they too should be rejected in order to preserve stability. For example Baroni (l.c.) also recognized *Armillaria macrospora* Peck as *Armillariella macrospora* (Peck) Baroni from Colorado and which apparently was based upon a mixed type that as lectotypified probably represents one of the known biological species in North America. A few publications now treat *Armillaria ostopayae* as *Armillaria solidipes* but these would themselves be incorrect if an even earlier name such as *Armillaria obscura* is adopted. The sooner *Armillaria ostopayae* is conserved the fewer conflicts will arise in the literature which is why a specific proposal is made rather than waiting for listings under the new Art. 14 (McNeill & al. in Taxon 60: 1507–1520. 2011).