



## **Phenolic profile in *Dunaliella tertiolecta* growing under copper stress**

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The present study investigates the phenolic profile of exudates and extracts of the green alga *Dunaliella tertiolecta* harvested in natural seawater (control) and in natural seawater in the presence of Cu(II) (315 nmol L<sup>-1</sup> and 790 nmol L<sup>-1</sup>). Determining how polyphenol concentrations change in response to high metal levels will demonstrate the role of polyphenols in microalgae and might be useful to help explaining the dynamics of this important class of compounds in seawater. The use of reversed phase high performance liquid chromatography (RP-HPLC) allowed the identification of 14 phenolic constituents. The different experimental conditions changed the concentrations and types of polyphenols as a function of the concentration of the metal added. *D. tertiolecta* excretes almost twice the polyphenol concentration in the 790 nmol L<sup>-1</sup> copper enrichment experiment, respect to the reference culture (without metal additions), in order to ameliorate the toxicity of the copper in the solution, acting as a protective mechanism. The in vitro antioxidant activity determined by using the 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay revealed that the extract of cells from the control exhibited higher radical scavenging activity ( $14 \pm 0.5\%$ ) than the synthetic compound butylated hydroxytoluene (BHT) ( $5 \pm 0.1\%$ ), commonly used in the food industry as preservative. The concentration of polyphenols within the cell encourage further studies aimed at using algae as a source of chemical principles to be considered in the health, food and pharmaceutical industry.