

Cunha, S. A., de castro, R., Coscueta, E. R., & Pintado, M. E. (2021). *Bioactive peptides produced from the mussel mytilus galloprovincialis by enzymatic hydrolysis with corolase*. Abstract from X Food Technology International Symposium, Múrcia, Spain.

Bioactive peptides have been produced from several marine sources since they can exhibit positive effects for humans and animals. *Mytilus galloprovincialis* is highly consumed in several countries and has a meat rich in proteins, which has been described as a source of bioactive peptides with relevant properties such as antioxidant, anti-hypertensive and antimicrobial activities. Mussel commercialization generates waste, since the small or broken mussels are discarded. Thus, in this work discarded mussels were used with the goal of producing water soluble extracts rich in proteins and bioactive peptides. The mussel meat was firstly minced, and then submitted to different conditions of enzymatic hydrolysis, using the protease corolase to generate peptides. The variable factors evaluated were temperature, incubation time and enzyme concentration. To achieve the optimal extraction conditions, a Box-Behnken experimental design was performed using Statgraphic Centurion software. Factorial design allowed the evaluation of the effects of the three factors on protein release, antioxidant and anti-hypertensive properties of the extracts. The protein content of each extract was determined by Kjeldahl, the antioxidant activity was determined by oxygen-radical absorbance-capacity (ORAC) assay and anti-hypertensive property was determined by the inhibition method of Angiotensin-I converting enzyme (ACE). The incubation of the minced mussel meat with 3% of enzyme, at 40 °C for 3 hours, appears to be the best conditions to obtain the best results of protein extraction, and antioxidant and anti-hypertensive properties. With these conditions, the obtained extracts showed 48% of protein content, an antioxidant activity of 821 $\mu\text{mol TE / g}$ of extract, and an ability of inhibiting the activity of ACE in 61% (using a concentration of 10 mg / mL). Thus, the factorial design allowed to confirm the combination of experimental factors that leads to the most efficient extraction of antioxidant and anti-hypertensive peptides of the mussel *Mytilus galloprovincialis*. In conclusion, the use of discarded mussels to produce functional ingredients for food, cosmetic and pharmaceutical industries contribute to valorise world waste in a circular economy context.