Effect of nitrogen source and acclimatization on specific growth rates of microalgae determined by a high-throughput in vivo microplate autofluorescence method

Specific growth rates (SGR) of freshwater algaespecies (*Chlorella vulgaris*, *Auxenochlorella protothecoides*, and *Chlorella sorokiniana*) and the marine species *Nannochloropsis oculata* on various nitrogen sources (ammonium carbonate, ammonium chloride, sodium nitrate, and urea) could be determined by in vivo chlorophyll-a autofluorescence. These preferences could be determined before large pH changes occurred in the media, with no significant difference ($P>0.05$) between buffered and non-buffered media. In all algal species, acclimatization was observed with no significant difference ($P>0.05$) between SGRs of the second and third cultivations. ANOVA of SGRs in the acclimatized second and third cultivations revealed preferences for nitrogen sources among most of the algae: *C. vulgaris* preferred sodium nitrate over other nitrogen sources, *A. protothecoides* adapted to urea after no growth in the first cultivation, and the SGRs of *N. oculata* showed an aversion for sodium nitrate over other nitrogen sources ($P<0.05$).

General information
Publication status: Published
Organisations: Department of Environmental Engineering, Residual Resource Engineering, National Food Institute, Division of Industrial Food Research
Contributors: Podevin, M., De Francisci, D., Holdt, S. L., Angelidaki, I.
Number of pages: 9
Pages: 1415-1423
Publication date: 2015
Peer-reviewed: Yes
Early online date: 2014

Publication information
Journal: *Journal of Applied Phycology*
Volume: 27
Issue number: 4
ISSN (Print): 0921-8971
Ratings:
  - BFI (2015): BFI-level 1
  - Scopus rating (2015): CiteScore 2.32 SJR 0.833 SNIP 0.957
  - Web of Science (2015): Impact factor 2.372
  - Web of Science (2015): Indexed yes
Original language: English
Keywords: Adaptation, Auxenochlorella, Chlorella, Nannochloropsis, pH changes, Industrial wastewater
DOIs:
10.1007/s10811-014-0468-2

Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review