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Antibacterial activity of extracts of roots and seeds essential oil of Sri Lankan endemic plant, *Vateria copallifera*

Athukorala D.A.D.O.D.[1], Sivasinthujah S.[1]*, Gnanakarunyan T.J.[2] and Srikaran R.[3]

[1]*Department of Pharmacy, Faculty of Allied Health Sciences, University of Jaffna, Sri Lanka.*
[2]*Department of MLS, Faculty of Allied Health Sciences, University of Jaffna, Sri Lanka.*
[3]*Department of Chemistry, Faculty of Science, University of Jaffna, Sri Lanka.*

Vateria copallifera is one of the endemic plants in Sri Lanka. Essential oil and bark of this plant are used as wound washing medicament, as well as for treatments of haemorrhoids, bile related disorders, diarrhoea, rheumatic pains, and diabetes mellitus in Ayurveda. Because of these medicinal values, this study focuses on evaluation of antibacterial activity of acetone and methanol extracts of essential oil from roots and seeds. The plant materials were collected in Agalawatta, Sri Lanka and shade dried and powdered. Root was extracted by percolating separately with methanol and acetone. Essential oil was extracted from seed using acetone as the solvent. The extracts were filtered followed by removing the solvents with rotary evaporator. The antibacterial activity of extracts of *V. copallifera* was determined against *S. aureus* and *E. coli* using agar well diffusion method by employing Co-amoxiclav as the standard. The diameter of zone of inhibition (mm) were expressed as mean ± SD, and antimicrobial activity of extracts was analysed with two-way ANOVA. Mean values of inhibition zones of essential oil against *S. aureus* for the concentrations 40, 20 and 10 mg/mL were found to be 8.10 ± 0.10, 7.37 ± 0.32 and 6.50 ± 0.50, respectively. The methanol extract of roots exhibited inhibition zones against *S. aureus* for 40, 20 and 10 mg/mL as 24.37 ± 0.55, 20.63 ± 0.55 and 17.67 ± 0.76 respectively, whereas that of acetone extract were 21.20 ± 0.75, 18.33 ± 0.51 and 16.03 ± 0.50, respectively. Similarly, the mean inhibition zones of methanol extract of roots against *E. coli* were 19.17 ± 0.76, 17.47 ± 0.50 and 15.83 ± 0.76, and that of acetone extract were 21.43 ± 0.51, 20.37 ± 0.55 and 18.87 ± 0.32, respectively. Two-way ANOVA revealed that extract type ($p<0.001$) and tested bacteria ($p<0.001$) have significant effect on the antibacterial activity. Methanol and acetone extracts of *V. copallifera* roots extracts have higher antibacterial activity than the extract of essential oil of *V. copallifera* seeds.

Keywords: *Vateria copallifera*, Essential oil, *Staphylococcus aureus, Escherichia coli*, Co-amoxiclav

*Corresponding author: ssinthujah@univ.jfn.ac.lk