In-Vitro Antibacterial Activity and Preliminary Phytochemical Analysis of Locally Available Green Leafy Vegetables

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Green Leafy Vegetables (GLVs) are a rich source of nutrition and contains medicinal values. This study was carried out to investigate the phytochemical properties and antibacterial activities of three locally available GLVs, namely *Argyreia pomacea, Coccinia grandis and Mollugo pentaphylla*. All leaf samples were collected from the public market, Batticaloa, Sri Lanka. The phytochemical analysis was determined by the standard qualitative method described by Trease and Evans. The antibacterial activity against *Escherichia coli* and *Staphylococcus aureus* was tested for the leaf extracts from acetone and ethanol at 25, 50 and 75 mg/100 µL using well diffusion method. Both pure cultures were obtained from Microbiology laboratory, Teaching hospital, Batticaloa. Eighteen nutrient agar petri dishes were prepared for three different type of leaf extracts of each solvent and bacterium. Totally 72 media plates were prepared and repeated 6 times. Bacterial suspension (1×10^6 cells/mL) were taken from serial dilution and wells with 8 mm diameter were filled with 100 µL of each concentration of extracts. Streptomycin used as positive and each extracts were used as negative control. The antibacterial activity was determined by measuring the diameter of clear inhibition zone around the well. The highest inhibitory effect on *E. coli* and *S. aureus* was shown by ethanol extract of all samples. The ethanolic extract of *C. grandis* showed better antibacterial activity against *S.aureus* (22.7 ± 0.5 mm) and *E. coli* showed highest susceptibility to *C. grandis* (20 ± 0.6 mm) in ethanol extract at 75 mg/100 µL. The inhibitory effect was observed at all concentrations of acetone and ethanol extracts of *C. grandis* against both bacteria. Also, the phytochemicals such as alkaloids, saponins, flavonoids and tannins were found in both extracts of *C. grandis.* Saponins and tannins were found in both extracts of all three leaf types, tested. Flavonoids were found in the ethanol extracts of *A. pomacea, and M. pentaphylla*. Thus, GLVs could be considered for finding bioactive natural products, used to produce some pharmaceuticals drugs to cure different diseases.

Keywords: Antibacterial activity, *Escherichia coli*, Green leafy vegetables (GLVs), Phytochemicals, *Staphylococcus aureus*