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Comparison of UV absorption potential and phycobiliproteins amount extracted with the help of solvent and ultrasound from (*Spirulina platensis*) microalgae

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Abstract

microalgae produce a wide range of protective compounds and pigments (mycosporid-like amino acids, Scytonemines, phycobiliproteins, and carotenoids) against ultraviolet (UV) radiation, which specially reduce the risk of skin cancer and aging. To compare the effect of solvents on UV protection factor (SPF) as well as the extacted amounts of carbohydrates, proteins and phycobiliproteins of *Spirulina platensis* different solvents including aqueous, ethanolic, methanolic, aqueous/ethanolic and aqueous /methanol were used. The yield of lyophilized extracts was compared. The results showed that ethanolic extract had a higher protective factor than other extracts (SPF=11.94 ± 0.00) also, this extract showed a higher amount of carbohydrates (2.39 ± 0.002 mg/ml) than other extracts. Aqueous extract had the highest amount of phycobiliproteins and extraction efficiency between other lyophilized extracts (90.05%). In conclusion, due to the significant amount of SPF of ethanolic extract, the useage of this extract in sunscreen formulations as a natural UV filter could be suggested.

Keywords: Phycobiliproteins, SPF, Spirulina, Solvent, Sunscreen

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