Mohammad Gorgij Jaski et al., J Aquac Res Development 2017, 8:2 (Suppl)
http://dx.doi.org/10.4172/2155-9546.C1.014

Determination of effective parameters on growth rate and protein content of *Spirulina platensis* under laboratory condition

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The major nutritional interest in Spirulina is due to its high protein content, ease of digestion and a significant content of vitamins, minerals, amino acids and high value pigments, which have applications in health foods, feed and therapeutic industries. In order to provide optimum growth and protein content, *S. platensis* cells were grown in modified Zarrouk (1966) media culture at different salinity (30, 32 and 35 ppt), temperature (20, 23, 26 and 28°C) and intensity (50, 75 and 90 µmol $m^{-2}s^{-1}$). The results of the present study clearly showed that the highest alga biomass and growth rate was obtained following culture under 32 ppt salinity, 26°C temperature, and under a 13 h light:11 h dark photoperiod regime at a light intensity of 90 µmol m-2s-1 provided by cool white fluorescent tubes. Maximum alga biomass and growth rate of *S. platensis* in a 5 liter Erlenmeyer flask for 12 days reached to 8 gr L^{-1} and 0.28 day^{-1}, respectively. However, the mean alga biomass of *S. platensis* in temperature regimes 20, 23, 26 and 28°C (under salinity of 32 ppt, and 75 µmol m-2s-1 irradiance) were 4.72, 5.15, 7.69 and 7.03 gr L^{-1}, respectively. The results clearly showed that *S. platensis* successfully cultivated under different physical conditions and maximum protein content was produced in 30 ppt salinity, 28°C temperature, and 75 µmol $m^{-2}s^{-1}$ irradiance. A two-way ANOVA indicated significant effects of temperature on the growth rate of *S. platensis* followed by salinity, and then the interaction between temperature and salinity ($p<0.05$). Based on the results from the present study, providing suitable media culture and physical condition can be considered as a promising method to *S. platensis* cultivation for achieving optimal biomass and protein production.

Biography

Mohammad Gorgij Jaski has completed his MSc in Aquaculture from Islamic Azad University, Iran and currently he is a PhD student of Aquaculture Nutrition. He is the Head of shrimp hatchery production named, Sontderaf in Jask, Iran. He has published more than 2 papers in reputed journals and presented more than 3 papers in international conferences.

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