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Czech J. Food Sci.

Ying Ma, Li Lin, Da- Wen Sun:

Preparation of high Fischer ratio oligopeptide by proteolysis of corn gluten meal

Czech J. Food Sci., 26 (2008): 38-47

A method to obtain an oligopeptide with high Fischer ratio is described. Corn gluten meal (CGM) was hydrolysed with Alcalase 2.4L using a two-step hydrolysis. In the first-step hydrolysis, the enzyme reaction conditions for hydrolysing CGM were optimised by using the orthogonal experimental design, while pH = 8.0, temperature = 55° C, enzyme to substrate ratio (3:97, w/w), and the substrate concentration = 5% were identified as the optimum conditions, under which up to 11.62% degree of hydrolysis (DH) could be obtained. The hydrolysate was then fractionated by ultrafiltration using a membrane with the molecular cutoff of over 10 kD at 20 kPa. For the second-step hydrolysis, the filtrate was adjusted to pH 6.0, then papain was added at 50° C and the mixture was

maintained for 3 hours. The hydrolysate was obtained after inactivating papain and centrifuging. Then the salt (mainly NaCl) in the hydrolysate was removed with an ion exchange resin at the speed of 8 times bed volume per hour, and aromatic amino acids were removed through absorption by active carbon. By using Sephadex G-25 gel filtration chromatography, a peptide mixture with low molecular weights between 1000 and 1300 was obtained. Finally, tests on