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Antimicrobial and antioxidant activities of *Plectranthus zeylanicus* Benth

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Plectranthus zeylanicus Benth. (Iruveriya) is a perennial herb extensively used in traditional medicine in Sri Lanka for treating fever, asthma, dysentery, diarrhoea, chronic liver diseases etc. Despite the wide array of applications in traditional and folk medicine, the bioactivities and pharmacological features of this plant are hardly explored. Thus the present investigation is undertaken to evaluate the antimicrobial and antioxidant properties of *P. zeylanicus* and to identify the bioactive metabolites and thereby to rationalize its ethnobotanical use.

The plant materials were collected from Gampaha district- Sri Lanka, authenticated and subjected to sequential extraction with hexane, dichloromethane, ethylacetate and methanol. The antimicrobial activity of the plant extracts were determined by disc diffusion and broth microdilution methods against both Gram positive and Gram negative bacteria, *Enterococcus faecalis, Staphylococcus aureus*, *Staphylococcus saprophyticus* and *Salmonella* Typhi. The antioxidant activity of the extracts was evaluated by 1, 1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay. Hexane, dichloromethane, and methanol extracts of *P. zeylanicus* have displayed antibacterial activity at 1000 µg/mL for all four microrganisms while the ethylacetate extract was active against only *S. aureus*, *S. saprophyticus* and *S.* Typhi. Out of these extracts, hexane extract was found to be the most potent with MIC values of 31.25 µg/mL against *S. saprophyticus* and *S. aureus*, 62.5 µg/mL against *E. faecalis* and 500 µg/mL against *S*. Typhi. Dichloromethane extract has also displayed MIC values in the range of 31.25-500 µg/mL. Interestingly, our previous studies have also revealed that both hexane and dichloromethane extracts could exhibit strong anti-inflammatory activities by inhibiting 5-lipoxygenase enzyme in cell based and cell-free assays. This would further suggest for possible correlation between anti-inflammatory and antimicrobial properties in these extracts. However, none of the extracts have displayed a significant antioxidant activity and the EC_{50} values were much higher than the positive control, ascorbic acid (EC_{50}= 14.31µg/mL).Thus it is possible to speculate that the bioactive metabolites in the promising extracts are incapable of scavenging the free radicals, however this has to be confirmed by further experiments. Activity guided fractionation is in progress to isolate the bioactive secondary metabolites, which could direct towards the discovery of antibiotics of plant origin.

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