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Biofilm Inhibitory Potential of \textit{Westiellopsis prolifica} Extract Against Some Pathogenic Microorganisms

Abstract- Resistance of microorganisms to many kinds of antibiotics push towards using natural products to eliminate the biofilm. In this study, 7 different species of algae were identified, 3 species of Chlorophyta and 3 of Cyanophyta. \textit{Westiellopsis prolifica} is considered a potent organism. Fourier transform infrared spectroscopy (FTIR) was determined 13 clear bands, and the main bands were carbohydrate (1200-900 cm$^{-1}$), protein (1660 and around 1540 cm$^{-1}$) and lipid bands (1740 cm$^{-1}$). Extracellular crude acetone extract from \textit{W. prolifica} better than hexane extract and more efficient on negative gram bacteria than positive gram bacteria. Antibiofilm was conducted by Congo red Agar and Microtiter plate against bacterial isolates (Staphylococcus aureus, Bacillus subtilis, Streptococcus sp., Shigella sp., Proteus sp. and Pseudomonas aeruginosa) and two fungi (Aspergillus niger and Candida albicans). The highest inhibition was against Streptococcus sp. and the remaining ratio of biofilm was 0.7 %, while lower inhibition 33 % against \textit{C. albicans}. The GC-MS analysis of the purified extract has identified many active compounds, mainly were 4-Trimethyl-1-hexene, Octadecane, Ethylene-14-Pentadecane, n-Hexadecanoic acid, Octadecadienoic acid, Octadecadienoyl chloride, and Phytol.

Keywords- Algal extract, Antibiofilm, GC-MS analysis, Pathogenic microorganisms, \textit{Westiellopsis prolifica}.