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SOLVENT EXTRACTION OF ANTI-MICROBIAL BIOACTIVE COMPOUNDS FROM SEAWEED OF MALAYSIAN ORIGIN: SCREENING AND OPTIMIZATION

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ABSTRACT

Bioactive extracts from four seaweed species (*Sargassum plagyophillum*, *Sargassum flavellum*, *Padina australis* and *Sargassum binderi*) of Malaysia origin were tested for their anti-microbial activities against gram positive bacteria *(Bacillus subtilis* and *Staphylococcus aureus) and* gram negative bacteria (*Pseudomonas aeruginosa* and *Escherichia coli*). Four solvents (methanol, acetone, ethyl acetate and chloroform) were used during the preliminary screening stage. None of the extract inhibited the gram negatives, methanolic extract of S. *plagyophillum* exhibited highest inhibition zone of 12mm against B. subtilis. Conditions of extraction (agitation speed, extraction time and temperature) were optimized for methanol extract using Central Composite Design in Response Surface Methodology with yield and inhibition zone as responses. Low extraction temperature, long extraction time and less agitation speed favoured high inhibition zone. This finding indicated the possibilities of using seaweed of Malaysia origin as an alternative anti-microbial bioactive source.