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**National University
of Food Technologies**

84

**International scientific
conference of young scientist
and students**

**"Youth scientific
achievements to the 21st
century nutrition
problem solution"**

April 23-24, 2018

Part 1

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аспірантів і студентів**

**“Наукові здобутки молоді –
вирішенню проблем
харчування людства у ХХІ
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The publication contains materials of 84 International scientific conference of young scientists and students "Youth scientific achievements to the 21st century Nutrition problem solution".

It was considered the problems of improving existing and creating new energy and resource saving technologies for food production based on modern physical and chemical methods, the use of unconventional raw materials, modern technological and energy saving equipment, improve of efficiency of the enterprises, and also the students research work results for improve quality training of future professionals of the food industry.

The publication is intended for young scientists and researchers who are engaged in definite problems in the food science and industry.

Scientific Council of the National University of Food Technologies recommends the journal for printing. Minutes № 9, 29.03.2018

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Матеріали 84 міжнародної наукової конференції молодих учених, аспірантів і студентів “Наукові здобутки молоді – вирішенню проблем харчування людства у XXI столітті”, 23–24 квітня 2018 р. – К.: НУХТ, 2018 р. – Ч.1. – 518 с.

Видання містить матеріали 84 Міжнародної наукової конференції молодих учених, аспірантів і студентів.

Розглянуто проблеми удосконалення існуючих та створення нових енерго- та ресурсощадних технологій для виробництва харчових продуктів на основі сучасних фізико-хімічних методів, використання нетрадиційної сировини, новітнього технологічного та енергозберігаючого обладнання, підвищення ефективності діяльності підприємств, а також результати науково-дослідних робіт студентів з метою підвищення якості підготовки майбутніх фахівців харчової промисловості. Розраховано на молодих науковців і дослідників, які займаються означеними проблемами у харчовій науці та промисловості.

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19. The true quality of food proteins

Oksana Fursik

National university of food technologies, Kyiv, Ukraine

Introduction. Proteins consist of the amino acids linked by peptide connexions and which are the main source of nitrogen in a diet. To support functioning of a human body, certain minimum levels of consumption of proteins and also adequate reserves of essential amino acids which are not synthesized by an organism are necessary.

Materials and methods. The purpose of assessment of protein quality is determination of biological value, which based on the balance of the amino-acid composition of a proteinaceous component, extent of digestion and its assimilation in an organism. It is important for this direction to define a complex of such indicators as protein digestibility and an index the protein digestibility corrected amino acid score (PDCAAS) of food products .

Results. The biological availability of amino acids characterizes the part of assimilated essential amino acids that are absorbed by an organism in a chemical form which is necessary for their use at synthesis of protein and a metabolism. Many factors affect the degree of assimilation and the possibility of future use of amino acids. Technological processes can sometimes reduce the bioavailability of amino acids. The main example is the Maillard reactions, which consists in the interaction of the lysine amino acid (Lys) with reducing carbohydrates or other aldehyde compounds during heat processing (for example, in heated skim milk powder). As a result, compounds are formed which are digested with the release of this amino acid, which can be partially digested by the organism, but it cannot be utilized for further protein synthesis.

Basically, plant protein sources are characterized by low values of PDCAAS, although for soybean protein isolate and soy this indicator approaches to 100%. Considerable fluctuations of PDCAAS are observed also in plants of the same species. For example, for a millet and a sorghum of PDCAAS make up to 20% while in one of kinds of a quinoa this indicator reaches 100%.

This indicator is significantly affected by the processing of raw materials. The indicators of digestibility and PDCAAS for cooked peas are 90% and 75% respectively. Soaking of peas within 18 hours and drying at 55 °C with the subsequent crushing reduce these indicators to 83% and 33% respectively.

The vast majority of animal protein sources are characterized by PDCAAS values of 100% or higher. The indicators of digestibility and PDCAAS for beef are 88% and 92%, and in the dried beef samples, the figures are 92% and 114%.

For flour obtained from chicken fillets, the values obtained are 95% and 92% respectively. Excess of essential amino acids, in animal origin products, can be used to supplement the negative balance of amino acids in other products with low protein quality.

Conclusions. Thus, the determination of the protein quality in foods is an important criterion for balancing the amino acid composition. Due to the stabilization of digestibility and PDCAAS at a high level, adequate human nutrition is provided.

References.

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