



Psilocybe chuxiongensis, a new bluing species from subtropical China

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Abstract

A new bluing species of *Psilocybe* in sect. *Caerulescentes* is described from subtropical China. It is closely related to *P. cubensis* but can be differentiated by the lack of an annulus and the buff-yellow to yellowish brown, hemispheric to hemispheric-convex pileus without an umbo or papilla. Phylogenetic analyses of ITS, nrLSU and combined *rpb2-tef1-α* datasets using maximum parsimony and Bayesian inference also indicate its uniqueness. The relationship with *P. cubensis* is well-supported by molecular data with high support values in all three datasets. *Psilocybe chuxiongensis* sp. nov. is presented here with a description, photographs, and line drawings.

Key words: hallucinogenic, ITS, molecular phylogeny, nrLSU, *rpb2*, Strophariaceae, *tef1-α*

Introduction

The genus *Psilocybe* (Fr.) P. Kumm. (Basidiomycota, Agaricales, Strophariaceae) is well-known for its hallucinogenic species, which have aroused the interests of many mycologists (Guzmán 1983, 2009, Guzmán *et al.* 1998, Andersson *et al.* 2008). There have been considerable taxonomic and systematic studies on this group over the last six decades (Heim & Wasson 1958, Singer & Smith 1958, Guzmán 1983, 1995, 2009, Singer 1986, Stamets 1996, Noordeloos 1999, 2011, Moncalvo *et al.* 2002, Matheny *et al.* 2006, Redhead *et al.* 2007, Ramírez-Cruz *et al.* 2013). More than 150 hallucinogenic species of *Psilocybe* are known worldwide (Guzmán 2005, 2009), with about 25 Asiatic species of bluing *Psilocybe* recorded mainly from tropical or subtropical forests in south and southeast Asia (Guzmán 2009, Guzmán & Yang 2010, Guzmán *et al.* 2012). However, with the exception of *P. taiwanensis* Zhu L. Yang & Guzmán in Guzmán and Yang (2010: 185) from Taiwan, and *P. venenata* (S. Imai 1938: 270) Imazeki & Hongo (1957: 146), mentioned in Guzmán *et al.* (1998), Chinese species are poorly known in the world outside China.

Twenty *Psilocybe* species have previously been reported from China (Teng 1963, Tai 1979, Anonym 1983, Li 1991, Bi *et al.* 1994, Mao 2000, Lin *et al.* 2005, He *et al.* 2007, Yuan & Sun 2007, Bau & Sarentoya 2009, Guzmán and Yang 2010), but only 14 species now belong to *Psilocybe*. *Psilocybe mongolica* Sarentoya & T. Bau (2009: 28) and *P. taiwanensis* were described from China, while many of the 20 species are incorrectly identified, in doubt or excluded in Bau & Sarentoya (2009) or modern treatments. Among the 14 Chinese species, *P. crobula* (Fr. 1838: 199) Singer (1962: 70), *P. coprophila* (Bull. 1793: 423) P. Kumm. (1871: 71), *P. merdaria* (Fr. 1821: 291) Ricken (1912: 251), and *P. mongolica* are non-blueing (non-hallucinogenic) species, which were moved to *Deconica* (W.G. Sm.) P. Karst. based on molecular analysis (Moncalvo *et al.* 2002, Matheny *et al.* 2006, Norvell 2009). Nine species namely *P. argentipes* K. Yokoy (1976: 349), *P. baeocystis* Singer & A.H. Smith (1958: 141), *P. cubensis* (Earle 1906: 240) Singer (1948: 37), *P. fasciata* Hongo (1957: 144), *P. pelliculosa* (A.H. Sm. 1937: 58) Singer & A.H. Smith (1958: 280), *P. taiwanensis*, *P. venenata*, *P. wayanadensis* K.A. Thomas, Manimohan & Guzmán (2002: 198) and *P. yungensis* Singer & A.H. Smith (1958: 142) are bluing species. Considering there are more than 200 species of *Psilocybe* (Guzmán 1983, 1995) known worldwide, and China has a diverse macrofungi (Yang 2005,

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