Medium recycling for *Nannochloropsis gaditana* production in large scale conditions

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**OBJECTIVES** To design a process to sterilize and recirculate the supernatant obtained from the harvest of a microalgae culture process.

**MATERIALS AND METHODS**

**MICROORGANISM AND MEDIUM**
- √ Erlenmeyer flasks: 50 mL.
- √ Artificial illumination simulating solar cycle: I=100 µEm−2s−1
- √ Thermostated: 25°C
- √ Discontinuous mode
- √ Microorganism: *Nannochloropsis gaditana*
- √ Inorganic culture medium: ALGAL (Bionova)

**RESULTS AND DISCUSSION**

*N. gaditana* growth after sterilization of supernatant

**TECHNIQUES TO STERILIZE**
1: filtration (control)
2: bleach
3: sodium dichloroisocyanurate
4: ozone
5: hydrogen peroxide
6: pasteurization

**MEASUREMENTS**
1. Biomass concentration determined by dry weight (DW).
2. Bacteria load determined by spectrophotometer and also counting with the technique of CFU with TSA medium 1%.

**RESULTS AND DISCUSSION**

*N. gaditana* growth using different fresh medium to supernatant ratios

**CONCLUSIONS**

The results show that the most successful technique was ozonation, decreasing to 1.9·10^3 CFUs/mL with 95 mg/L of ozone, which is 1000-fold and 10-fold lower than the supernatant and the initial filtered medium, respectively. The batch growth experiments carried out with this recycled effluent yielded a biomass concentration similar to the control with fresh medium.

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