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Short Communication: Mating types of Job's tears smut fungus, *Ustilago coicis*, and their pathogenicity

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Mating types of Job's tears smut fungus, *Ustilago coicis*, isolated in Japan were examined. The smut spores germinated to form a three- or four-celled promycelium on PDA medium generally and basidiospore (sporidium) was developed from each cell. Sporidia grew well by budding on PDA medium. On water agar medium, however, dikaryotic infection hyphae or parasitic mycelia were formed directly. Two sets of 8 monosporidial isolates from 2 smut spores were identified to have each two mating types on PDA medium and on the compatible pairing of the isolates, dikaryotic infection hyphae were developed on PDA 3 to 4 h after mixing in pairs. Pathogenicity of the isolates was also observed at compatible pairing, but not at incompatible pairing.

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Note: Benzimidazole-tolerant *Penicillium crustosum* isolated from the edible mushroom factories in Hokkaido

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The antifungal activity of benomyl (BEN) and thiazobenzazole (TBZ) was tested against five strains of *Penicillium* spp., two of which (96201Pe and 97203Pe) were isolated from mushroom factories where benzimidazole (BEN and/or TBZ) was used to disinfect the cultivation environment. BEN and TBZ were only slightly inhibitory to the growth of 96201Pe and 97203Pe. The minimum inhibitory concentration (MIC) of TBZ for the two strains was 10^2 – 10^4 times higher than those for the other strains. The two strains were identified as *Penicillium crustosum*.

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Short Communication: Effect of bark polyphenols on mycelial growth of some basidiomycetes

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Mycelial growth of some basidiomycetes in PDA medium containing bark polyphenols was evaluated. The addition of bark polyphenols accelerated the mycelial growth and affected the metabolite system remarkably in the case of the white-rot fungus *Pleurotus ostreatus*, which produced more than double the mycelial weight of the control. Laccase and acid protease activities increased with the increase of mycelial weight due to the addition of the polyphenols. In wood-meal medium containing bark polyphenols, mycelial growth of *P. ostreatus* increased rapidly but the yield of fruit bodies decreased with the increase of polyphenol concentration.

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Note: The second discovery of *Laboulbenia nana* in Japan

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Laboulbenia nana (Laboulbeniales) was collected for the second time on *Tachyta nana* (Coleoptera, Carabidae, Tachyini) from Japan. This fungus is distinguished from *L. vulgaris* on *Bembidion semiluitum* by the following characters: 1) the perithecium is straw-colored or yellowish brown, deeply suffused at the second tiers of the outer wall cell rows, whereas it is dark brown throughout in *L. vulgaris*; 2) the basal cell of the outer appendage is almost the same height as the basal cell of the inner appendage; the suprabasal cell of the outer appendage has pale septa; the third cell of the outer appendage is distally enlarged and frequently darkened, from which two or three filamentous branches arise, the outer most one becoming dark in color, whereas in *L. vulgaris*, the outer basal cell is considerably taller than the inner basal cell; the suprabasal cell has dark constricted septa; the third cell is cylindrical and pale-colored, from which two or three filamentous branches arise, the outermost one usually having no dark suffusion; and 3) the dark zone of the insertion cell is thicker than that of *L. vulgaris*. The clavate branchlet of the outer appendage shown by Sugiyama (1973) is different from what I observed in my specimens, but it must be a basal cell of the outermost filamentous branch. A possibility of *T. umbrosa* as a host of *L. nana* is discussed.

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Note: Effects of using carrot juice residue as a substrate on fruiting body production of *Armillaria ostoyae*

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We investigated the fruiting body production of *Armillaria ostoyae* using carrot (*Daucus carota* var. *sativa*) residue from juice manufacture as a substrate for

cultural media. Two stocks of *A. ostoyae* (HFP-Am 82-10 and HFP-Am 82-14) were used. The rhizomorph production and elongation of the stocks increased with increasing moisture content of carrot juice residue, and a suitable moisture content was estimated to be about 70% or over (pF: 1.5 or under). Further, the fruiting body productivity (days required for spawn running and yield of fruiting bodies) was increased by the addition of

rice bran or wheat bran to the residue. Suitable additions were 4.5–12.5% ((dry weight additive)/(initial fresh weight of medium) × 100) in the case of rice bran, and 6.0–9.0% in the case of wheat bran at 75% moisture content. Under these conditions, the yield of fruiting bodies was 20–40% (w/w) of the initial fresh weight of media after cultivation for about 60 d.

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