Title: ANTIOXIDANT ACTIVITY OF SOME MOROCCAN MARINE MICROALGAE: PUFA PROFILES, CAROTENOIDS AND PHENOLIC CONTENT

Author: Amal MAADANE Nawal MERGHOUB Tarik AINANE Hicham El ARROUSSI Redouane BENHIMA Saaid AMZAZI Youssef BAKRI Imane WAHBY

PII: S0168-1656(15)30026-2
DOI: http://dx.doi.org/doi:10.1016/j.jbiotec.2015.06.400
Reference: BIOTEC 7145

To appear in: *Journal of Biotechnology*

Received date: 5-11-2014
Revised date: 4-6-2015
Accepted date: 16-6-2015

Please cite this article as: MAADANE, Amal, MERGHOUB, Nawal, AINANE, Tarik, ARROUSSI, Hicham El, BENHIMA, Redouane, AMZAZI, Saaid, BAKRI, Youssef, WAHBY, Imane, ANTIOXIDANT ACTIVITY OF SOME MOROCCAN MARINE MICROALGAE: PUFA PROFILES, CAROTENOIDS AND PHENOLIC CONTENT.Journal of Biotechnology http://dx.doi.org/10.1016/j.jbiotec.2015.06.400

ANTIOXIDANT ACTIVITY OF SOME MOROCCAN MARINE MICROALGAE: PUFA PROFILES, CAROTENOIDS AND PHENOLIC CONTENT

Amal MAADANE[1,2], Nawal MERGHOUB[1,*,¤], Tarik AINANE[1], Hicham El ARROUSSI[1], Redouane BENHIMA[1], Saaid AMZAZI[2], Youssef BAKRI[2], Imane WAHBY[1,¤]

1 Green Biotechnology. Center, MAScIR (Moroccan Foundation for Advanced Science, Innovation & Research) -.Rabat Design Center.,Rabat. Morocco

2 Laboratory of Biochemistry-Immunology. Sciences Faculty -University Mohammed V of Rabat, Morocco.

Highlights

- Valorisation of Moroccan microalgae.
- 9 microalgae strains were screened for their *in vitro* antioxidant activity.
- Total phenolic, carotenoid content and PUFA profiles were determined.
- The microalgae exerting the high antioxidant activity are potential new source of natural antioxidants.

Abstract

In order to promote Moroccan natural resources, this study aims to evaluate the potential of microalgae isolated from Moroccan coastlines, as new source of natural antioxidants. Different extracts (ethanolic, ethanol/water and aqueous) obtained from 9 microalgae strains were screened for their *in vitro* antioxidant activity using DPPH free radical-scavenging assay. The highest antioxidant potentials were obtained in *Dunalliela sp., Tetraselmis sp.* and *Nannochloropsis gaditana* extracts. The obtained results indicate that ethanol extract of all microalgae strains exhibit higher antioxidant activity, when compared to water and ethanol/water extracts. Therefore, total phenolic and carotenoid content measurement were performed in active ethanol extracts. The PUFA profiles of ethanol extracts were also determined by GC/MS analysis. The studied microalgae strains displayed high PUFA content ranging from 12.9 to 76.9 %, total carotenoids content varied from 1.9 and 10.8 mg/g of extract and total polyphenol content varied from 8.1 to 32.0 mg Gallic acid Equivalent/g of extract weight. The correlation between the antioxidant capacities and the phenolic content and the carotenoids content were found to be insignificant, indicating that