A new species of a bluing *Psilocybe* from Asia 
(Basidiomycota, Agaricales, Strophariaceae)

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*Psilocybe taiwanensis* is described as a new species from a subtropical moun-
tain rain forest in Taiwan, China with *Cryptomeria japonica* and *Taiwania cryptomerioides* (Cupressaceae). – The species belongs to section *Stuntzii*; all species of 
the section contain the psychoactive compound psilocybine.

Key words: Halucinogenic agaric, Taiwan, subtropical mountain forest.

An interesting bluing *Psilocybe* was found in the subtropical 
mountains of Taiwan, and is described here as a new species. As al-eady discussed by Guzmán (1979, 2005, 2009), Guzmán et al. (2007a) 
and Horak et al. (2009) the diversity of bluing *Psilocybe* in the tropical 
mountain rain forests between 1000–3000 m altitude is high, so it is not 
unlikely to find new species in those regions.. The 21 known Asiatic 
species of bluing *Psilocybe* (Guzmán, 2005, 2009; Guzmán et al., 1998) 
are recorded from tropical or subtropical forests in the South and Southern of Asia.

**Materials and Methods**

For light microscopy, sections were mounted in 5 % KOH or 1 % 
Congo Red, after a previously re-hydrating in 96 % alcohol. – Basid-
iospore measurements include length in face-view and width in face-
view and side-view. – At least 25 measurements were taken.

**Taxonomy**

*Psilocybe taiwanensis* Zhu L. Yang & Guzmán, sp. nov. Figs. 1–6

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Pileus 10– 20–30 mm diam., convexus vel subumbonatus, subconicus vel um-
bonatus, subpapillaris, brunneus vel fulvus vel fuscus, hygrophanous, marginis cum

Holotypus. – China, Taiwan, Yang 4637 (HKAS 49976; isotype XAL).

Pileus (10–) 20–30 mm diam., smooth, convex to subumbonate or subconical-umbonate, shortly papillate, brown to tea brown, hygroph-anous, becoming paler to cream or yellowish; in dry specimens dark cinnamon-brown, reddish-brown or blackish red-lead; margin with white floccose remnants from the veil. – Lamellae subadnexed, grey-brown to dark reddish-brown or dark violet, edges whitish. – Stipe 50–80 × 2–5 mm, uniform, whitish to pale brownish, covered with white fibrillose to patch-like squamules toward the base, bluing, in dry spec-imens is dark reddish-brown to blackish or red-lead. – Veil white, submembranous to arachnoid. – Annulus fragile, submembranous to floccose, ephimerous, bluing. – Mycelium white at the base of the stipe. – Context whitish, bluing.

Basidiospores (5.5–) 6–7 × (3.5–) 4–4.5 × 3.5–4 µm, subhrombo-id in face-view, subellipsoid in side-view, thick-walled, wall up to 0.8 µm thick, brownish-yellow with wide germ pore. – Basidia 19–20 × 5–6.5 µm, 4-spored, clavate-ventricose, sometimes with a median constriction, hyaline. – Pleurocystidia 15–20 × (4.5–) 5.5–6.5 (–7) µm, hyaline, common, oblong-subclavate rostrate, sometimes with a median constriction. – Cheilocystidia (13.5–) 15–20 (–25) × 4–5.5 (–6.5) µm, hyaline, form as the pleurocystidia, but with the rostrum more long, sometimes irregularly divided. – Subhymenium subcel-lular, hyaline to yellowish. – Hymenophoral trama regular, hya-line. – Pileipellis a subcutis no or poor subgelatinized, 14–24 µm thick, with postrated, hyaline, 3–5 µm wide hyphae, bluing, with cystidiod elements in the surface, subcylindric-ventricose, 8–10 × 4–5.5 µm or as globose irregular prolongations of the postrated hyphae. – Subpellis with hyaline to yellowish globose elements, 2–4 µm diam., bluing. – Clamp connections present.

Habitat and distribution. – Gregarious or caespitose, on litter in a subtropical raining mountainous forest, dominated by trees of Cryptomeria japonica (L.f.) D. Don and Taiwania cryptomeroides Hayata. – Known only from the type locality.

Figs. 1–6. *Psilocybe taiwanensis*. 1: basidiomata. 2: spores, 3: pleurocystidia, 4: basidia, 5: cheilocystidia, 6: pileipellis with cystidioid elements. Bar = 10 mm (Fig. 1); bar = 6 µm (Figs 2–6); all figures from the holotype.
Discussion

Following the taxonomical concept proposed by Guzmán (1983, 1995) *Psilocybe taiwanensis* belongs to section *Stuntzii* Guzmán because of its subrhomboid thick-walled spores, an distinct annulus and the bluing feature. According to Guzmán (1995) a species with similar small spores as *P. taiwanensis* is *P. jacobii* Guzmán. The latter is only known from Mexico and has rhomboid spores. *Psilocybe jacobii* belongs to section *Cordisporae* Guzmán. The basidioma of *P. taiwanensis* is similar to that of *P. venenata* (Imai) Imaz. & Hongo, but it has subellipsoid spores in both side- and face-view, (8–) 10–12 (–14) × 6–7 (–9) × 5.5–6 µm, and no pleurocystidia. *Psilocybe venenata* to section Semilanceatae and it is known from Japan (Guzmán, 1983) and probably from China. *Psilocybe mescaleroensis* Guzmán, Walstad, E. Gándara & Ram.-Guill (section *Stuntzii*). recently described from a *Pinus* forest in New Mexico, U.S.A. (Guzmán et al. 2007b) has no pleurocystidia and larger sub-rhomboid spores measuring, (9–) 10–11 (–13) × 6–7 (–8) × 6–7 µm. *Psilocybe meridionalis* Guzmán, Ram.-Guill. & Guzm.-Dáv., another member of section *Stuntzii*, was recently described from a subtropical forest with *Quercus* in Mexico (Guzmán et al., 2008). It has spores similar to those of *P. taiwanensis* but its pleurocystidia are 11–14 × 4–6 µm, its cheilocystidia are 13–26 × 4.5–5.5 µm and more polymorph, and the pileipellis has not the cystidoid elements as observable in *P. taiwanensis*. Moreover, the bluing feature is not as conspicuous as in *P. taiwanensis*.

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References


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