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ANTI-HYPERTENSIVE ACTIVITY OF HORSE MACKEREL PULVERIZED WITH THREE DIFFERENT EXTRACTS FROM MARINE ORIGIN

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Hypertension is a serious risk factor and the most prevalent trigger to fatal cardiovascular diseases such as stroke and myocardial infarction. The marine environment is a unique source of molecules with biological activity such as antioxidant, anti-coagulant and anti-hypertensive activities. In this study, the anti-hypertensive activity of horse mackerel fillets (HMF) pulverized with each of the following marine extracts (derived from enzymatic hydrolysis) were determined: microalgae (Tetraselmis sp. incubated with subtilisin and cellulase), Mussel_Sub (Mytilus galloprovincialis minced and incubated with subtilisin protease) and Mussel_Pro+Alc (Mytilus galloprovincialis boiled and incubated with Protamex and Alcalase). Horse mackerel fillets were evenly sprayed with each extract and frozen until subsequent analyses. Non-sprayed HMF were used as control. Aqueous extracts were prepared from HMF by sonication. Anti-hypertensive activity was determined by the angiotensin I-converting enzyme (ACE) inhibitory activity method. Data are presented in Table.1 as average±standard deviation of two replicates.

Table 1. Anti-hypertensive activity of Horse Mackerel fillets sprayed with Extracts from Marine Origin.

Sample	ACE inhibitory activity (%)*
Control	14.4 ± 0.8a
Mussel_Sub	18.6 ± 0.6a
Microalgae	64.4 ± 4.3b
Mussel_Pro+Alc	55.7± 3.7ab

*different letters indicate significant differences ($p<0.05$) between samples

Horse mackerel fillet showed by itself an interesting anti-hypertensive profile. Notwithstanding, the tested marine-derived extracts effectively increased its biological potential(up to four-fold), with the best anti-hypertensive profile being achieved with microalgae and Mussel_Pro+Alc extracts. These extracts have an enormous potential to be used in the development of innovative food products that emphasize functionality, convenience, nutrition and health – goal of the project VALORMAR (POCI-024517-FEDER)(PPS1).

Keywords: Marine organisms; Bioactive compounds; Anti-hypertensive activity; Functional foods; Hypertension