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The Sawdust Cultivation of Lentinula edodes with Broussonetia kazinoki

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Abstract : Broussonetia kazinoki (paper mulberry) is a plant native to Asia, and it grows at the foot of a mountain. Its bark is used as a raw material of Hanji, traditional Korean paper, and fruit is used as a medicinal material. However, inside the bark (woody part) is not used and discarded. We tried to use it for Lentinula edodes (oak mushroom) cultivation. It is commonly cultivated using oak trees and sawdust, but it could be grown with other trees. The woody part of paper mulberry was ground and mixed with oak sawdust by five different ratios. The 1.2 kg cylindrical bag media were prepared and water contents were adjusted to 65%. The media were autoclaved at 100℃ for 60 min and 121℃ for 90 min. Two strains of oak mushroom, NIFoS 2462 and NIFoS 2778 were inoculated and cultivated for 90 days in dark condition, and 40 days in light condition. Compared to the control, the mycelial growth period was long and the hardness of the media was low when paper mulberry sawdust was added. After incubation period, fruiting was stimulated at 18℃ and more than 85% humidity. After each flush, there was a resting period of 2 weeks. In the first flush, mushrooms were small, and a lot of small mushrooms were harvested. On the other hand, no mushrooms of 5 g or less were harvested in the secondary flush. The highest productivity was obtained in a 3:1 ratio of paper mulberry and oak sawdust. The size of NIFoS 2778 was uniform in each condition. On the other hand, NIFoS 2462 had smaller mushrooms in the media containing paper mulberry sawdust, but the appearance was not significantly different. This study showed that paper mulberry wood could be used to grow oak mushrooms and some oak sawdust could be substituted.

Keywords : Broussonetia kazinoki, cultivation, Lentinula edodes, oak mushroom
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