

Anti-oxidation effect of Jeju horse leg bone extracts and its enzyme hydrolysates

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This study was conducted to evaluate antioxidation activity of horse leg bone extracts (HLBE) powder and its enzyme hydrolysates by determination of DPPH, ABTS radical scavenging activity, FRAP, and ORAC. HLBE was extracted with hot water for 24 hrs and lyophilized. The lyophilized HLBE was hydrolysed using Multifect PR6L (MP), Pepsin (PS), and Pepsin+Pancrepsin (PSPC) for 4 hrs at 60, 50, and 50, respectively. The hydrolysates were separated by molecular weight 3 kDa more or less. When the yield of HLBE was 100%, the yield of hydrolysates less than 3 kDa of MP, PS, and PSPC was 10.86, 3.26, and 8.00%, respectively. Protein concentration was significantly reduced in hydrolysates with lower molecular weight (<3kDa) than HLBE itself. Enzyme hydrolysates with low molecular weight less than 3 kDa in MP and PSPC showed significantly higher DPPH, ABTS radical scavenging activity and ORAC compare to HLBE and its hydrolysates with more than 3 kDa. However, FRAP of hydrolysates less than 3 kDa in PS was significantly higher than in MP. These results suggest that low molecular weight enzyme hydrolysates less than 3 kDa have more powerful antioxidation activity, especially when they are hydrolysed by MP and PSPC rather than PS. Therefore, the low molecular weight enzyme hydrolysates of HLBE which is hydrolyzed with MP and PSPC have more potential to be used as antioxidants in food industry, while further study for *in vivo* evidence is required to support those antioxidation activities of hydrolysates *in vitro*.

Biography

Aera Jang is working as an assistant professor of Kangwon National University (KNU) in Korea. She studied Animal Science at KNU and was a visiting researcher at Rowett Research Institute, Aberdeen, UK. She has completed her M.Sc. and Ph.D. from Seoul National University and worked as a research scientist at National Institute of Animal Science, RDA in Korea. She has published more than 50 papers in reputed journals and received academic awards from Korean Journal for Food Science of Animal Resources (KoSFA) and has been serving as managing editor and editors of KoSFA.

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