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Useful Characteristics of Pleurotus Mushroom Hybrids

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Abstract : Pleurotus mushroom is one of popular edible mushrooms in Thailand. It is much favored by consumers due to its delicious taste and high nutrition. It is commonly used as an ingredient in several dishes. The commercially cultivated strain grown in most farms is the Pleurotus sp., Hed Bhutan, that is widely distributed to mushroom farms throughout the country and can be cultivated almost all year round. However, it demands different cultivated strains from mushroom growers, therefore, the improving mushroom strains should be done to their benefits. In this study, we used a di-mon mating method to hybrid production from Hed Bhutan (P-3) as dikaryon material and monokaryotic mycelium were isolated from basidiospores of other three Pleurotus sp. by single spore isolation. The 3 hybrids: P-3XSA-6, P-3XSB-24 and P-3XSE-5 were recognized from the 12 hybridized successfully. They were appropriate hybridized in terms of fruiting body performance in the three time cycles of cultivation such as the number of days until growing, time for pinning, color and shape of fruiting bodies and yield. For genetic study, genomic DNAs of both Hed Bhutan (P-3) and three hybrids were extracted. A couple of primer ITS1 and ITS4 were used to amplify the gene coding for ITS1, ITS2 and 5.8S rRNA. The similarities between these amplified genes and databases of DNA revealed that Hed Bhutan (P-3) was the Pleurotus pulmonarius as well as P-3XSA-6, P-3XSB-24 and P-3XSE-5 hybrids. Furthermore, Hed Bhutan (P3) and three hybrids were distributed to 3 small-scale farms, with mushroom farming experience, in the countryside. To address this, one hundred and twenty mushroom bags of each strain were supplied to them. The findings, by interview, indicated two mushroom farmers were satisfied with P-3XSA-6 hybrid and P-3XSB-24 hybrid, thanks to their simultaneous fruiting time and good yield. While the other was satisfied with P-3XSB-24 hybrid due to its good yield and P-3XSE-5 hybrids thanks to its gradually fruiting body, benefiting in frequent harvest. Overall, farmers adopted all hybrids to grow as commercially cultivated strains as well as Hed Bhutan (P-3) strain.

Keywords : dikaryon, monokaryon, pleurotus, strain improvement
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