

Ministry of Education and Science of Ukraine
Sumy National Agrarian University
Faculty of Food Technology
Department of technologies and food safety

Work program (syllabus) of the educational component

MC 7 SCIENTIFIC RESEARCH WORK

Науково-дослідна робота

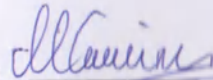
Specialty	181 "Food technologies"
Educational program	Food technologies
Level of higher education	Second (master's)

Developers: Samilyk M.M., Doctor of science, Associate Professor, Head of the Department of Technologies and Food Safety

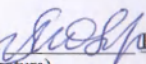


Helikh A.O., Ph.D., Associate Professor of the Department of Technology and Food Safety


(surname, initials) (degree and title, position)

Considered and approved at the meeting of the department of <u>technology and food safety</u> (name of department)	protocol from <u>04.06.2024</u> No. <u>17</u>
	Head department  (signature) <u>Marina SAMILYK</u> (surname, initials)

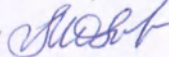
Agreed:

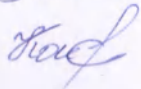
1 Guarantor of the educational program 
(signature) Fedor PERTSEVOY

Dean of the faculty where the educational program is implemented

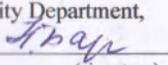

(signature) Natalia BOLHOVA

The review of the work program

was provided by 
(signature) Ph.D., Assoc. Prof. Oksana MELNYK (attached)


(signature) Ph.D., Assoc. Prof. Olena KOSHEL (attached)

Methodist of the Education Quality Department, licensing and accreditation


(signature) Hagiya Topanova
(surname)

Registered in the electronic database: date: 09.07. 2024.

Information on revision of the work program (syllabus):

The academic year in which changes are made	The number of the appendix to the work program with a description of the changes	The changes were reviewed and approved		
		Date and number of the protocol of the meeting of the department	Head of Department	Guarantor of the educational program

I. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

2.	The name is EC	MC*Research work	
3.	Faculty/department	of Food Technologies/Department of Technologies and Food Safety	
4.	The status is EC	Mandatory	
5.	Program/Specialty (programs), the component of which is OK for	"Food technologies" / 181 "Food technologies"	
6.	NRK level	the 7th	
7.	Semester and duration of study	I (18 weeks), II (18 weeks)	
8.	Number of ECTS credits	10	
9.	The total number of hours and their distribution is 300	Contact work (class)	
		Lectures - 4 hours	Laboratory - 34 hours,
			Independent work – 262 hours
10.	Language of education	English	
11.	Teacher	Ph.D., associate professor, Anna HELIKH	
1.1	Contact Information	Anna Oleksandrivna Gelikh, associate professor of the Department of Technologies and Safety, 317a, e-mail: anna.helikh@snaeu.edu.ua	
12.	General description of the educational component	the study of the educational component contributes to the formation of special skills and knowledge, which involve the acquisition of skills in scientific research work using a complex of research and innovation methods and technologies to increase the efficiency of the functioning and development of food enterprises	
13.	The purpose of the educational component	study of methodological and organizational principles of scientific research activity, which will contribute to comprehensive and reliable conducting of scientific research and their approval.	
14.	Prerequisites for studying OK, connection with other educational components of OP	<p>1. The educational component is based on the OP "Food Technologies" of the first bachelor's level of education (OK "Basics of Scientific Research"), EP "Craft Technologies and Gastronomic Innovations" (EC "Engineering Creativity").</p> <p>2. The educational component is the basis for the educational and scientific program "Food Technologies": EC "Modern information technologies in scientific activity", EC "Methodology of conducting scientific research", EC "Modeling and planning of a scientific experiment".</p> <p>There are no restrictions</p>	
15.	Policy of academic integrity	A mandatory requirement for students, in order to receive a final grade in the discipline, is the approval of the results of their own scientific research in the form of theses or reports or scientific articles	
16.	Link to the course in the distance learning system	https://cdn.snaeu.edu.ua/moodle/course/view.php?id=4317	

**2. LEARNING RESULTS UNDER THE EDUCATIONAL COMPONENT AND THEIR
RELATIONSHIP WITH THE PROGRAM LEARNING OUTCOMES**

Study results for OK: After studying the educational component, the student is expected to be able to..."	Program learning outcomes, which are aimed at the achievement of the OK								How PLO is estimated
	PLO 1	PLO 2	PLO 3	PLO 5	PLO 7	PLO 8	PLO 10	PLO 14	
DRN 1. Accumulate, study and systematize facts obtained from various sources of information. Refute existing ones, create new scientific hypotheses, deeply explain processes and phenomena, make original decisions and draw conclusions	+	+				+			Oral defense of laboratory work Multiple choice final test (modular assessment, certification) Approbation of research results in the form of a report thesis, a scientific article. Public presentation of the results of own research The exam is a multiple choice test
DRN 2. To carry out all stages of scientific research, using modern principles and methods of scientific knowledge, Internet technologies, various technical means. Plan, conduct and analyze the results of an experimental study			+				+		
DRN 3. To present the intermediate and final results of scientific research in the form of theses, reports, articles, reports, author's documents, qualification work						+	+		
DRN 4. Develop recommendations for the implementation of innovative technological and technical solutions in production				+	+			+	

**LIST OF COMPETENCES THAT WILL BE IMPROVED / ACQUIRED IN THE PROCESS OF
INFORMAL EDUCATION**

Critical thinking in the Ukrainian context		
<p>General: critical thinking, the ability to justify a position, correctly summarize and interpret information, evaluate the weight of arguments and the relevance of evidence, understanding possible influences on human decisions, the ability to register cognitive errors and illusions in oneself and others, the ability to discuss safely.</p> <p>Specialists: information and communication, innovation and research, methodical, competences for professional and personal development, speech, digital, emotional and ethical competence.</p>	Form for confirmation of study results:	
Science of everyday thinking		
<p>General: knowledge and understanding of modern trends in the development of education, critical and systematic thinking, ability to logically justify a position, creativity, initiative, ability to constructively manage emotions, assess risks, make decisions, solve problems, ability to cooperate with other people.</p>	Certificate of successful completion of studies indicating the number of hours. The authenticity of the certificate can be checked by the link on it.	

Specialists: professional-pedagogical, information-communication, innovation-research, methodical, informal education and professional-personal development competences, speech, digital, emotional-ethical competence.	
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3. CONTENTS OF THE EDUCATIONAL COMPONENT (COURSE PROGRAM)

Topic. List of issues to be considered within the topic	Distribution within the general time budget		Recommended Books
	Auditory work		
	Lk	Pr	
Module 1 (1 semester)			
Lecture lesson 1. Basics of the scientific research			[3], [4], [10], [11], [12]
1. Basic definitions and concepts of scientific research			
2. Basic tasks of science			
3. Classification and main stages of research works			
Laboratory class №1 <i>Study of problematic issues in the food industry. Development of a concept for solving one of the problems</i>	2		
A question of independent study			
1. Philosophical methods and their role in scientific knowledge			
2. Sequence and stages of scientific research			
3. Economic rationale for choosing a scientific topic			
4. Search, accumulation and processing of scientific information			
5. The logic of the scientific research process			
Laboratory class for students of the ZFN <i>Formation of the problem, goal and task of scientific research according to the subject of the qualification work</i>	2		
Lecture session 2. Directions of scientific research in the food industry			[3], [7], [8], [10], [14], [15], [16], [17], [23]
1. The principle of creating new technologies			
2. Complex (waste-free) processing of raw materials			
3. Development of food products with additional properties			
Laboratory class №2 <i>Formation of hypothesis, direction and topic of scientific research</i>			[11]
Laboratory class #3 <i>Justification of the relevance of scientific research according to the topic of the qualification work</i>			[11]
A question of independent study			[3], [12]
1. Principles of creating functional products			
2. Principles of formulation development of therapeutic and preventive products			

Topic. List of issues to be considered within the topic	Distribution within the general time budget			Recommended Books
	Auditory work		Ind.	
	Lk	Pr		
Lecture session 3. Principles and systems of scientific knowledge 1. Signs and principles of studying systems 2. Classification of systems 3. Levels of scientific research methods				[3], [6], [7], [10], [11], [12], [13]
Laboratory class №4 <i>Formation of the problem, goal and task of scientific research according to the subject of the qualification work</i>		2		
A question of independent study 1. Historical prerequisites for the formation of the principles of scientific knowledge. Peculiarities of scientific knowledge 2. Phases of emergence and sequence of development of branches of science 3. Scientific revolution in the field of science and its functions				
Lecture session 4. Information base of scientific research 1. Scientific information and its organization 2. Methods of working with information sources	2			[3], [10]
Laboratory session № 5 <i>Review of sources of information by direction of scientific research</i>		2		[11]
A question of independent study 1. Branch scientific and technical information 2. International scientometric databases				[12]
Non-formal education (Prometheus)				
Critical thinking in the Ukrainian context Course program: Introduction: What is the course about and why? Cognitive Science: How Human Perception and Memory Work Cognitive science: Basic cognitive errors and what to do about them Peculiarities of Ukrainian society: Influence of the past Peculiarities of Ukrainian society: Lack of security Argumentation: Own opinion Argumentation: Arguments and evidence Conclusion: Building Your Own Arguments - Essay		42		https://course.s.prometheus.org.ua/courses/course-v1:Prometheus+CTIUC101+2022_T2_3/about
Together for module 1				
	2	8	30	
Lecture class 5. Methodology of scientific research 1. Formation of scientific schools in universities 2. Scientific and research activity of education seekers 3. Organizational and methodological preparation of the research				[3], [4], [8], [10], [11], [12], [18], [19]
Laboratory class №6 <i>Preparation of the research scheme for solving the tasks of the qualification work</i>				
A question of independent study 1. Modern methods of theoretical research 2. Discrete and continuous random variables 3. General scheme of the Monte Carlo method				

Topic. List of issues to be considered within the topic	Distribution within the general time budget		Recommended Books
	Auditory work		
	Lk	Pr	
Lecture class 6. Methods of scientific research 1. General scientific research methods 2. Empirical methods of scientific research			[3], [4], [8], [10], [11], [12], [18], [19]
Laboratory class №7 <i>Formation of methods and means of conducting an experiment to solve the tasks of qualification work</i>			
A question of independent study 1. Application of computers in theoretical research 2. System approach, its place and role in scientific knowledge 3. The essence of system analysis and its subject			
Lecture class 7. Experiment planning and analysis of its results 1. Classification of experiments 2. The sequence of work during the experiment 3. Processing of experiment results			[3], [4], [8], [10], [11], [12]
Laboratory class №8 <i>Conducting an experimental study on the topic of the qualification work</i>			
A question of independent study 1. Classical method of planning experimental studies 2. Approximation of experimental research results			
Laboratory class №9 <i>Analysis of the results of the experiment</i>			[11]
Laboratory class №10 <i>Preparation of graphics with the results of the experiment</i>			[11]
Non-formal education (Prometheus)			
Science of everyday thinking Course program Scientific methods and their application in everyday life Tools to improve your everyday thinking and help you gain a deeper understanding of bias Tips on how to change other people's views Technician for learning and better memorization of information How to distinguish fact from fiction		20	https://prometheus.org.ua/course/course?v1:UQx+THI NK101+2016_T2
	Total per module	-	8 40
	Total per semester	2	16 132
Lecture session 8. Systematization and implementation of the results of scientific research 1. Implementation of the results of scientific research 2. Scientific and informative essays		2	[9], [3], [4], [8], [10], [11], [12],
Laboratory class №11 <i>Preparation of the essay on the subject of the qualification work</i>			
A question of independent study 1. Scientific specialized publications of Ukraine 2. Drawing up reports on research work			20

Topic. List of issues to be considered within the topic	Distribution within the general time budget		Recommen- ded Books
	Auditory work		
	Lk	Pr	
Laboratory session № 12 <i>Preparation of a report on the subject of the qualification work</i>			[11]
Lecture class 9. Preparation of materials and abstracts of reports 1. Types and purpose of theses 2. The structure of theses		2	[3], [4], [8], [10]
Laboratory class №13 <i>Preparation of the thesis of the report on the subject of the qualification work</i>			[11], [12]
A question of independent study 1. Methods of finding optimal solutions during the preparation of theses of reports 2. Technology of scientific activity			20
Lecture session 10. Preparation of a scientific article 1. Structure and registration requirements 2. Selection of materials and methods 3. Requirements for creating a bibliographic description		2	[3], [4], [8], [10], [11], [12]
Laboratory class №14 <i>Preparation of the article on the subject of the qualification work</i>			
A question of independent study 1. Basic scientometric indicators 2. Organization of the researcher's creative activity			
Lecture session 11. Preparation of patent documentation 1. Types of patent documentation and methods of obtaining it. 2. Structure of the patent.		4	[1], [2], [3], [4], [8], [10], [11], [12]
Laboratory class №15 <i>Preparation of a Ukrainian patent for an invention</i>			
A question of independent study 1. Ukrainian Institute of Intellectual Property 2. Patent database of Ukraine 3. Legislative acts of Ukraine			20
Total per module		10	60
Module 2 (II semester)			
Lecture class 12. Preparation of a monograph 1. Monograph as a special scientific study. 2. Rules for design and approval of the monograph		2	[24], [8], [10], [11], [12]
Laboratory lesson №. 16 <i>Writing a chapter of a collective monograph on the subject of the qualification work</i>			
A question of independent study 1. Technology of preparation of qualification work 2. Psychology of scientific creativity			20

Topic. List of issues to be considered within the topic	Distribution within the general time budget		Ind.	Recommended Books
	Auditory work			
	Lk	Pr		
Lecture session 13. Recommendations for the implementation of research results in production 1. Development of technological instructions for the production of food products 2. Development of technical conditions for the production of food products 3. Preparation of the act of introduction of food products in production 4. Preparation of the food product research protocol		2		3], [4], [8], [10], [20], [21]
Laboratory class №17 <i>Development of technological instructions for manufacturing the product</i>				[11]
Laboratory class №18 <i>Development of technical conditions for the production of the product</i>				[11]
A question of independent study 1. Postgraduate and doctoral studies 2. Scientific guidance of acquirers			30	[3]
Lecture class 14. Recommendations for writing individual sections of the qualification paper 1. Means of presentation of research results 2. Justification of technological parameters of food product production	2	2		[13], [10], [12], [22], [19]
A question of independent study 1. Building a simulation model of the process 2. Development of a mathematical model of the process 3. Calculation of the economic efficiency of the project			20	
Lecture session 15. Public presentation of the results of the qualification work 1. Recommendations for preparing an electronic presentation 2. Rules of public speaking		2		[3]
Laboratory class №19 <i>Public presentation of the results of own scientific research</i>				[11]
Total per module	2	8	70	
In total	4	34	262	

4. TEACHING AND LEARNING METHODS

DRN	Teaching methods (work to be carried out by the teacher during classroom classes, consultations)	Number of hours	Learning methods (what types of learning activities should be performed by the student independently)	Number of hours
DRN 1. Accumulate, study and systematize facts obtained from various sources of information. Refute existing ones, create new scientific hypotheses, deeply explain processes and phenomena, make original decisions and draw conclusions	Problem lectures (questions are raised about the material covered by the teacher, but the lecturer himself answers them, in order to focus students' attention on the main thing) Presentations (demonstration of information on the subject of lectures)	2	Laboratory classes (performance of tasks in accordance with methodical instructions) Brain attacks during laboratory work Individual tasks (independent processing of the information proposed by the teacher)	20 10 50
DRN 2. To carry out all stages of scientific research, using modern principles and methods of scientific knowledge, Internet technologies, various technical means. Plan, conduct and analyze the results of an experimental study	Problem lectures (questions are raised about the material covered by the teacher, but the lecturer himself answers them, in order to focus students' attention on the main thing) Presentations (demonstration of information on the subject of lectures)	2	Brain attacks during laboratory work (short problems are set before the student, which he must solve quickly) Individual tasks (conducting one's own experimental research)	10 50
DRN 3. To present the intermediate and final results of scientific research in the form of theses, reports, articles, reports, author's documents, qualification work	Presentations (demonstration of information on the subject of lectures)	2	Presentations (demonstration of the results of own research) Individual tasks (independent processing of the information proposed by the teacher)	20 50
DRN 4. Develop recommendations for the implementation of innovative technological and technical solutions in production	Case method (the teacher sets the students the task of justifying the relevance, scientific novelty and the possibility of implementing their own scientific results in production)	2	Presentations (demonstration of the results of own research) Individual tasks (independent processing of the information proposed by the teacher)	10 50

5. EVALUATION BY THE EDUCATIONAL COMPONENT

5.1. Diagnostic assessment (specified as necessary)

5.2. Summative assessment

5.2.1. To assess the expected learning outcomes, it is provided

No	Methods of summative assessment	Points / Weight in the overall assessment	Compilation date
I semester			
Module 1 (50 points):			
1	Protection of laboratory work (5 Lbs for 5 points)	25 points / 25%	within 5 days after the class
2	Intermediate testing (multiple choice test)	25 points / 25%	7 week
3	Completion of training on Prometheus	30 points / 30%	7 week
Module 2 (50 points):			
4	Protection of laboratory work (5 Lbs for 5 points)	25 points / 25%	within 5 days after the class
5	Intermediate testing (multiple choice test)	25 points / 25%	15 week
6	Completion of training on Prometheus	30 points / 30%	15 week
II semester			
Module 1 (35 points)			
1.	Protection of laboratory work (5 Lbs for 5 points)	25 points / 25%	within 5 days after the class
2.	Intermediate testing (multiple choice test)	10 points / 10%	7 week
Module 2 (35 points)			
3.	Protection of laboratory work (3 Lbs of 5 points)	15 points / 20%	within 5 days after the class
4.	Intermediate testing (multiple choice test)	20 points / 20%	7 week
5.	Exam (multiple choice test)	30 points / 30%	17-15week

5.2.2. Evaluation criteria

Component ¹	Unsatisfactorily	Satisfactorily	Fine	Perfectly ²
Oral defense of laboratory works (for 1 laboratory work)	2 points	3 points	4 points	5 points
	<i>The student completed the laboratory work, but did not defend it</i>	<i>Most of the requirements are met, but some components are missing</i>	<i>All requirements of the task have been fulfilled</i>	<i>All the requirements of the task were met, thoughtfulness was demonstrated, and an own solution to the problem was proposed</i>
Intermediate testing (multiple choice test)	<i>The test includes 25 (10, 20) questions, each of which is worth 1 point</i>			
Exam (multiple choice test)	<i>The test includes 30 questions, each of which is worth 1 point</i>			
Training on Prometheus	<i>With a certificate - 30 points</i>			

¹ Specify the summative assessment component

² Specify the distribution of points and the criteria determining the level of assessment

5.3. Formative assessment:

To assess the current progress in learning and understand the directions for further improvement is provided

No	Elements of formative assessment	Date
1	Oral examination after studying all topics, during laboratory classes	within 5 days after the class
2	Feedback in the form of discussion of final testing	7-15 week
3	Feedback in the form of discussion of examination testing	18 week
4	Feedback in the form of a discussion of the informal education course	after listening to the course

The final control form is *an exam*. The final number of points in the discipline (maximum 100 points per semester) is determined as the sum of points based on the student's work during the semester.

The student is not admitted to the final control of the discipline, if he missed and did not complete more than 20% of classes, has not passed the modular control stages, has not completed the mandatory list of types of work, tasks (laboratory work), provided by the work curriculum for the semester from this academic discipline, or has an unsatisfactory rating at the end of the semester (0 - 34 points).

6. EDUCATIONAL RESOURCES (LITERATURE)

6.1. Main sources

1. Liu, Y., Helikh, A.O., Filon, A.M., Tang, X.-X., Duan, Z.-H., Ren, A.-Q. (2024). Beetroot (*Beta vulgaris* L. var. *conditiva* Alef.) pretreated by freeze-thaw: influence of drying methods on the quality characteristics. *CYTA-Journal of Food*, 22(1), 1-12. <https://doi.org/10.1080/19476337.2023.2295421> (Scopus) Q2
2. Gao, D., Helikh, A., Duan, Z., & Xie, Q. (2023). Thermal, structural, and emulsifying properties of pumpkin seed protein isolate subjected to pH-shifting treatment. *Journal of Food Measurement and Characterization*, 17(3), 2301-2312. <https://doi.org/10.1007/s11694-022-01776-6> (Scopus) Q1
3. Gao, D., Helikh, A., & Duan, Z. (2021). Determining the effect of pH-shifting treatment on the solubility of pumpkin seed protein isolate. *Eastern-European Journal of Enterprise Technologies*, 5(11(113)), 29-34. <https://doi.org/10.15587/1729-4061.2021.242334> (Scopus) Q2
4. Liu, Y., Helikh, A., Filon, A., & Duan, Z. (2023). Sausage technology for food sustainability: recipe, color, nutrition, structure. *Eastern-European Journal of Enterprise Technologies*, 4(11(124)), 47-58. <https://doi.org/10.15587/1729-4061.2023.286323> (Scopus) Q3
5. Gao, D., Helikh, A., Duan, Z., Liu, Y., & Shang, F. (2022). Development of pumpkin seed meal biscuits. *Eastern-European Journal of Enterprise Technologies*, 2(11(116)), 36-42. <https://doi.org/10.15587/1729-4061.2022.254940> (Scopus) Q3
6. Gao, D., Helikh, A., & Duan, Z. (2021). Functional properties of four kinds of oilseed protein isolates. *Journal of Chemistry and Technologies*, 29(1), 155-163. <https://doi.org/10.15421/082116> (Scopus/WoS)
7. Li, Q., Fan, S., Qiao, X., Duan, D., Fan, W., & Helikh, A. (2021). Research on edible superhydrophobic coatings for food packaging material. *UPB Scientific Bulletin, Series B: Chemistry and Materials Science*, 83(3), 203-214. Available from: https://www.scientificbulletin.upb.ro/rev_docs_arhiva/fulle45_986619.pdf

8. Prymenko, V., Helikh, A., & Stepanova, T. (2021). Influence of Se-lactalbumin on functional and technological properties of selenium-protein dietary supplements. *Journal of Chemistry and Technologies*, 29(1), 164-172. <https://doi.org/10.15421/082114> (Scopus/WoS)
9. Holovko, T., Helikh, A., Holovko, M., Prymenko, V., & Zhrebkin, M. (2020). Scientific rationale of the technology of pastes based on freshwater hydrobionts and enriched with selenium. *Food Science and Technology*, 14(1), 109-116. <https://doi.org/10.15673/fst.v14i1.1644> (WoS)
10. Gao, D., Helikh, A., Filon, A., Duan, Z., & Vasylenko, O. (2022). Effect of pH-shifting treatment on the gel properties of pumpkin seed protein isolate. *Journal of Chemistry and Technologies*, 30(2), 198-204. <https://doi.org/10.15421/jchemtech.v30i2.241145> (Scopus/WoS)
11. Prymenko, V., Sefikhanova, K., Helikh, A., Golovko, M., & Vasylenko, O. (2022). Choice justification of dairy raw materials according to indicators of their structure for obtaining selenium-protein dietary supplements. *Journal of Chemistry and Technologies*, 30(1), 79-87. <https://doi.org/10.15421/jchemtech.v30i1.241139> (Scopus/WoS)
12. Samilyk M., Helikh, A., Ryzhkova T., Bolgova N., Nazarenko Y. (2020). Influence of the structure of some types of fillers introduced to the yogurt recipe on changes in its rheological indicators. *Eastern-European Journal of Enterprise Technologies*, 2/11 (104), 46-51. [http://nbuv.gov.ua/UJRN/Vejpte_2020_3\(11\)_3](http://nbuv.gov.ua/UJRN/Vejpte_2020_3(11)_3) (Scopus) Q3
13. Samilyk M., Helikh, A., Bolgova N., Potapov V., Sabadash S. (2020). The application of osmotic dehydration in the technology of producing candied root vegetables. *Eastern-European Journal of Enterprise Technologies*, 3(11), 13-20. [http://nbuv.gov.ua/UJRN/Vejpte_2020_3\(11\)_3](http://nbuv.gov.ua/UJRN/Vejpte_2020_3(11)_3) (Scopus) Q3
14. Gao Dan, Duan Zhenhua, Helikh Anna (2020). Preparation and functional properties of four kinds of oil seed protein isolates. The 4th international conference on processing and preserving of fresh food. Collection of abstracts of reports, 48 (August 15-17, 2020, Hezhou)
15. Gao Dan, Helikh Anna, Duan Zhenhua (2021). Study of water dynamics in pH-shifting treated pumpkin seed protein isolate by LF-NMR. IV international scientific and practical conference "Modern directions of scientific research development". Collection of abstracts of reports, 81-85 (September 28-30, 2021, Chicago)
16. Gao Dan, Helikh Anna, Duan Zhenhua (2021). Evaluation of solubility of pumpkin seed protein isolate subjected to pH-shifting treatment. The II international scientific and practical internet conference. Collection of abstracts of reports, 24-25 (December 1-2, 2021, Dnipro-Opole)
17. Helikh Anna, Gao Dan, Duan Zhenhua (2022). Extraction of pumpkin seed meal protein isolate and its possible applications in food. Міжнародна науково-практична конференція «Здорове харчування дітей в Україні: запорука майбутнього нації: стан і перспективи», Collection of abstracts of reports, 46-38 (September 29, 2022, Київ НУХТ)
18. Gao Dan, Helikh Anna, and Duan Zhenhua (2022). Effects of heat treatment on structure, function, and allergenicity of plant proteins. Conference of global and national trends in life sciences. Collection of abstracts of reports, 4-6 (May 12, 2022, Nizhyn)
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