



A NEW BLUING *PSILOCYBE* FROM THAILAND

by

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SUMMARY

Psilocybe samuiensis Guzmán, Bandala & Allen is described as a new species from Koh Samui, Thailand. It belongs to the hallucinogenic fungi of the Section *Mexicanae* Guzmán. This is the first record of a bluing *Psilocybe* from Thailand and the first species of the Section outside of the Americas. The form and size of the spores, the presence of pleurocystidia and the habit, similar to *P. semilanceata* (Fr. : Secr.) Kumm. or to *P. cordispora* Heim, are the most important features that define this species.

INTRODUCTION

Ethnomycological investigations in Southeast Asia, revealed the presence of psychoactive fungi used as recreation by young Europeans and North Americans visiting the area. Schultes & Hofmann (1973) reported the sale of these fungi by natives of Bali Island. Cox (1981) reported similar sales in Samoa and recently Allen (1991) and Allen & Merlin (1992) confirmed such practices in Thailand.

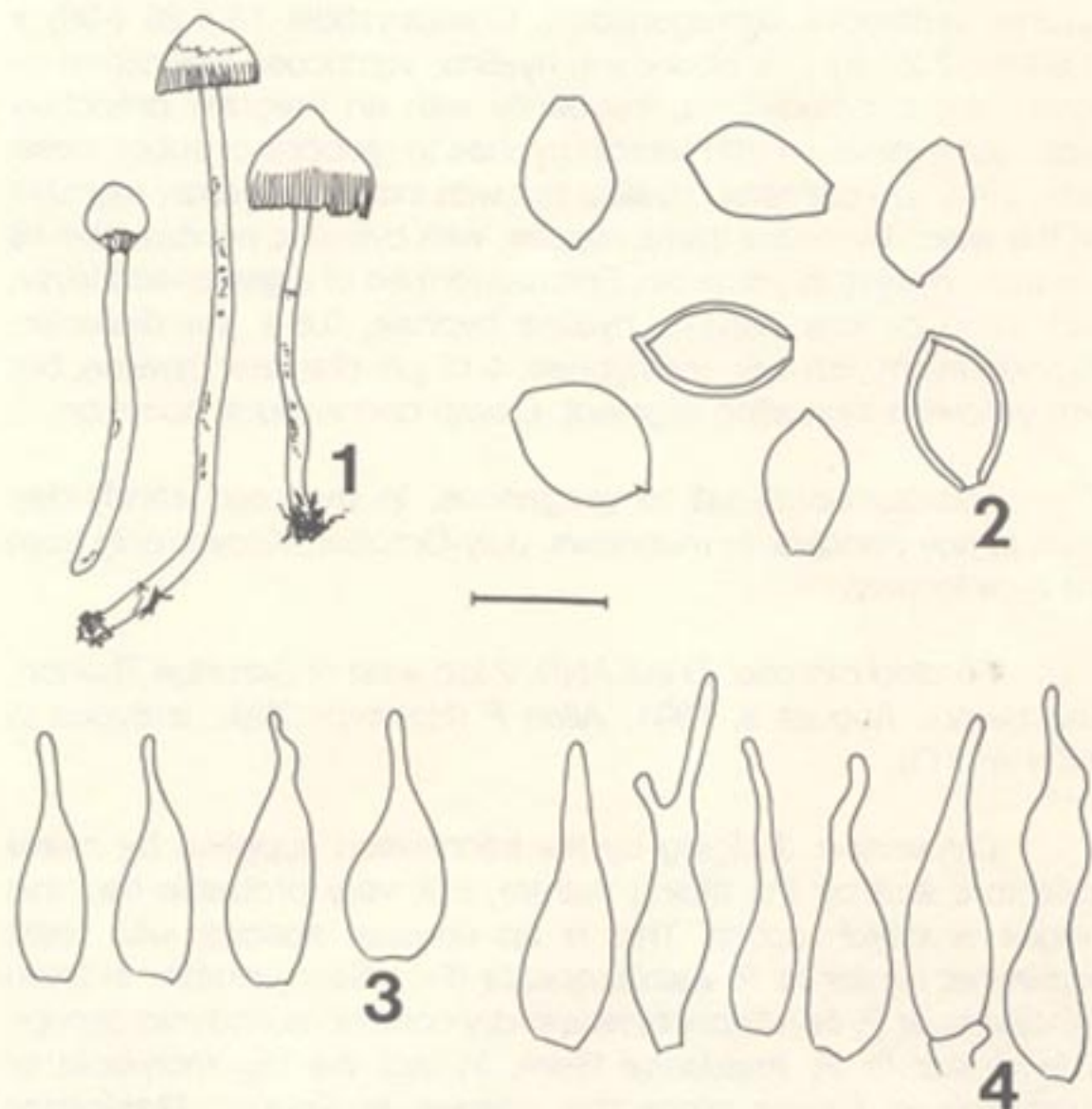
Amongst the fungi ingested as recreation in SE Asia, are *Psilocybe cubensis* (Earle) Sing. and *P. subcubensis* Guzmán, and in a complex species mixture *Copelandia* and *Panaeolus*. One of the authors (Allen) of this paper, found in Koh Samui, Thailand, an interesting undescribed bluing species of *Psilocybe* only known by the native children who collect psychoactive fungi for sale. Examination of this material resulted in a new species described here .

***Psilocybe samuiensis* Guzmán, Bandala & Allen, sp. nov.**

Figs. 1-4

Pileus 7-15 mm *latus*, *subconvexus ad conico-convexus*, *conico-umbonatus*, *frequenter papillato*, *viscidus*, *laevis*, *marginem striatus*, *hygrophanus*, *badius vel rufobrunneus dein stramineus vel argillaceus*. *Lamellae adnatae dein adnexus*, *argillaceae*, *demum purpureo-brunnae vel violaceo-griseae*. *Stipes* 40-65 x 1.5-2 mm, *albidus vel ochraceus*, *fibrillosus*, *tactu caerulescentes*. *Vellum quasi cortina*, *fibrillosum*. *Sporae* 10.4-12.8 x 6.4-8 μm , *rhomboideae vel subrhomboideae*, *leviter ovoidae*. *Pleurocystidia* 16-20 x 4.8-6.4 μm , *hyalina*, *ventricosus sublageniformia*. *Cheilocystidia* 18.4-28 (-30) x (4.8-) 5.6-7.2(-8) μm , *ventricosus fusiforme vel submoniliforme*, *hyalina*. *Hyphae cuticulae pilei filamentosae subgelatinosae*. *Fibulae adsum*. *Specimen typicum in Herbarium Instituto de Ecologia (XAL) conservatum est. Legit prope Thailand, Koh Samui, 8 mensis Augustus 1991, Allen F (Isotypus in BISH et O).*

Pileus 7-15 mm in diameter, subconvex to conic-convex, conic-umbonate or campanulate-umbonate, frequently with a small papilla, viscid, with a separable pellicle, glabrous, even but striate to sulcate at the margin, hygrophanous, chestnut or reddish-brown to straw-color, becoming pale straw-color or brownish clay when dry. Lamellae adnate to adnexed, clay-color, becoming violaceous brown or chocolate brown-violet when dry, with white edges. Stipe 40-65 x 1.5-2 mm, equal or slightly subbulbous, hollow, white or whitish to pale straw color, covered by subfloccose white fibrils, bluing. Veil cortinate, white, leaving whitish, fugaceous fibrils on the upper part of the stipe. Context concolorous with pileus, bluing, with slightly farinaceous taste and odor.



Figs. 1-4.- *Psilocybe samulensis*, 1: basidiomes, 2: basidiospores, 3: pleurocystidia, 4: cheilocystidia (all from the type) (scale bar = 10 μm in figs. 2-4, and 15 cm in fig. 1).

Spores 10.4-12.8 x 6.4-8 μm , rhomboid or subrhomboid in face-view, broadly ellipsoid or subellipsoid in side-view, with yellowish brown, thick (0.4-0.8 μm) wall, and with broad flattened germ pore. Basidia 20-28 x 7.2-8.8 μm , 4-spored, hyaline, subcylindric-clavate. Pleurocystidia 16-20 x 4.8-6.4 μm , scattered, hyaline, ventricose sublageniform. Cheilocystidia 18.4-28 (-30) x (4.8-) 5.6-7.2 (-8) μm , abundant, hyaline, ventricose-lageniform or sometimes submoniliform, frequently with an irregular branched neck. Subhymenium with narrow hyphae to globose or subglobose cells, 2.4-8 μm diameter, hyaline but with incrusted yellow pigment on the walls. Hymenial trama regular, with cylindric hyphae, 2.4-16 μm wide, hyaline to yellowish. Epicutis formed of a gelatinized layer, with more or less parallel, hyaline hyphae, 0.8-4 μm diameter. Hypodermium with cylindric hyphae, 4-12 μm diameter, hyaline, but with yellowish incrusting pigment. Clamp connections common.

Habitat. Scattered to gregarious, in manured sandy-clay soils, in rice paddies, in meadows. July-October. Known only from the type locality.

Studied material. THAILAND, 2 km west of Ban Hua Thanon, Koh Samui, August 8, 1991, Allen F (Holotype XAL; Isotypes in BISH and O).

Discussion. Judging by the information supplied by native collectors and by the bluing feature, it is very probable that this fungus is psychoactive. This is an unusual species with habit somewhat similar to *P. semilanceata* (Fr. : Secr.) Kumm. in fresh conditions, or *P. cordispora* Heim in dry conditions, and microscopically similar to *P. mexicana* Heim. In fact the big rhomboid or subrhomboid spores place this species in Section *Mexicanae* Guzmán, but the size of the spores, presence of pleurocystidia and habit, easily separate it from the 6 known species of that Section [*P. mexicana*, *P. acutipllea* (Speg.) Guzmán, *P. armandii* Guzmán & Pollock, *P. farinacea* Rick ex Guzmán, *P. galindii* Guzmán and *P. tampanensis* Guzmán & Pollock]. This is the first record of Section *Mexicanae* outside of the Americas.

This is the fifteenth hallucinogenic species of *Psilocybe* known from S and SE Asia and Australia and neighboring islands. These species are: *P. goniospora* (B. & Br.) Sing., *P. lonchoporus*

(B. & Br.) Horak ex Guzmán and *P. ochreatea* (B. & Br.) Horak ex Guzmán from Sri Lanka, *P. subaeruginascens* Höhnelt var. *subaeruginascens* from Java, *P. brunneocystidiata* Guzmán & Horak, *P. inconspicua* Guzmán & Horak, *P. kumaenorum* Heim and *P. papuana* Guzmán & Horak from New Guinea, *P. australiana* Guzmán & Watling, *P. eucalypta* Guzmán & Watling, *P. semilanceata*, *P. subaeruginosa* Clel. and *P. tasmaniana* Guzmán & Watling from Australia and/or Tasmania, and *P. aucklandii* Guzmán, King & Bandala from New Zealand (Guzmán, 1983; Guzmán *et al.*, 1991).

Recently, Chang and Mills (1992) studied the isozymes and mating compatibility of some specimens of *Psilocybe* from Tasmania and compared with the types of *P. australiana*, *P. eucalypta*, *P. subaeruginosa*, and *P. tasmaniana* and they explain: "In our experience, identification in the field is quite impossible". According to their study they concluded that the four names belong to one species, *P. subaeruginosa*, and the color and morphological microscopic features used by Guzmán and Watling (1978) and Guzmán (1983) are inappropriate taxonomic discriminators characters. Guzmán (1983) separated *P. subaeruginosa* from the other species by the distinctly pigmented brown dark cystidia, feature absolutely absent in the other species. These latter species are defined by the size and form of the spores and cystidia, features of great taxonomic value in the genus. Confusedly, Chang and Mills concluded that "investigations of isozyme bands should be approached with caution".

The epithet of the new species here described refers to the type locality's name.

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