



Antioxidant activity of microalgae extracts

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Abstract

Microalgae cultivation is a new recent industrial challenge worldwide due to the variety of biomass applications. The production of low-cost functional ingredients is a concern of the food and cosmetic industries and even for pharmaceuticals. This study intends to probe the antioxidant activity of microalgae extracts. Three Chloropyceae species: *Ankistrodesmus braunii*, *Chlorella vulgaris* and *Neochloris oleoabundans* was cultivated in closed photobioreactors using Bold medium in the best nitrogen conditions amounts to assure maximum growth rate at 25 ± 1 °C. Microalgae biomass was harvested by centrifugation, and then lyophilized. Dried biomass was used to prepare extracts at 10 % (m/V). Ultrasonic assisted extraction using acetone, methanol and water was used to prepare the microalgae extracts during 30 min. DPPH radical scavenging activity method were used to evaluate the antioxidant activity. The reference standard was butylated hydroxytoluene (BHT). The procedure was carried out in triplicate. We found that aqueous extracts show more antioxidant activity, being *N. oleoabundans* > *A. braunii* > *C. vulgaris*. In fact, *N. oleoabundans* ultrasonic extraction with water as solvent allows to obtain the most active extract when compared with the synthetic standard BHT. In conclusion, ultrasonic extraction allows to obtain microalgae aqueous extracts with high antioxidant activities that could be incorporated in functional foods, cosmetic and further in pharmaceutical formulations.

Keywords: antioxidant activity, microalgae biomass, microalgae extracts.

