

Antioxidant Activity and Total Phenolic Content of Red Sea Weed (*Gracilaria verrucosa* L.)

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Abstract

*The aims of this study were to compare the antioxidant activity and the total phenolic content of red sea weed (*Gracilaria verrucosa* L.) from extract of methanol, ethanol, acetone, chloroform and hexane; and the correlation between total phenolic content and the antioxidant activity of each extract; then to determine the chlorophyll a, chlorophyll b, and carotene content of each extract and their correlation with the free radical scavenging activity as well. The antioxidant activity were measured by free radical scavenging method with DPPH and by reducing power method with $K_4Fe(CN)_6$ as standard, whereas the total phenolic content was measured by Folin Ciocalteu method with gallic acid as standard. Chlorophyll a, chlorophyll b, and carotene were determined by spectrophotometric method based on Lambert-Beer law. The data of antioxidant activity and total phenolic content were statistically analyzed by Randomized Completely Block Design (RCBD) with five kinds of solvents as treatments and five replications. Honestly Significant Difference Test (HSDT) was used to compare the difference of treatments; whereas the chlorophyll a, chlorophyll b, and carotene content were not statistically analyzed since they were only supplement data. The results showed that the highest of the antioxidant activity by free radical scavenging method was found in acetone extract : 43.43% (BHT: 84.15%); whereas by reducing power method was found in chloroform extract : 0.1756 meq $K_4Fe(CN)_6/g$ extract (BHT : 6.1767 meq $K_4Fe(CN)_6/g$ extract); and the highest of the total phenolic content was also found in acetone extract : 45.29 mg /g extract. There were close correlation between phenolic content and antioxidant activity both by free radical scavenging method and by reducing power method with r (coefficient correlation) respectively 0.89 and 0.91. Chlorophyll a and carotene had also close correlation with the free radical scavenging activity, but not for chlorophyll b.*

Key words : *antioxidant activity, free radical scavenging activity, reducing power, phenolic content, chlorophyll, carotene*