

Evaluation of antibacterial activity of root extracts of herbal plant, *Leucas zeylanica*

Rupasinghe KMUK¹, Patabendige IWL¹, Pathirana UPPS¹, Srikokulan S^{1*}, Gnanakarunyan TJ²,
Srikanan R³

¹Department of Pharmacy, Faculty of Allied Health Sciences, University of Jaffna

²Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, University of Jaffna

³Department of Chemistry, Faculty of Science, University of Jaffna

*ssinthujah@univ.jfn.ac.lk

Introduction: *Leucas zeylanica* used to treat inflammatory conditions, gout and microbial infections such as wounds, sores, itches, vertigo, anorexia, acute and chronic dyspepsia and flatulence in Sri Lankan traditional Ayurvedic.

Objective: To investigate the antibacterial activity of different solvents extractions of root of *L. zeylanica* against the *Staphylococcus aureus* and *Escherichia coli* present in chronic wounds.

Methodology: The root of *L. zeylanica* was collected in Rathnapura district and shade dried, extracted using maceration technique separately with petroleum ether, acetone, and methanol. The antibacterial activity of root extracts of *L. zeylanica* was determined against *S. aureus* and *E. coli* by using agar well diffusion method by occupying Co-amoxiclav as the standard. The diameter of the zone of inhibition (mm) of the extracts were measured and expressed as Mean $\pm$ Standard Deviation. Preliminary phytochemical screening was performed separately on the extracts of root.

Results: Methanol and acetone root extracts of *L. zeylanica* exhibited antibacterial activity against both *S. aureus* and *E. coli*. Methanol extract was exhibited; the mean values of inhibition zones against the *S. aureus* for 40 mg/ml was 15 ± 1.00 mm, whereas the acetone extract was shown 15.67 ± 2.08 mm. Methanol extract exhibited the mean values of inhibition zone against *E. coli* for 40 mg/ml was 14.67 ± 1.00 mm, whereas the acetone extract was found to be 15 ± 0.00 mm. Extract of petroleum ether did not show antibacterial activity against both *S. aureus* and *E. coli*. Phytochemical screening of methanol extracts spectacted positive results for flavonoids, tannins, polyphenols, sterols, carbohydrates, and proteins. Similarly, acetone extract revealed positive results for alkaloids, flavonoids, glycosides, polyphenols and sterols while petroleum ether extract revealed positive results for glycosides, polyphenols, gum and mucilage, sterols and carbohydrates.

Conclusion: It was found that root extracts of methanol and acetone of *L. zeylanica* showed antimicrobial activity against *S. aureus* and *E. coli*. However, petroleum ether extract of the root did not show any antibacterial activity. Further studies are required to isolate the active phytochemicals which were corresponding to the antibacterial activity.

Key words: *Leucas zeylanica*, Antibacterial activity, Root