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Direct spectrophotometric method to determine cell density of *Isochrysis galbana* in serial batch cultures from a larger scale fed-batch culture in exponential phase

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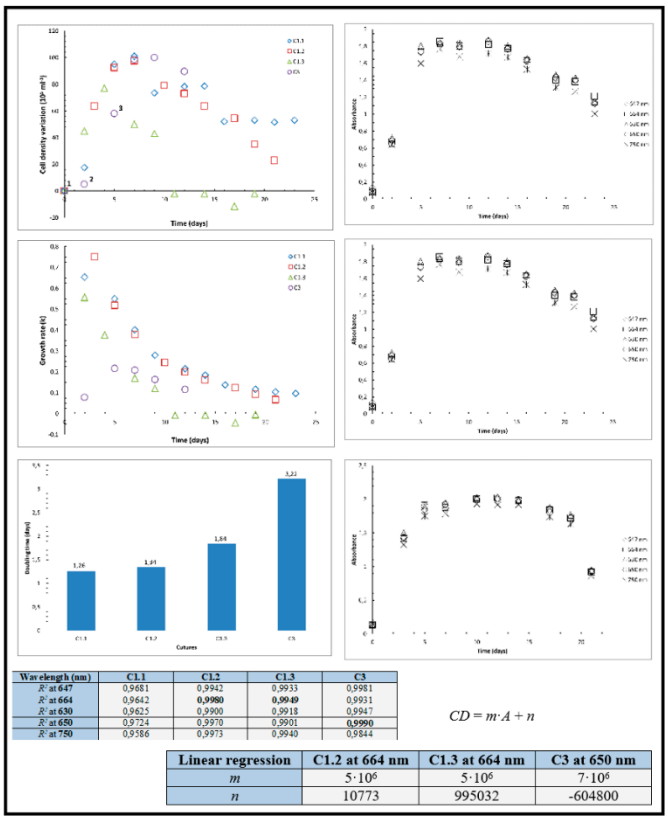
Graphical Abstract



Wav elength (nm)	C1.1	C1.2	C1.3	C3
R^2 at 647	0,9681	0,9942	0,9933	0,9981
R^2 at 664	0,9642	**0,9980**	**0,9949**	0,9931
R^2 at 630	0,9625	0,9900	0,9918	0,9947
R^2 at 650	0,9724	0,9970	0,9901	**0,9990**
R^2 at 750	0,9586	0,9973	0,9940	0,9844

$$CD = m \cdot A + n$$

Linear regression	C1.2 at 664 nm	C1.3 at 664 nm	C3 at 650 nm
m	$5 \cdot 10^6$	$5 \cdot 10^6$	$7 \cdot 10^6$
n	10773	995032	-604800

Abstract.

In this work, a very useful and accurate procedure, based on the spectrophotometric method published by the American Public Health Association in the Standards Methods for the Examination of Water and Wastewater, was developed to determine cell density of *Isochrysis galbana* performing a single direct absorbance measurement in exponential phase of growth, which is the desirable operating mode for any microalgae production plant. Thus, *Isochrysis galbana* was cultured in serial batch cultures from a larger scale fed-batch culture. The growth performance of this species of microalgae under laboratory conditions was analysed by spectrophotometry at different wavelengths and cell counting in a haemocytometer (Neubauer chamber) showing that doubling times and cell death increased with increasing initial cell density. Besides, it was demonstrated that the absorbance of these cultures followed a linear trend as a function of time and cell density during the exponential phase of growth, results in which the developed direct method is based on.

https://www.ucv.es/investigacion/publicaciones/catalogo-de-revistas/revista-nereis (NEREIS Nº9)

References

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