

Production of ACE-Inhibitory and antioxidant hydrolysates from the fillet of hybrid grouper

ABSTRACT

Hydrolysates from fish muscle have been reported to exhibit various bioactivities including ACE-inhibitory and antioxidant activities. In this study, the effect of hydrolysis conditions on the ACE-inhibitory and antioxidant activities (hydroxyl radical scavenging activity and reducing power) of hydrolysates from the fillet of hybrid grouper (TGGG) was investigated. The fillet was hydrolysed with four different enzymes (Alcalase, proteinase K, trypsin and pepsin) for 48 hours. Part of the hydrolysates were collected at 1, 2, 4, 6, 24, and 48 hours and analysed for several bioactivities. Results obtained showed that Alcalase and proteinase K hydrolysates demonstrated the highest ACE-inhibitory and hydroxyl radical scavenging activity ($p < 0.05$). Pepsin hydrolysate on the other hand exhibited the highest reducing power ($p < 0.05$). Trypsin was the only enzyme where all its bioactivities were affected by the degree of hydrolysis (DH) ($p < 0.05$). Extensive hydrolysis resulted in a higher hydroxyl radical scavenging of pepsin hydrolysate. The results of this study demonstrated that the proper choice of enzymes and optimal hydrolysis duration could potentially enhance the ACE-inhibitory and antioxidant potency of hydrolysates from the TGGG fillet. Further studies to isolate and identify the potent peptides from the fillet hydrolysate are recommended.