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Oil seeds as a source of edible protein

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Supplying of food by high biological value protein is still actual at the present time. Oil seeds are considered as a source of food and feed protein. Traditionally the source of plant protein is soy seeds. At the same time protein content of other oil seeds is high too and their biological value is sufficient enough. Oil seed protein contains all essential aminoacids. Nevertheless protein production from oil seed is very restricted.

The influence of technological parameters such as solvent content, temperature, duration, enzyme presence on the protein recovery from meal of different oil seed (sunflower, soy, rape) and their functional property was investigated in this work.

The maximal yield of protein isolates from sunflower meal was received with using of alkaline solvent. But protein extraction by neutral solvent such as sodium chloride solution results in better technological properties of obtained protein isolates. The optimum temperature for protein extraction from different meal was 45-50 °C and extracted protein quantity reached its maximum after 40-50 min extraction duration.

Using of proteolytic enzyme during protein extraction resulted in increasing of extracted protein quantity and improving their technological properties. Thus sunflower protein isolate yields were from 20 to 60 % higher in the presence of typsin in comparison with a control. The same effect of trypsin we have observed in case of soy protein isolates recovery. Simultaneously, increasing of solubility, emulsifying and foaming capacity of protein isolate was observed.

Researching of bacterium protease and cellulase effect on the process of protein extraction and technological properties of obtained isolates has shown accelerarion of protein extraction and improving of their properties.

The hydrolysis degree of protein was estimated by electrophoretic separation of polypeptides of obtained protein isolates in SDS-polyacrilamide gel. The increase of polypeptide content of low molecular weight was detected after enzyme treatment.

KEY WORDS: oil seed, protein isolates

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