

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

EFFECTS OF DIFFERENT SALINITIES ON THE GROWTH OF GREEN ALGAE *NANNOCHLOROPSIS OCULATA* AND *DUNALLIELLA TERTIOLECTA*

Sérgio Murilo de SOUZA-FILHO*¹, Eduardo SILVA, Robilson Antonio WEBER¹

*corresponding author: sergiomuriloba@gmail.com

¹Instituto Federal Catarinense, Araquari, Santa Catarina, Brasil

Salinity is one of greater interference factors in the microalgae's growth. These effects were evaluated to determine the best growth conditions in two species of green marine microalgae, *Nannochloropsis oculata* and *Dunaliella tertiolecta*. Cultures of *Nannochloropsis sp.* and *Dunaliella sp.* with 10 days old were used as inoculum (1×10^4 cells mL^{-1}) in Erlenmeyers (250 mL) containing 100 mL of the culture medium F/2 modified of Guillard (Cell-HiF2, Varicon Aqua Solutions, AUS) with salinities of 15, 20, 25 and 30‰. All treatments were done in triplicate. Salinities less than 30‰ were achieved by dilution with medium made in distilled water. All the flasks were hand-agitated three times a day (07:00, 12:00 and 17:00 hours) and alternate positions every two days where all flasks were under the same exposure conditions. The algae were continuously illuminated by eight led lamps (20 W, 2000 Lm light intensity) and submitted to an average temperature of $20 \pm 1^\circ\text{C}$. The experiment lasted up to 14 days of cultivation. Algal growth were measured using a hemocytometer ($0,0025 \text{ mm}^2$, Neubauer improved bright-line, Grid Optik) and observed under a microscope (Physis, EXP 90). The average density obtained by three counts in each salinity. The Growth rate (μ) were calculated following the formula: $\mu = [\ln(d_{16}) - \ln(d_0)]/t$. Statistical analysis was carried out using the statistical program PAST (Paleontological Statistics) version 3.19. The normality of the data were verified using the Shapiro-Wilk test. To verify the effects of different salinities on algal growth was used the analysis of one-way variance (ANOVA) followed by the Tukey test at a significance level of 5%. For *Dunaliella sp.* growth rate (μ) was similar at all levels of salinities evaluated, no significant differences were observed ($P > 0.05$). While for *Nannochloropsis sp.* cultivated group in 15‰ salinity, showed higher growth ($P < 0,05$). The maximum cell count observed was on the twelfth day of culture (2.2×10^7 cells mL^{-1}) and a growth rate of $0.2063 \pm 0.001 \mu \text{ day}^{-1}$. This study concluded that cultures carried out at a temperature of 20°C , the species *Nannochloropsis sp.* presented the best growth rate in salinities of 15‰. The specie *Dunaliella sp.* grew in all salinities, however, showed no differences in growth rates.

Keywords: best culture conditions, growth rate, microalgae

Acknowledgments: Thanks to Professor Robilson Weber for all assistance and guidance throughout the development of this study.

Promoção e Realização:



Apoio Institucional:



Organização:

