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***In vitro* antioxidative activity assessment of peptides
derived from enzymatically hydrolyzed hoki
(*Johnius belengerii*) skin gelatin**

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Abstract

Active oxygen and free radicals are well known to induce many types of oxidative damage to biomolecules causing and or contributing aging, cancer and other life style related diseases¹). Antioxidative potential of hoki gelatin peptides was tested for ion chelation, radical scavenging, retardation of lipid peroxidation and effect in oxidative biochemistry of cultured human cells. The antioxidative activity of trypsin hydrolisate of gelatin in a linoleic acid model system exhibited a higher activity than that of commercially available antioxidant α -tocopherol. Subsequent purifications enhanced peptide activity closer to butylated hydroxy toluene (BHT). Hoki gelatin peptides could effectively quenched hydroxyl radical, superoxide radical scavenging was substantial and peptide fractions weakly quenched alkyl and DPPH radicals. Ion chelating ability was lower than activity obtained from other methods. But same was increased dose dependently with consecutive purifications. Total antioxidant capacity of plasma and cellular antioxidative enzyme activities in cultures of normal human hepatocytes and human hepatoma cells (Hep3B) altered dose dependently. These results demonstrate that peptides derived from gelatin could be used as a strong non-hazardous natural antioxidant.

References

1. Rice-Evans CA, Miller NJ, Bolwell PG, Bramely PM, Pridham JB. The relative antioxidant activities of plant-derived polyphenolic flavonoids(1995), Free Radic Res 22:375-383