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عنوان مقاله:

Introduction of a long chain polyunsaturated fatty acid producing indigenous microalga Dunaliella

محل انتشار:

بیستمین کنگره ملی و هشتمین کنگره بین‌المللی زیست‌شناسی ایران (سال: 1397)

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خلاصه مقاله:

In the present work microalgae cell bank at Agricultural Biotechnology Research Institute of Iran, Northwest and West region was screened in terms of lipid production and fatty acid profile. Due to health benefits of Long-chain polyunsaturated fatty acid (LC-PUFA) such as blood pressure /immune system regulation, neurological/retinal development and cardiovascular protection, the main focus of the study was on LC-PUFA. LC-PUFAs are fatty acids with ≥18–20 carbons and ≥2 unsaturated bonds including two families of ω6 (n-6) and ω3 (n-3). The main current source for LC-PUFA, fish, has numerous limitations such as its carcinogen, non-carcinogen, antibiotic and mutagen contaminants, undesirable odors, flavors, and tastes as well as their depleting stocks. These provoked the attempts to find safe alternative sources. Few photosynthetic microalgae have emerged as biosynthetic machinery to synthesize LC-PUFAs. Dunaliella species is among limited microalgae approved as human nutrition. Followed by total lipid and fatty acid profile determination, an isolate indigenous of Urmia Lake, Dunaliella sp. ABRIINW-I1, with maximum lipid of 40% of the dry weight was selected. Fatty acid profile analysis demonstrated its high level of LC-PUFA as 80 % of total lipid. This amount is higher than that of plants, animals as well as oily fish. The n3-PUFA fraction of LC-PUFAs in this isolate was nearly 90%. Human evolved on the n3/n6 ratio of 1/4 to optimum ratio of 1/1. The n3/n6 ratio in the isolate of our interest is high (5/1) which compensates for very limited n3/n6 (~1/15) daily intake in our diet which causes many chronic diseases.

کلمات کلیدی:

Dunaliella, Indigenous isolate, Long-chain polyunsaturated fatty acids, The n3/n6 ratio

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