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## **Effect of temperature on growth and fat storage of microalgae *Dunaliella Tertiolecta***

**\*F. Ayatollahi<sup>1</sup>, S.A. Hosseini<sup>2</sup> and H. Kordi<sup>3</sup>**

<sup>1</sup>M.Sc. Graduate, Dept. of Aquatic Production and Exploitation, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran,

<sup>2</sup>Professor, Dept. of Aquatic Production and Exploitation, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran,

<sup>3</sup>Ph.D. Graduate, Dept. of Aquaculture, Iranian Fishery Sciences Research Institute

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### **Abstract**

Biotechnology seeks to find effective stimuli to increase the rate of growth and the content of various biochemical compounds such as lipids and pigments in algae. Temperature is one of the most important physical factors that has a significant impact on the growth and activity of aquatic organisms. The ambient temperature plays an important role in accelerating the population growth of algae. *Dunaliella* is an algae that is categorized as chlorophyll in algae without cell walls, moving, and salty. *Dunaliella* two-tagged algae are recognized as the most resistant photosynthetic eukaryotic organism. Most microalgae produce high levels of lipids under stress conditions. Changing environmental conditions, in addition to affecting the amount of growth and fat production, can also affect the quality of the microalgae fat. In this research *Dunaliella* algae were cultured in Whalen culture medium after sampling from Uromiye Lake and purification. Experiments were performed with 4 treatments (20, 25, 30 and 35 degrees Celsius) and 6 replicates completely randomized. For the optimal growth of *Dunaliella*, the lightness of 3000 lux was achieved with 12 hours of lightning and 12 hours of darkness and Whalen's culture medium. Counts of algae cells, daily temperature and pH measurements, and fat content in different growth phases were assessed. Data were analyzed using SPSS software. According to the results, the growth of algae decreased with increasing temperature and the highest growth was observed at 20 °C. Also, the results showed that the highest amount of fat storage was in the droplet at 25 °C and in the constant phase.

**Keywords:** *Dunaliella*, Fat, Growth, Microalgae, Temperature