

Title: Optimal conditions for mycelial growth of edible *Lentinus* and their lignocellulolytic enzyme production

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Major: Microbiology

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Type of presentation

Oral Presentation

Poster

Cooperative Education

ABSTRACT

Lentinus is one of the genera of mushrooms in the family *Polyporaceae*, classified as white rot fungi. These mushrooms are distributed worldwide, with some species being edible and cultivated as a source of nutrition and medicinal properties. In this study, four edible *Lentinus* strains (*Lentinus* sp. NK0795, *L. sajor-caju* NK0427, *L. polychrous* JK001, and *L. squarrosulus* JK002) were investigated for their optimal growth conditions, including seven culture media, six temperatures, and seven pH values. The results indicated that all strains showed the highest mycelial dry weight on potato dextrose agar (PDA). *Lentinus sajor-caju* NK0427 and *L. polychrous* JK001 showed the highest growth rate on Czapek Dox agar, while *L. squarrosulus* JK002 and *Lentinus* sp. NK0795 had the highest growth rate on yeast glucose agar and PDA, respectively. The optimal temperature of *Lentinus* sp. NK0795, *L. sajor-caju* NK0427, *L. polychrous* JK001 and *L. squarrosulus* JK002 were 30°C, 30°C, 35°C, and 37°C, respectively. The results showed that acidic conditions with a pH value of 4 and 5 promoted mycelial growth in all strains. Additionally, their linear mycelial growth on different lignocellulolytic residues (corn husk, rice straw, and sawdust) was determined. It was found that all strains showed the highest mycelial growth rate on corn husk, except for *L. sajor-caju* NK0427, which exhibited the highest growth rate on rice straw. Furthermore, the efficiency of lignocellulolytic enzyme production revealed different enzyme production activities among these strains and type of lignocellulolytic residues.

Keywords: Edible mushroom, Gill mushroom, Growth conditions, Lignocellulolytic enzyme