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**TITLE OF THE PROJECT**  
**STUDY OF ANTIBACTERIAL ACTIVITY OF METHANOLIC EXTRACTS OF EDIBLE MUSHROOMS-  
CALOCYBE INDICA AND PLEUROTUS FLORIDA**

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**Executive Summary :**

Edible mushrooms are commonly thought to have nutritional value. They have phytochemical constituents and they produce a wide range of secondary metabolites having medicinal value (Jayakumaret al., 2009). In this perspective, results of the present study showed antibacterial activity against bacterial strains. The extracts of mushroom species showed activity against bacterial isolates as reported earlier (Jonathan et al., 2003, Johnsy and Kaviyarasan, 2014). The methanolic extracts of two different Basidiomycetes viz. Calocybe indica and Pleurotus florida showed activity against Escherichia coli, Klebsiella pneumoniae, Staphylococcus aureus and Bacillus subtilis and no activity against Pseudomonas aeruginosa. The spectrum of antibacterial activity may be attributed to the presence of phytochemicals of various chemical types in mushrooms (Johnsy and Kaviyarasan, 2014). The study also showed the presence of bioactive compounds like flavonoids, phenols, and tannins.

When comparing mushroom extract and chemical antibiotic, Chloramphenicol showed inhibitory effect on all strains of bacteria. The mushroom extract showed the zone of inhibition against three bacteria is much higher than that of antibiotic. The study proved that the medicinal plants showed more effective than commonly used antibiotics. When comparing mushroom extract with chemical antibiotic as reference, Chloramphenicol showed inhibitory effect on all strains of bacteria. The mushroom extract showed the zone of inhibition against many bacteria is much higher than that of commercially available antibiotic, Chloramphenicol. The study proved that the medicinal plants showed more effective than commonly used antibiotics.

Mushroom "nutriceuticals" are bioactive compounds that are extractable from mushrooms, and they have nutritional and medicinal features that may be used in the prevention and treatment of diseases. Mushrooms have shown that they serve as repositories of B-vitamins such as niacin, flavin and pyridoxine; organic acids such as ascorbate, shikimate, malate and fumarate; carbohydrates such as the glucans; monoterpenoid and diterpenoid lipids; proteins such as hydrophobins and trace elements such as selenium. 12 Oyster mushrooms also contain some compounds that can act as an antimicrobial agent and properties such as antibacterial, antifungal and antiviral.

From the experiment conducted it was concluded that the various extracts of mushroom species Pleurotus florida and Calocybe indica possessed antimicrobial property against antibiotic resistant human pathogens similar to

that of the commercially available antibiotics. The medicinal properties of these mushrooms can be exploited to formulate drugs for several diseases caused by antibiotic resistant pathogenic microorganisms. They also have Protein and carbohydrate which fulfills our dietary requirements. Mushroom consumption strengthens our immune system. It also proved that the medicinal plants showed more effective than commonly used many antibiotics like chloramphenicol. Since mushrooms are abundant in nature, cost effective and easy to be cultivated they are a promising solution for variety of health problems in the near future.

The present findings suggest that further extraction and characterization of bioactive compounds like flavanoids, phenols, glycosides steroids and tannins from edible mushrooms followed by testing their activity against infectious disease causing bacteria may help the researchers to develop novel drugs from mushrooms.