

Amanitopsis avellaneosquamosa Imai in Bot. Mag. (Tokyo) 47: 430 (1933) .

Pileus 4-11 cm in diam., convex to plano-convex, ground color very pale gray with an occasional pale brownish disc, covered with small, felty-fibrillose, appressed voval remnants, remnants whitish at first, very pale yellow brown in age, detersile; margin finely striate, appendiculate. Gills distant, free, white, turn red when bruised; lamellulae truncate. Stem 50-140 x 6-20 mm, tapering toward apex, ground color as pileus, hollow, surface floccose- scaly; basal bulb globose to ovoid. Volva adherent, forming a membranous sac, lobed, white. Pileipellis filamentous hyphae interwoven, 3-8 μm diam., moderately branched, slightly gelatinized. Basidia clavate, 35-52 x 10-13 μm , 4-sterigmata, sterigmata 3-5 μm , basal septa without clamp. Basidiospores (9.0-) 9.5-10.5 (-11.0) x (5.0-) 5.5-6.0 (-6.5) μm , Q = 1.46- 2.10, elliptical (Fig. 1a), amyloid, hyaline, smooth, thin-walled. Gill trama bilateral, subhymenium inflated ramose (Fig. 2a), composed of 2-4 ovate, subglobose to elliptical cells. Volva filamentous hyphae on pileus abundant, 2-8 μm diam., gelatinized, septa without clamp; inflated cells moderately abundant in the upper layer, subglobose, obpyriform to broadly elliptic, up to 16-18 x 11-16 μm , terminal; with clavate to fusiform-elliptical cells, up to 30-64 x 9-16 μm , intercalary or terminal; inner layer intensely gelatinized, usually with inflated hyphae, 6-17 μm diam.; volval remnants at stem base similar to those on pileus, but outside layer with sparsely interwoven hyphae. Stem trama longitudinally oriented inflated cell, cylindro-clavate, clavate to slenderly clavate, up to 98-257 x 14-58 μm , usually at the terminal of

filamentous branching hyphae (2-6 μm diam.); interlaced with enormous sphaerocysts.

Specimens examined : Nantou, Hui-Sun Forest Experimental Station, alt. 1,750m, *C.M. Chen* 2292 (30.X. 1998.) ; *C.M. Chen* 2426 (1.VIII. 2000.) ; *C.M. Chen* 2475 (10.VIII. 2000.) .

Habitat : Solitary under broad-leaved trees.

Distribution : Taiwan, China, Japan.

Remarks : *A. avellaneosquamosa* is closely related to *A. peckiana* Kauff. and *A. volvata* (Peck) Martin of section Amidella group, but the three species are distinguishable in the field by the differences in their morphological characters. *A. peckiana* has an unstriated pileal margin, crowd gills, and pinkish to pinkish-cream color on pileal remnants, while *A. volvata* has an unstriated to faintly striated pileal margin, crowd gills and floccose patches on pileus. *A. avellaneosquamosa* is fairly similar in characters to those of *Amanitopsis clarisquamosa* Imai as described by Imai (1933), but these two species have been confirmed to be the distinct taxa by the molecular phylogenetic method (Weiß *et al.* 1998). Also, *A. avellaneosquamosa* has smaller spores, sub-distant lamellae and longer striations along the pileal margin, as compared to those of *A. clarisquamosa*.

Amanita griseofarinosa Hongo in Mem. Fac. Liberal Arts Shiga Univ., Pt. 2, Nat. Sci. 11: 39, 1961. (Fig. 3e)

Pileus 5-8.5 (-10) cm broad, broadly convex becoming plane, rarely uplifted, " surface dry, pale drab, densely covered with grayish to fuscus, powdery-floccose patches of universal veil tissue which often become aggregated into fugacious warts," slightly gelatinous to viscid when wet, with non-sulcate, appendiculate

margin; flesh white, moderately brittle, abruptly thin near the margin but moderately thick near the stem, unchanging when cut, smell faint. Gills close to subdistant, free, white, ventricose, 3-7 mm wide, with subflocculose edges; short gills subtruncate to attenuate. Ring grayish to yellowish grey, distinctly pulverulent-floccose, fugacious. Stem 8-14x0.5-0.9 cm, attenuated upward, subclavate to obovoid, solid, surface covered with yellowish gray, pulverulent-flocculose remnants of friable partial veil and volva. Pileipellis filamentous hyphae (2.5-) 5-9 μm diam., radially extended with brown inflated cells, slightly gelatinized. Basidia (40-) 55-63 (-68)x(9-) 12-16 (-18) μm , clavate, 4-spored, sterigmata 4-5 μm long, basal septa without clamps. Basidiospores (8.0-) 9.5-11.5 (-12)x(7.0-) 8.0-10.0 (-10.5) μm , Q=1.13-1.44, subglobose to broad elliptical (Fig. 1b), amyloid, hyaline, smooth, thin-walled. Gill trama 50-120 μm broad, composed of parallel, hyaline, cylindrical hyphae, 2-8 μm , with abundant intercalary inflated cells, subhymenium inflated ramosa (Fig. 2b), composed of 2-3 elliptical cells. Volva filamentous hyphae on pileus rare, 2-6 μm ; inflated cells abundant, globose, subglobose, ovate (31-40x55-58 μm) to elliptical (44-47x64-72 μm), occasionally subfusiform, grayish brown, terminal or in short, terminal chains; volval remnants at stem base very similar, but with more hyphae and generally smaller cells. Stem trama largely composed of longitudinally cylindrical hyphae, up to 250-350 x 23-40 μm , terminal clavate, interwoven filamentous hyphae, 4-8 μm diam. Ring mostly composed of globose, subglobose, ovate to elliptical inflated cells, inflated cells grayish brown, sometimes subfusiform with projectile-shaped.

Specimens examined : Nantou, Hui-Sun Forest Experimental Station, alt. 1,750m, C.M. Chen 2469 (9. VIII.2000.) ; C.M. Chen 2773 (10.V. 2001.) .

Habitat : Solitary to scattered under broad-leaved trees.

Distribution : Taiwan, China, Japan.

Remark : *A. griseofarinosa* has remnants of volva on pileus, which has irregularly disposed and inflated cells intermixed with many hyphae. Its dark-color and slender carpophore with distinctly floccose ring, extending over stem in the young, is an uncommon character in section *Lepidella* group. In many respects with the volva characters in particular, *A. griseofarinosa* is fairly similar to *Amanita vestita* Corner & Bas, but they are distinguishable by their basidium sizes: 55-63x12-16 μm for the former and 30-40x8-10 μm for the latter. Also, the spores of *A. griseofarinosa* are more broader (8-10 μm) than those of *A. vestita* (5.5-6 μm) .

Amanita ovalispora Boedijn, Sydowia 5: 320, 1951. (Fig. 3c, d)

Pileus convex to plano-convex, margin sulcato-striate, nearly halfway the cap, 5-7 cm in diam., smooth greyish brown. Flesh very thin, white, 1-2 mm thick near the stalk, rapidly thinning out near the margin. Gills free, pure white to cream colour, whitish with occasional pale yellow tint, moderately crowded, 4-5 mm high in the middle. Stem hollow, pure white to grayish white, 7-10x0.6-1.0 cm, at first covered by slightly flocculose or small adpressed scales, especially near the base, soon becoming glabrous, attenuated near the apex and not bulbous at the base. Wall of stem about 2 mm broad. Volva free, sheathing the base of the stem,

dirty white, with lobed margin, 2.5-3 cm high, 1.5-2 cm broad. Pileipellis a trichodermium of septate hyphae. Basidia 43-57 x 12-18 μm , clavate, 4-spored, sterigmata 8 μm in NH_4OH seen to have numerous amorphous refractive yellowish particles scattered, basal septa without clamp. Basidiospores (8.0-) 9.0-11.0 (-12.0) x (7.0-) 7.5-9.0 (-10.0) μm , Q = 1.12-1.38, broad elliptical to elliptical (Fig. 1c), inamyloid, hyaline, smooth, thin-walled. Gill trama bilateral; mediostratum 20-35 μm broad, composed of many longitudinal, elliptical to spindle-form inflated cells, 35-80 x 12-20 μm , interwoven with plenty of cylindrical branched hyphae, 2-5 μm broad, clamp connection absent; subhymenium 30-40 μm thick, inflated-ramose type, composed of 2-3 layers cells, inflated cells

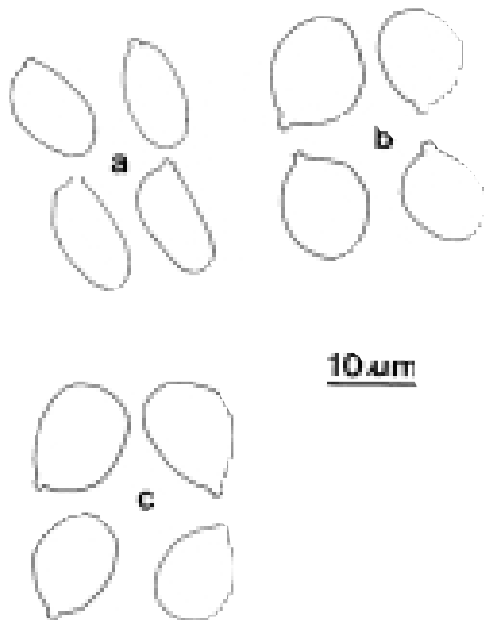


Fig. 1. Basidiospores (a, *A. avellaneosquamosa*; b, *A. griseofarinosa*; c, *A. ovalispora*).

short elliptical to barrel-shaped (Fig. 2c). Volva surface layer composed of longitudinally filamentous hyphae, 2-10 μm broad; inner layer composed of dense, hyaline, cylindrical hyphae, 4-10 μm broad, sometimes intercalary inflated, up to 18 μm diam., while the closest layer to stem composed of loose, hyaline, cylindrical hyphae, 3-8 μm broad, inflated cells usually oval to subglobose, up to 55-85 x 43-62 μm , with elliptical inflated cells, up to 60-120 x 30-57 μm , single and terminal. Stem trama largely composed longitudinally cylindrical hyphae, up to 250-350 x 23-40 μm , terminal clavate, interwoven filamentous hyphae, 4-8 μm diam. Cheilocystidia sterile, often composed of pyriform to broad clavate, with ovate to short elliptical (25-35 x 20-24 μm), thin-walled, hyaline

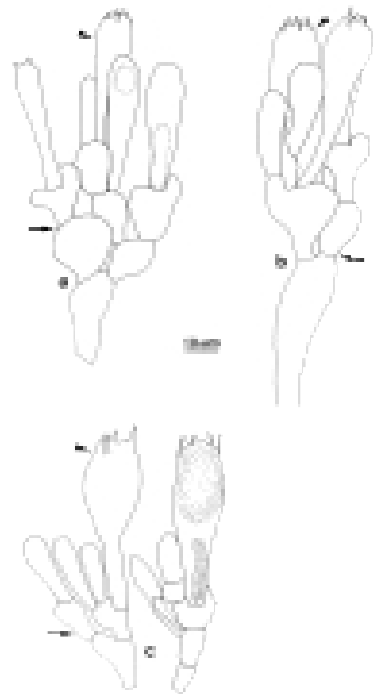


Fig. 2. Basidia and subhymenium (a, *A. avellaneosquamosa*; b, *A. griseofarinosa*; c, *A. ovalispora*). \blacktriangleright : basidia; \blacksquare : subhymenium.

inflated cells.

Specimen examined : Nantou, Sun Moon Lake, alt. 800m, *H.W. Huang* 789 (8.IX. 1994.); *C.M. Chen* 2413 (12.VII. 2000.).

Habitat : Solitary under broad-leaved trees.

Distribution : Taiwan, China, Indonesia.

Remark: The distinguishing characters of *A. ovalispora* are its free volva, hollow stem and the convex to plano-convex pileus with sulcato-striate margin, which extends to nearly halfway of the cap. Lamellae are gray-brownish in color when dried, a distinct character for the species.

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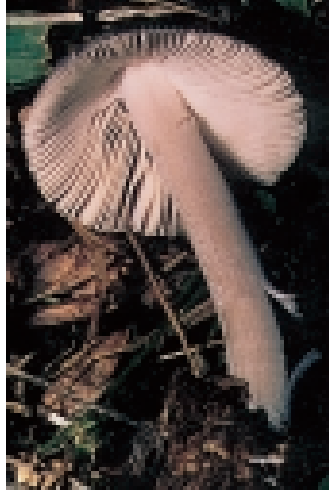
a.



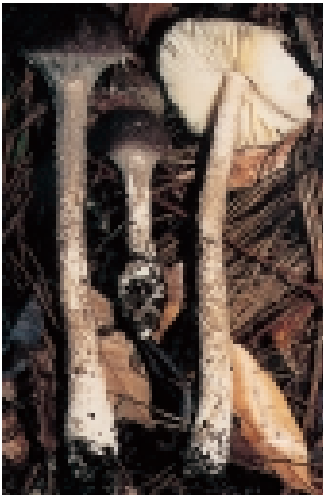
b.



c.



d.



e.

Fig. 3. Basidiomes (a and b, *A. avellaneosquamosa* ; c and d, *A. ovalispora*; e. *A. griseofarinosa*; scale bar = 1 cm).

三種鵝膏菌屬新紀錄種

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摘要

本文描述並討論在臺灣首次被發現的三種鵝膏菌屬新紀錄種，分別是灰色鱗鵝膏 (*Amanita avellaneosquamosa* (Imai) Imai)、粉被鵝膏 (*Amanita griseofarinosa* Hongo) 及卵孢鵝膏 (*Amanita ovalispora* Boedijn)。

關鍵詞：灰色鱗鵝膏、粉被鵝膏、卵孢鵝膏、臺灣

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