Research of Enzymatic Modification of Soy Protein Isolate

Dautkanov N.

LLP "Kazakh Research Institute of Processing and Food Industry", Almaty, Republic of Kazakhstan

Usembayeva Zh.

LLP "Kazakh Research Institute of Processing and Food Industry", Almaty, Republic of Kazakhstan

Dautkanova D.

LLP "Kazakh Research Institute of Processing and Food Industry", Almaty, Republic of Kazakhstan

Dautkan R.

LLP "Kazakh Research Institute of Processing and Food Industry", Almaty, Republic of Kazakhstan

Abstract:

The diversity of biologically active peptides is provided largely by protein hydrolysates. Fermentation of food proteins to obtain biopeptides using proteolytic microorganisms offers promising advantages - bioactivity and bioavailability of fermented bioactive peptides.

The aim of this study was to study the enzymatic modification of soy protein isolate. Soy isolate with a crude protein content of 90% was used as a vegetable protein for fermentation. For enzymatic hydrolysis, the enzyme preparations ENZECO® Bromelain Concentrate (sample No. 1) and ENZECO® FICIN 50K (sample No. 2) from Enzyme Development Corporation were used.

Soy protein hydrolysis was carried out by adding 0.2% of the enzyme preparation to the dry matter weight of soy protein for 30 minutes at a temperature of 55°C.

The processed product was dried in a spray dryer, sieved, and organoleptic (color, taste, smell) and physicochemical parameters (moisture, viscosity, pH) were determined. The samples obtained during hydrolysis had a moisture content of 5.6% and 6%, the crude protein content in sample No. 1 was 94% and in sample No. 2 – 93%. The samples of fermented soy isolate met the requirements of sanitary and hygienic standards in terms of microbiological parameters and the content of toxic elements. The proposed technology of fermented soy isolate is new for the Republic of Kazakhstan. This is the first study on the production of fermented soy isolate.