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Evaluation of Antioxidant, Antibacterial and Anticancer Activities of Ganoderma Lucidum Extracts

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Abstract

G. lucidum is an oriental fungus loaded with antioxidant, antimicrobial and anticancer properties. G. lucidum extracts obtained by using soxhlet and Ultrasonic-Assisted Extraction (UAE). The antioxidant activity determined by DPPH assay resulting in IC50 value of extract for soxhlet water 372.21µg/mL followed by soxhlet ethanol 431.00µg/mL, UAE ethanol 541µg/mL and UAE water 560.90µg/mL shown weak antioxidant properties. Well plate diffusion used for antimicrobial activity test against E. coli and S. aureus. The UAE water extract shown highest antibacterial activity against S. aureus (20-23) mm followed by soxhlet water extract (6-13) mm. The ethanol extract for both soxhlet and UAE are (5-13) mm and (4-14) mm respectively. G. lucidum extract exhibited zero inhibition zone against E. coli due to presence of barrier membrane. CCK-8 used to test anticancer activity against MCF-7 cells. The IC50 values of soxhlet ethanolic extract is 4.797 µg/mL followed by UAE ethanolic extract 5.291 µg/mL, soxhlet water extract 7.196 µg/mL and UAE water extracts 9.455 µg/mL. The lower IC50 value indicated that the extracts inhibited cell viability of MCF-7.

Keywords: Ganoderma lucidum; GC-MS; Antioxidant; Antimicrobial; Anticancer.