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ECOLOGICAL GROUPING OF PHYTONEMATODES OF TUGAI PLANTS

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Annotation

Phytonematodes usually affect plants of various ages, but they are dangerous for woody plants in the first years of life. When plants are infected with phytohelminths, growth retardation, deformation of stems and shoots, wilting of shoots, chlorosis are observed. The study of phytonematodes, their types and conditions of development and conditions of adaptation, is relevant.

Keywords: phytonematodes, phytohelminths, organism, growth, biotope, mesophiles, hygrophils, xerophiles, eurybionts.

Relevance

Root gall-forming phytonematodes cause the disease meloidynosis. They are dangerous pests, damaging up to 5% of the world's crop of cultivated plant varieties. Phytonematodes or phytohelminths are microscopic worms belonging to the class Nematoda type Roundworms usually their body is filiform or fusiform, usually 0.5 - 35 mm long, covered with a dense shell (cuticle). In the oral cavity of the phytonematodes, there is a skeleton - a piercing oral apparatus with which the nematode pierces the tissues of plants. The function of absorption of nutrients in nematodes is performed by the bulbus - muscular spreadrye in the middle of the esophagus. Many types of plant nematodes overwinter in the soil, especially in the overwintering parts of plants. (roots, tubers, bulbs, galls). In phytonematodes , the eggs are the hibernating stage, therefore, when the larvae emerge from the eggs, they infect the plants, penetrating into small roots, and some pass into the aerial parts. Phytonematodes have very high fertility, up to 3 thousand eggs per season. In addition, many nematodes give several generations per year, and therefore the offspring of one female is up to several billion individuals.

The life of plant nematodes depends on the humidity of the air and soil, temperature, acidity, and the mechanical composition of the soil. Usually, plant material, irrigation and rainwater serve as their distribution. They affect plants of various ages, but they are dangerous for woody plants in the first years of

life. Phytohelminthiases of many deciduous and coniferous species, fruit trees and ornamental shrubs, flower and agricultural crops are widespread . Usually, when plants are infected with phytohelminths, growth retardation, deformation of stems and shoots, wilting of shoots, chlorosis and browning of needles and leaves are observed. Underdevelopment and deformation of the root system is especially pronounced. Root nematodes of the genus Meloido gune , Xiphinema and Dongidorus form spherical galls on the roots of deciduous trees, while in conifers they form thickened roots. Nematodes of the genus Nererodera cause massive formation of secondary lateral roots.

Among the environmental factors affecting the energy of reproduction, the rate of development. Distribution and dynamics of the number of phytonematodes, the main role is played by soil moisture and temperature, since nematodes are active in the water film and are very sensitive to cooling or overheating. The acidity of the soil and its mechanical composition, seasonal physiological changes in host plants and other factors are also of great importance. For example, a large number of plant nematodes that cause diseases of coniferous seedlings is observed in nurseries that are located on sandy soils, at a soil temperature of + 18 - + 20 degrees and a humidity of 18 - 28%.

Phytonematodes winter in soil, some species in roots , tubers, bulb, galls. They can be spread through contaminated plant materials, soil, irrigation or rainwater. The ability of phytonematodes to adapt to a certain degree of humidity allows them to be divided into the following large ecological groups: xerophiles, mesophiles, hygrophils, eurybionts. Xerophiles include the ecological complex of nematodes confined to purely arid conditions of existence. Nematode species belonging to this group were not found in riparian plants. The mesophilic ecological complex includes the species of phytonematodes confined to biotopes with a medium degree of moisture. The species included in this group were not found in riparian plants.

Hygrophils are a complex of nematode species confined to biotopes with excessive moisture due to the adjacent ground waters. Zerafshan tugai biotopes belong precisely to such biotopes, which is probably why 127 (836 specimens) out of 152 species of nematodes found are the composition of this ecological group. Hygrophils are subdivided into two subgroups: megathermal and mesothermal.

Megathermal hygrophiles are confined to the floodplain forests (tugai) of the river valleys of Central Asia. Among the nematodes of this ecological complex not

vsrechayutsya holodnos t oykie species. The hydrothermal regime of the floodplain forests in which megathermal hygrophiles live practically does not differ from the zone of growing crops in the valleys. In the conditions of irrigated agriculture, megathermal hygrophils can move to the cultivated zone and cause enormous damage to agriculture. In our studies, 86 species of nematodes belonging to methermal hygrophils were recorded. These species are found mainly in spring, summer and autumn. It has been found that in the spring and summer of high populations of such species of nematodes as Meloidogune hapla, Mincognita , Neterodira uzbiirestonica , H . turangae , N . g lycyrrhira , Pratulenchus pratensis , P . vulnus , P . tulaganovi , Ditylenchus dipsa gi , Nathorylenchus aliii , N . loksul , N . thorneki , Ektapne - Renoviya macrostylu s , Apnelenchoides besseyi , Aph . bicaudatus , Aph . compsticola , Aph . spinosus . Mesothermal hygrophils include nematode species confined to biotopes with excessive moisture at moderate and cold temperatures. Biotopes are also characteristic of the floodplains of rivers of Central Asia, where formations of small-leaved microdark forests are concentrated. Some species of mesothermic hygrophilous are potentially dangerous parasites of agricultural plants grown under irrigated agriculture, but they cannot survive on rainfed plantations. Due to the close proximity of tugai biotopes to mountainous areas, nematode species. Included in this group. They met very often and amounted to 41 species. The population of these species may also increase in winter.

It was found that in the winter and large quantities of nematodes are species as Merlinius dubius , M.Soclatu s, Rotylenochus goocleyi , Filenohus polyhipnus , theF . delenhus „ the

F . discrepans, Aphelenhoides kuchnii, Aph . sacchari, Aph. saprophilus , Aph . sc alacaudanus , Mesorhabditus inarimensis , M . Signifera , Rhabditus brevispina , Acrobeloides emarginatus , Prismatolaimus clolichurus , Mylonchulus lauusitrita , Gylencholaimus proximus , Eudoruclaimus pratensis .

These types of nematodes. Like Aph . kuchnii , Aph . Sacchari is much more common in winter than in spring, summer and autumn. This indicates that the dogs are much better adapted to the winter period of existence.

And also it has been studied morphological property and life cycle Gorcchakova mute tody on weed gorchak repens - Acroptilon repens in piedmont conditions . The second instar larva hibernates in the upper soil layers. Infection of the weed occurs during the germination period of the seedlings in March. The larvae penetrate into the axils of the seed leaves and at the point of growth of

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young shoots. As the plants develop, grayish-white galls are formed on the leaves, stems and root collar. Ripe Gauls darken.

During the growing season, two generations of nematodes can develop. The first generation develops at the beginning of June, the second at the end of August. At the end of the growing season of the weed, numerous second instar larvae can be found on the galls. With a strong infection, the galls are arranged in clusters around the main and lateral stems, because of which the plants acquire an ugly shape: the generative organs develop poorly or do not develop at all.

During the study period, 45 species of phytonematodes were identified in the root system and root soil of cultivated pecan on the territory of Uzbekistan. Belonging to 7 orders, 26 families and 29 genera. Of the registered phytonematodes of 17 species, representatives of the orders Dorulaimida and Gilenchida are parasitic. The rest are considered as pararisobionts (18 species), Eusaprobionts (3 species), Devisaprobionts (17 species).

Talk rezultatov.Rezultaty studies have shown that pecans prevalent representatives of the order Phabditida , which is represented by a large number of species, t.e.sostovlyaet 37.7% contribution of the whole complex of plant nematodes.

The second place is occupied by phytonematodes of the order Gylenchida, accounting for 22.2% of the total complex of phytonematodes. The rest of the orders Chromadorida , Plectida , Alamida , Mononchida are represented by more than one or two species.

The highest density of nematode populations on pecans is represented by the order Rhabditida , whose number is 71.6% of the number of all nematodes. The number of representatives of the order Aphelenchida is 16.5% of the total number of individuals. Dorilaimida 10.5%, Alaimidae , Mononchidae, Aphelenchidae, Ecoclidae and Chromodoridae do not exceed 1.4 % of the total number of nematodes.

Phytohelminths and Dewis aprobionts predominate in terms of the number of species , which account for 37.7% of all phytonematode species. Especially devisaprobes are the most numerous and account for 53.7% of the total number of nematodes in the samples. Fewer nematode species included eusaprobes.

Nematode fauna vegetable crops mainly belong to two under classes (Adenophorea , Secernentea) 6 groups (Araeolaimida , Monhesterida , Enoplida , Dorylaimida , Rabditida , Gylenchida) 15 families and 31 taxa rodu.Perechislennye unequally represented by the

number of species, i.e., the order Gylenchida (24 species) is characterized by the greatest diversity , and the order Rhabditida (16 species) is in second place . It should be noted that the peculiar habitat, which has a peculiar complex of ecological factors, is also peculiar to the composition of phytonematodes.

From the point of view of the relationship of nematodes with plants and the way of feeding, all species are subdivided into 4 ecological groups : pararisobionts, eusaprobionts, devisaprobionts, and phytohelminths.

Pararisobionts - common free-living soil nematodes, mostly gravitating towards the rhizosphere, are represented by 15 species. Most of the species of this ecogroup are concentrated in two layers (0-10 cm., 10-20 cm) of the root soil; however, three species are Eudorylaimus monhystera , Eud . Sulphasae , and Gylencha Laimus minimus also found in a small number of individuals in the root system of cucumbers. Among the pararisobionts leading a parasitic lifestyle - Nygolaimus brahyuris and Mezodorylaimus bastiani - were found in the root soil of tomato in a greenhouse.

Representatives of eusaprobionts are represented by 2 species. The first species was found in a small number of individuals in the root system and root soil of tomato in the greenhouse, and the second - only in the soil. In this regard, we can say that the named eusaprobionts have no practical value for greenhouse farms.

Davisaprobionts - atypical saprobionts - are represented by 14 species. In our opinion, three species of this ecogroup are of greatest interest - Pangrolaimus rigidus , Heterocephalobus elongates, and Chiloplacus pr opinguus , registered in the root system of cucumbers and tomatoes.

Phytohelminths are real phytophages. From this eco-group, 24 species were found. Phytohelminths, by their attitude and way of eating, are divided into ectoparasitic mycohelminths (16 species), ectoparasitic phytophagous perforators (5 species) and true endoparasitic phytohelminths (3 species). The subgroup of mycophages includes species belonging to the genera Aphelenchus , Paraphelenchus , Seinura , Aphelenchoides and Gylenchus.

The subgroup of ectoparasitic phytophages - perforators is represented by 5 species. But two of them (Merlinius dubius and Helicotilenchus multicinchus) are found in the root system of cucumbers and tomatoes. Apparently, nematodes of this subgroup sometimes behave like true endoparasitic phytohelminths . Among the phytohelminths of tomato and cucumber, a special place is occupied by true

endoparasitic phytonematodes , which are represented by 3 species : Meloidogyne hapla , Ditylenchus dipsagi, and Pratylenchus pratensis . T hese species are recorded in the root system of both crops, and the latter two are also recorded in the aerial parts.

Conclusion of the ode. Thus, from 55vidov nematodes, 33 species of varying degrees associated with plants, and in all cases I 's most species found in the vegetative parts of the plant first , dominance belongs to the representatives of phytohelminths environmental group.

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