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Czech J. Food Sci.

Ren J., Wang H., Zhao M., Cui Ch., Hu X.:

Enzymatic hydrolysis of grass carp myofibrillar protein and antioxidant properties of hydrolysates

Czech J. Food Sci., 28 (2010): 475-484

Myofibrillar protein was extracted from grass carp, a freshwater fish, and hydrolysed using five commercial proteases (papain, pancreatin 6.0, bromelain, Neutrase 1.5MG, and Alcalas 2.4 L). The antioxidant activities of the hydrolysates were determined.

Pancreatin 6.0 proved to be the most efficient protease for hydrolysing myofibrillar protein with a very high protein recovery (90.20%), its hydrolysates exhibiting the highest hydroxyl radical ($\bullet\text{OH}$) scavenging activity ($\text{IC}_{50} = 349.89 \pm 11.50 \mu\text{g/ml}$) out of all five hydrolysates. Molecular weight distribution analysis revealed that pancreatin 6.0 hydrolysate rendered a

higher proportion of the 6–10 kDa fraction and a lower proportion of the 3–6 kDa fraction as compared with other hydrolysates. The maximum •OH scavenging activity for pancreatin 6.0 hydrolysate ($IC_{50} = 229.90 \mu\text{g/ml}$) was obtained at the enzyme to substrate ratio of 0.52%, the incubation time of 7.03 h, and the incubation temperature of 50.56°C , as optimised by response surface methodology. *In vitro* antioxidant