

Construction of a model system to analyze the decomposition process of bamboo culm adopting mushrooms in Agaricomycotina

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Purpose: We focused on construction of a model system to analyze the decomposition process of bamboo culm adopting mushrooms in Agaricomycotina.

Methods: We used five white-rot fungi and two litter-inhabiting fungi, and selected a brown-rot fungus as a control. The growth rate of the fungi on PDA medium and lignin decomposition ability by Bavendamm reaction and Remazol Brilliant Blue R test were examined. Among them, *Pleurotus djamor* var. *roseus* was selected based on the evaluation of the above criteria. The bamboo powder of *Phyllostachys reticulata* culm powder was moistened at 71%, and 400 to 405 g of the powder was filled in a PP bag followed by sterilization at 120°C for 1 hour. Five mycelial blocks punched out from a mycelium grown on PDA medium were inoculated onto the bamboo powder. They were incubated at 25°C and analyzed its decomposition.

Results and Conclusions: The mycelium covered the whole surface of the medium in about 2 to 3 weeks in all cultures. Fruiting bodies were formed within 1 month of incubation. It indicates that *Pl. djamor* var. *roseus* has a high decomposition ability of the culm. Weight loss of the bamboo powder culture was 14% after 3 months of incubation. Dry weight of α -cellulose, hemicellulose, and lignin decreased 25.1%, 11.8%, and 0.8%, respectively, suggesting that lignin decomposition initiated within 3 months. Our results suggest that the bamboo culture by *Pl. djamor* var. *roseus* would be a suitable model system to analyze the decomposition process of bamboo culm.