

Impact of dietary inclusion of wine and olive oil waste extracts on physiological and health status of European seabass (*Dicentrarchus labrax*)

Sousa, N.^{1*}, Fernandes, H.^{1,2}, Medeiros, C.¹, Diogo, F.^{1,2}, Fontinha, F.^{1,2}, Oliva-Teles, A.^{1,2},
 Belo, I.³, Salgado, J.³, Peres, H.^{1,2}, Castro, C.^{1,2}

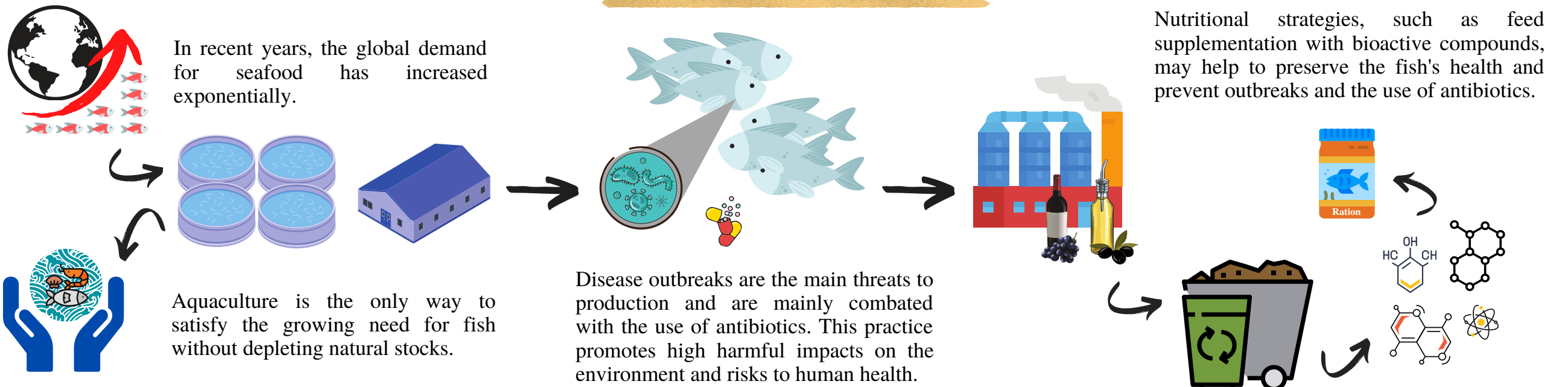
* up201805247@up.pt

¹FCUP-Biology Department, Faculty of Sciences of University of Oporto

²CIIMAR-Interdisciplinary Centre of Marine and Environmental Research, University of Oporto

³CEB-Centre of Biological Engineering of University of Minho

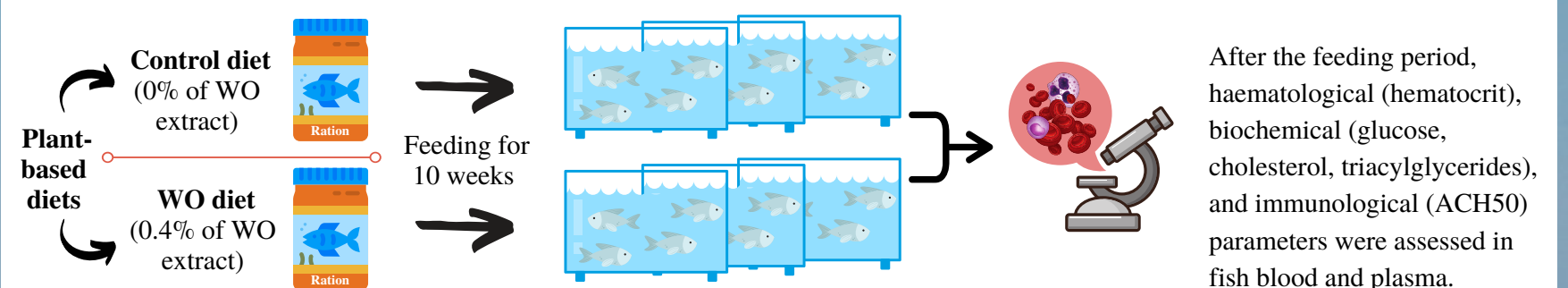
INTRODUCTION



OBJECTIVE

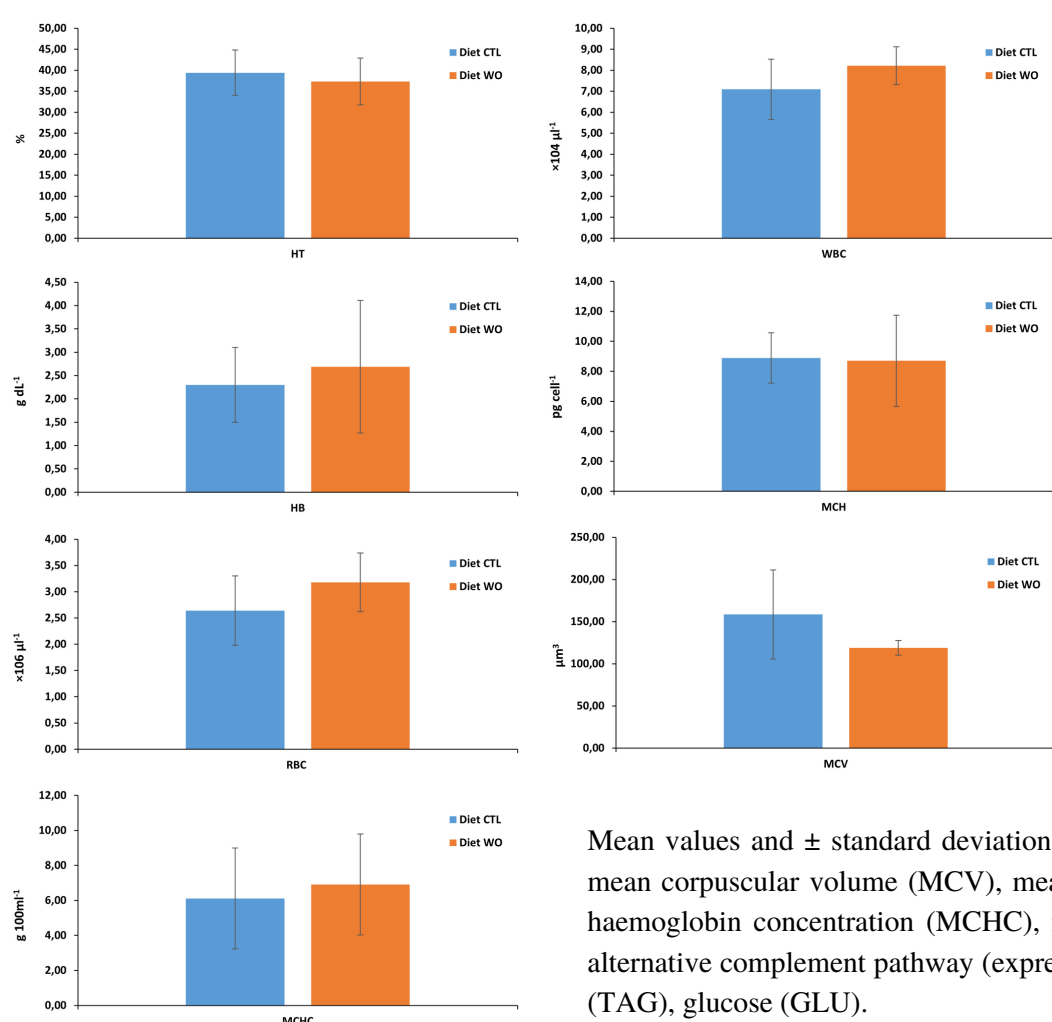
The present study aims to evaluate the prospective beneficial effects of a previous optimised antioxidant-rich extract of a grape marc (GM) and olive pomace (OP) mixture (WO) on seabass physiological and health status.

MATERIALS AND METHODS

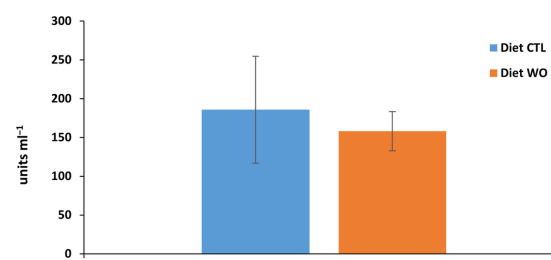


RESULTS AND CONCLUSION

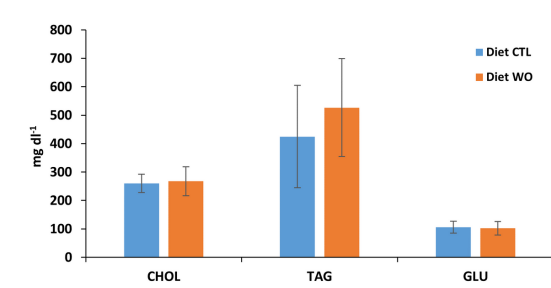
Haematological parameters



Immunological parameters



Biochemical parameters



Mean values and \pm standard deviation (\pm SD) (n = 9). Hematocrit (HT), haemoglobin (HB), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean corpuscular haemoglobin concentration (MCHC), red blood cells (RBC), and white blood cells (WBC), alternative complement pathway (expressed as ACH50), cholesterol (CHOL), triacylglycerides (TAG), glucose (GLU).

CONCLUSION

The results of haematological analyzes point to an immunostimulatory effect in fish fed with a functional diet, demonstrated by the higher values of leukocytes and erythrocytes, although it is not statistically significant. Bacterial challenge tests should be carried out in future studies, to assess whether the effects of the functional extract of the diet will translate into a greater resistance of fish to diseases.

Parameters	p-value
WBC ($\times 10^6 \mu\text{L}^{-1}$)	0.061
RBC ($\times 10^6 \mu\text{L}^{-1}$)	0.088
HB (g dL ⁻¹)	0.474
HT (%)	0.726
MCV (μm^3)	0.042
MCHC (g 100 ml ⁻¹)	0.565
MCH (pg cell ⁻¹)	0.881
ACH50 (units ml ⁻¹)	0.463
CHOL (mg dl ⁻¹)	0.697
TAG (mg dl ⁻¹)	0.238
GLU (mg dl ⁻¹)	0.704

A pairwise t-test was used to compare data from the two experimental diets. Non-significant in the same row stands for non-statistical differences (p > 0.05); significant differences (p < 0.05).

Filipe, D., Fernandes, H., Castro, C., Peres, H., Oliva-Teles, A., Belo, I., & Salgado, J. M. (2020). Improved lignocellulolytic enzyme production and antioxidant extraction using solid-state fermentation of olive pomace mixed with winery waste. *Biofuels, Bioproducts and Biorefining*, 14(1), 78–91.

Filipe, D. M. (2019). Optimization of solid-state fermentation of winery and olive mill by-products to produce enzymatic and phenolic value-added products - its application to aquafeed. *Faculdade de Ciências da Universidade do Porto*.

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