CHARACTERIZATION AND ANTIHYPERTENSIVE EFFECT OF AN ENZYMATIC HYDROLYSATE OF FISH RESIDUES

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The preparation of protein hydrolysates has been used in the clinical treatment of patients with protein digestion and absorption impairment. Recently, enzymatic hydrolysates with antihypertensive activity were obtained from fish protein. The monkfish (Lophius gastrophysus) has a high commercial value. It has been mostly sold processed into fillets. The by-products generated are usually reduced into animal food or discarded in the environment. Although in this work monkfish residues were collected in a local factory, some heavy metals were determined by atomic absorption spectrophotometry. After the physicochemical and microbial quality assessment of samples, Protamex and Flavourzyme were used to obtain the hydrolysate preparation. After centrifugation, freeze dried hydrolysed materials were studied in terms of their Angiotensin Converting Enzyme (ACE) inhibition activity. The monkfish residue demonstrated to be a pathogen free, rich in protein, and high moisture material. Its low lipid content can reduce the oxidation risk, and the pH of fish muscle (6.8) presented a correlation with fish freshness. The study of Hg, Pb and Cd indicate that monkfish residues have these heavy metals concentrations below the permissible Brazilian Legislation levels. The enzyme/substrate ratio was previously optimized to obtain an intermediate hydrolysis degree about 10.22 ± 0.37%. These results show that monkfish fillet residues are safe to human consumption and are a potential source of ACE-inhibitory peptides. When hydrolyzed with Protamex and Flavourzyme the peptides released inhibited ACE activity with IC\textsubscript{50} of 0.63mg/mL. Among health benefits its industrial manufacturing would also reduce environmental disposal problems.