

Isolation and purification of phycocyanin pigments from *Spirulina* sp. biomass and evaluation of its anticancer and antioxidant potential

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Abstract

The occurrence of various diseases like cancer, cardiovascular, aging, and other associated problems are due to the frequent consumption of carcinogenic chemicals added food along with related activities. Our present investigation is focused on anticancer and antioxidant profiling of phycocyanin pigments isolated from *Spirulina* sp. The candidate species was identified by 16S rRNA analysis and the pigment was extracted through lysozyme enzyme treatment. The purification of pigment was performed by ammonium sulfate precipitation, dialysis, and DEAE-Cellulose-52 chromatography using an acetate buffer at pH 5.10. The in vitro antioxidant and antibacterial activity of phycocyanin exhibited proficient scavenging role. MTT assay revealed that the phycocyanin flaunted anticancer activity against HeLa cells (human cervical cancer cells). The physiochemical characterization of phycocyanin was done through TLC, FT-IR, and GC-MS to reveal the structural backbone of biomolecules. These findings introduce phycocyanin extracted from *Spirulina* as a potentially useful anticancer and antioxidant agent and can also provide a new path for the future researchers to combat diseases such as cancer and cardiovascular.

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