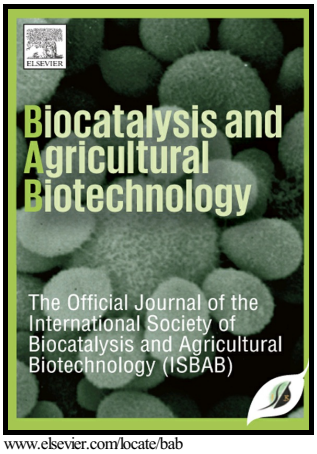


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# Extraction, Purification and Characterization of Phycoerythrin from *Michrochaete* and its biological activities

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## ABSTRACT

Phycoerythrin, (PE) is red coloured naturally abundant protein and is found in red algae and cyanobacteria. Till now, red algae are being characterized and exploited commercially for PE. But, cyanobacterial PE still need attention. PE is good for human health as it possesses free radical scavenging ability and promotes human health. In present study PE was isolated and purified from cyanobacterium *Michrochaete* and was further tested for its antioxidant, antibacterial, antifungal and anticancer potential. Purified PE yielded two bands of 15.8 kDa and 17.7 kDa. Purity value of PE increased from 0.73 to 4.1 during successive purification steps. Purified PE showed anticancer activity against HepG2 cell line ($IC_{50}$ = 105 µg/ml). *Candida albicans* was more resistant than *Aspergillus niger* at 0.2 mg/ml PE. Furthermore, PE showed antibacterial activity against both gram positive and gram negative bacterial species. The order of inhibitory activity was *Pseudomonas aeruginosa* (MTCC2543) > *E.coli* (ATCC 25922) > *Staphylococcus aureus* (MTCC902) with 0.1 mg/ml PE. Antioxidant activity of purified PE was evaluated by measuring the free radical scavenging ability using DPPH, ABTS and SOR. PE was found to have better free radical scavenging activity with ABTS ($IC_{50}$ = 0.023 mg/ml) than DPPH ($IC_{50}$ = 0.043 mg/ml) and SOR ($IC_{50}$ = 0.553 mg/ml).

*Key words:* Phycoerythrin, Purification, antioxidant, antibacterial, anticancer, antifungal activity.