COMPARATIVE STUDY ON THE ANTIBACTERIAL ACTIVITY OF FOUR MEDICINAL PLANTS LEAVES

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Medicinal plants have been used for prevention of infectious diseases caused by pathogenic microorganisms. Herbal and plant sources may contain antibacterial properties and provide a viable and cost-effective source for the development of new antibiotics. Several plant leaves are commonly used as herbal medicine for the treatment of infectious diseases in rural areas. No comparative laboratory studies and scientific approach of efficacy related to the *in-vitro* anti-microbial activity of these selected medicinal plant leaves in Sri Lanka. In this study leaves of four different medicinal plants such as *Murraya koenigii, Gymnema sylvestre,Tinospora cordifolia* and *Enicostemma axillare* were screened for potential antibacterial activity. Leaves of above plants were collected, washed and dried. The ethanolic extraction was carried out, concentrated and filtrate was used for antimicrobial activity against *Staphylococcus aureus, Enterococcus faecalis* and*E.coli*separately by agar well diffusion method and three replicates were maintained. Positive and negative controls were maintained by adding streptomycin and sterile water respectively. All bacterial plates were kept at 37°C for 24 hours. Diameters of the inhibition zones were measured for each plate. The extracts from the leaves of selected plants exhibited considerable and variable antimicrobial activity against all three bacteria. *Enicostemma axillare exhibited* excellent antibacterial activity against all three bacterial organisms as it showed highest Zone of Inhibition (14.5 ±0.6mm) against *Enterococcus faecalis* followed by *Staphylococcus aureus* (5.5±0.2 mm). The extract of *Murraya koenigii* showed the good and almost same maximum Zone of Inhibition (9.65±0.2mm) against all three bacteria tested. *Gymnema sylvestre* showed moderate zone of inhibition against all bacterial strains. *Tinospora cordifolia* exhibitedleast inhibitory zone (1.5 ± 0.45 mm) against all bacterial strains. It can be concluded that the leaves of *Murraya* sp. and *Enicostemma* sp showed highest antibacterial activity against all three bacteria and can be used for developing antibiotics followed by *Gymnema sylvestre*.

Keywords: Agar well diffusion, Antibacterial activity, Bacteria, inhibition zones, Leaves, Medicinal plants