

## *Marasmius brunneospermus*, a new species of *Marasmius* section *Globulares* from central Honshu, Japan

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**A new species of *Marasmius* section *Globulares*, *Marasmius brunneospermus* sp. nov., found in the lowland forest of Kanagawa and Chiba, Japan, is described and illustrated. This species is characterized by a hygrophanous pileus with rugulose-reticulate disk, well-developed basal mycelium attached to an extensive mycelial mat in leaf litter, and conspicuous fusoid-ventricose pleurocystidia. In addition, its brown spore print mottled with white parts is unusual as an infrageneric character in the genus *Marasmius*.**

**Key Words**—Agaricales; *Marasmius brunneospermus*; *Marasmius* section *Globulares*; new species.

In studies on the agaric flora in central Honshu, Japan, a distinct species belonging to *Marasmius* section *Globulares* Kühner was found on leaf litter in the lowland forest of Kanagawa and Chiba. *Marasmius brunneospermus* sp. nov. is described and illustrated with photographs showing macromorphological features. Color notations in parentheses are taken from Kornerup and Wanscher (1978). Specimens cited are deposited in the Natural History Museum and Institute, Chiba, Japan (CBM) and Kanagawa Prefectural Museum of Natural History, Japan (KPM).

***Marasmius brunneospermus* Har. Takahashi, sp. nov.**

Figs. 1–7

Pileo 15–50 mm lato, primo hemisphaerico, dein late convexo, centro fortiter rugoso-reticulato, hygrophano, glabro, brunneo; carne usque ad 3 mm crassa, albida; odore saporeque nullo; stipite 40–70 × 2–5 mm, subaequali vel ad basim leniter incrassato, cavo, brunneolo, albo-pruinoso, mycelio basali albo affixo; lamellis adnexis, mediocriter subdistantibus, albi dein brunneoli; sporis in massa brunneis (6E4–6E6); basidiosporis 6.4–8 × 2.4–3.6 μm, ellipsoideis vel oblongo-ellipsoideis, levibus, brunneoli vel hyalinis, inamyloideis; basidiis 23–27 × 3.3–4.6 μm, tetrasporis; cheilocystidiis 30–57 × 4–13 μm, fusoido-ventricosis vel subcylindraceis; pleurocystidiis 50–95 × 5–13.5 μm, fusoido-ventricosis vel ampulliformibus; caulocystidiis irregulariter cylindraceis vel stragulatis; hyphis fibulatis.

Holotypus: Ad folias emortuas arboris frondosae in silva, Yamato-shi, Kanagawa-ken, Japonia, 27 May 1998, H. Takahashi (KPM-NC-0005011).

Etymology: *brunneospermus* = referring to brown spore print.

Pileus 15–50 mm in diam, at first hemispherical with incurved margin, then broadly convex, not umbonate, center irregularly rugulose-reticulate to pitted, less so

toward the translucent-striate margin, hygrophanous, glabrous, evenly colored brown (7D7–7D8, 6D7–6D8) when wet, drying out to light brown (6D4–6D5) to brownish orange (6C4–6C5) or sometimes whitish overall. Flesh up to 3 mm thick, whitish, odor and taste none; consistency somewhat brittle. Stipe 40–70 × 2–5 mm, almost equal or slightly enlarged at the base, central, slender, terete, hollow, light brown (6D4–6D5) or sometimes white overall, entirely pruinose; base covered with white, strigose mycelial hairs or tomentum attached to an extensive mycelial mat in the substratum. Lamellae adnexed, subdistant (20–24 reach the stipe), 4–6 mm broad, paler concolorous with the pileus, rarely pale brownish in age, slightly intervenose; edges even, concolorous.

Spore print predominantly brown (6E4–6E6), mottled with white parts. Basidiospores 6.4–8 × 2.4–3.6 μm, ellipsoid to oblong-ellipsoid, colorless in water, smooth, inamyloid, thin-walled, without germ pore. Basidia 23–27 × 3.3–4.6 μm, clavate, four-spored; basidiole clavate. Cheilocystidia 30–57 × 4–13 μm, forming a compact sterile edge, fusoid-ventricose or subcylindric to subclavate, colorless when fresh, pale melleous in dried material, inamyloid, thin-walled. Pleurocystidia 50–95 × 5–13.5 μm, fusoid-ventricose, with a long and curved pedicel, colorless when fresh, pale melleous in dried material, inamyloid, thin-walled. Hymenophoral trama of subparallel, subcylindric hyphae with element cells 30–60 × 4–7 μm, smooth, colorless, dextrinoid, with clamped septa, thin-walled. Pileipellis hymeniform, consisting of broadly clavate to pyriform (*Globularis*-type) cells 16–35 × 8–13.3 μm, pale brown, inamyloid, sometimes with a clamped septum, thin-walled. Pileitrama of subparallel, subcylindric hyphae with element cells 25–60 × 4–8 μm, smooth, colorless, dextrinoid, with clamped septa, thin-walled. Stipitipellis a cutis of parallel, repent hyphae 2–5 μm wide, cylindric, smooth, color-

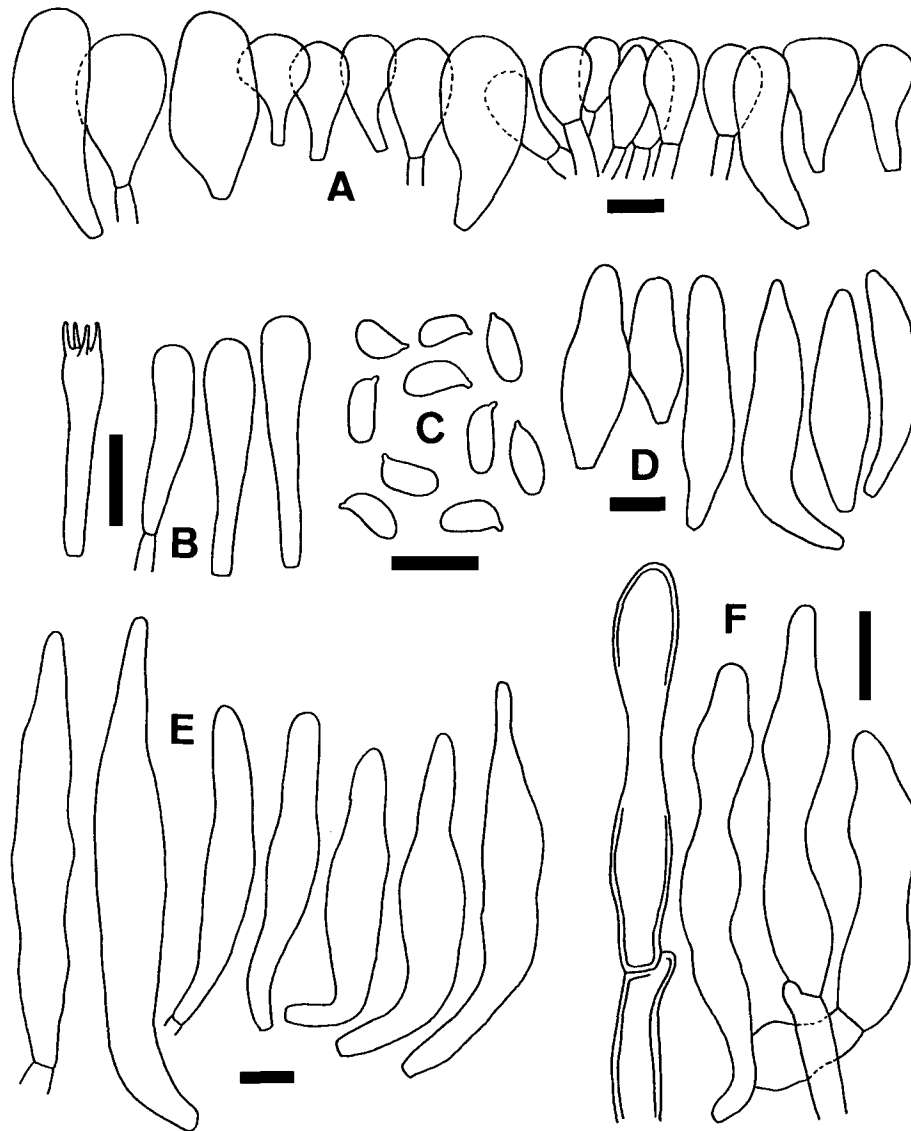


Fig. 1. *Marasmius brunneospermus*.

A. Hymeniform pileipellis. B. Basidium and basidioles. C. Basidiospores. D. Cheilocystidia. E. Pleurocystidia. F. Caulocystidia. Scales: 10  $\mu\text{m}$ . All figures from CBM-FB-24134.

less or pale brown, dextrinoid, with clamped septa, thin-walled; caulocystidia numerous,  $25\text{--}55 \times 7\text{--}12 \mu\text{m}$ , ventricose or irregularly cylindrical to strangulated, smooth, colorless, dextrinoid, thin-walled. Stipe trama composed of longitudinally running, cylindrical hyphae  $4\text{--}15 \mu\text{m}$  wide, smooth, colorless, dextrinoid, with clamped septa, thin-walled.

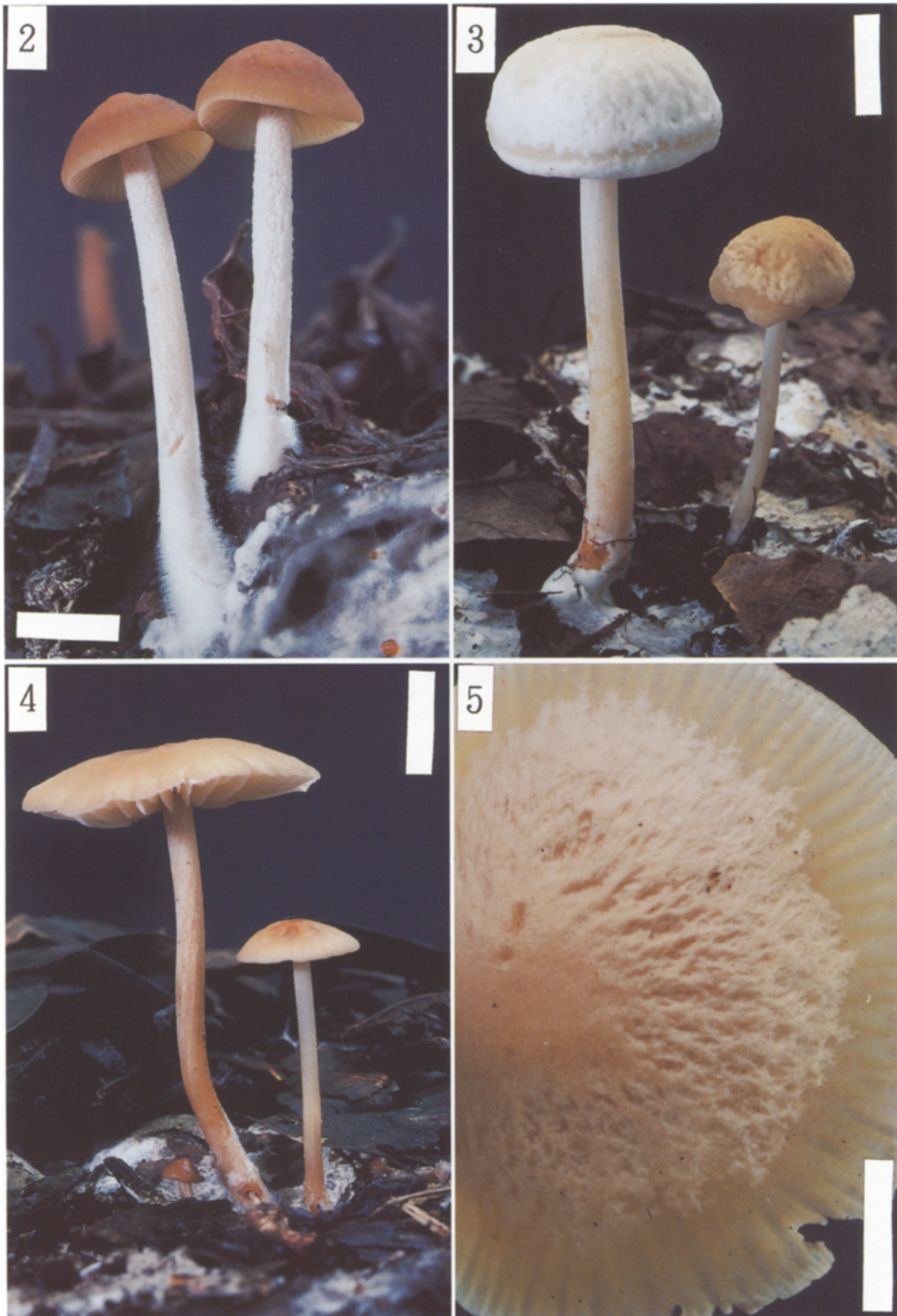
Known distribution: Japan (Chiba, Kanagawa).

Habitat: Solitary to caespitose on leaf litter in broad-leaved forest dominated by *Quercus serrata* Thunb. and *Pasania edulis* Makino, from April to October, common.

Holotype: KPM-NC-0005011, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 27 May 1998.

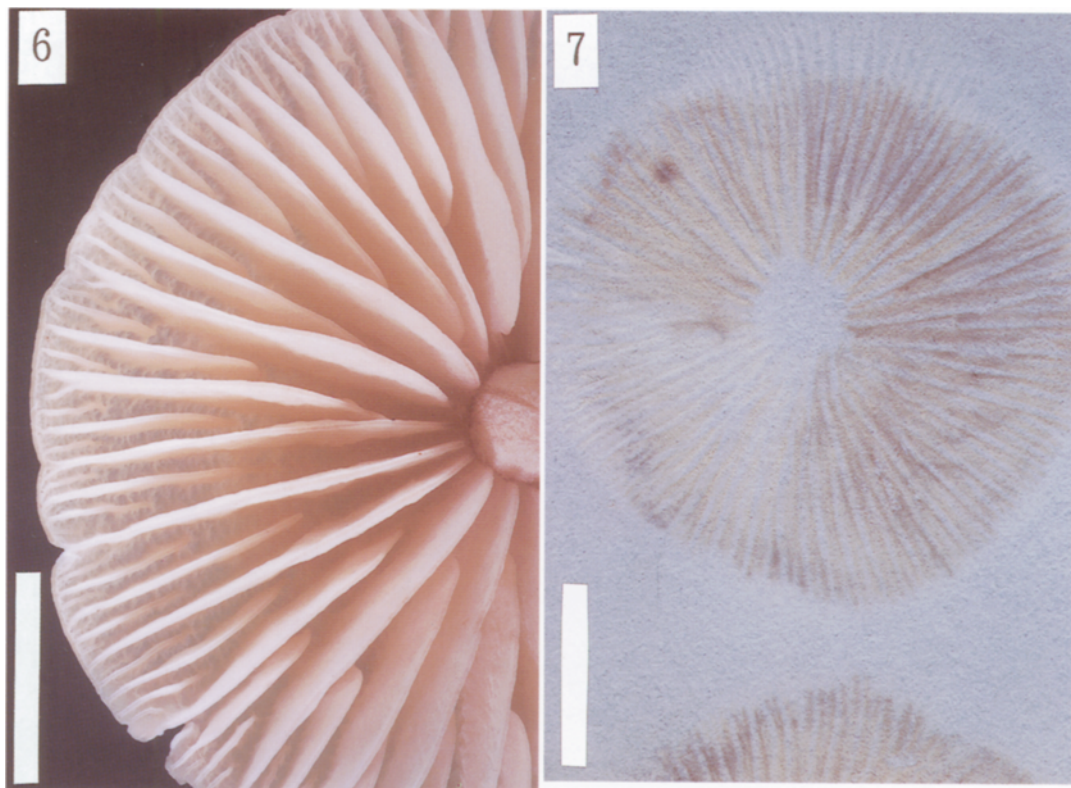
Other specimens examined: KPM-NC-0005008, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-

ken, 12 Jun. 1997; CBM-FB-24134, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 16 Jun. 1997; KPM-NC-0005013, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 11 Jul. 1997; KPM-NC-0005009, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 16 Sept. 1997; KPM-NC-0005012, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 15 Jul. 1998; CBM-FB-24135, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 3 Jun. 1998; KPM-NC-0005010, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 23 Jun. 1998; CBM-FB-24136, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 24 Jul. 1998; CBM-FB-16859, on leaf litter in broad-leaved forest, Chiba-shi, Chiba-ken, 3 Oct. 1998; KPM-NC-0005007, on leaf litter in broad-leaved forest, Yamato-shi, Kanagawa-ken, 28



Figs. 2–5. *Marasmius brunneospermus*.

2–4. Basidiomata. 5. Surface view of expanded pileus. Scales: 10 mm. 2, 4 from CBM-FB-24135; 3, 5 from CBM-FB-24136.



Figs. 6, 7. *Marasmius brunneospermus*.  
6. Underside view of expanded pileus. 7. Spore print. Scales: 10 mm. 6, 7 from CBM-FB-24135.

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Japanese name: Amigasa-houraitake.

Notes: The diagnostic features of this species are the collybioid basidiomata with a hygrophanous, irregularly wrinkled to rugulose reticulate pileus, the white, extensive mycelial mat attached to base of the stipe, the brown spore print mottled with white parts, and the fusoid-ventricose pleurocystidia with a long and curved pedicel.

The collybioid habit; the dextrinoid tramal hyphae, and the hymeniform pileipellis composed of *Globularis*-type cells suggest placement of this taxon in the genus *Marasmius* section *Globulares* Kühner in Singer's classification (Singer, 1986). However, its brown spore print mottled with white parts is apparently unusual as an infrataxic character in the genus *Marasmius*. It is possible that a new section needs to be proposed, but more material, especially fresh specimens, and chemotaxonomical analysis concerning its spore pigment are considered to be necessary before final disposition of this taxon can be made.

Within the section *Globulares*, *M. brunneospermus* seems to be most closely allied with three tropical and subtropical taxa which have conspicuous fusoid-ventricose pleurocystidia, viz. *M. phlebodiscus* Desjardin & Horak (Desjardin and Horak, 1997) from New Guinea, *M. silvicola* Singer (Singer, 1976) from Argentina, and *M. trogioides* Corner (Corner, 1996) from Borneo. Accord-

ing to the literature, *M. phlebodiscus* has an obtusely umbonate pileus, crowded lamellae (28–34), an insititious, appressed fibrillose stipe without caulocystidia, and occasionally catenulate, fusoid and mucronate cheilocystidia. *Marasmius silvicola* has a smooth, deep colored pileus, greyish cinnamon to yellowish lamellae, and vesiculose cheilocystidia. *Marasmius trogioides* forms a bright cinnamon fawn to fulvous ochraceous pileus, an insititious stipe, much larger basidiospores (9–11.5 × 4.7–5.5 μm in var. *trogoides*, 10.5–13.5 × 6–7 μm in var. *megaspora*), clavate cheilocystidia, occasionally clustered, clavate caulocystidia, and clampless hyphae.

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