

Міністерство освіти і науки України

Національний університет харчових технологій

---

**91-а**  
**Міжнародна наукова**  
**конференція молодих учених,**  
**аспірантів і студентів**

**"Наукові здобутки молоді –**  
**вирішенню проблем**  
**харчування людства у ХХІ**  
**столітті"**

**7–11 квітня 2025 р.**

**Частина 1**

---

**Київ НУХТ 2025**

**91<sup>st</sup> International** scientific conference of young scientist and students "Youth scientific achievement to the 21st century nutrition problem solution", April, 7–11, 2025. Book of abstract. Part 1. NUFT, Kyiv.

The publication contains materials of 91<sup>th</sup> 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.

ISBN 978-966-612-358-2

© NUFT, 2025

---

**Матеріали** 91-ї Міжнародної наукової конференції молодих учених, аспірантів і студентів "Наукові здобутки молоді – вирішенню проблем харчування людства у XXI столітті", 7–11 квітня 2025 р. – Київ: НУХТ, 2025. – Ч. 1. – 347 с.

Видання містить матеріали 91-ї Міжнародної наукової конференції молодих учених, аспірантів і студентів "Наукові здобутки молоді – вирішенню проблем харчування людства у XXI столітті".

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.

ISBN 978-966-612-358-2

© НУХТ, 2025

## 15. Technological features of pea protein and its use in emulsified sausages

Igor Strashynskyi, Vasil Pasichnyi, Serhiy Bondarenko, Vitaly Stytsenko  
*National University of Food Technologies, Kyiv, Ukraine.*

**Introduction.** To solve certain technological problems associated with reducing the fat content in meat products, namely in lean minced meat or emulsified meat products, fats are often replaced with water, which often causes texture defects, such as the formation of soft inner layers of the product, shrinkage of the shell, and large loss weight during storage. In order to eliminate these shortcomings, a study was conducted to determine the effectiveness of using pea protein compared to soy.

**Materials and methods.** The water and fat retention capacity, texture formation of pea protein, its effect on the quality of emulsified sausage were studied by comparing them with soy protein isolate. The results showed that the technological properties of pea protein are inferior to soy protein isolate, but the addition of 4% has a positive effect on the quality of emulsified sausages in terms of structural and nutritional value.

**Results and discussion.** The research results show that the amino acid composition of pea protein is balanced and close to the standard model recommended by FAO/WHO, and the nutritional value is higher than that of soy protein. In addition, pea protein has no allergen problems. With the addition (2%) of pea protein, the measured values of all indicators of emulsified sausage are lower than those of the product with the addition of soy protein isolate. This may be due to the fact that the gelling ability of pea protein is inferior to soy protein isolate. As a result, the textural characteristics such as hardness and elasticity deteriorated. At the same time, when the amount of added pea protein was 4% and soy protein 2%, the measured values of the emulsified sausage were on par with soy.

The reasons for this mainly related are to the moisture-holding capacity and gelation of pea protein. When the amount added is increased to 4%, the water binding of pea protein is enhanced and the water content of the product is relatively reduced, directly affecting the texture characteristics.

Therefore, an appropriate increase in the amount of added pea protein (4%) increases the measured values of the product's texture characteristics. However, when pea protein was added at a level of (6%), due to the high level of moisture absorption, the textural characteristics of the product deteriorated significantly, with reduced elasticity and increased brittleness.

Thus, the processing properties of pea protein such as, moisture absorption and emulsifying ability, are not as good as those of soy protein isolate. The moisture-holding capacity is directly related to the product yield, which in turn affects the cost. If equivalence is assumed, the cost of using pea protein for meat products will be higher than using soy protein isolate. At the same time, due to the poorer emulsifying ability of pea protein, addition it will lead to a decrease in hardness, elasticity, cohesion and other textural characteristics of emulsified sausages, which negatively affects product quality.

**Conclusion.** If the pea protein is structured before use using extrusion technology, which helps to overcome the poor gelation ability and odor of the beans, the use of emulsified meat sausages in technology has great potential.

### Literature.

1. Страшинський І.М., Маринін А. І. Пергат О.А. Шкірдов Д.М. Функціонально-технологічні властивості горохового білку. С.193-213. Prospective directions of scientific and practical activity : collective monograph / Compiled by V. Shpak; Chairman of the Editorial Board S. Tabachnikov. Sherman Oaks, California : GS Publishing Services, 2023. 403 p. DOI : 10.51587/9798-9866-95921-2023-011.