

Isolation and Characterization of an Antioxidant from Enzymatic Hydrolysates of Yellowfin Sole (*Limanda aspera*) Frame Protein

정원교, 제재영, 박표잠, 김세권

Marine Biochem. Lab., Department of chemistry, Pukyong National University

Tel.: (051) 620-6375, Fax.: (051) 628-8147 (김세권)

Abstract

In order to utilize yellowfin sole (*Limanda aspera*) frame, which are normally discarded as industrial waste in the process of fish manufacture, yellowfin sole frame protein (YFP) was recovered and modified into an antioxidative active peptide through fractionation using ultrafiltration (UF) membrane system and hydrolysis with pepsin and MICE (mackerel intestines crude enzyme). The hydrolysates of YFP were separated into five major types, YFP I (30-10 kDa), YFP II (10-5 kDa), YFP III (5-3 kDa), YFP IV (3-1 kDa), and YFP V (below 1 kDa), by molecular weight cut-offs in UF membranes system. Among YFPs, YFP I showed a potent antioxidative activity than that of alpha-tocopherol in lipid peroxidation assay and radical scavenging activity was detected from the fraction. Furthermore, YFP I fraction showing strong antioxidative activity was isolated using consecutive chromatographic methods on a SP-Sephadex C-25 column, a Sephadex G-75 column, and HPLC on an octadecylsilane column. The purified antioxidant from YFP I fraction have 1.3-fold higher activity than that of alpha-tocopherol in lipid peroxidation assay. Its molecular mass was identified as 13.0 kDa using 12.5% SDS-PAGE. N-terminal amino acid analysis identified gave the sequence RPDFDLEPPY-, which showed no homology with those of known antioxidants.