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Short Communication

Mortierella isabellina and *M. lignicola* from decayed wood with termite nests in Yakushima, Japan

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***Mortierella isabellina* and *M. lignicola* isolated from decayed wood with termite nests were redescribed and illustrated.**

Key Words——Identification; *Mortierella*; *Mortierella isabellina*; *Mortierella lignicola*.

In screening for lignocellulose-decomposing fungi for utilization of unused natural resources, various fungi were isolated from habits including soil and wood. Among fungal isolates from unidentified decayed wood with termite nests in Yakushima, Kagoshima, Japan, *Mortierella* species were always dominant and included *M. hyalina* (Harz) W. Gams, *M. isabellina* Oudem., *M. lignicola* (G. W. Martin) W. Gams et R. Moreau, and *M. zychae* Linnem. These fungi were isolated by plating small pieces (about 5 × 5 × 5 mm) of washed wood pieces on water agar, and isolating single hyphal tips extending from these pieces after incubation for 2 d at 25°C.

These *Mortierella* species were identified according to earlier works (Gams, 1977; Hendrix et al., 1971; Kuhlman, 1969; Turner, 1963; Watanabe, 1993, 1994). Except for *M. lignicola*, all had been previously recorded in Japan (Anonymous, 1981; Watanabe, 1993, 1994). Thus, *M. lignicola* may be significant as a member of Japanese fungal flora. Although *M. isabellina* occurs commonly in forest communities including forest seed worldwide (Anonymous, 1968, 1991), published records are rare in Japan (Watanabe, 1993, 1994). Therefore, these two species are redescribed here with photomicrographs showing the morphology of *M.lignicola*.

Mortierella isabellina Oudem., Archs. Néerl. Sci. (Sér.2) **7**: 276. 1902.

Colonies on potato-dextrose agar(PDA) after incubation for 3 d at 25°C, 20–23 mm in diam, gray, non-aerial, velvety, zonated; reverse pale gray. Sporangiophores erect, hyaline, branched sympodially, cymosly, and basitonously, often appearing verticillate with more than 10 branchlets with non-swollen apexes, often septate, 10–80 μm long in basal stem, nearly 3 μm wide, branchlets usually 33–220 μm long, bearing sporangia terminally. Sporangia usually 7–18 μm in diam. Sporangiospores angular (usually with five angles), or subglobose, 1.4–1.5 μm in diam. No chlamydospores formed.

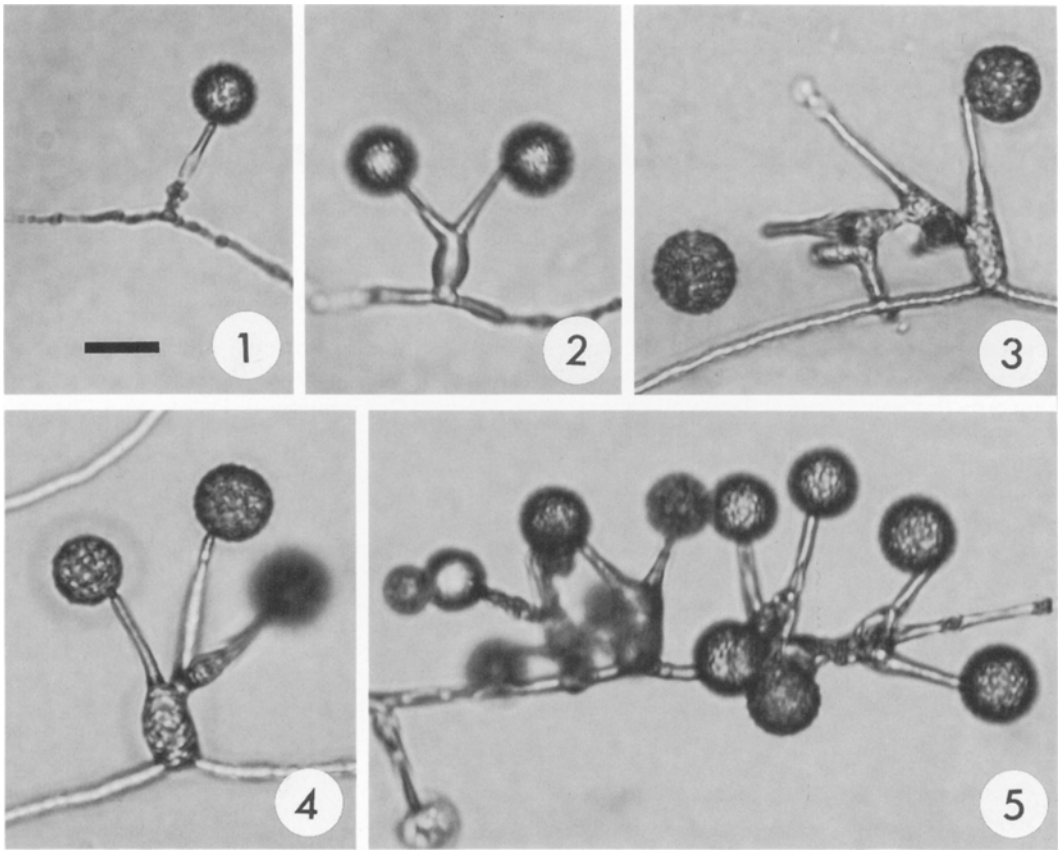
Habitat. From unidentified decayed wood with termite nests, Yakushima, Kagoshima, Japan.

Material examined. Japan, Kagoshima, Yakushima, cultures from unidentified decayed wood with termite nests, 10 Nov. 1997, T. Watanabe, Y. Watanabe, T. Fukatsu, and R. Kurane, 97-Y-6. Living cultures deposited at American Type Culture Collection (ATCC 201898), and at Cent. Res. Lab., Mercian Corp., Fujisawa, Kanagawa, Japan. According to Turner (1963), the Isabellina group, i.e., *M. isabellina* and related species, commonly forms chlamydospores, but their production is variable even in the same species. Thus, this fungus may be noteworthy for non-production of chlamydospores.

Mortierella lignicola (G. W. Martin) W. Gams et R. Moreau, Ann. Sci. Univ. Besançon (Ser. 2) **3**: 103. 1960.

≡*Haplosporangium lignicola* G. W. Martin, Mycologia **29**: 618. 1937. Figs. 1–5

Colonies on PDA after incubation for 3 d at 25°C, 30–36 mm in diam, white, composed of irregularly dense and light mycelial turf, almost non-aerial; reverse white. Sporangiophores hyaline, erect, tapering abruptly from middle towards apex with awl-shaped appearance, rarely septate, simple or branched basitonously, occasionally septate, often proliferated and aggregated, the simple ones 14–50 μm long, the branched ones with more than five branchlets, mostly 13–30 × 6–9 μm in swollen base, 14–30 μm in branchlet length, bearing sporangia terminally. Sporangia originally called conidia by Martin (1937) and now commonly called as stylospores (Gams, 1977; Kuhlman, 1969), with delicately spiny walls, globose, one-spored, 12–16 μm in diam.



Figs. 1–5. Morphology of *Mortierella lignicola*.
Single (1), branched (2–5), often proliferated (3) or aggregated sporangiophores (5) with two (2) and three branchlets (4) with terminal sporangia (stylospores). Note awl-shaped sporangiophores (particularly, 2, 4) bearing finely-echinulate single-spored terminal sporangia (1–5), and a detached sporangium (3).
Scale bar in Fig. 1: Figs. 1–5: 15 μm .

Habitat. From decayed wood of unidentified trees with termite nests, Yakushima, Kagoshima, Japan.

Material examined. Japan, Kagoshima, Yakushima, cultures from unidentified decayed wood with termite nests, 10 Nov. 1977, T. Watanabe, Y. Watanabe, T. Fukatsu, and R. Kurane, 97-Y-1. Living cultures deposited at American Type Culture Collection (ATCC 201897), and at Cent. Res. Lab., Mercian Corp., Fujisawa, Kanagawa, Japan.

A garlic-like odor is present in *M. lignicola* as in many *Mortierella* species, but no such odor is found in *M. isabellina*, as indicated by Turner (1963).

Both *Mortierella isabellina* and *M. lignicola* are common and abundant in forest soils and pine root bark and wood in the USA (Hendrix et al., 1971; Kuhlman, 1969; Turner, 1963). Therefore, these *Mortierella* species from decayed wood might be expected to occur as members of Japanese fungal flora.

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