

FIRST BIOACTIVE CHARACTERIZATION OF THE SKIN MUCUS FROM PORTUGAL COASTAL FISH HALOBATRACHUS DIDACTYLUS

Agricultural, Marine and Food Biotechnology

PO - (677) - FIRST BIOACTIVE CHARACTERIZATION OF THE SKIN MUCUS FROM PORTUGAL COASTAL FISH HALOBATRACHUS DIDACTYLUS

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Body

The marine environment has several promising features for the discovery of new molecules. The oceans have half of the planet's biodiversity and are a harsh environment for aquatic organisms challenging them to have a set of bioactive molecules to survive [1]. It is well known the mucus secreted by fish epidermis works as a defense barrier against harmful elements from the external environment [2]. Therefore, this study aimed to explore some bioactive properties such as antimicrobial activity (agar drop diffusion method), antioxidant activity (ABTS and ORAC scavenging assays) and ACE inhibitory activity (iACE) exerted by the mucus collected scraping the *Halobatrachus didactylus* skin, from the Tagus estuary. Direct drop application did not show inhibitory activity on the growth of *E. coli* and *S. aureus*. The protein content in the mucus, determined by the bicinchoninic acid methodology, was $13260 \pm 342 \mu\text{g BSA/mL}$. The antioxidant activity resulted in $1.49 \pm 0.04 \mu\text{mol TE/mL}$ for ABTS and $5.47 \pm 0.8 \mu\text{mol TE/mL}$ for ORAC. iACE resulted in an IC_{50} of $60 \pm 7 \mu\text{g protein/mL}$. Also, a peptidic profile of the mucus was obtained through size exclusion chromatography showing a short-chain peptide profile ($> 3000 \text{ Da}$) as general distribution, which is consistent with the observed bioactivities. In conclusion, fish mucus peptide fraction showed potential as an antioxidant and even more so as an antihypertensive, but not as an antimicrobial. Furthermore, more studies are needed to discover the key molecules behind these bioactivities.

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Palavras-chave : Mucus, *Halobatrachus didactylus*, Antioxidant activity, Antihypertensive activity, Bioactive peptides