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# The effect of plant growth regulators on growth and production of β-carotene in *Dunaliella salina*

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**Background and Aims:** The aim of this study to stimate effect of growth regulators on the growth and β-carotene production of D. salina (CCAP 19/18). Dunaliella spp. are grown as a food source in aquaculture and D. salina is the richest algal source of β- carotene and glycerol. Dunaliella is a unicellular bi-flagellated naked green alga.
**Methods:** The microalgae was cultured in modified Johnson media with salinity of 12% and hormone treatment with kinetin, gibberellic acid, indol acetic acid, 6γ,γ-Dimethylallylaminopurine, salisylic acid and benzyl aminopurine under light condition, at 25± 2 ºC and on orbital shaker with 70 rpm. The culture was then investigated for growth rate and β- carotene production changes. The growth rate was determined by direct counting. Espectrophotometric measurement was used for β- carotene and chlorophyll quantification.
**Results:** The number of cells in all 5 groups was determined within 25 days. The results of this study showed that the number of cells in all days and in all hormone: KN, GA3, BAP, SA, IAA and DAP higher than that of the control group. These numbers in KN and IAA groups were two times more than those in the control group. KN and IAA groups had no significant difference with each other. Growth pattern of D. salina in all hormone groups were different from that of the normal group. The number of cells in hormone media increased faster than that of the normal media. Growth pattern of D. salina in KN and IAA groups and also in BAP and 6-γ,γ-DAP groups were similar to each other.
**Conclusions:** Growth rate and was increased under all growth regulator conditions. spectrophotometrical measurement demonstrated that kinetin and IAA had the most effect on β- carotene production.

**Keywords:** β- Carotene; *Dunaliella salina*; Spectrophotometery measurment; Plant Growth Regulators