

# Study on the effects of microwaves on the lipid content and fatty acid profile of *Nannochloris sp.* when applied throughout the growth process

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Microalgae produce several important compounds, such as lipids, polyunsaturated acids, proteins, pigments, which make them extremely attractive in a wide field of applications, from human nutrition and animal feed, to the production of biofuels and high-value nutraceutical and pharmaceutical compounds. Microalgae have great productivities due to their efficiency in fixing CO<sub>2</sub> and in the conversion of light, their growth rates being dependent on several factors, such as light intensity, carbon source, nutrients in the medium, temperature. Modifying the growth parameters, and growing microalgae in stress conditions is one of the easiest ways of inducing the accumulation of a certain compound <sup>[1,2]</sup>.

The purpose of this paper was to study the potential effects of microwaves when used as a stress factor in the growth of *Nannochloris sp.* Microwave irradiation will be carried out in continuous mode for various exposure periods, and the irradiated samples will be compared to control samples, grown in the absence of microwaves, in terms of lipid content and fatty acid profile. We were able to achieve an increase in both lipid content in the exposed samples over the control, and to change the fatty acid profile, with a higher content of polyunsaturated acids obtained in the samples grown in the presence of microwaves.

The main drawback of using stress factors to help in the accumulation of specific compounds, is the necessity of identifying the optimum growth conditions so that the stress factors aren't detrimental to the productivity in microalgae biomass.

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## References

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