

## **Screening for potential antimicrobial compounds from *Ganoderma boninense* against selected food borne and skin disease pathogens**

### **Abstract**

Objective: The present study aims to investigate the potential antimicrobial compounds from the fungi against selected foodborne and skin disease pathogens. Methods: In this study, four different types of solvents (hexane, chloroform, dichloromethane and methanol) were used to screen the potential antimicrobial compounds from the *G. boninense* fruiting bodies. The antimicrobial activity of the *G. boninense* crude extract was studied against some common food borne and skin diseases bacterial pathogens such as *Escherichia coli*, *Bacillus subtilis*, *Bacillus cereus*, *Pseudomonas aeruginosa*, *Streptococcus pyogenes*, *Streptococcus pneumoniae*, *Staphylococcus aureus* and *Klebsiella* spp. using disc diffusion assay. Results: Crude extraction showed methanolic extraction produced the highest yield (2.61%) followed by chloroform (1.36%) and dichloromethane (0.50%). The lowest yield obtained was from hexane extraction (0.17%). Antimicrobial study revealed that methanol and chloroform extracts showed broad spectrum activity to all tested pathogens with inhibition ranging from 7.8-11.3 ± 0.0-1.0 mm and 6.8-8.3 ± 0.0-1.0 mm respectively. A clear inhibition zone where *Aspergillus niger* failed to develop on TLC plates dipped in chloroform: ethyl acetate (95:5, v/v) at R<sub>f</sub> 0.33, 0.40 and 0.69 was also observed using chloroform crude extract. GC-MS results confirmed *G. boninense* contains bioactive compounds such as dodecanoic acid, cyclododecane, octadecanoic acid, 9-octadecenoic acid, hexadecanoic acid, methyl tetradecanoate, 9, 12-octadecadienoic acid, dodecyl acrylate and hexadecanoic acid. Conclusion: *G. boninense* contains many bioactive compounds which are potential to be further explored as an antimicrobial agent against food borne and skin diseases pathogens.