

Investigating Beneficial Bacterial Interaction During *Pleurotus Ostreatus* Mushroom Cultivation

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This study was examined the link between edible mushrooms and bacteria during commercial production. It found that substrate-based bacteria can have both beneficial and unfavorable effects on mushroom culture. Bacterial species not only shield against pathogens but also encourage the vegetative growth of mushrooms. Small-scale growers in Sri Lanka struggle to meet the demand for mushrooms. Sterilized media substrate bags were collected from a mushroom-growing farm in Eastern Province, Batticaloa District, Sri Lanka (Maavadi vembu mushroom (Pvt) Ltd). Isolated bacterial colonies were observed under a stereo microscope and recorded data. The PCR tubes were filled with master mix, primers SSU - 27F : 5' - AGA GTT TGA TCC TGG CTC AG - 3' SSU - 519R : 5' - GWATTA CCG CGG CKGCTG - 3', molecular water, and DNA template. The target DNA was heated to high temperatures, and the target sequence was amplified after 10 minutes of heating. The study isolated six strains of bacteria from sterilized media substrate bags and identified them as bacteria through molecular analysis. However, sequencing should be used to confirm the identity of these isolates. Half-strength PDA medium was prepared and plated, with 1000 spores inoculated into each division. Cultures with and without spores were separated and incubated for three days. Plates were photographed and examined to determine whether bacteria promote or prevent mushroom growth. Molecular analysis identifies isolated bacteria as bacteria, sequencing needed for species identification. Co-culture experiment to determine positive/negative interactions and bio inoculum production for mushroom production.

Keywords: *Pleurotus ostreatus; bio inoculum ;16S rRNA gene ;Co - Culture; American Oyster Mushroom production.*