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POLYPHENOLS CONTENT, ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF SEAWEEDS FROM THE PERSIAN GULF

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Abstract

The Persian Gulf is a unique environment in comparison with other marine bodies because of its high temperatures and salinity levels. It hosts enormous amounts of green, red and brown macroalgae. In this study, phenolic compounds, antioxidant and antibacterial activities were evaluated in *Caulerpa sertularioides*, *Padina distromatica* and *Sargassum boveanum* extracts. Different solvents were used for the measurements. Statistical analyses showed the highest extraction yield was found in *C. sertularioides* aqueous extract. The highest phenolic content was found in *S. boveanum* aqueous extract, consistent with the DPPH IC_{50} results. According to the IC_{50} value of the *S. boveanum* aqueous extract, water is more efficient in extracting phenolic compounds in comparison with n-hexane and ethyl acetate. The HPLC analysis showed different polyphenols such as syringic acid, myricetin and gallic acid. The gallic acid increased in yield when higher levels of solvent polarity were present. Moreover, n-hexane extracts generated the largest inhibition zone against bacterial growth. In conclusion, the *S. boveanum* aqueous extract can be recommended as a safe, natural additive of antioxidant potential for formulating functional foods. Also, n-hexane extracts can have antibacterial effects when incorporated in foodstuffs.

Keywords: *Caulerpa*, macroalgae, natural antioxidant, *Padina*, polyphenol

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