



## EXTRACTS FROM MARINE ORIGIN AS FUNCTIONAL INGREDIENTS TO IMPROVE THE ANTIOXIDANT ACTIVITY OF HORSE MACKEREL (*TRACHURUS TRACHURUS*)

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Marine species have been largely described as a source of antioxidant extracts. The production of antioxidant extracts from microalgae and mussels may be an interesting sustainable approach for food industry, since microalgae are easy to produce, and mussel's commercialization generates losses and waste. Thus, this work studied the effect of three marine extracts, produced from *Tetraselmis* sp. and *Mytilus galloprovincialis*, on the antioxidant activity of Horse Mackerel fillets (HMF), with the goal of developing functional ingredients for food industry.

Three extracts were produced by enzymatic hydrolysis: *Tetraselmis* (cellulase and subtilisin), *Mussel\_Sub* (subtilisin) and *Mussel\_Pro+Alc* (Protamex and Alcalase). All the extracts were ultra-filtrated using a 3kDa cut-off. HMF were evenly sprayed with each extract, and a control without extract was used. Aqueous extracts were prepared from HMF by sonication. The antioxidant activity was determined by ORAC and ABTS assays.

The results obtained for the ORAC were 15.2±3.0, 45.2±1.8, 37.6±2.6 and 20±5.0 µM Trolox Equivalent (TE)/g of sample, and the ABTS activity was 6.5±0.2, 12.9±0.6, 8.5±0.1, and 14.0±0.4 µM TE/g of sample for control, *Tetraselmis*, *Mussel\_Sub* and *Mussel\_Pro+Alc*, respectively. Fillet sprayed with *Tetraselmis* extract presented statistically significant differences for ORAC and ABTS results (three and two-fold), and *Mussel\_Pro+Alc* for ABTS results (two-fold), when compared to control fillets (p<0.05).

The marine extracts application enhanced the antioxidant activity of the HMF, with *Tetraselmis* extract showing the higher potential in both antioxidant assays, thus it may be promising as an ingredient for the development of functional food aiming preservation properties as well as health promotion.

**Keywords:** Sustainability; Functional food; Enzymatic hydrolysis; Marine species; Bioactive extracts