Editorial Board

For Authors

- Authors Declaration
- Instruction to Authors
- Guide for Authors
- Copyright Statement
- Submission

For Reviewers

- Guide for Reviewers
- Reviewers Login

Subscription

Czech J. Food Sci.

Pęksa A., Miedzianka J.:

Amino acid composition of enzymatically hydrolysed potato protein preparations

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We determine the effects of the technology of obtaining potato protein preparation and of different variants of enzymatic hydrolysis on the chemical and amino acid compositions of the hydrolysates obtained. Potato protein concentrates obtained through their thermal coagulation in potato juice with calcium chloride, calcium lactate or without salt addition were subjected to enzymatic hydrolysis using two commercial hydrolytic enzymes: endopeptidase (Alcalase*)* and exopeptidase (Flavourzyme). Chemical (contents of ash, total and coagulable protein) and amino acid compositions of the hydrolysates obtained were determined. On the ground of the findings it was stated that the type of potato

protein preparation used and conditions of enzymatic modification influenced on the properties of the hydrolysates obtained. Preparations obtained during the study were characterised by similar chemical and amino acid compositions, whereas the preparation obtained through thermal coagulation with the use of calcium lactate contained insignificantly more protein and essential amino acids. The least liable to enzymatic hydrolysis was the preparation obtained by using calcium chloride, particularly when only endopeptidase was used. The application of endopeptidase enzyme enabled to obtain 60% of proteolysis efficiency and the addition of the second enzyme (exopeptidase) to the protein solution insignificantly increased the proteolysis efficiency (to ca 70%), mainly when the preparation coagulated with the use of calcium chloride was hydrolysed. Proteolysis of the protein preparations obtained with the use of two enzymes was more favourable, particularly due to the quantity of free amino acids in and amino acids composition of the hydrolysates.

Keywords:

chemical composition; potato protein

hydrolysates; nutritional quality; potato protein isolates

[fulltext]