

Evaluation of Moroccan Microalgae *Spirulina platensis* as a Potential Source of Natural Antioxidants

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Abstract : The antioxidant activity of three extracts (water, lipidic and ethanolic) prepared from the microalgae *Spirulina platensis* isolated from Moroccan lake, using 2, 2-diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azino-bis ethylbenzthiazoline-6-sulfonic acid (ABTS) radical assay, was studied and compared. The obtained results revealed that the IC_{50} found using DPPH were lower than that of ABTS for all extracts from these planktonic blue-green algae. The high levels of phenolic and flavonoid content were found in the ethanolic extract $0,33 \pm 0,01$ mg GAE/g dw and $0,21 \pm 0,01$ mg quercetin/g dw respectively. In addition, using DPPH, the highest activity with $IC_{50} = 0,449 \pm 0,083$ mg/ml, was found for the ethanolic extract, followed by that of lipidic extract ($IC_{50} = 0,491 \pm 0,059$ mg/ml). The lowest activity was for the aqueous extract ($IC_{50} = 4,148 \pm 0,132$ mg/ml). For ABTS, the highest activity was observed for the lipidic extract with $IC_{50} = 0,740 \pm 0,012$ mg/ml, while, the aqueous extract recorded the lowest activity ($IC_{50} = 6,914 \pm 0,0067$ mg/ml). A moderate activity was showed for the ethanolic extract ($IC_{50} = 5,852 \pm 0,0171$ mg/ml). It can be concluded from this first study that *Spirulina platensis* extracts show an interesting antioxidant and antiradicals properties suggesting that this alga could be used as a potential source of antioxidants. A qualitative and quantitative analysis of polyphenol and flavonoids in the extracts using HPLC is in progress so as to study the correlation between the antioxidant activity and chemical composition.

Keywords : *Spirulina platensis*, antioxidant, DPPH, ABTS

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