

A comparison of the antioxidant properties and total phenolic content in a Diatom, *Chaetoceros* sp. and a green microalga, *Nannochloropsis* sp.

Abstract

The aquaculture industry commonly makes use of microalgae as live feed. *Chaetoceros* sp., a diatom, and *Nannochloropsis* sp., a unicellular green microalga, have both been reported to contain a substantial amount of polyunsaturated fatty acids and carotenoids. Their potential as natural sources of antioxidants has gained recent attention. This study focuses on determining the antioxidant properties of the different solvent extracts, namely hexane, dichloromethane, chloroform and methanol, from both microalgae. The evaluation of antioxidant capacities was done by Folin-ciocalteu, 1,1-diphenyl-2-picrylhydrazyl radical-scavenging, metal chelating, nitro-blue tetrazolium reduction and ferric-reducing antioxidant power assay. Results showed that the non-polar solvent extracts from the diatom were highest in antioxidant power, whereas both polar and non-polar solvent extracts of green microalgae showed good antioxidant potential. In general, *Chaetoceros* sp. had higher antioxidant capacities than *Nannochloropsis* sp. This study suggests that different solvent extracts contain different potential antioxidant compounds able to scavenge different types of free radicals.

Keyword: *Chaetoceros* sp.; *Nannochloropsis* sp.; Marine microalgae; Antioxidant; Total phenolic contents