

WANDEE YINDEEYOUNGYEON : CORRELATION OF ISOZYMES WITH FRUITING ABILITY OF HYBRIDS OF SHIITAKE (Lentinula edodes). THESIS ADVISOR: ASSOC. PROF. SUTHAPHUN TRIRATANA, M.Sc. AND ASSOC. PROF. DR. SANHA PANICHAJAKUL, Ph.D., 126 pp. ISBN 974-579-059-1

The parental and hybrid strains of shiitake (Lentinula edodes) were studied in certain aspects. The hyphal interaction experiment had revealed that the examined strains could be divided into two groups : MU2, MU4, MU11 and MU5, MU9, MU12.

The growth patterns of L. edodes, mono- and dikaryotic mycelia in PDYB liquid media during growth period of 10 - 50 days were logarithmic growth. The growth rates of dikaryotic mycelia were 2 - 3 times higher than those of monokaryotic mycelia.

Homogenization and sonication were used as effective techniques to release intracellular enzymes from L. edodes mycelia. Intra- and extracellular laccases were growth associative enzymes. The laccase activities in good fruiting hybrids derived from MU2 - MU12 and MU4 - MU12 were rather high when compared to the hybrids that could not fruit. Most of the monosporous isolates had lower average laccase activities than the dikaryotic mycelia.

Acid phosphatase was found to be growth associative enzyme. Specific activities of acid phosphatase in mono- and dikaryotic mycelia were not significantly different.

Isozyme patterns of glutamate dehydrogenase and acid phosphatase examined by polyacrylamide slab gel electrophoresis were monomorphic while laccase and esterase had polymorphic patterns. The intracellular laccase and esterase obtained from different age of cultures were changed. The intracellular laccase and esterase isozyme patterns of the hybrids from the parents MU4 and MU12 were found to be correlated with fruiting ability but another set of hybrids did not show consistent results.