Comparison of growth factors, chemical composition, fatty acid profiles, chlorophyll content and total carotene of *Scenedesmus obliqus* and *Hematococcus pluvialis*

Abstract

Introduction: The algae are rich in minerals, vitamins, and the other nutrients and they are cultivated in order to production of valuable raw materials.

Material and Methods: In this regard, were studied the effect of 10% carbon dioxide concentration on growth factors, chemical composition, fatty acids profile, chlorophyll and carotene of two species *Scenedesmus oblique* and *Haematocuccus pluvialis*.

Result: Based on the results, the protein content was significantly higher in the *S. oblique* compared to the *H. pluvialis* (16.79% and 9.16%, respectively) ($P<0.05$). In contrast, the total lipid production was significantly higher in the *H. pluvialis* compared to the *S. oblique* ($P<0.05$). The saturated fatty acids percentage was significantly higher in the *H. pluvialis* in comparison to *S. oblique* (30.93% and 23.51%, respectively) ($P<0.05$). Also, the amount of chlorophyll *a* and total carotene was measured in the *H. pluvialis* significantly higher than the *S. oblique* ($P<0.05$). At the end of 20 days of the cultivation, the amount of biomass in the *H. pluvialis* was significantly higher than that produced at *S. oblique* ($P<0.05$).

Discussion: Although the presence of CO_2 caused that *S.obliquus* use of the conditions for more production of biomass (0.18 $g.L^{-1}$ DW), were not observed significant difference in biomass with H.pluvialis (0.17 $g.L^{-1}$ DW).

Keywords: Carbon dioxide, *Haematocuccus pluvialis*, *Scenedesmus oblique* Fatty acid profile and Chlorophyll