

Determination of Antioxidant and Antimicrobial Activities of Different Parts of *Leucas zeylanica* (Gata Thumba) Plants

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Leucas zeylanica is a medicinal plant that contains a variety of antioxidant and antimicrobial compounds and it is widely distributed in Asian and African countries. Although few studies have published the antioxidant and antimicrobial activities of the whole plant, none have been conducted to test the activity of different parts of the plant. Hence, the present study was designed to evaluate the antioxidant and antimicrobial activities of the roots, stem, leaves, petals, and sepals of *L. zeylanica*. The different parts of the plants were air dried and subjected to maceration for two weeks using absolute methanol as the solvent. The crude extract of each part was separately collected. The crude extract was tested for antioxidant activity with 2,2-di(4-tert-octylphenyl)-1-picrylhydrazyl (DPPH) radical scavenging activity assay and the maximum antioxidant activity with an IC₅₀ value of 524.09 ppm was showed in sepals. The agar disc diffusion assay was used to determine the antibacterial activity against *Escherichia coli* (ATCC 25922) and *Staphylococcus aureus* (ATCC 25923). In antibacterial assay ciprofloxacin (0.5 mg/ml) used as the positive control and sepals at the concentration of 143 mg/ml showed antibacterial activity with an inhibition zone of 7.3 mm ± 0.58 against *E. coli* (ATCC 25922) and 6.6 mm ± 0.58 against *S. aureus* (ATCC 25923). The leaves at 292 mg/ml concentration showed antibacterial activity with a zone of inhibition of 12.6 mm ± 0.58 against *S. aureus* (ATCC 25923). The antifungal assay was conducted against *Candida albicans* using agar disc diffusion assay by using itraconazole (25 mg/ml) as the positive control. The results showed that the leaves 292 mg/ml (3.3 mm ± 0.58), sepals 143 mg/ml (5.7 mm ± 0.58) and roots 144 mg/ml (5.6 mm ± 0.58) as having antifungal activity against *C. albicans*. Altogether, the present study results showed that *L. zeylanica* sepals are having antioxidant and antimicrobial activity and be a potential part of this plant's use in Ayurveda medicines.

Keywords: *Leucas zeylanica*, Antioxidant, Antibacterial, Antifungal