ULTRASOUND-ASSISTED THREE PHASE PARTITIONING OF PHYCOCYANIN FROM *SPIRULINA PLATENSIS*

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ABSTRACT

In this study ,conventional three phase partitioning (TPP) and ultrasound assisted three phase partitioning (UATPP) were explored for the extraction and purification of phycocyanin from *Spirulina platensis.* and the process were optimized. rhizomes. Factors affecting partitioning efficiency such as ammonium sulfate concentration, crude extract to t-butanol ratio, time and pH on phycocyanin partitioning were optimized for conventional TPP. Except the similar parameters were also optimized for UATPP. Irradiation time at different frequencies, duty cycle and rated power were also studied for UATPP. Optimal purification parameters for conventional TPP were 0-50%(w/v)ammonium sulfate concentration with 1:1(v/v)ratio of crude extract:t-butanol at pH 7.0, which gave 4.13 purification factor with 77.3% recovery of phycocyanin after 20 min of conventional stirring. The optimized parameters for UATPP yielding maximum purity of 6.69 purification factor of phycocyanin with 94.3% recovery comprised of 0-50%(w/v)ammonium sulfate concentration, crude extract to t-butanol ratio 1:1 (v/v), pH 7, at 25 kHz frequency and 150W ultrasonication power with 50% duty cycle for 5min irradiation time. SDS PAGE analysis of partitioned phycocyanin shows two bands α and β in the range of 18 and 20 KDa. UATPP was found to be an attractive technique for the extraction and purification of phycocyanin from *Spirulina platensis.*

Keywords: ultrasound assisted three phase partitioning (UATPP), phycocyanin, *Spirulina platensi*.