Antimicrobial potentials of mangrove plants *Avicennia marina* and *Rhizophora mucronata* against selected fungal and bacterial species.

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Abstract

Antimicrobial potential is a common tool to assess medicinal value of the plant. Mangrove plants have several bioactive compounds and considered as medicinal plants. Thus, this study was aimed to investigate the antimicrobial activity of two mangrove plants, *Avicennia marina* and *Rhizophora mucronata* and to compare the antimicrobial potential of both plants between fresh and dried powdered extracts. Fresh, healthy, mature, and tender leaves of *A marina* and *R. mucronata* were collected from the Mandaitivu coastal area, Jaffna. Collected leaves were dried in an oven at 60^{o}C for 24 - 48 hours to get dried powder. Fresh and dried aqueous extracts of both plants were prepared by using fresh leaves and dried plant powder in sterile distilled water (1 mg/ml) separately and were tested against *Bacillus subtilis, Enterococcus faecalis, Escherichia coli, Pseudomonas aeruginosa*, *Staphylococcus aureus, Aspergillus niger*, *Fusarium* sp. and *Phoma* sp. by using an agar plate assay. All four plant extracts showed promising antimicrobial activity against all tested microbes. *R. mucronata* possessed higher antifungal potential on tested fungi than the *A. marina*. The highest activity was recorded in fresh aqueous extract of *R. mucronata* against *Phoma* sp. (53.95%) whereas the lowest antifungal activity was shown by *A. niger* (9.56%) against the dried powder extract of *A. marina. A. marina* extract showed higher bacterial inhibition against *S. aureus* (14.08%) and the lowest inhibition was observed by *B. subtilis* (3.42%) for the dried powdered extract of *A. marina.* Both fresh aqueous extracts showed more sensitivity than dried powdered extracts against all tested microbes and there was significant difference (p =0.05) observed in between the fresh and dried powdered extracts. Therefore, fresh extracts could be more effective than dried powder extracts and can be used as an alternative source for inhibiting the growth of the selected fungal and bacterial species.

Keywords: Mangroves; Aqueous extract; Inhibition; Antibiotics; Medicinal plants

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