

Brief information about the project

Name of the project	AP25795523 “Isolation and identification of nematodes parasitizing berry crops under the conditions of southeastern Kazakhstan.”
Relevance	Many nematodes from the orders Aphelenchida, Dorylaimida, and Tylenchida are capable of developing and causing damage to berry crops. Most of them have a wide host range and are distributed globally. One of the key aspects of organizing plant protection measures is the correct and timely diagnosis of these nematodes. Only by identifying the species of nematodes prevalent in specific regions can appropriate protective measures be recommended to reduce yield losses in berry crops. Therefore, the aim of this study is to isolate and identify nematode species damaging berry crops under the conditions of southeastern Kazakhstan. In contrast to numerous global studies, similar research has not been conducted in Kazakhstan. Nevertheless, the detection and identification of nematodes is considered an essential part of organizing protective strategies for berry crops.
Purpose	The aim of the project is to isolate and identify nematodes parasitizing berry crops under the conditions of southeastern Kazakhstan in order to select an effective control method against them.
Objectives	To achieve the goal of the research project, the following objectives have been defined: 1. Collection of soil and plant samples for nematode extraction; 2. Identification of nematodes using microscopic, molecular, and bioindicator methods; 3. Mapping the distribution and harmfulness of nematodes under the conditions of southeastern Kazakhstan; 4. Searching for an effective method of nematode control and developing recommendations for the protection of berry crops from nematodes in the southeastern region of Kazakhstan.
Expected and achieved results	According to the project objectives, the following results will be achieved: 1. Nematodes parasitizing berry crops under the conditions of southeastern Kazakhstan will be isolated; 2. Species of nematodes parasitizing berry crops under the conditions of southeastern Kazakhstan will be identified; 3. A map of the distribution and harmfulness of nematodes in southeastern Kazakhstan will be developed; 4. Recommendations for the protection of berry crops from nematodes under the conditions of southeastern Kazakhstan will be developed. Publication plan: At least 2 (two) articles will be published in journals that are in the first three quartiles by impact factor in the Web of Science database or have a CiteScore percentile of at least 50 in the Scopus database. Dissemination of research results among potential users, the scientific community, and the general public: (1) Knowledge will be shared with farmers, research institutes, and agricultural universities; (2) Research findings will be published on the university website as the project progresses.

	Application areas and target users of each expected result: The results obtained during the project can be used by farmers, research institutions, and universities in the biological and agricultural sectors. Social, economic, environmental, scientific-technical, multiplicative, and/or other impacts of the project results: The implementation of the project will enhance the competitiveness of the young researcher. It will assist farmers in developing a scientifically grounded system for protecting berry crops, which in turn will contribute to higher yields of berry production.
Research team members with their identifiers (Scopus Author ID, Researcher ID, ORCID, if available) and links to relevant profiles	Amangeldi Nurgul– h-index in the Scopus database: 3, Scopus Author ID: 57197764939, https://www.scopus.com/authid/detail.uri?authorId=57197764939, https://orcid.org/0000-0002-6850-821X Toktay Halil – h-index in the Scopus database: 13, Scopus Author ID: 16032151300, Scopus Author ID 16032151300, https://www.scopus.com/authid/detail.uri?authorId=16032151300, https://orcid.org/0000-0003-0814-7237 Abdukerim Rauza Zhusipkyzy – h-index in the Scopus database: 1, Scopus Author ID: 57201500323,, https://www.scopus.com/authid/detail.uri?authorId=57201500323 , https://orcid.org/0000-0002-4745-1437
Usage	The results of the project will be used by farming and agricultural enterprises in southeastern Kazakhstan to develop scientifically based systems for protecting berry crops from phytoparasitic nematodes, which will reduce crop losses and increase production profitability; by research institutes and universities of biological and agricultural profile — as a basis for conducting further monitoring studies, introducing molecular diagnostic methods into the educational process and scientific activities, as well as for training personnel in the field of phytohelminthology; by phytosanitary services — when planning preventive and quarantine measures based on the created map of the distribution and harmfulness of nematodes in the region.
Priority compared to real-world alternatives	The priority of the project is determined by the fact that, unlike international studies on the identification of phytoparasitic nematodes on berry crops, no such comprehensive work has previously been conducted in southeastern Kazakhstan. For the first time in the region, an integrated approach combining microscopic, molecular and bioindicator identification methods will be applied, which ensures higher diagnostic accuracy compared to analogues limited to morphological determination alone. The result will be the creation of the first distribution map of nematodes and the development of recommendations for the protection of berry crops adapted to local conditions, which favorably distinguishes this project from universal foreign developments that do not take into account the specifics of the region.
List of publications with links to them	Identification of new sources of wheat stem rust resistance genes. Amangeldikyzy Z., Galymbek K., Gabdulov M., Amangeldi N., Suleimanova G., Sapakhova Z. Research on Crops, 2023, 24(1), p15–27 DOI: 10.31830/2348-7542.2023.ROC-892 Identification of the carriers of genes for resistance common bunt, Tilletia caries (DC) Tul. using molecular and breeding methods. Safarova, N., Amangeldi, N., Amangeldikyzy, Z., Mombayeva, B., Rsymbetov, A.

	Caspian Journal of Environmental Sciences, 2024, 22(3), p 741–751 DOI: 10.22124/cjes.2024.7918
Patents	-

