EXTRACTION AND CHARACTERIZATION OF ALGOIL FROM SELECTED MARINE MICROALGE AND THE ROLE OF ASSOCIATED BACTERIA ON FATTY ACID PROFILE

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ABSTRACT

This work was conducted to study the role of selected associated bacteria on the physic-chemical nature of algal oil and PUFA. The two associated bacteria based on the performance in encouraging the growth of microalgae were selected and allowed to co-exist with the culture of micro algae such as *Skeletonema costatum* and *Isochrysis galbana*. The cells were harvested by flocculation and the oil was extracted. The effect of different phases of growth on oil yield, physical and chemical characters of extracted oil, total oil yield and the type of PUFA with and without associated bacteria were studied. Among the six species of bacteria isolated from the log phase culture, *Pseudomonas* sp. and *Micrococcus* sp. encouraged the growth of micro algae. The total oil yield and total carotenoid production were found to be increased by the co-culture of associated bacteria. The associated bacteria increased the quantity of vitamin –A and -E and there was no effect observed in the mineral content of micro algal oil with the co-growth of selected bacteria; but proved its positive role in PUFA increment of micro algae studied than the control without co-existence of selected bacteria. From this study, the positive role of associated bacteria on growth of algae, total oil yield and PUFA increment have been documented and it has opened a new avenue of research in changing the PUFA profile by manipulating the associated bacteria.

KEYWORDS: Algoil, Associated Bacteria, Isochrysis Galbana, Microalgae, PUFA, Skletonema Costatum