

Evaluation of antibacterial efficacy of mangrove leaf extracts on fish bacterial pathogens

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Bacterial pathogens which affect aquatic animals and humans become resistant to antibiotics due to long term exposure. This study focused on the antibacterial efficacy of six species of mangroves (*Avicennia marina*, *Lumnitzera racemosa*, *Bruguiera sexangula*, *Acanthus ilicifolius*, *Rhizophora mucronata*, *Excoecaria agallocha*) against four pathogenic bacteria, *Pseudomonas fluorescens*, *P. aeruginosa*, *Shigella flexneri* and *Listeria monocytogenes*. Mangrove leaf extracts were obtained using 95% methanol as a solvent and the final compound was methanol free due to evaporation. All the extracts concentrations were made in to 350 mg/ml. Nutrient agar plates were used to culture bacteria and the diameter of inhibition zones were measured by well diffusion method after 24 hours incubation at 25°C. The results were compared with Tetracycline as the positive control and solvent without extract as a negative control. The highest inhibition zone (18.8 ± 1.04 mm) was observed in *R. mucronata* leaf extract against *L. Monocytogenes* while Tetracycline showed 22 mm of inhibition. All the other mangrove extracts were effective against all bacterial pathogens tested at a diameter of 17.4–12.5 mm while Tetracycline exhibited approximately 22 mm of inhibitions for all bacterial pathogens except for *S. flexneri*. *S. flexneri* was resistant against Tetracycline and moderately susceptible for all typed of mangrove extracts (7.4–12.3 mm). The tested mangrove leaf extracts were effective against aquatic bacterial pathogens used ($p < 0.5$) *in vitro* and has a potential to develop as an environmentally friendly antibiotic.

Key words: Antibacterial resistance, bacterial pathogens, mangroves extracts

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