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Phytonematodaphauna Of Vegetable Crops And Anti-Parasitic Measures In The Greenhouse Conditions Of The Surkhandarya Region

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ABSTRACT

This article covers phytonematodaphauna of vegetable crops and measures against parasites in the greenhouse conditions of the Surkhandarya region. The phytonematodes found and identified as a result of the research carried out belong to 5 categories, 18 families, 32 generations, 68 species according to taxonomic classification.

Studies 15 species of true parasite fetonimatoda in the soil around the tomato plant and its roots in the greenhouse conditions of the Surkhandarya region (Bitylenchusdubius, Merliniines brevidens, Tylenchorhynchus brassicae, Rotylenchus robustus, Helicotylenchus pseudorobustus, H. digonicus, H. Dihystera, H. digitiformis,H.erythrinae, Pratylenchus pratensis, P.penetrans, Meloidogyne incognita, M. javanica, M. arenaria, Ditylenehus dipsaci) the prevalence was determined.

KEYWORDS

Phytohelminth, pararizobiont, individual, species, category, fauna, parasite, population, ecology, classification, nematode, phytonematosis, route, vegetable, taxonomic, microelement, ecological, biological, nematocide.

INTRODUCTION

After the independence of the Republic of Uzbekistan, the problem of providing the population of the country with food appeared[1].

In order to further ensure the food security of the country, to fill the market with quality, safe and cheap food products, to strengthen the purchasing opportunities of the population, to

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liberalize foreign economic activity and to develop a healthy competitive environment, as well as to end the existing systemic circulation in this area:

Closed areas are being created to grow crops in off-season seasons, to create artificial microclimate, or to improve natural microclimate. Generally speaking olganda,colic pollar accomplice of bewatching basics, take-the population ylä continued Ango vegetables bilinmesi provides the total turnover etiladi. Therefore, the Cabinet of Ministers of the Republic pays great attention to increasing the efficiency of closed spaces. In 2013, the total number of greenhouses in Uzbekistan amounted to 7173.5 hectares, 314 thousand tons of vegetable products being grown, 8600 hectares of greenhouses in 2017, 430 thousand tons of vegetable products being grown, while in 2020 the greenhouses reached 13000 hectares, 900 thousand tons of vegetable products being grown.

THE MAIN FINDINGS AND RESULTS

Therefore, the composition of species of vegetable crops, including tomatoes and phytonematodes spread in the soil around its roots, biological and environmental characteristics, propagation, study of plant pests and development of measures to combat parasitic species are of practical importance in obtaining high and high quality yields from these plants.

For the completion of this research work, 190 soil and 340 plant samples were collected for the study from 9 districts of the Surkhandarya region in 2017-2019.

In the collection of samples from vegetable crops, including the tomato plant and the soil around the stem, the De man [10] formula, which was adopted by most researchers in phytogelmintology and was widely used to separate phytonematodes from the route Method [7], the plant organs and the soil around the stem, was used to isolate phytonematodes from the venomous method of Berman, the Saynxorst [11] method.

Determine the type of bulge nematode E.S.Kiryanova, E.L.Krall was conducted according to the method [3; 6].

The phytonematodes found and identified as a result of the research carried out belong to 5 categories, 18 families, 32 generations, 68 species according to taxonomic classification[8].

In the course of this research, phytonematodes identified in the soil around the tomato plant and its roots in the greenhouse conditions of the Surkhandarya region A.A. According to the environmental classification of Paramonov [7], it is distributed as follows: pararizobionts – 5 species (7,4% of the total identified species of phytonematoda), devisaprobionts – 17 species (25%), eusaprobionts – 2 species (2,9%), phytogelmints that do not cause disease – 29 species (42,6%), phytogelmints that cause disease-15 species (22,1 %), (Table 1).

Table – 1.

Distribution of identified phytonematoda species by ecological groups.

№	Environmental groups	Number of species	%	Number of individs	%
1.	Pararizobiants	5	7,4	237	4,9
2.	Devisaprobions	17	25	1359	28,2

3.	Eusaprobions	2	2,9	298	6,2
4.	Phytogelminths that do not cause disease	29	42,6	1604	33,3
5.	Phytogelminths that cause disease	15	22,1	1313	27,4
	Total:	68	100	4811	100

By ecological groups of identified phytonematoda species the analysis showed that in terms of the number of species in the soil around the tomato plant and its roots, phytogelminths that do not produce disease gel – 29 (42,6 %) ranked first with the species, devisaprobiont - 17 (25 %) and phytogelminths that do not produce disease gel -15 (22,1%) ranked second, while pararizobiont -5 (7,4 %) and eusaprobions – 2 (2,9%) ranked third. In terms of the number of individes, phytogelminths that do not cause disease, even in terms of multiplicity, took the first place with 1604 individ and accounted for 33.3% of all identified individuals. The next places were occupied by devisaprobions - 1359 individ (28,2%) and phytogelminths - 1313 individ (27,4%), from which the disease develops.

Eusaprobions 298 individ (6,2 %) and pararizobiont 237 individ (4,9 %) eco groups occupy the last place in terms of the number of individes.

The results of the study show that in terms of the number of species in the soil around the tomato plant and its roots in the greenhouse conditions of the Surkhandarya region, the category of Tylenchi occupies the first place. Representatives of this category (27 species) accounted for 39.6% of the total identified phytonematoda species. The next place is occupied by Rhabditidaturkumi (from 19 species), which accounts for 28% of the total identified species. Representatives of the Aphelenchidaturkumi (17 species) account for 25,1% of the total identified species. Representatives of the dorylaimida Category (3 species) account for 4.4% of the total identified species. Representatives of the category Enoplida were identified in the minimum number (2 species) and accounted for only 2.9% of the total identified species (Table 2).

Table – 2.

Distribution of identified phytonematoda species by categories.

№	**Batches**	**Number of species**	%	**Number of individs**	%
1.	Enoplida	2	2,9	193	4,1
2.	Dorylaimida	3	4,4	44	0,9
3.	Rhabditida	19	28	1677	34,9
4.	Aphelenchida	17	25,1	1117	23,2

5.	Tylenchida	27	39,6	1780	36,9
	Total:	68	100	4811	100

In terms of the multiplicity of the number of individs, the Tylenchida category occupies the leading position (1780 individ), accounting for 36,9% of all found individuals. The next places are occupied by Rhabditida (1677 individ, 34,9%) and Aphelenchi (1117 individ, 23,2%). It was found that the number of individes was the lowest in the series Enoplida (193 individ, 4,1%) and dorylaimida (44 individ, 0,9%).

The series Enoplida consists of 2 families (Prismatolaimidae, Diphtherophoridae), 2 generations (Prismatolaimus, Diphtherophora) and 2 species.

The dorylaimida category consists of 2 families (Dorylaimidae, Qudsiunematidae), 3 generations (Dorylaimus, Mesodorylaimus, Eudorylaimus) and 3 species.

The rhabditid group includes 3 families (Cephalobidae, Panagrolaimidae, Rhabditidae), 11 generations (Cephalobus, Heterocephalobus, Eucephalobus, Acrobeloides, Chiloplacus, Asrobeles, Mesorhabditis, Panagrolaimus, Ypsylonellus, Bursulla, Cuticularia) and 19 species.

In aphelenchi, the constellation consists of 3 families (Aphelenchidae, Paraphelenchidae, Aphelenchoididae), 3 generations (Aphelenchus, Paraphelenchus, Aphelenchoides) and 17 species.

The tylenchida category includes 8 families (Tylenchidae, Tylenchulidae, Tylenchorhinchidae, Psilenchidae, Hoplolaimidae, Pratylenchidae, Meloidogynidae, Anguinidae), 13 generations (Tylenchus, Tylenchulus, Filenchus, Aglenchus, Bitylenchus, Merlinius, it includes tylenchorhynchus, Psilenchus, Rotylenchus, Helicotylenchus, Pratylenchus, Meloidogyne, Ditylenchus,) and 27 species.

The results of the study show that in terms of the number of species in the soil around the tomato plant and its roots in the greenhouse conditions of the Surkhandarya region, the category of Tylenchi occupies the first place. Representatives of this category (27 species) accounted for 39.6% of the total identified phytonematoda species. The next place is occupied by the rhabditidid group (from 19 species), which accounts for 28% of the total identified species. Representatives of the constellation of aphelenchi (17 species) account for 25,1% of the total identified species. Representatives of the dorylaimida Category (3 species) account for 4.4% of the total identified species. Representatives of the category Enoplida were identified in the minimum number (2 species) and accounted for only 2.9% of the total identified species.

According to the Krogerus Classification, 2 species of nematoda –Meloidogyne incognita and Meloidogyne javanica Lar dominated the soil around the tomato plant and its root. If the subdominants made up 22 species, the remaining 44 species of phytonematodes are less common species.

The research carried out 15 species of true parasite fetonimatodes (Bitylenchusdubius, Merliniines brevidens, Tylenchorhynchus brassicae, Rotylenchus robustus, Helicotylenchus pseudorobustus, H.) in the soil around the tomato plant and its roots in the greenhouse conditions of the Surkhandarya region. digonicus, H. Dihystera, H. digitiformis, H.erythrinae, Pratylenchus pratensis, P.penetrans, Meloidogyne incognita, M. to and frown, M. arenaria, Ditylenehus dipsaci) was found to be common.

In plants, the root nodule nematodes are called diseases that produce gel-meloydoginosis. We meloidogyne tomatoes incognita, M. javanica, M. we observed the damage with representatives of arenaria.

During the research carried out on the tomato plant in the greenhouse conditions, the same thing became known, among the identified parasitic nematodes, the root coniferous nematodes belonging to the Meloidogyne generation caused serious damage to the plant, not only the growth, development, but also the decrease in yield, in some cases, the destruction of the plant on the top of the crop.

In order to organize measures to combat the nematode of the root, it is necessary first of all to take into account the biology, prevalence, sources of the parasite, as well as all other pests and diseases of the plants to which the research is carried out. This in turn leads to the successful implementation of the counter-measures that are being taken. In order to fight against the Nematoda of the root bud, it is necessary to carry out the following actions.

Proceeding from the results obtained, it is necessary to apply the following measures to the growth and development of the tomato plant, as well as to increase its yield, protecting vegetable crops from phytogelminthoses.

To combat the praphylactic attack on the Bulma nematodes it is necessary to conduct an examination, which will indicate the presence of damage with this free of charge to the farms in the area close to the regions where the Bulma Nematoda is found, give information on the degree of damage and the map of the spread.

One of the most basic agrotechnical measures in the fight against strabismus nematodes is the exchange planting.

Bomama nematode the tires and other working bodies of the machines used in found greenhouses, as well as the working guns, are washed and cleaned of adhered soil in specially designated areas before use in healthy greenhouses, and are neutralized with a solution of 55 liters of farmalin, 30% of osh, 2% of carbonation, washing soda or water solution of ammonia.

Picking up and burning the diseased roots of plants after harvesting leads to a decrease in the number of chalk nematodes in the soil. At the same time, taking into account the temperate and extremely hot climatic conditions of the region, after harvesting the maturing crops, it is possible to plow the Earth deeply (50-60cm), not watering it for 1-2 weeks, the death of phytogelminths at the influence of the sun.

Environmentally friendly and cost-effective, easy to carry out and the most promising way to combat storm nematodes in a physical way is the heating or drying of the soil in sunlight, that is, solarization. This method is conducted during the warm (July-August) months of summer. In the fight against strabismus Nematoda , deep plowing of damaged large areas with the help of a tractor, this process is carried out 3 times more often. During this period, the cultivated fields are not watered. As a result of the steep fall of the sun's light, the turbid nematodes in the soil are destroyed. This method is the first time in the practice of phytogelmintology professor Sh.H.It was developed by khurramov in the fields of Surkhandarya region in 1989-1990 [9].

The fight against strabismus nematodes by biological method is considered to be the most convenient, affordable and environmentally friendly method for agricultural production.

Rain worm living in the soil in the destruction of these nematodes multiply in special placestirib, freely to lands with great damage, 1 sq. m. place 400-500 copies of the rain worm is laid, it gives good results. Because the worm eats nematodes, reduces their number, increases soil fertility and provides high yields.

The method of combating chemicals is a method that is very expensive in agricultural production and causes great damage to the environment. Therefore, the use of this method is much more forbidden and limited in subsequent years. In the fight against chemicals, the following nematisides can be applied to the Stormy nematodes: vidat, geterofos, dazomet, dd(50x), ipam-40, carbotion and thiazone.

In greenhouses, nematosides should be laid 30 days before planting in spring and autumn. Before grinding the nematosides into the soil, the Earth is plowed, the incisions in it are crushed and the remains of the plant are harvested. The plowed area is stored at a temperature of 7-10 days 12-140S. Because during this period, the larva of the bulging nematodes protrudes into the soil composition. The soil should be moist and its temperature at a depth of 10-15 cm 12-150S. The effect of nematisides gives a good result in moist and heated soil. The medicine should be ground early in the morning and watered at least on the account of 20l/m2.

CONCLUSION

In conclusion, we can say that due to the results obtained, the growth and development of the tomato plant, as well as increasing its productivity, the population of parasitic nematodes can achieve a certain amount of reductiontirishga in the individual application of preventive measures in the protection of vegetable crops from phytogelminthoses, however, their application in combination guarantees high efficiency.

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