

SEARCHING A MORE SUITABLE MEDIUM FOR GROWING THE ALGA *DUNALIELLA SALINA*

F. Raposo, J. Navalho

Escola Superior de Biotecnologia - Universidade Católica Portuguesa

R. Dr. António Bernardino de Almeida, 4200 PORTO- PORTUGAL

One of the constraints for the industrial production of microalgae is the high cost of the culture media. The aim of this work was to compare the growth rate when cultivating the algae in different media and try to find out the most suitable medium.

The prices of the main components of the medium were considered and also the fact that we used common sea salt instead of NaCl: (the prices are in PT Esc. and in ECUs per m³ of medium) 2ASW complete medium 89 830-509; medium without vitamins 89 380-506; medium without vit/ soil extr. 39 380-223; medium free of vit/ soil ext/ buffer 3 130-18; medium free of vit/ buffer 53 130-301.

We grew the strain 19/30 of CCAP, *Dunaliella salina* (Dunal) Teod., in four different assays, using the 2ASW medium, enriched with NaNO₃ 3,7mM, for the control flasks and the test-ones were carried with media free of vitamins (I assay), vitamins and soil extract (II assay), vitamins/ soil extract/ Tricine buffer (III assay), vitamins and Tricine (IV assay).

In each assay, the algae suffered a 4-day adaptation period (lag phase), growing already in the test (complete and deficient) media. After that, a 10% of this culture was inoculated in flasks (8 per assay) with 1800 ml of medium (4-control and 4-test). The algae grew for a ten-day period at constant temperature (25°C) and light (2350 - 2500 lux). The pH was kept under the range values tolerated by the algae. Samples of each of the eight flasks (continuously air-bubbled) were harvested and the cells counted, daily, in an improved Neubauer camera.

The results were statistically treated by Analysis of Variances (ANOVA), for each of the assays. The hypothesis (H₀) for the "complete medium/ free of vit" and "complete medium/ free of vit/ soil ext" is not to be rejected and the hypothesis for "complete medium/ free of vit/ soil ext/ buffer" and "complete medium/ free of vit/ buffer" has to be rejected.

By the results obtained in this experiment one can suppose that the Tricine buffer is an important component and, as Ben-Amotz (1980) and Borowitzka & Borowitzka (1988) had reported earlier, vitamins and soil extract seem not to be needed in the medium for growing the alga *Dunaliella salina*. Moreover, if we make use of CO₂ to raise the biomass production, we can compensate for the utilization of the buffer.

REFERENCES

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