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Article

Species Composition of Phytonemato Distributed in Lavender (Lavandula) Plant

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Annotation: The article provides information about the phytonematodes found in the soil around the roots of the lavender (Lavandula) plant grown in the lavender plantation belonging to "Khisor Forestry", Sariosia District, Surkhandarya Region. As a result of the research, 35 species of phytonematodes were identified. In lavender (Lavandula), a large number of phytonematodes accumulate in the soil layers around the roots compared to the roots. Phytonematodes fauna is found at a depth of 0-10 cm. Plant roots in the soil layers of 10-20 cm and 20-30 cm and root girth were noted to differ in each soil layer, with the highest number of species and individuals recorded in the 10-20 cm soil layer.

Keywords: nematoda, lavender, ectoparasite and endoparasite, pararızobiont, eusaprobiont, devisaprobiont

1. Introduction

Nematodes roundworms (Nemathelminthes) type belong to the class of true roundworms (Nematoda) and are widely distributed organisms in nature. causes serious damage to plants, causing them to die [3]. It should be noted that raw material plants, as well as medicinal plants, are affected by various ectoparasitic and endoparasitic phytonematodes. Parasitic phytonematodes not only reduce the value of medicinal plants, but also have a negative effect on the active substances contained in them. Information on nematodes of essential oil plants is rare. At the same time, essential oil plants are an important source of raw materials in medicine and other field practices.

There is very little information about nematodes of medicinal and raw plants in Uzbekistan. Although some information is given in the works of N. B. Adilova [1], H. S. Eshova [2], phytonematodes of the lavender (Lavandula) plant have not been studied at all.

The purpose of the study is to determine the fauna and ecological groups of phytonematodes found in the root and surrounding soil of essential oil plant lavender, grown in the plantation belonging to "Khisor Forestry", Surkhondarya district, Sariosiyo district.

2. Materials and Methods

2023 was collected from the lavender plantation belonging to "Khisar Forestry", Sariosia District, Surkhondarya Region. Samples were taken by the route method [4] from the depths of 0-10 cm, 10-20 cm, 20-30 cm of the soil layers of lavender root and around the root. 10 samples were taken from plant roots and soil around the roots, 60 samples were collected in total. Nematodes were isolated from the samples by the Berman funnel

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method [4] and fixed in TAF (triethanolamine: formalin: water in 2 ratio) solution. Among the fixed phytonematodes [4, 5] permanent and temporary micropreparations were prepared according to the methods of Krall (1969) [4]. The species composition of phytonematodes was studied using a BX53, "Olympus", SC-180 light source microscope.

3. Results and Discussion

As a result of the study of phytonematodes found in the root and peri-root soil of the lavender plant grown in the plantation belonging to "Khisor Forestry", Surkhondarya district, Sariosiyo district, 2 subclasses, 8 genera, 17 families, 35 species of phytonematodes belonging to 24 genera were found. was determined.

The genus Monhysterida consists of 2 families, 2 genera, and 2 species. The genus Mononchida consists of 2 families, 2 genera, and 2 species. Dorilaimida family consists of 5 families, 7 genera and 13 species. The Alaimida family consists of 1 family, 1 genus, and 1 species. The Rhabditi order consists of 1 family, 2 genera, and 3 species. The order Teratocephalida consists of 2 families, 3 genera and 7 species. The genus Aphelenchida consists of 1 family, 1 genus, and 2 species. Order Tylenchida consists of 3 families, 3 genera and 4 species. In Dorilaimi, the representatives of the group made up the majority.

According to A. A. Paramonov's (1964) [5] ecological classification, phytonematodes are divided into five groups according to the diversity of nutrition, habitat and lifestyle. They consist of:

1) Pararhizobionts are free-living species adapted to living in the water environment, wet soils, with a mouth cavity - a stoma, feeding mainly on microscopic algae, sometimes bacteria, with a high rate of migration.
2) Eusaprobionts are considered true saprobiont organisms and live mainly in wood remains, dead green parts of plants and rotted roots. Although representatives of this group do not parasitize healthy plants, they are carriers of various diseases in plants, causing their widespread distribution in agrocenoses.
3) Devisaprobionts are semi-saprobionts that use the saprobiotic environment mainly as a place of residence, and are also found in healthy cells of plants, they feed on bacteria, fungi, and the remains of plant tissues, for the plant also performs sanitary functions. However, in plants, it transfers fungal and bacterial diseases to healthy tissues.
4) Phytohelminths or potential parasites that do not cause a specific disease
5) Phytohelminths or true parasites causing a specific disease.

We divided phytonematodes identified in our research into five groups according to their ecological groups, pararhizobionts 17 species (48.6% of all species found), eusaprobionts 4 species (11.4%), devisaprobionts 8 species (22.9%), phytohelminths that do not cause specific diseases - 4 species (11.4%), it was found that phytohelminths causing special diseases consist of 2 species (5.7%). Among the groups, pararhizobionts were the majority compared to others.

The distribution of phytonematodes in the soil layers around plant roots and roots was analyzed, it was found that the distribution of species and individuals was not the same. It is known that the roots of lavender penetrate up to 1 meter deep layers of the soil. A total of 5 species of 12 phytonematodes were identified in 80.0 g plant root sample. The species found in the root are Cephalobus regsedpis, Acrobeloides buetschlii, Chiloplacus propinquus, Acrobeles ciliatus and Ditylenchus dipsacı. When the species encountered in the root were analyzed by soil layers, it was observed that 1-2 nematode species were found in each layer. It was found that phytonemato individuals are relatively abundant in the 10-20 cm soil layer. According to the ecological groups, the meeting of devisaprobionts (4 species) and parasitic species (1 species) was noted in the root. 35 species of 246 phytonematodes were identified in lavender root zone soil. At the depth of 10-20 cm of the soil layer, the number of phytonematodes species and individuals was the majority. 11 species

of 56 phytonematodes were found in the 0-10 cm layer of the soil. Species found in this layer are Endorylaimus monohystera, Aporcelaimellus abtusicaudatus, Discolaimium cylindrisum, Alaimus primitivus, Rhabdita brevispina. Rh. filiformis, Cephalobus regsedpis Acrobeloides buetschlii. Acrobeles ciliates, Filenchus filiformis and Pratylenchus pratensis are considered.

According to ecological groups, pararhizobionts - 4 types, eusaprobiots - 2 types, devisaprobionts - 3 types, phytohelminths that do not cause special diseases - 1 type, phytohelminths that cause special diseases - 1 type.

25 species of 129 phytonematodes were found in the 10-20 cm layer of the soil. Species found in this layer are Monhystera filiformis, Clarcus papillatus, C parvus, Enchodelus macrodorus, Mesadorylaimus bastiani, Dorylaimellus directus, Eudorylaimus centrocercus, E pratensis, Aporcelainus superbus, Aporcelaimellus abusicaudatus, Discalaimium cylindrisum D. major. D. Smithi, Alaimus primitivus. Mesorhabditis monhystera, Rhabdita brevispina, Rh. filiformes, Cephalobus regsedpis. Acrobelaides buetschlii, Chiloplacus propinquus, Aphelenchus avenae, Filenchus filiformis, Pratylenchus pratensis and Ditylenchus dipsuci.

According to ecological groups, there are 15 types of pararhizobionts, 3 types of eusaprobionts, 3 types of devisaprobionts, 2 types of phytohelminths that do not cause special diseases, and 2 types of phytohelminths that cause special diseases.

22 species of 61 phytonematodes were found in the 20-30 cm soil layer. The species found in this layer are Plectus parietinus, Clarcus papillatus, C.parvus, Mylonchulus.solus, Enchodelus macrodorus, Mesodorylaimus bastiani, Dorylaimellus directus, D.mirus, Eudorylanius centrocercus, E. monohystera, Aporcelaimus superbus, Aporcelaimellus obscurus, Discolaiminim major, Mesorhabditis manhystera. , Panagrolaimus rigidus, P subelongatus. Cephalobus persegnis, Eucephalobus oxyuroides, Acrobeloides buetschlii, Acrobeles ciliates, Aphelenchus cylindricaudatus and Ditylenchus myceliophagus.

According to ecological groups, there are 11 types of pararhizobionts, 2 types of eusaprobionts, 7 types of devisaprobionts, 1 type of phytohelminths that do not cause special diseases, 1 type of phytohelminths that cause special diseases.

Among the detected phytonematode species, Cephalobus regsedpis, Acrobeloides buetschlii, Acrobeles ciliates were found in all soil layers around the root, and are common species. It is known from the literature that the species composition and number of phytonematodes depends on the type of plant and its characteristics, species specialization of phytonematodes, and changes in the environment. Also, it is known that the species diversity and amount of phytonematodes is more in the soil around the root compared to the root [6, 7]. In our studies, a higher concentration of phytonematodes was observed in the soil layers around the lavender roots than in the roots. It was noted that the fauna of phytonematodes found in the soil layers of the plant root and around the root differs by its specificity in each soil layer.

4. Conclusion

35 phytonematodes were identified in the root and peri-root soil of the lavender plant grown in the plantation belonging to "Khisor Forestry", Surkhondarya region. According to the ecological groups of the phytonematodes identified in the root and peri-root soil of the lavender plant, there are 17 species of pararhizobionts, eusaprobionts - 4 species, devisaprobionts - 8 species, phytohelminths that do not cause a specific disease - 4 species, phytohelminths that cause a specific disease - 2 species were identified. It was found that phytonematodes were not uniformly distributed in the soil layers around the plant base and root, the most of number of species and individuals was observed in the 10-20 cm soil layer. Cephalobus regsedpis, Acrobeloides buetschlii, Acrobeles ciliates are common species for all soil layers.

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