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Antibacterial activity of ethyl acetate fraction of methanol extract of *Padina gymnospora* from the coastal area of Port Dickson

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Introduction: There have been demands for the development of new and effective antimicrobial compounds against the microbial pathogens towards antibiotic-resistance. The secondary metabolites produced by marine organisms have more novel and unique structures owing to the complex living circumstance and diversity of species. Some of these bioactive secondary metabolites of marine origin are currently in intense use as antibiotics and may be effective against infectious diseases.

Aim: No reports have been published to explore the possible antimicrobial activity of marine algae from the Port Dickson Sea, Malaysia. The present study was aimed to scientifically evaluate the antibacterial activity of the brown marine algae, *Padina gymnospora* (Family: Dictyotaceae) collected from coastal region of Port Dickson against the selected micro-organisms.

Methods: The powdered green algae were extracted successively with petroleum ether, acetone, methanol and distilled water by Soxhlet extraction methods. The extracts were concentrated using rotary vacuum evaporator. The preliminary phytochemical analysis was carried out to determine the phytoconstituents in *P. gymnospora* extracts. The extracts and the fractions of active extract were subjected to evaluate the antibacterial activity by cup-plate method against Gram positive bacteria such as *Streptococcus pyogenes*, *Staphylococcus aureus* and Gram negative bacteria such as *Escherichia coli*, *Acinetobacter baumannii* and *Klebsiella pneumoniae*. The antibacterial activity was assessed by measuring the diameter of the zone of inhibition. All the experiments were carried out in triplicate.

Results: The methanol extract (100 mg/ml) and its ethyl acetate fraction (50 mg/ml) of *P. gymnospora* were found to possess high significant ($P < 0.001$) antibacterial activity against all the tested pathogens which was well comparable with standard drug ciprofloxacin 5 mg/ml. The preliminary phytochemical analysis on methanol extract and its ethyl acetate fraction showed the presence of phenolic compounds and tannins which might be the responsible for the antibacterial activity of *P. gymnospora*.

Conclusion: The findings signify the importance of isolation of these phytoconstituents and investigation of possible mechanism of action to develop novel antibacterial agent from *P. gymnospora*.

Biography

Norazalina Mohd Zah is currently working as an eminent faculty member at KPJ Healthcare University College, Malaysia.

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