3<sup>rd</sup> International Conference on

## **Agricultural Engineering and Food Security**

November 12-13, 2018 | Berlin, Germany

## Growth rate and protein content of Arthrospira (Spirulina) platensis cultured in different nitrogen sources

Mohammad Gorgij Jaski<sup>1</sup>, Mazzeyar Yahyavei<sup>1</sup>, Alireza Salarzadeh<sup>1</sup> and Kiuomars Rohani Ghadikolaei<sup>2</sup> <sup>1</sup>Islamic Azad University of Bandar Abbas, Iran <sup>2</sup>Agricultural Research, Education and Extension Organization, Iran

 $\mathbf{N}$  itrogen is known to have a strong influence on the metabolism of lipids and protein in various microalgae. In the present study, the production of S. platensis was optimized in terms of biomass and protein by using different nitrogen sources as NH4Cl, NH4NO3 and Urea. S. platensis was grown in Zarrouk's medium in a 3000 mL Erlenmeyer flask, in which the NaNO3 was replaced by NH4Cl, NH4NO3 and Urea with concentrations of 0.010, 0.025 and 0.050 M cultures were incubated at temperature of 30oC, salinity of 25 ppt and initial pH of 9.5 under 12/12 hour light dark photo period with normal white light. The results clearly showed that though S. platensis is successfully cultivated by using different nitrogen regimes the maximum biomass was produced in medium containing NH4NO3 and there is no significant difference between treatments (p>0.05). The maximum protein content was obtained in culture containing NH4NO3 followed by NH4Cl and KNO3 and there is no significant difference between treatments (p>0.05). Moreover, in all S. platensis cultures, increase in nitrogen concentrations, led to an increase in maximum biomass and protein content. The chlorophyll-a content increased with increasing nitrogen concentrations in all treatments and relatively high values (9.18  $\mu$ /mL) were found with KNO3 as a nitrogen source at 14th day of culturing period. Overall, the results of present study clearly showed that using NH4NO3 can be considered as a promising nitrogen source for S. platensis cultivation for achieving optimal biomass and protein production.

sontderafshrimp@yahoo.com