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# IMMUNOMODULATORY POTENCIAL OF *Euglena gracilis* BIOACTIVE COMPOUNDS: AN IN VITRO APPROACH

**Márcia Saraiva**[1,*], Francisca Silva-Brito[1], Paulo Santos[1], Luara Simões[1], Luís E.C. Conceição[2], Ana T. Gonçalves[2,3], Pedro Cunha[3,4], Helena Cardoso[4], Hugo Pereira[3], and Benjamin Costas[1]

[1]CIIMAR, Interdisciplinary Centre of Marine and Environmental Research of the University of Porto, Matosinhos, Portugal; [2]SPAROSLda., Olhão, Portugal; [3]GreenCoLab - Associação Oceano Verde, University of Algarve, Faro, Portugal; [4]Allmicroalgae Natural Products S.A., R&D Department, Pataias, Portugal.

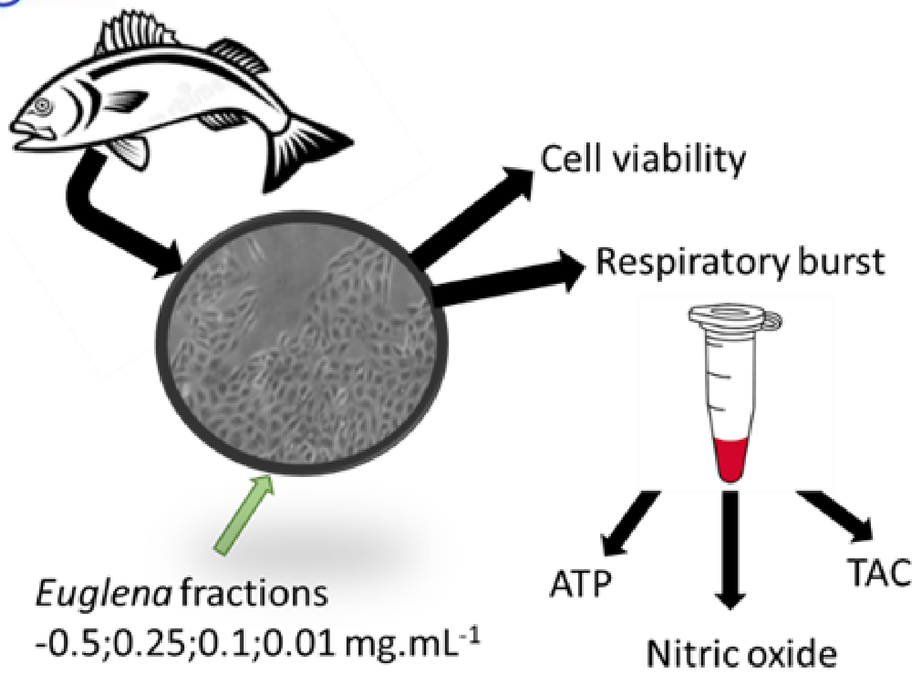
*msaraiva@ciimar.up.pt

## Introduction

- Aquaculture is a fast growing food sector
- Fish are in constant contact with pathogens
- Sustainable alternative feed sources needed
- Immunomodulatory bioactive compounds
- *Euglena gracilis* possess high amounts of algal β-1,3-glucan, omega-3 fatty acids, protein, and vitamins C and E

Uncover the potential of *E. gracilis* bioactive compounds as immunomodulators using European seabass (*Dicentrarchus labrax*) head-kidney primary cells

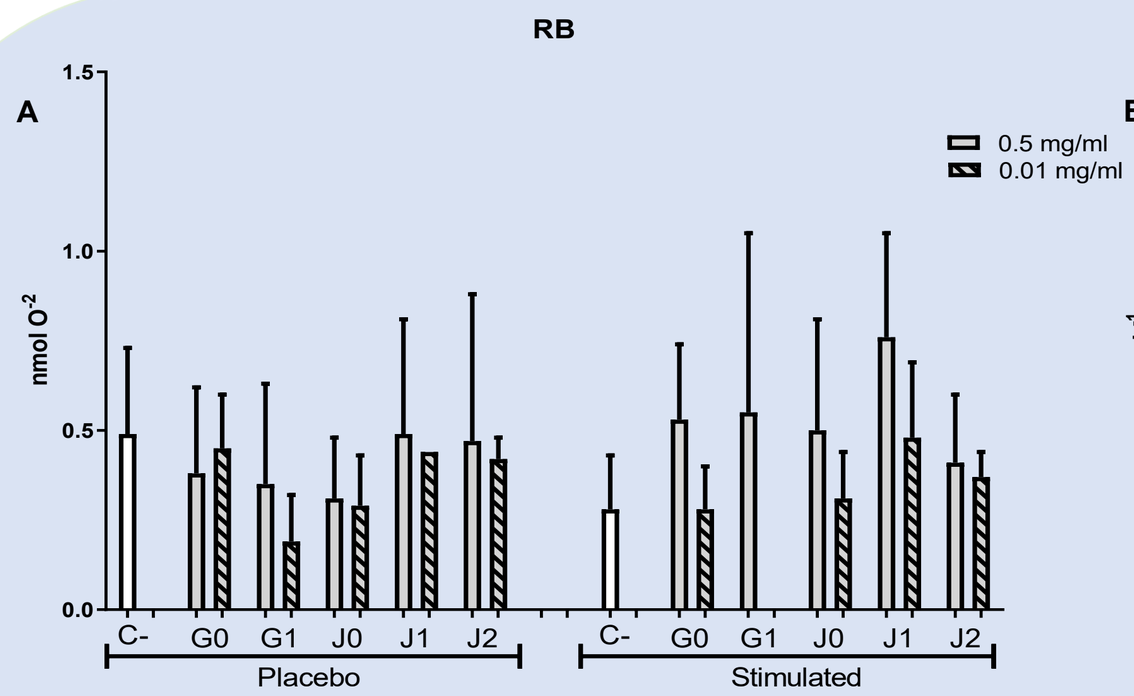
## Methodology




Stimulated vs non-stimulated with UV inactivated *Photobacterium damselae piscicida*

Scheme created using BioRender.com

## Results



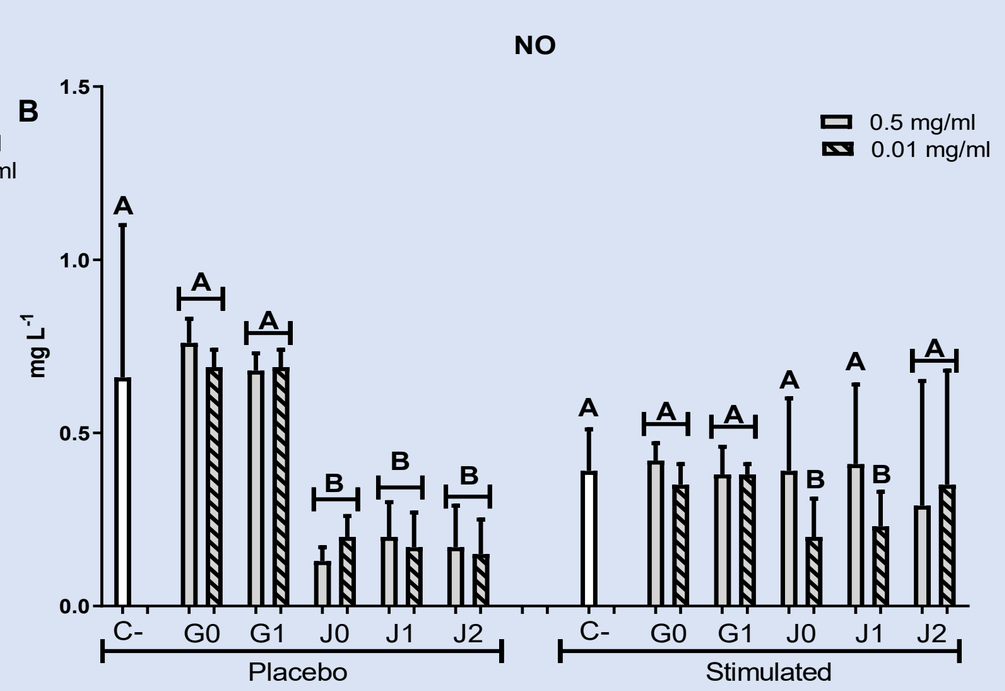
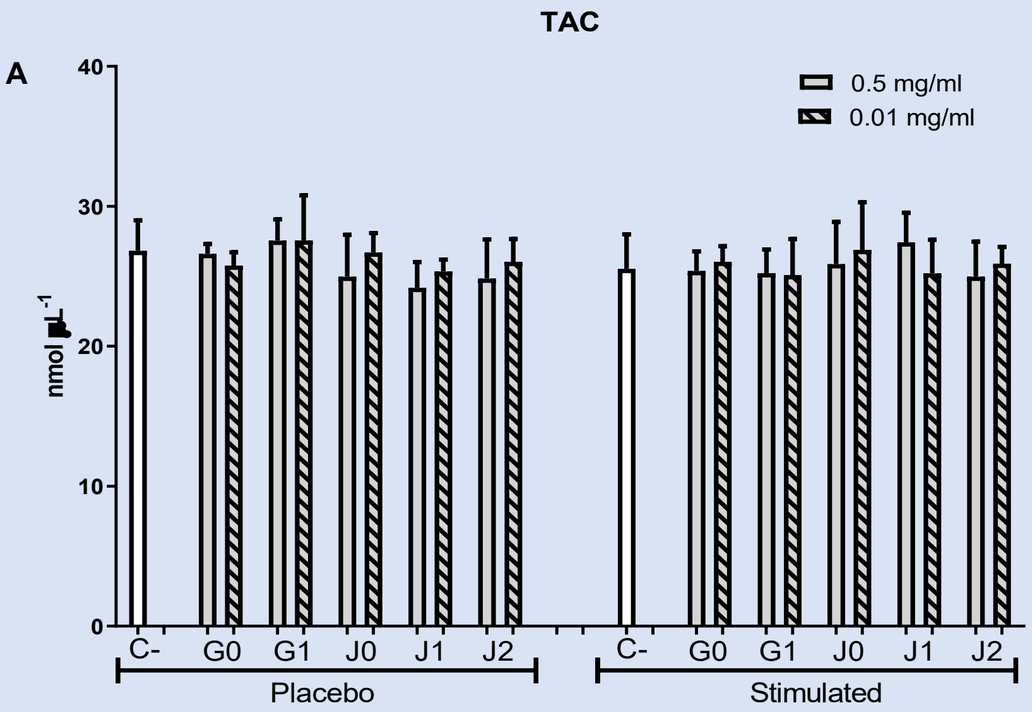




**Fig. 1**: Respiratory burst (**A**) and nitric oxide (**B**) of two different concentrations (0.5- and 0.01 mg.mL$^{-1}$) of fractions obtained from *Euglena gracilis* strains. Different letters indicate significant differences between concentrations for a specific fraction. One-way ANOVA, n=6, $p$<0.05 with Tukey *post hoc* test.



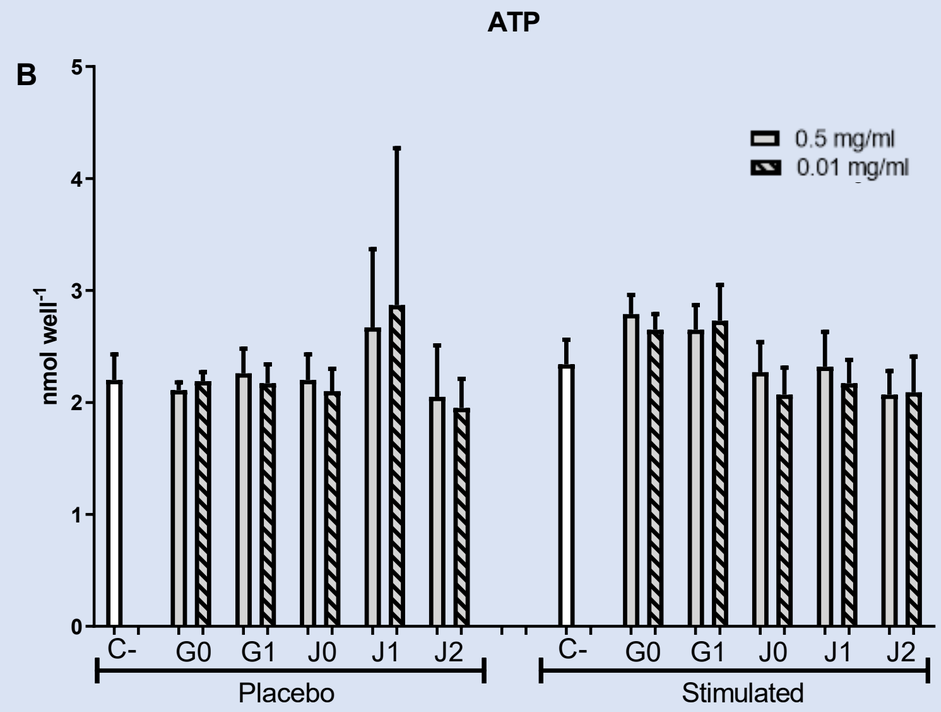




**Fig. 2**: Total antioxidant capacity (**A**) and ATP (**B**) of two different concentrations (0.5- and 0.01 mg.mL$^{-1}$) of fractions obtained from *Euglena gracilis* strains. No statistically significant differences were found. One-way ANOVA, n=6, $p$>0.05 with Tukey *post hoc* test.

## Conclusion

- The extracts did not affect cell viability (data not shown).
- Overall, no significant differences were found between the different extracts used.
- Fractions from J0 and J1 displayed an increased NO value when stimulated with inactivated bacterium.
- Studies at gene level are being carried out to further elucidate the immunomodulatory potential of *Euglena* extracts.

Scan me!

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