

عنوان مقاله:

A deep insight into the existed introns in the 18S rDNA gene of Dunaliella species

محل انتشار:

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خلاصه مقاله:

The halotolerant green microalga *Dunaliella* by having a high potential for the production of valuable pharmaceutical compounds especially carotenoids as well as the production of biofuels has been attracted the many of researchers. Surprisingly, the study of 18S rDNA gene in *D. parva* and *D. salina* showed that this gene contains intron (s), belonging to group I of introns. Accordingly, later studies revealed that the 18S rDNA gene in *D. tertiolecta* is ~1770 and lacks intron, in *D. salina* is ~2170 and has one intron after the first exon and in *D. parva* and *D. bardawilare* ~2570 which associated with two introns after the first and second exon respectively (refer to intron I and II). However, the 18S rDNA gene of *D. viridis* is ~ 2570 bp and has a larger intron than the other *Dunaliella* strains between the first and second exons. Despite the same size of 18S rDNA gene, the capacity of β - carotene production is the only character for separating *D. parva*, *D. bardawil* and *D. viridis*, so that, these strains are hyper, low and none producer of β - carotene respectively. Herein, we focus on the introns and the insertion sites based on bioinformatics approaches. The 18S rDNA sequences of *Dunaliella* species and some members of *Chlamydomonas* (about 40 sequences) were obtained from the NCBI database. Consequently, the data were studied by Bioedit and Mega version 6 software. Analyses of different members of *Chlamydomonas* order were showed the 18S rDNA gene contains two exons with high conserved sequences. So that, the difference between *Dunaliella* species and the members of *Chlamydomonas* order were only 3 and 5 percent respectively. Alignment of the sequences was showed the insertion site of the introns in the 18S rDNA were highly conserved. Importantly, the aligning of the sequences showed all of those begins with 5' TTAAC and terminate to AACGG 3'. These sequences exist in the different genus with introns in their 18S rDNA gene. The conservatory of the intron insertion sites in the 18S rDNA of *Chlamydomonas* order is showed that we need to explore the evolutionary keys about this process. Moreover, what is the main function of these introns What is happening that cause these introns, as the variable elements, to be inheritable

کلمات کلیدی:

Dunaliella, 18S rDNA gene, Intron, *Chlamydomonales*

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