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The Vulnerary Potential of Malaysian Traditional Vegetables as Antibacterial Agents of Fish Pathogens: A Preliminary Study

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Abstract
Controlling antibiotic use in aquaculture demands the development of more sustainable alternative treatments for bacterial diseases. Therefore, the present study aims to evaluate the in vitro antibacterial effects of ethanolic extracts derived from ten popular and commonly consumed Malaysian traditional vegetables against Aeromonas hydrophila, Aeromonas jandaei, Aeromonas sobria, and Edwardsiella tarda. Various parts of plants were assessed for their inhibitory activity using disc diffusion, minimum inhibitory concentration, and minimum bactericidal concentration (MBC) methods. The Persicaria odorata and Garcinia atroviridis extracts extracted using the maceration method showed a wide range of inhibitory effects, but others showed less activity. Aeromonas hydrophila was the most susceptible bacterial strain, with all plant extracts suppressing its growth, while A. sobria is the most resistant strain. The minimum inhibition concentration (MIC) value ranged from 0.39 to 100 mg/ml, and all tested bacteria's MBC/MIC ratio was demonstrated to be bactericidal (MBC/MIC ratio <4). The findings of this study reveal the potential of P. odorata and G. atroviridis extracts as natural antibacterial agents that could be a safer and more effective alternative treatment in controlling bacterial infections in freshwater fish. © Universiti Putra Malaysia Press.

Author Keywords
Antibacterial activity; fish pathogenic bacteria; minimum bactericidal concentration; minimum inhibition concentration; traditional vegetable

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