

A NEW RECORD OF *PSILOCYBE PEGLERIANA* IN ASIA (BASIDIOMYCOTINA, AGARICALES, STROPHARIACEAE) AND ITS CULTURE IN THE LABORATORY

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Abstract

Psilocybe pegleriana is for the first time reported from Thailand. It was cultured in the laboratory. This mushroom is a fimicolous pantropical species, that does not stain blue and belongs to section *Merdariae*.

Key words: *Psilocybe pegleriana*, pantropical, culture, first record, Thailand.

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Introduction

Since the description of *Psilocybe pegleriana* Guzmán from tropical regions of Mexico and discussion of its distribution in the southeastern U.S.A., South America, eastern Africa and probably Papua New Guinea (Guzmán 2000), it has been further reported only from India (Thomas *et al.* 2002) and Brazil (Cortez and Coelho 2004, Guzmán and Cortez, 2004). Now we report the first record of *P. pegleriana* in Thailand, based on a collection of a fimicolous mushroom in a meadow.

Materials and Methods

Sections from dry basidiomata were mounted in 5% aqueous KOH solution plain or mixed with a 1% Congo red solution added to the

slides, all of them after a rehydration with alcohol of 96%. The size of spores is given as length, face-view width, and side-view width. Cultures were initially obtained from spore prints in Petri dishes of potato-dextrose-agar with benlate fungicide, in the laboratory of Chulalongkorn University in Bangkok with support from Sporeworks Labs in Jamaica. Abundant white mycelium was formed and some scattered small fructifications. The mycelium was transferred to 1-quart mason jars inoculated with birdseed spawn generated from the mycelium in a Petri dish, and then the spawn was transferred to both 1-quart mason jars and air-patched filtered mycobags with five pounds of pasteurized wheat straw mixed with cow manure. Long basidiomata were obtained 13 days after the inoculation.



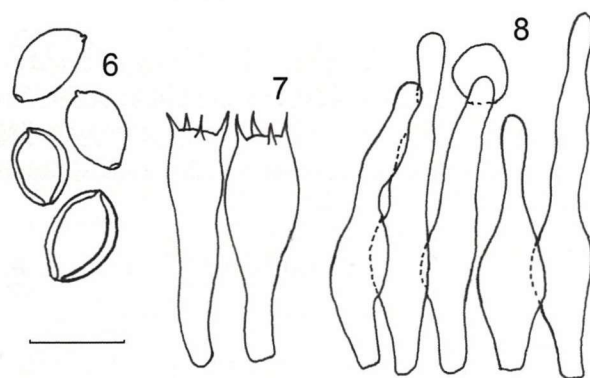
Figures 1 & 2. Wild specimens of *Psilocybe pegleriana*. Note the annulus, the pileus colour by the spore print and the lamellae colour. Scale bar 15 mm (photos by J. Allen©).



Figure 3. Cultured young basidiomata of *Psilocybe pegleriana* (photo by J. Allen©).



Figures 4 & 5. Cultured basidiomata of *Psilocybe pegleriana*. Note the great development of the rhizomorphic-like mycelium and the branched and long stipe (photos by J. Allen©).



Figures 6–8. *Psilocybe pegleriana*. 6. basidiospores. 7. basidia. 8. cheilocystidia. Scale bar 10 μ m.



Figure 9. Cultivated specimens from the second flush in the laboratory. Note the scaly stipe and the annulus (photo J. Allen©).

Results

Psilocybe pegleriana in Thailand, Figs 1–9

Psilocybe pegleriana Guzmán, *Doc. Mycol.* 29: 43, 2000 Figs 1–9

For a complete description of this species, see Guzmán (2000) and notes in Thomas *et al.* (2002). The studied wild specimens from Thailand had *pileus* 20–30 mm diameter, convex to almost plane, with a slightly central depression, dry, glabrous, slightly striate at the margin, hygrophanous, reddish brown to yellowish brown, frequently with dark violaceous tones with a metallic sheen from the spore print. *Lamellae* adnate to short decurrent, thin, dark violaceous brown, whitish edges. *Stipe* 30–60 x 2–3 mm, uniform, or subbulbous in culture, whitish to grayish, smooth above the annulus, subscaly below with little white scales. *Annulus* membranaceous, whitish, the upper part

frequently dark violet from the spores. **Basidiomata obtained by culture.** Pileus small, 5–15 mm diameter, convex to semiplane but subumbonate, orangish brown to grayish pale, stipe long, up to 200 x 2–4 mm, irregularly branched, whitish to yellowish, smooth, with abundant white mycelium-like rhizomorphic strands, forming a rhizomycelium with pseudorhizae, evenly branched. *Veil* well developed forming a white to blackish ephemeral annulus. Blueing: no tissues turned blue when bruised.

Basidiospores in wild and cultured specimens are (8.5–) 9–10 (–12) x (5.5–) 6–7 (–8) x (4–) 5–7 (–7.5) μm , subhexagonal in face-view, subelliptical in side-view, thick-walled, wall up to 1.5 μm thick, dark yellowish brown. *Basidia* (21–) 24–29 (–34) x 7–10 μm , 4-spored, hyaline, subventricose, with a narrow base, sometimes with a middle constriction. *Pleurocystidia* none. *Cheilocystidia* (18–) 22–35 (–45) x (4–) 5–7 (–10) μm , hyaline, varying from narrowly sublageniform with a narrow base to submoniliform, sometimes with a hyaline globose oil drop at the apex. *Hymenophoral trama* regular, with hyaline hyphae, 4–20 μm wide. *Subhymenium* subcellular, with hyaline elements, 4–12 μm wide, thin-walled. *Context* with hyaline to yellowish hyphae, 4–16 μm wide, thin- to thick-walled. *Ixocutis* 30–50 μm thick, with hyaline hyphae, 1–3 μm thick. *Clamp connections* present.

Habitat. On dung of water buffalo, cattle or on manure in swampy rice paddies, in meadows or rice plantations with water buffalo.

Material studied. Thailand, Bangkok region, Suphanburi Quai Farm, Ban Tai, Koh Samui, Oct. 17, 2001, *J. Allen T-01; T-02* (both in Chulalongkorn University Herbarium & XAL). Cultured specimens: Sept. 1, 2005, *Allen T-03*; Feb. 20, 2006, *T-04* (both the in above two herbaria).

Discussion

Psilocybe pegleriana is very close to *P. pseudobullacea* (Petch) Pegler in its habit, habitat and microscopic features, except that pleurocystidia are present in the latter species. *Psilocybe pseudobullacea* is known from Sri

Lanka (Pegler 1986), Nepal (Guzmán and Kasuya 2004) and probably from New Guinea where Yokoyama (1979) reported it as *P. panaeoliformis* Murrill, which according to Guzmán (1983, 2000), is probably *P. pseudobullacea* because it seems to have pleurocystidia. *Psilocybe pseudobullacea sensu* Pegler (1977) is actually *P. pegleriana* as discussed in Guzmán (2000). Both Petch's and Guzmán's fungus belong to section *Merdariae* (Fr.) Singer following the classification of Guzmán (1983), where all the species are non blueing. Cultures in the laboratory confirmed the elongation of the stipe and small pileus observed in other species, such as in those basidiomata obtained by Heim in *P. mexicana* and others (Heim and Wasson, 1958).

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