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Abstract

Total Carotenoid Content of Actinobacteria Isolated from Marine Sediment of the Gulf of México

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Abstract: Carotenoids are organic pigments that are synthesized by photosynthetic organisms such as bacteria. These types of molecules have important applications due to their chemopreventive activity and as color providers to different products. Carotenoid production from microbial sources have been important because is an eco-friendly, stable and high productivity technique. The aim of the present research was to compare total carotenoid content between five actinobacteria strains (named JOC-4, JOC-5, JOC-7, JOC-8 and JOC-9) isolated from the Gulf of México. Strains were grown on plates of GYEA medium during ten days at 28ºC, followed by fermentation at 28ºC, 150 rpm for six days, biomass and supernatant were lyophilized and carotenoid extraction was performed using a mixture of dichloromethane:methanol:acetone (1:1:2), total carotenoids were calculated with UV-Vis spectrometry, 450 nm. To determine significant differences, an anidated experiment and a Scheffè test were performed. A significant difference in carotenoid content was determined between biomass and the strains with an F value of 21.29 and 11.19, respectively ($p < 0.05$). The Scheffé test indicated that biomass from strains JOC-5 (25.37±3.02 µg/mL) and JOC-8 (39.55±4.55 µg/mL) presented the highest carotenoid content and the less variation. While JOC-4, JOC-7 and JOC-9 presented high variation in carotenoid content.

Keywords: Actinobacteria, Total Carotenoids, Carotenoid extraction, Carotenoids applications

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