

A comparative study between tilapia (*Oreochromis niloticus*) by-product and tilapia protein hydrolysate on angiotensin I-converting enzyme (ACE) inhibition activities and functional properties

ABSTRACT

Tilapia is a popular freshwater fish and among the important cultured fish grown worldwide. In this study, fish protein hydrolysate was produced from tilapia (*Oreochromis niloticus*) by-product (TB) and tilapia muscle (TM) through enzymatic hydrolysis using alcalase. The TB and TM protein hydrolysates were evaluated for its characteristics in terms of angiotensin I-converting enzyme (ACE) inhibition activity, peptide size distribution, and functional properties. Hydrolysis for 1 h for TB and TM successfully produced low molecular weight peptides (<14.2kDa) with the highest ACE inhibitory activities. The findings also demonstrated that both samples have high nitrogen solubility (>80% at pH2-9) and good emulsifying, water and oil holding capacities. The study indicated that tilapia protein hydrolysates have the potential to be used as functional food products.

Keyword: Aangiotensin I-converting enzyme (ACE) inhibition activity; Functional properties; Tilapia by-product protein hydrolysate; Tilapia muscle protein hydrolysate