

عنوان مقاله:

Research Article: Electrochemical harvesting of the marine microalgae, *Nannochloropsis oculata*: Effect on approximate composition, fatty acid profile, and metals biosorption

محل انتشار:

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خلاصه مقاله:

The effect of electrochemical harvesting of *Nannochloropsis oculata* by aluminum (Al), iron (Fe), and graphite electrodes on the approximate composition, fatty acids profile, harvesting efficiency, and metals biosorption was investigated. Based on the results, the highest content of crude protein was observed in the control and graphite electrode groups, while the lowest value was measured in Al electrode ($p < 0.05$). The highest content of fat (21.95 % in dry weight) was obtained in the microalgae harvested by Al electrode compared to other treatments ($p < 0.05$). Maximum level of saturated fatty acids was observed in the microalgae harvested by Al electrode (89.68 % of total fat) ($p < 0.05$). However, the lowest levels of mono- and poly-unsaturated fatty acids were recorded in Al electrode treatment ($p < 0.05$). The lowest harvesting efficiency (67.44 %) was observed in graphite electrode treatment ($p < 0.05$). The highest biosorption of Al and Fe were in the microalgae harvested by Al and Fe electrodes, respectively ($p < 0.05$). Overall, electrocoagulation technique using various electrodes caused significant changes in biochemical composition of *N. oculata*. Although the highest biosorption of metals was in the microalgae harvested by sacrificial electrodes and even out of the allowed range of human and animal consumption, they would be suitable for biofuel production.

کلمات کلیدی:

Microalgae harvesting, Fatty acids, Electrochemistry, Electrocoagulation, *Nannochloropsis oculata*

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