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Screening of selected plants in genera *Psychotria* and *Hediyotis* for its antimicrobial activity and cyclotoids.

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Plants produce an enormous variety of natural products with highly diverse structures. Among them cyclotides are the largest known family of head-to-tail cyclic peptides that have a unique and extremely stable three-dimensional structure. They have been discovered in a range of plant families including Violaceae, Rubiaceae, and Fabaceae, that show a range of biological activities, antimicrobial, antiviral, cytotoxic, antioxidant etc. In this research, seven plant species from the genera *Psychotria* and *Hediyotis* belonging to family Rubiaceae were selected to screen for antimicrobial activity and cyclotides. Methanol and ethanol extracts of plant leaves were tested for antibacterial activity using agar disk diffusion assay, and distilled water extracts of plant leaves were tested using agar well diffusion assay, against four bacterial species, *Bacillus cereus*, *Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa*. Antifungal activity was tested for the three fungal species, *Aspergillus, Penicillium,* and *Curvularia,* by food poisoning assay. The Methanol and ethanol extracts of three plant species, *Psychotria zeylanica*, *Psychoria sarmentosa,* and *Hedyotis trimanii,* showed positive results for antibacterial activity against *S.aureus, B. cereus* and *P. aeruginosa.*Distilled water extracts of the *P. sarmentosa* (*Gonica* in Sinhala) showed strong antibacterial activity against *S. aureus*,(14.0 ± 1.0 mm)and *P. aeruginosa* (14.0 ± 0.5 mm). Although this plant is being used to treat bone fracture in Deshiya Chikitsa in Sri Lanka, its antibacterial potential was not reported in the Sri Lankan Ayurvedic Pharmacopoeia. Then all plant extracts were tested by reverse phase column chromatographic and mass spectroscopic techniques to identify the presence of cyclotides. The results of the chromatographic techniques showed that none of the plant species tested contain cyclotides. To further identify the antibacterial active components from the plant *P. sarmentosa*, the crude extract was subjected to bioassay guided fractionation using silica gel column chromatography and TLC. The isolated bioactive fractions in FTIR analysis showed the bioactive compounds presents in *P. sarmentosa* could be hydroxyl, alkyl and alkenyl groups.

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