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A new bluing species of *Psilocybe*, section *Stuntzii*, from New Mexico, U.S.A.

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Abstract—*Psilocybe mescaleroensis* is described as a new species from Sierra Mescalero, in New Mexico, U.S.A. It is a bluing mushroom, belonging to section *Stuntzii*, where all the species seem to have hallucinogenic properties. This is the first record of a caerulescent *Psilocybe* from New Mexico.

Keywords— *Basidiomycotina, Agaricales, Strophariaceae*

Introduction

The monograph of The Genus *Psilocybe* (Guzmán 1983), along with its supplement (Guzmán 1995), are both out of print, but since these publications, the senior author continued to study the genus (e.g. Guzmán 2004, 2005; Guzmán & Trappe 2005, Gándara & Guzmán 2006) and he is currently amassing information for the second edition of the monograph. During the review of a material collected by Walstad and colleagues in New Mexico, U.S.A., the authors found a new bluing species that is described herein.

Materials and methods

Microscopic observations were made through sections of the basidiomata, mounted in 5% KOH, 10% NH4OH and Congo red, previously treated with 96% alcohol for rehydration. Spore dimensions indicate length, width, and thickness. The colors of the basidiomata are based upon Wanscher and Kornerup (1991).

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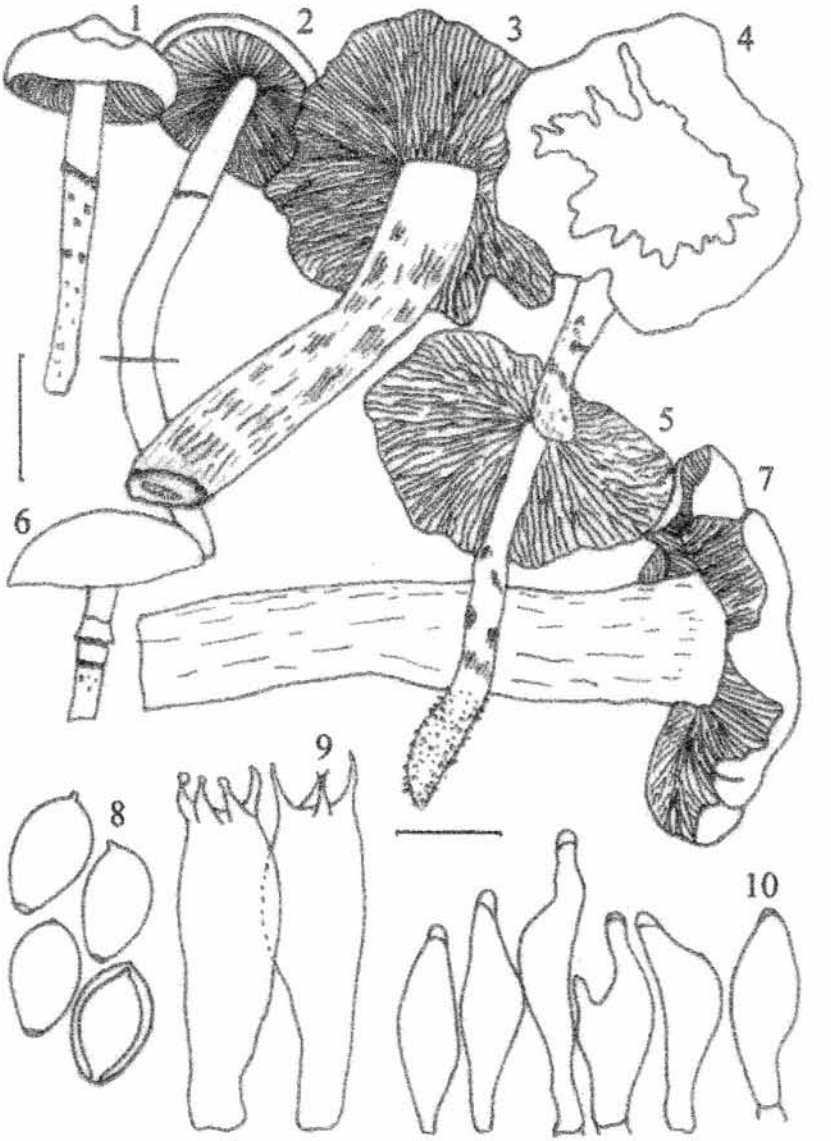

Figs. 1-10. *Psilocybe mescaleroensis* (from holotype). 1-7: Basidiomata (observe the development of the ephimerous annulus in 1 & 2 from an adherent membrane in 6 and its absence in 3-5 & 7.Also observe the subradicating and strigose stipe base in 5, the lobulate pileus in 7 and the hygrophanous pileus in 1 & 4). 8: Basidiospores; 9: Basidia, 10: Cheilocystidia (those branched are rare).
Scale bar 20 mm in 1-7; 10 µm in 8-10.

Psilocybe mescaleroensis Guzmán, Walstad, E. Gándara & Ram.-Guill., **sp. nov.**
MycoBank MB 510461 **Figs. 1-10**

Etymology. From Mescalero which is the name of both Indians and mountains where the species was found.

Pileus (20-) 30-45 (-60) mm latus, convexus vel subumbonatus, frequens undulatus, brunneolus flavidus vel suboscurus, frequens apex subaurantiacus, hygrophanous, pellicula gelatinous disjungere. Lamellae adnatae vel annexa, subalbida vel brunneolus vel roseous-brunneolus, vel cacainus, marginis concolor. Annulus breviter membranaceous, caducus. Stipes (50-) 60-70 (-100) x 5-8 (-20) mm, albidus vel inaequalitas subaurantiacus, basis subrhizomorpha, strigosa. Sporae (9-) 10-11 (-13) x 6-7 (-8) x 6-7 µm, subrhomboideus vel subovoid, pariete 0.8-1 µm crassis, brunneolus, poro germinali lato. Pleurocystidia absentia. Cheilocystidia (16-) 19-27 (-30) x 5-8 µm, hyaline, fusiformis, interdum sublageniform. Subhymenium subcellularis. Pileipellis instar ixocutis. Fibulae communis. United States, New Mexico, Mezcalero Mons, Lincoln prope, ad Mezcalero oppidum, Julius 2004, Walstad, holotype (XAL).

Pileus (20-) 30-45 (-60) mm diam, convex to subumbonate, margin frequently wavy, pale brownish-yellow (4A3-4) to darker (4B5-7), frequently with the disc more orange (4A7-8), hygrophanous, changing to pale brownish (close to 9E2), translucent striate when wet, pellicle gelatinous, separable. *Lamellae* adnate to adnexed, dirty whitish (4A2) to pale brownish-gray (4B4-5) or brownish-rose (6A3), finally dark chocolate (7E4-5), edges concolorous. *Annulus* close joined to the surface of the stipe, slightly membranaceous, white or getting the color of the spore print on the upper surface, ephemeral. *Context* whitish to pale grayish (4A2-3), with slight farinaceous odor and taste. *Stipe* (50-) 60-70 (-100) x 5-8 (-20) mm, cylindrical, equal or thicker toward the apex, flexuous, fibrillose, solid to hollow, whitish to irregularly orange (5A7) or orangish-pink (close to 7A3-4), base somewhat rhizomorphic, frequently strigose. All the basidioma *bluing*, except lamellae. *Spore print* dark chocolate (7E-4).

Basidiospores (9-) 10-11 (-13) x 6-7 (-8) x 6-7 µm, subrhomboid or subovoid in face-view, subovoid in side-view, thick-walled, wall up to 1 µm thick, yellowish-brown, with a distinct and broad germ pore at distal pole and a short asymmetric appendage in the other. *Basidia* 35-39 x 7.5-9 µm, 4-spored, subclaviform, hyaline. *Pleurocystidia* absent. *Cheilocystidia* (16-) 19-27 (-30) x 5-8 µm, hyaline, fusiform, ventricose-rostrate, regular or irregularly in shape, rarely irregularly branched. *Hymenophoral trama* regular, hyphae 4-5 µm wide, thin-walled, hyaline to yellowish. *Pileipellis* an ixocutis up to 155 µm thick, hyphae 2-5 µm wide, thin-walled, hyaline. *Subhymenium* subcellular, hyaline to yellowish. *Clamp connections* present.

Habitat and distribution—Rarely solitary, frequently scattered to gregarious, also caespitose on rich soil or decaying grasses, in grasslands near to a *Pinus ponderosa* Douglas ex C. Lawson forest, commonly associated with the holes of gophers. Observed in summer and autumn. Known only from the type locality.

Studied Material. **UNITED STATES, New Mexico:** Mescalero Range, Sierra Blanca, Lincoln Co., near town Mescalero, July 2004, *Walstad* s.n. (**holotype** XAL, **isotype** NY).

Discussion– This new species belongs to section *Stuntzii* Guzmán (Guzmán 1983), because of the subrhomboid, thick-walled basidiospores, presence of an annulus, and the bluing feature. It differs from *P. stuntzii* Guzmán & J. Ott (Guzmán 1983, Guzmán & Ott 1976) for its more robust basidiomata with subradicating and strigose stipe bases and cheilocystidia lacking elongate and flexuous necks. *Psilocybe stuntzii* has a (5-) 10-20 (-35) mm diam pileus and lageniform cheilocystidia with long necks (Guzmán & Ott 1976, figs. 7 and 8). Also, *P. stuntzii* is known only from the Pacific regions of Canada and the U.S.A. Although information gathered by Walstad and friends is somewhat confusing, it is probable that *P. mescaleroensis* had or still has a sacred use among the Indians.

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Literature cited

Gándara E, Guzmán G. 2006. The status of *Psilocybe floridana* (*Strophariaceae*) in *Callistosporium* (*Tricholomataceae*). Mycotaxon 96: 73-76.

Guzmán G. 1983. The genus *Psilocybe*. Beih. Nova Hedwigia 74, J. Cramer, Vaduz.

Guzmán G. 1995.Supplement to the monograph of the genus *Psilocybe*. *In*: Taxonomic monographs of *Agaricales*, Petrini O, Horak E (eds.). Bibliotheca Mycologica 159, J. Cramer, Berlin.

Guzmán G. 2004. Revision of the classification of the genus *Psilocybe* I. Section *Neocaledonicae*, a new section in *Psilocybe*. Revista Mexicana de Micologia 18: 27-29.

Guzmán G. 2005. Species diversity of the genus *Psilocybe* in the world mycobiota, with special attention to hallucinogenic properties. International Journal of Medicinal Mushrooms 7: 305-331.

Guzmán G, Ott J. 1976. Description and chemical analysis of a new species of hallucinogenic *Psilocybe* from the Pacific Northwest. Mycologia 68: 1261-1267.

Guzmán G, Trappe JM. 2005. The hallucinogenic species of the genus *Psilocybe* in Washington State, USA: new records and a new species. International Journal of Medicinal Mushrooms 7: 583-589.

Wanscher JH, Kornerup A. 1991. Farver I Farver. Politekens Forlag, Kobenhavn.