American Journal of Biology and Natural Sciences
https://biojournals.us/index.php/AJBNS
ISSN: 2997-7185

Fergana Valley Vine Studies of Parasitic Nematodes

A. G. Abdurakhmanova
B.f.n., Associate Professor, National University of Uzbekistan named after Mirzo Ulugbek

N. S. Ergasheva
Base doctoral student, National University of Uzbekistan named after Mirzo Ulugbek

Received: 2024, 15, Dec
Accepted: 2025, 21, Jan
Published: 2025, 04, Feb

Copyright © 2025 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
Open Access
http://creativecommons.org/licenses/by/4.0/

Annotation: This article presents information about the survey of the parasitofauna of the vineyards of Forgona voxa. Soil samples were taken from the depths of 0-20, 20-40, 40-60 cm of the soil around the roots. Generally accepted phytohelminthological methods were used to isolate nematodes from soil. The root of the plant was examined with binoculars. The work of analysis before the species was carried out with the preparation of permanent, temporary preparations. Parasitofauna of the examined vineyards consisted of 3 genera and 7 species. Virus-carrying ectoparasitic nematodes were detected from around the roots of the infected vine.

Keywords: Phytonematodes, parasite, soil, fauna, vines, pararrhizitofauna, microorganisms, virus, fungus, bacteria, phytohelminth, necrosis, inoculant.

Introduction. More than 800 species of phytonematodes have been identified in the territory of Uzbekistan alone. Many of these are made up of saprophytic species that feed on plant debris in the soil. Among them, in addition to saprophyte species, which are actively involved in soil processes, there are also species that cause damage to agricultural crops [1, 2].

In cultural landscapes, phytonematodes have biomass ranging from 50 kg per hectare. Depending on the type of feeding, phytonematodes can be distinguished, from true saprobiotic species to semi-and true parasitic species. True saprobionts can be found on land where organic matter is decomposing. Parasitic species of phytonematodes damage the organs and tissues of various agricultural crops. Parasitic phytonematodes chemically affect the plant organism, causing disruption of the processes of photosynthesis in them [7, 8, 9].

Pararisobionts are found around the root of the plant. Pararisobionts are free-living phytonematodes around plant roots, feeding on plant sap. In addition these open the way for microflora to enter the plant from the outside (Inoculator, pathogenic fungi, bacteria, viruses) [1, 2].

To date, about 3,000 phytogelmints have been identified, which in practice infest all species of cultivated, wild plants. The damage caused by parasitic helminths leads to the disappearance of about 10% of plant products worldwide. According to further data, the damage to agricultural crops through parasitic nematodes is estimated to be $ 100 billion worldwide [5].

Wild, cultivated plants known to all, phytoparasitic serve as a hojain-plant to several, not one of the nematodes. Parasitic nematodes play an important role in transferring various viral, fungal, bacterial infections to plants, without causing direct damage to plants (Inoculator), and the damage caused by them is 50-80% [2, 3]. One of the useful Sox in rural agriculture is viticulture. Fergana ranks high in the Republic in terms of grape cultivation. The fruit, the grape re-made products are highly valued in ourselves, abroad. Of these, the study of the parasitic nematodofauna of vines is considered one of the current issues.

Agricultural crops, including the vine plant, are damaged by various pests and cause various viral, fungal bacterial diseases in them. Various Vine pests phylloxera, various insect larvae and others are well studied in the conditions of Uzbekistan, and measures to combat these pests are well established. Phyto is also a parasitic species within nematodes, and these parasitic species cause significant damage to agricultural crops. It is in the conditions of Uzbekistan that the harm caused by parasitic nematodes on the vine plant is not well studied. So it turns out that, among other agricultural crops, the vine plant is not devoid of phytoparasitic nematode cells.

Information about early parasitic nematodes appeared by the middle of the 19th century. D at USA.J.Bortma nematodes were detected in the vine plant by Raski [8]. Interest in parasitic nematodes increased further after the inoculatory privies of the Xiphinema index were discovered from ectoparasitic nematodes.

The Xiphinema index vine plant has been found to open the way for the passage of a virus (GFLV) that brings its leaves to the helical hole [8,9]. Tokzor area by Jaxon 10 miln.ga while forming a close area, Uzbekistan's vineyards are about 100 ming.ga forms a square. To date, about 250 parasitic nematodes have been identified that parasitize on vines. The most haflians of parasitic nematodes are longidorids (Longidoridae), criconematids (Criconematidae), haplolaymids (Haplolaimidae) [1, 4, 8].

Research material and styles. Samples for research 2023 from personal entrepreneur vineyards planted in Fergana region, Rocky District, MERS variety, from personal entrepreneur Vine belonging to Fergana region, Oltiariq district, Juraev MFY, samples from plant root and root area soil of the Shahonay variety were taken in the route method. Samples from the soil of the root environment were taken from the depths of the soil 0-20, 20-40, 40-60 CM. The number of samples taken was based on the area taken for the study, using the envelope method from an area of 800 m 2, samples were taken from plant root and root circumference soil from point 5 of the area taken for the study. When separating phytonematodes from the soil, a convenient method, The Berman method, was used, which is widely used in Phytogelmintology. A 4-6% li formalin fixator was used to inanimate nematodes, permanent, temporary preparations were prepared from the Alien nematodes, nematodes were detected by microscopy from clarifiers to the species.

Research results. Fergana Valley vines were characterized by the hilma-hilarity of nematodofauna species. The object of our study is parasitic nematodes, including virus-carrying ectoparasites.

In the research work, Ecto and endo parasitic species were found that parasitize on vines. Three species have been identified from representatives of ectoparasites, these are the following species in the family Longidoridae, genus Xiphinema: Xiphinema americanum, X.index, X.pachtaicum. All three species identified are ectoparasites. The Masters of these phytoparasites are sugarcane, grapes, Acorns, Laurel, figs, fruit trees of various cultural and Wild Growth [2, 7, 8]. In this research work, grapes are considered master - plant.

The study found 7 species of phytogelmints belonging to 3 families Hoplalaimidae, Criconematidae, Longidoridae, 3 genera Helocotilenchus, Criconemoedes, Xiphinema. These obtained results are found in the conditions of labaratory phytonematodes (Helicotylenchus digonicus, H. multicinctus, H.pseudorobustus, Criconemoedes infirmis, Xiphinema americanum, X.index, X.pachtaicum).

Table 1. List of phytogelmints identified as a result of the study

№	(Family)	(Genus)	(Species)
1	Longidoridae	Xiphinema	*X.americanum* *X.index* *X.pachtaicum*
2	Hoplalaimidae	Helicotylenchus	*H.digonicus* *H. multicinctus* *H.pseudorobustus*
			C. infirmis
3	Criconematidae	Criconemoedes	*C. infirmis*
Jami	**3**	**3**	**7**

Conclusion. Fergana Valley phytogelmintological studies have resulted in a large number of free-living adapted species in addition to parasitic species. As a result of plant root observations, the vine has been exposed to representatives of the Xiphinema generation around the roots of plants where partial or complete leaf coils from the outside have been observed to show signs of virus damage. Representatives of the Xiphinema generation are found in the soil of the plant root environment and feed at the expense of plant tissue juice.

They are among the ectoparasitic phytogelmints. Not only piercing the plant tissue and causing direct damage, it also opens the way for various microorganisms (virus, bacteria, fungi) to enter the plant from the outside (GFLV, AMV). Plants infected with Xiphinema, Macrostomas lag behind growth, the leaves are deformed, changes in the root system, bulges, necrosis, etc.are caused. This ectoparasitic nematode causes the vines to be completely infected with viruses, fungi.

Bibliography

1. Abdurakhmanova G.A. Fitonematodi vinogradnikov Tashkent oazisa. Khwarazm Ma'mun Academy newsletter. № 4.2017.,- B. 22-24.
2. Abdurahmanova G. A., Ergasheva N. A short history of the study of phytonematodofauna of the Uzbek vines. Theory and analytical aspects of recent research. International scenfific-online conference. Episode 14^April 9, 2023. - C. 94-97.
3. Wajsher B., Milkus B. N. Znacomstvo s nematodami Obshaja nematologija. S. M. Pensoft, 2001. -206 P.
4. Kankina V. K., Milkus B. N. Effektivnost ' Bor'by s parasitami lozi / / zashita rastenij. -1984.-2. - S. 12-17

5. Karapetjan D. A., Akopjan K. V., Mkrtchjan R. S., Galstjan S. H. K izucheniju fitonematod Nagorno-Karabakh / / Mater. Docle. Megdonar. Nauch. Conf. Teori prak. Probl.parasitol / - M. Centr ran parasitologii strip JeJe 2010. - S. 156-159.
6. Krall ' Je.I. Parasiticheskie kornevye nematody. Semejstvo Hoplalaimidae-L. Nauka. 1978. 420 c.
7. Romanenko N. D. Phytogel'minty-virusonocyteli semeystva Longidoridae. - M. Nauka. 1993. -284 P.
8. Raski D. J., Krusberg L. R. nematode parasites of grapes and other small fruits / / plant and insect nematodes / Nikll V. R. Ed. New York and Basel Maral Dekker. Inc.-1984. - P. 457-506.
9. Taylor C. E., Brown D. J. F. nematode plant virus vector / / Wallingford (UK), CAB international. -1997. -286 p.