INHIBITION OF BACTERIAL BIOFILM FORMATION BY SELECTED WILD MACROFUNGI FROM MIAGAO, ILOILO

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ABSTRACT

Biofilms are complex bacterial communities with high stress tolerance and antimicrobial resistance, posing a global health concern. Mushrooms are known for their bioactive compounds, including antimicrobial properties, and may offer a solution for inhibiting biofilm formation. This study investigates the biofilm inhibition activity of wild macrofungi collected in Miagao, Iloilo. Five basidiomycetous macrofungi—*Panaeolus* sp., *Chlorophyllum hortense, Lentinus concavus, Hexagonia hydnoides,* and *Daedalea* sp.—were characterized. Bacterial strains were treated with equal concentrations of ethanolic mycelial extracts from the macrofungi samples and evaluated for adherence and inhibition percentage using a microtiter plate assay at 37°C for 72 hours. The results showed strong inhibition (>50%) of all macrofungi extracts against *S. aureus*. *Hexagonia hydnoides* exhibited the highest inhibition against both *S. aureus* (84.3%) and *E. coli* (14.1%). *Chlorophyllum hortense, Lentinus concavus, Daedalea sp.,* and *Panaeolus sp. demonstrated* 83.7%, 82.4%, 81.25%, and 80% inhibition of *S. aureus* biofilm formation, respectively. However, the inhibition observed with all extracts against *E. coli* was not statistically significant (all <15%).The significant findings, particularly in inhibiting *S. aureus* biofilm production, indicate the presence of biological activity in the tested macrofungal extracts. These findings suggest their potential usefulness in the search for antibiofilm treatments.

Keywords: *wild macrofungi, biofilms, ethanolic extracts, microtiter plate (MtP) assay, antimicrobial resistance*