

Exploring the Potential of Antibacterial Activity of *Biophytum reinwardtii*: A Natural Ally against Antibiotic Resistance

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Biophytum reinwardtii (Gas nidikumba), a small herb that belongs to the family textitOxalidaceae, has been widely used in folklore medicine. The objective of this study was to investigate the antibacterial activity of *Biophytum reinwardtii*, whole plant against on organisms commonly isolated from diabetic chronic wounds. The plant extracts were obtained using Soxhlet extraction method using methanol and ethanol as the solvents. Disk and well diffusion assays were used to evaluate the antibacterial activity against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli* and their respective ATCC strains. The minimum inhibitory concentration (MIC) was determined using the macro dilution technique and broth microdilution assay. The phytochemical constituents were assessed qualitatively. Both extracts showed antibacterial activity only against *Pseudomonas aeruginosa* (ATCC 27853) in well diffusion and disc diffusion methods with an unexpected nature of heteroresistance. The methanol extract showed an MIC value at 37.5 mg/ mL against *Pseudomonas aeruginosa* (ATCC 27853) using the broth microdilution assay. The Phytochemical analysis showed the presence of flavonoid (Lead acetate test), glycoside (Bontrager's test), phenols (FeCl₃ test) and alkaloids (Wagner's test) which could be attributed to the antibacterial effect of the plant. The results of the study showed that *Biophytum reinwardtii* has the potential to act as an antibacterial agent against *Pseudomonas aeruginosa*, and it encourages further research on the plant.

Keywords: *Biophytum reinwardtii*, antibacterial activity, heteroresistance