

عنوان مقاله:

Antioxidant and antibacterial activities of C-phycocyanin from common name *Spirulina platensis*

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خلاصه مقاله:

In this study, the antibacterial and antioxidant properties of C-phycocyanin (C-PC) from *Spirulina platensis* were evaluated. The extraction and purification of C-PC were carried out using lyzosome and ammonium sulphate precipitation, respectively. DPPH radical-scavenging activity, ferric reducing antioxidant power (FRAP) and Fe^{2+} -chelating activity were used for evaluation of antioxidant properties of C-PC. Antibacterial activity was also performed using agar well diffusion and microdilution [minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC)]. The selected bacteria were *Escherichia coli*, *Staphylococcus aureus*, *Listeria monocytogenes*, *Streptococcus iniae* and *Yersinia ruckeri*. The results showed that the biomass production was 1120 mg L^{-1} and C-PC concentration in crude extracts and purified by $(NH_4)_2SO_4$ were also 1.815 and 3.75 mg ml^{-1} , respectively. The results of DPPH, FRAP and Fe^{2+} -chelating activities of C-PC was 45.75% , $0.051 \text{ mg TAE g}^{-1}$ and 40.23% at zero time and 41.56% , $0.046 \text{ mg TAE g}^{-1}$ and 36.56% after 60 days at -18°C , respectively. The results of agar well diffusion indicated that *L. monocytogenes* and *S. iniae* were the most sensitive and resistant, respectively among examined bacteria in different concentrations of C-PC ($0-25 \text{ } \mu\text{g ml}^{-1}$) and the mean of inhibition zones were also $7.50-22.11 \text{ mm}$. The results of MIC and MBC of C-PC (as $\mu\text{g ml}^{-1}$) were $50-500$ and $100-500$, respectively. As a conclusion, C-PC from *S. platensis* had high potential of antioxidant activity in vitro and it can be used as natural antioxidants in variety of foods. Antibacterial activity of C-PC was lower than other algal pigments (such as astaxanthin and C-PC in other cyanobacteria).

کلمات کلیدی:

Antibacterial properties, Antioxidant activity, C-phycocyanin, *Spirulina platensis*

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