AMANITA SIAMENSIS,
A NEW SPECIES OF AMANITA FROM THAILAND

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Abstract: Amanita siamensis, a new species of section Amanita, characterized by a greenish yellow to olivaceous buff pileus with a greyish brown disc, an olivaceous buff stipe, and a bulb at the stipe base, is described and illustrated.

Key words: taxonomy, Basidiomycetes, Agaricales

While studying the diversity of mushrooms of several sites in Northern Thailand, a new, attractive Amanita with greenish yellow basidiocarps was found gregariously on the ground in a Fagaceae forest of Doi Suhep-Pui National Park in Chiang Mai Province. It is described in this paper. The color names were coded according to Petersen (1996). The microscopic studies were carried out according to the methods of Yang (1997). The holotype (CMU 4528) is deposited in the fungal herbarium of Department of Biology, Chiang Mai University.

Amanita siamensis Sanmee, Zhu L. Yang, P. Lumyong & S. Lumyong, sp. nov.

Pileus 7.5-9.5 cm diametra, convexus vel plano-convexus, obtuse umbonatus, olivaceo-bubalimus, disco griseobrunneo, margine striata, non-appendiculata, reliquis volvae coacitis, farinosis, flocculosis, applanatis, cinnamomeus-bubalimus ornatus; caro alba. Stipes 9-15 × 1-1.5 cm, subcylindricus, annulatus, bulbo subgloboso, 1.5-2.5 cm diametro, volvae reliquis floccosis, olivaceo-bubalimus obtecto. Lamellae liberae, albus, confertae. Anulus membranaceus, sursum albus, deorsum melleus, superior, evanidus. Basidia 4-sporigera. Basidiosporae (9.0-) 9.5-11.5 (-13.0) × (3.0-) 5.5-7.0 (-8.0) μm, elongato-ellipsoideae, non-amyloideae, incoloreateae, hyalineae. Fibulae absentes. Holotypus: Thailand, Khun Chang-Kian, Doi Suhep-Pui National Park, Chiang Mai Province, 11.VI.2002, R. Sanmee, P. Lumyong, S. Lumyong, R. Kodsub & W. Chitrong (CMU 4528). Isotypus: HKAS 41153.

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**Etymology:** *siamensis* refers to the country in which the fungus was collected.

**Basidiocarps** medium size (fig. 1). **Pileus** 7.5-9.5 cm in diameter, convex to plano-convex, with low broad umbo at disc, greenish yellow to olivaceous buff, with a greyish brown disc; volval remnants farinose or as floccose patches, cinnamon buff; margin striate (0.2-0.4R), slightly reflexed, non appendiculate; trama white, unchanging. **Lamellae** free, white, crowded, farinose at edge; lamellulae truncate to subtruncate. **Stipe** 9-15×1-1.5 cm, subcylindrical or slightly tapering upward, with apex slightly expanded, greenish yellow to olivaceous, densely covered with cinnamon buff, farinose, squamules; trama white; bulb at stipe base subglobose, 1.5-2.5 cm in diameter. **Annulus** membranous, easily broken during expansion of pileus, upper surface white with fine subradial striations, lower surface cinnamon buff, with edge cinnamon buff viewed from above. Color of spore print white.

![Diagram of basidiocarp](image)

**Fig. 1-2:** *Amanita siamensis* (holotype: CMU 4528).


**Lamella trama** bilateral. **Mediostratum** 25-40 μm wide. **Lateral stratum** consisting of long ellipsoid and fusiform cells; inflated cells, intercalary, with 2-3 chains, 10-15 μm wide. **Subhymenium** (fig. 3) 30-40 μm thick, with 2-3 layers of pyriform to broadly clavate cells, 10-20 × 7-13 μm. **Basidia** (fig. 3) 36-48 × 9.5-14.5 μm, clavate, 4-spored; sterigmata 4-7.5 (-9.5) μm long; basal septa without clamps. **Basidiospores** (fig. 4) [60/2/1] (9.0-) 9.5-11.5 (-13.0) × (5.0-) 5.5-7.0 (-8.0) μm [Q=(1.38-) 1.53-1.88 (-1.93), Q=1.62+0.15], elongate, sometimes ellipsoid, inamyloid, colorless, hyaline, thin-walled, smooth; apiculus small. **Lamella edge** sterile, consisting of abundant inflated cells, globose to subglobose (15-30 μm), sphaeropedunculate (25-30 × 20-25 μm) to pyriform (20-35 × 15-30 μm), rarely broadly clavate (20-40 × 15-30 μm), single and terminal or in chains of 2-5, thin-walled, colorless, hyaline. **Pileipellis** 60-80 μm thick, hardly gelatinized, composed
of subradially arranged, 3-6 μm wide hyphae with brownish vacuolar pigments. **Volval remnants** (fig. 2) on pileus comprising irregularly arranged elements: inflated cells fairly abundant to abundant, globose, subglobose, to ovoid (9-18 μm) or sphaeropedunculate (20-25 × 12-18 μm), sometimes doliform to sublageniform (6-8 × 20-22 μm), or pyriform to broadly clavate (16-24 × 10-12 μm), single and terminal, sometimes in chains of 2-3, with yellowish to brownish vacuolar pigments, thin-walled; volva remnants on the stipe base composed of irregularly arranged elements: filamentous hyphae 2-5 μm wide, more abundant than those of volval remnants on pileus, almost colorless, some brownish; inflated cells globose (20-22 μm), subglobose (18-24 × 17-23 μm), ovoid (20-26 × 15-20 μm) to sphaeropedunculate (18-20 × 25-34 μm), rarely pyriform (15-18 × 29-34 μm). **Stipe trama** dominatedly consisting of longitudinally arranged, long clavate, terminal cells, 100-360 × 20-35 μm, mixed with 2-8 μm wide hyphae (scattered in interior, fairly abundant on stipe surface). Annulus not found in the studied material.

![Image of Amanita siamensis](image)

**Fig. 3-4 Amanita siamensis** (holotype: CMU 4528).

**Specimen examined:** Thailand, Khun Chang-Kian, Doi Suthep-Pui National Park, Chiang Mai Province, 11.VI.2002, R. Sanmee, P. Lumyong, S. Lumyong, R. Kodomueb & W. Chitrong (CMU 4528, Holotype; HKAS 41153, Isotype).

**Habitat and distribution:** Gregarious on ground in a forest dominated by fagaceous trees. Presently only known from the type locality.

**Observations:** *Amanita siamensis* belongs in *Amanita* subgenus *Amanita* section *Amanita*. It is characterised by its medium-sized basidioecarps with a greenish yellow to olivaceous buff color pileus covered with cinnamon buff, farinose or floccose volval remnants, a stipe densely covered with cinnamon buff, farinose squamules, a membranous but easily broken annulus, a bulb on the base of the stipe, elongate, inamyloid spores, and clampless bases of basidia. *Amanita siamensis* may be related to *A. rufoferruginea* Hong, *A. xerocybe* Bas, *A.*
roseitincta (Murrill) Murrill, A. guzmanii Cifuentes, Villegas et G. Santiago and A. levistriata D. T. Jenkins. However, A. rufoferruginea, originally described from Japan, has yellowish brown colored basidiocarps with reddish brown remnants on pileus, and globose to subglobose basidiomata (Hongo, 1966; Imazeki et al., 1988; Imazeki & Hongo, 1995; Yang, 1997). Amanita xerocybe, known from South America, has ochraceous colored basidiocarps, at centre brownish ochraceous yellow to ochraceous brown, and globose to subglobose basidiomata (Bas, 1978; Simmons et al., 2002); Amanita roseitincta, described from North America, has salmon coloured pileus, white stipe and annulus tinged with salmon, salmon colored volval remnants (Jenkins, 1979), and the spores are shorter (Tulloss, unpublished); Amanita guzmanii, described from Mexico, has cream coloured basidiocarps with powdery gloden-brown veil, large squamulose truncate-pyramidal warts on pileus, stipe bulbose subglobose, and ellipsoid to long ellipsoid spores (Santiago et al., 1984); Amanita levistriata, described from North America, has small fruitbody size, a golden-yellow pileus with floccose patches of universal veil, and globose to subglobose basidiomata (Jenkins, 1988).

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LITERATURE CITED