

Isolation, Characterization and Antibacterial Activity of Ergosta-5, 7, 22-triene-3 β , 14 α – diol (22Z) from Kenyan *Ganoderma lucidum*

Abstract

Aims: To determine the chemical composition and antibacterial activity of Kenyan *Ganoderma lucidum*.

Study Design: Structural determination of the isolated compound was done using spectral evidences and in comparison with literature. The antibacterial properties of the compound was done using disc diffusion method.

Place and Duration of Study: Department of Pure and Applied Chemistry, Masinde Muliro University of Science and Technology, between January and November, 2019.

Methodology: Sequential extraction of dried samples of Kenyan *G. lucidum* were done using solvents hexane, ethyl acetate and methanol. Chromatographic separation of hexane extract of *Ganoderma lucidum* was done using spectroscopic data. The compound was assayed against *Escherichia coli*, *Klebsiella pneumoniae*, Methicillin-Resistant *Staphylococcus aureus* (MRSA), *Pseudomonas aeruginosa* and *Streptococcus pyogenes*. Standard antibiotic namely; ampicillin was used as the control. Disc diffusion method was used and zones of inhibition, after respective incubation periods, were used to quantify antibacterial activity.

Results: From hexane extract of *Ganoderma lucidum*, Ergosta-5, 7, 22-triene-3 β , 14 α – diol (22Z) was isolated. Ethylacetate and methanol extracts produced a mixture of complex compounds. Ergosta-5,7,22-triene-3 β ,14 α -diol (22Z) exhibited significant activity against Methicillin-Resistance *Staphylococcus aureus* (MRSA) ($p=0.022$) and *Streptococcus pyogenes* ($p = 0.05$). The most sensitive microbe was *Streptococcus pyogenes*.

Conclusion: One major compound, Ergosta-5, 7, 22-triene-3 β , 14 α – diol (22Z) was isolated, characterized and antibacterial activity determined.

Authors.

Ebrahim Sande ,Danstone Lilechi Baraza , Selline Ooko ,Peter Kuloba Nyongesa