EFFECT OF BACTERIA ON THE BIOMASS PRODUCTION, ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF *Lentinus tigrinus* IN SUBMERGED CULTURE

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ABSTRACT

MANZANO, EDUARD M., Department of Biological Sciences, College of Science, Central Luzon State University, Science City of Munoz, Nueva Ecija, Philippines, **JULY 2023, EFFECT OF BACTERIA ON THE BIOMASS PRODUCTION, ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF *Lentinus tigrinus* IN SUBMERGED CULTURE**

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Mushrooms have gained global recognition for their nutritional and therapeutic importance, as they are rich in bioactive metabolites that contribute to disease prevention and treatment. This study highlighted the utilization of *Pseudomonas fluorescens* BIOTECH 1123 and *Bacillus cereus* BIOTECH 1509 in the mycelial biomass production of *Lentinus tigrinus* through submerged cultivation. *P. fluorescens* BIOTECH 1123 exhibited the highest mycelial dry weight with mean values of 327.59 mg, 415.32 mg, and 370.00 mg in 0 day, 5 days, and 10 days of mycelial incubation, respectively. Similarly, the introduction of *B. cereus* BIOTECH 1509 in submerged culture recorded a higher mycelial dry weight compared to the control. Moreover, the DPPH radical scavenging activity of all *L. tigrinus* ethanolic extracts exhibit scavenging activity, indicating the presence of compounds with antioxidant properties. Furthermore, the antibacterial activity of *L. tigrinus* ethanolic extracts with 0 day of mycelial incubation before *B. cereus* BIOTECH 1509 introduction exhibits a zone of inhibition against *S. aureus* BIOTECH 1582 with a diameter zone of inhibition of 15.60 mm. Collectively, the study contributed to the potential establishment of sustainable production technology for mushroom production and in nutraceutical and pharmaceutical applications.

Keywords: *Lentinus tigrinus*; bacterial suspensions; mycelial dry weight; spent culture

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