Chemical Composition and Cytotoxicity Assessment of the Green Seaweed *Caulerpa racemosa* from Algerian West Coast

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ABSTRACT

The objective of this study is to evaluate the chemical composition of the invasive green alga *Caulerpa racemosa* and to preliminary assess its possible toxicity by using the Brine shrimp lethality assay (BSLA). *Caulerpa racemosa* was harvested from the intertidal zone of Mostaganem coast (N 35°54'37.94", E 0°3'17.37") (Algeria). Dried seaweed was either used for chemical analyzes or subjected to Soxhlet extraction using methanol, chloroform, and hexane solvents. The toxicological assessment of the extracts was carried out on *Artemia salina* collected from the salt lake of Bethioua (Oran, Algeria). Mortality of nauplii was evaluated after 24 h of exposure to the different concentrations of tested extracts. The LC50 was determined by probit regression analysis and compared to Clarkson's toxicity criteria. *Caulerpa racemosa* displayed a high content of total ash (17.25 ± 0.21 %) and dietary fibers (41.93 ± 6.80 %). Total lipid content was relatively high (4.03 ± 0.45 %) and chlorophyll a content was greater (20.00 ± 0.7 mg/100 g DW) compared to the chlorophyll b. Chloroform extract exhibited the higher contents of polyphenols (123.91 ± 1.46 mg gallic acid equivalent/g dry extract) and tannins (59.28 ± 5.43 mg catechin equivalent/g dry extract) ($P<0.001$). The BSLA revealed the non-toxicity of all the studied extracts and the lowest LC50 was recorded for methanol extract (1047.13 ppm). Finally, the interesting chemical composition of *Caulerpa racemosa* and its non-toxicity suggest its possible use as a nutraceutical food. However, *in vivo* tests are recommended to confirm its non-toxicity and assess its nutraceutical potential.

Keywords: Brine shrimp lethality assay; *Artemia salina*; LC50; invasive alga; extracts.