

***In Vitro* Study of Antibacterial Effects of Selected Plant Extracts Against Bacterial Pathogens of Fish and Shrimp**

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Plant derivatives have become a viable alternative to the commercial chemotherapeutics used in aquaculture. A study was conducted to determine the antibacterial activity of 95% ethanol extracts of three aquatic plants and four land-based plants against the selected gram-negative virulent bacterial pathogens in fish and shrimp. Commonly available flowers of *Nymphaea stellata*, leaves of *Salvinia molesta*, and *Bacopa monneiri* were used as aquatic plants, and leaves of *Psidium guajava*, *Commelina diffusa*, *Senna alata* and fruits of *Phyllanthus emblica* were used as land-based plants. The ethanol extracts of each plant were prepared in 100 ppm, 50 ppm, and 25 ppm concentrations. The susceptibilities of bacterial suspensions of *Vibrio harveyi*, *Aeromonas hydrophila*, and *Edwardsiella tarda* to the plant extracts were tested using the agar disk diffusion method. Distilled water was used as the control. All the means were compared at 95% confidence level using PROC GLM as a three-way interaction between plant, bacteria and concentration. The results from the study revealed that the five plant extracts show positive results and out of them extracts of *Nymphaea stellata* showed the most pronounced activity ($P < 0.05$) with a higher inhibition zone against *Aeromonas hydrophila* (23.50 ± 0.71 mm) and the same in *Vibrio harveyi* (22.50 ± 0.71 mm) and *Edwardsiella tarda* (22.50 ± 0.71 mm) in 100 ppm concentration. *Bacopa monneiri* and *Commelina diffusa* did not show results for any pathogens. The Minimum Inhibitory Concentrations (MICs) varied from 6.25 ppm to 100 ppm in extracts with positive results against all pathogens. The lower MICs were observed in *Nymphaea stellata* for *Vibrio harveyi* (6.25 ppm), *Aeromonas hydrophila* (12.5 ppm), and *Edwardsiella tarda* (50 ppm). Thus, *Nymphaea stellata* extract can be considered as the best potential natural chemotherapeutic that can be used as an alternative to the commercial chemotherapeutic.

Keywords: Bacterial pathogens, Inhibition zone, Minimum inhibitory concentration, Plant extracts

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