Effect of *Nizimuddinia zanardini* aqueous extract against human pathogenic microbes and evaluating its antioxidant activity

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Abstract

Due to subsidiary effects of consuming artificial antioxidants and also a high increase of bacterial resistance to the antibiotic, identification of antioxidant and antimicrobial compounds of natural origin have been considered. Therefore, the present study was performed to evaluate the antioxidant and antibacterial activity of aqueous extract of brown seaweed *Nizimuddinia zanardini*. Sampling operations were conducted in winter 2014 from the Connie region of Qeshm. The antioxidant activity was evaluated by examination of inhibitory effect of hydroxyl radicals, chelating ability of ferrous ions and total antioxidant activity. Antibacterial activity of extract on four strains of pathogenic bacteria including: *Escherchia coli*, *Salmonella typhimurium*, *Bacillus cereus*, *Staphylococcus aureus* were evaluated by disc diffusion method and the results were compared with standard antibiotics. The results showed the total antioxidant activity (70.42±3.71mg/kg), hydroxyl radical scavenging ability (81.66±7.63) and the ability of ferrous ions chelating (76.24±0.39) were high in studied seaweed. *Staphylococcus aureus*, indicated the most sensitive with inhibition zone diameter of 12.62 ± 0.74 mm to the aqueous extract of *N. zanardini*, so that compared to the commercial antibiotic amoxicillin showed a statistically significant difference ($P<0.05$). *Escherchia coli*, showed the highest resistance. According to the results of this study, *N. zanardini* can be used as a potential source of antioxidant and antibacterial compounds in food and pharmaceutical industries.

Keywords: *Nizimuddinia zanardini*, Antioxidant, Antibacterial.