

**Novel peptide sequences with ace-inhibitory and antioxidant activities derived from the heads and bones of hybrid groupers (*epinephelus lanceolatus* X *epinephelus fuscoguttatus*)**

**ABSTRACT**

The heads and bones of hybrid groupers are potential precursors for angiotensin-converting enzyme (ACE)-inhibitory and antioxidant peptides. The aim of this study was to isolate the dual-action peptides from the Alcalase-treated head and bone hydrolysate of hybrid groupers followed by identification of the novel peptides. The stability of these peptides against stimulated in vitro gastrointestinal digestion (SGID) was also determined. Fraction HB-IV (less than 1 kDa) obtained from ultrafiltration showed the strongest ACE-inhibition ability (IC<sub>50</sub>: 0.28 mg/mL), which was comparable to the potency of the commercial supplement, PeptACE (IC<sub>50</sub>: 0.22 mg/mL). This fraction also demonstrated the highest hydroxyl radical scavenging and metal-chelating activities. However, further fractionation of HB-IV by a series of chromatography resulted in peptide fractions of reduced ACE-inhibitory and antioxidant activities. The hydroxyl radical scavenging and reduction potential of HB-IV were enhanced, whereas ACE-inhibitory and metal-chelating activities were reduced following SGID. A total of 145 peptide sequences were identified from HB-IV, of which 137 peptides were novel to the BIOPEP database. The results suggested that the bioactive peptides isolated from the heads and bones of hybrid groupers could be used as functional foods/ingredients with potential ACE-inhibitory and antioxidant effects.