Effects of dietary administration of olive milling on growth rate, cellular immune activity and antioxidant potential of gilthead seabream (*Sparus aurata* L.).

Francisco A. Guardiola, Alberto Cuesta, José Meseguer, Juan A. López, Luciano Vílchez, M. Ángeles Esteban

1. *Department of Cell Biology and Histology, Faculty of Biology, University of Murcia, 30100 Murcia, Spain.*
2. *Estrella de Levante S.A. El Puntal, Murcia, Spain.*
3. *Biothesan, S.L.U. Padul, Granada, Spain. e-mail: aesteban@um.es*

Introduction

Olive tree (*Olea europaea* L.) is one of the most important fruit trees in Mediterranean countries, mainly Spain, Italy and Greece (Tuck and Hayball, 2002).

This tree has been widely studied for its alimentary use because the fruits and the oil are important components in the daily diet of a large part of the world's population (Hussain et al., 2014).

The aim of the present work was to evaluate the effect of dietary administration of olive milling on gilthead seabream (*Sparus aurata* L.) growth rate, main cellular innate immune parameters and serum antioxidant potential.

Results and discussion

- The highest supplemented diet produced statistically significant increments in the seabream growth rates.
- An increase of the phagocytic capacity of leucocytes from fish fed the 100 mg supplemented diets were observed, respect to the values found from leucocytes from control fish.
- Biological antioxidant potential also increased in fish fed the supplemented diets.
- Ours results are in accordance with previous studies demostrated that *O. europaea* ssp. *oleaster* fruit pulp could be developed into ingredients for use in foods as a natural antioxidant and antimicrobial agent (Hanene et al., 2015).
- Further studies are needed to understand these effects of a natural product obtained from olive that could have important applications as a feed additive in fish aquaculture.

Conclusions

The administration of diets supplemented with olive milling to gilthead seabream has many beneficial effects on fish growth, immune status and antioxidant potential.

References

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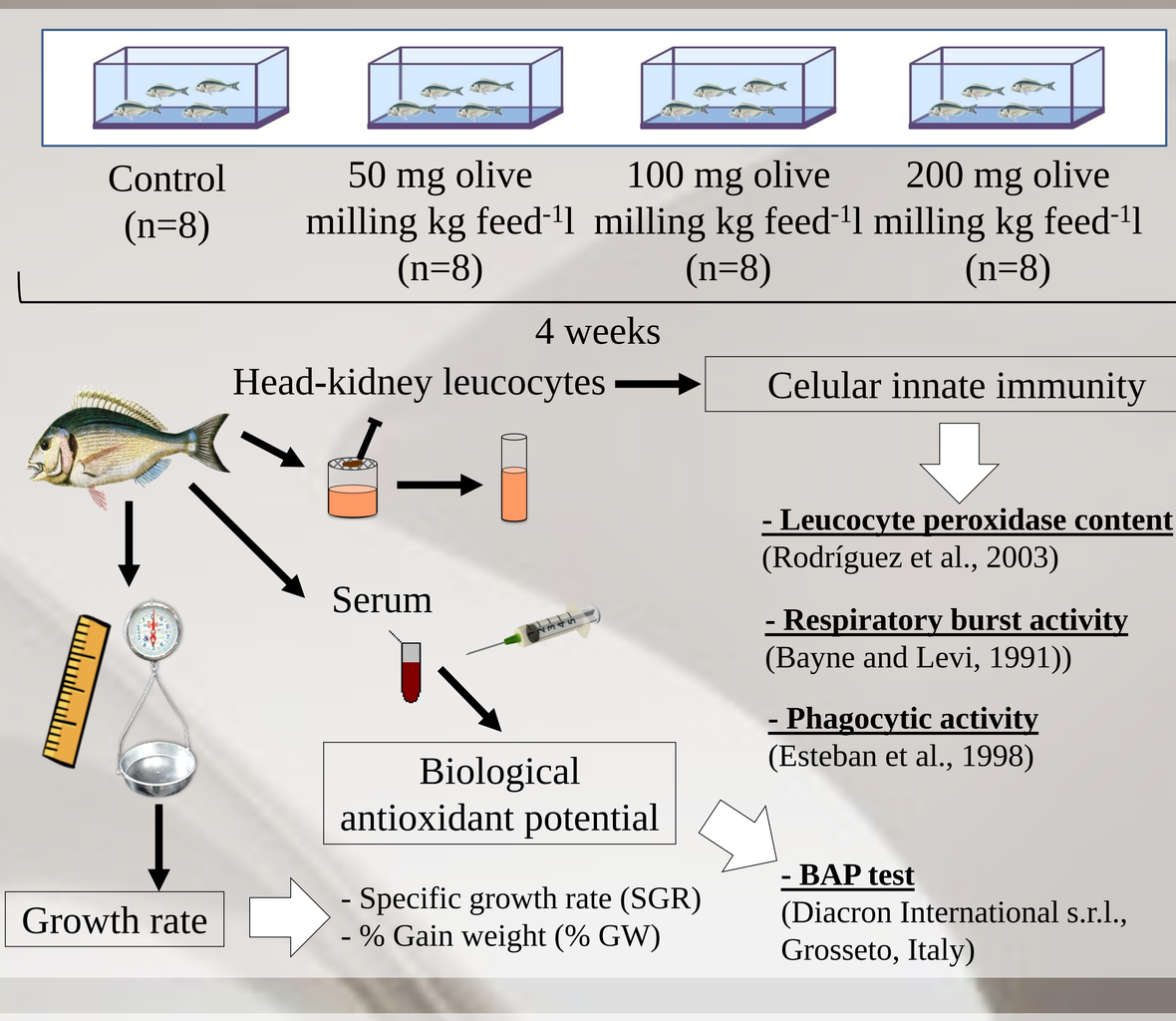
Materials and Methods



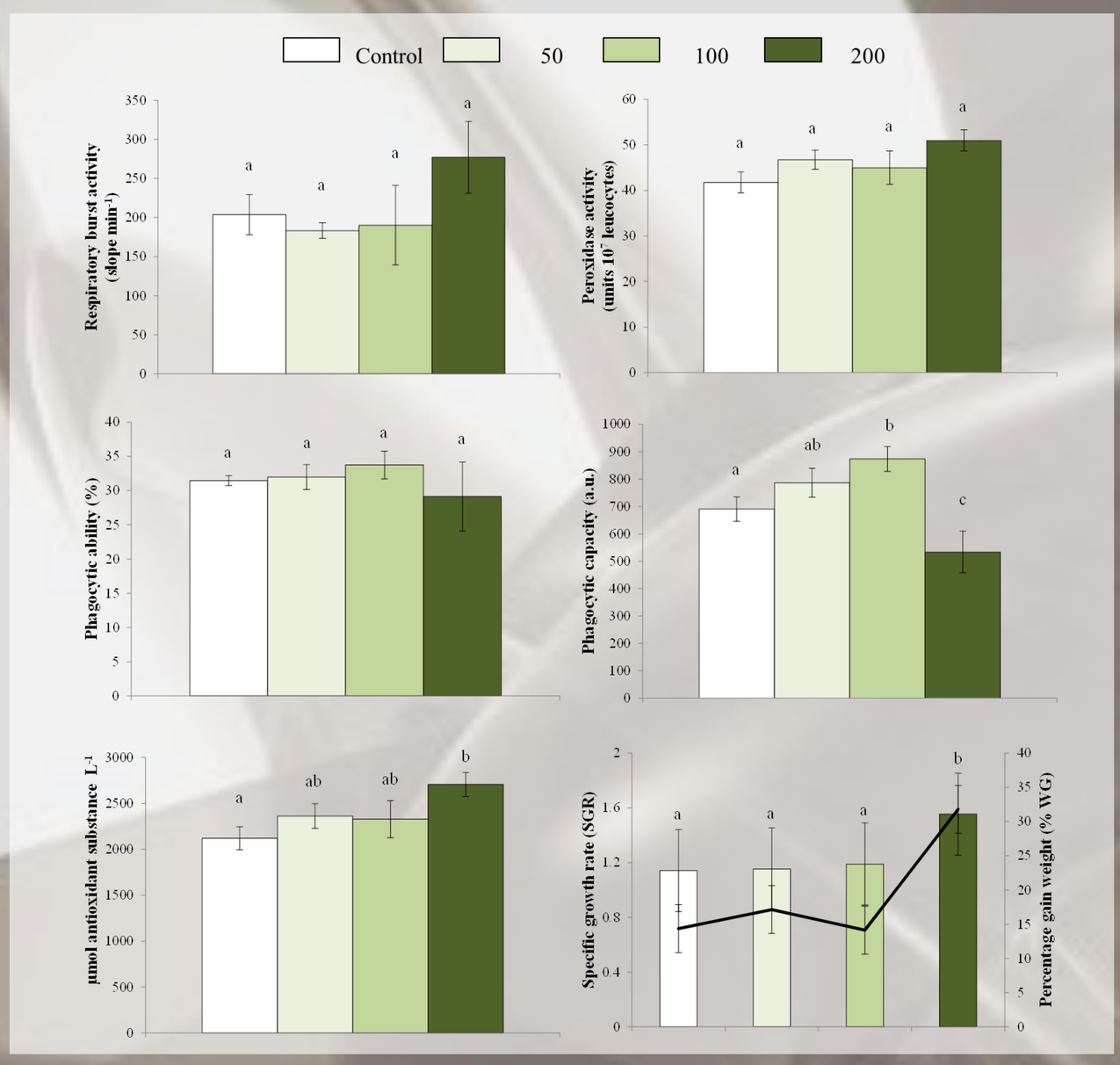


Fig. 1. (**A**) Respiratory burst activity (slope min^{-1}), (**B**) peroxidase activity (units 10^{-7} leukocytes), (**C**) Phagocytic ability (%), (**D**) capacity (a.u.) of head-kidney leukocytes (**E**) biological antioxidant potential (expressed as µmol antioxidant substance L^{-1}) and (**F**) growth performances (Specific growth rate: bars; percentage gain weight: line) of gilthead seabream specimens fed with control diet (non-supplement) or olive milling supplement diets (50, 100 and 200 mg olive milling kg $feed^{-1}$) during 4 weeks. Bars and line represent the mean ± SEM (n=8). Different letters denote significant differences between treatment groups ($P \leq 0.05$).