

**ROSEHIP PHYTONEMATODES (ROSA CANINA L.) IN THE  
NORTHERN REGIONS OF THE SURKHANDARYA REGION OF  
UZBEKISTAN**

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**ABSTRACT**

*The article provides data on the fauna and distribution of phytonematodes in the root soil and root system of wild rose plants in the northern regions of the Surkhandarya region of Uzbekistan. As a result of the research, 29 species of phytonematodes were identified, belonging to 18 genera, 12 families, 5 orders and 2 subclasses. Among the phytonematode fauna of rosehip plants, numerous species were *Cephalobuspersegnis*, *Chiloplacussclerovaginat*, *Ch.quintastriatus*, *Panagrolaimusrigidus*, *Aphelenchusavenae*, *Aphelenchoidesparietinus*, *A.composticola*, *A.limberi*, *A.blasthophthorus*, *A.graminis*, *Helicotylenchuserythrinae*, *Pratylenchuspratensis* and *Ditylenchusdipsaci*.*

**KEYWORDS:** *Rosehip, Phytonematodes, Fauna, Root Soil, Root System.*

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**INTRODUCTION**

Rosehips are deciduous shrubs and shrubs, sometimes evergreen, with erect, climbing or creeping stems of varying heights or lengths, from 15-25 cm to 8-10 m. The height of the same species can sometimes vary depending on growing conditions.

Usually rose hips are multi-stem shrubs up to 2-3 m tall and live up to 30-50 years. But some specimens of these species, reaching an age of several hundred years, grow into whole trees. The oldest rose (dog rose) grows in Germany on the territory of Hildesheim Cathedral. Its age, according to various estimates, is from 400 to 1000 years. It reaches 13 m in height, and the girth of its trunk at the base reaches 50 cm.

Many types of rose hips contain high amounts of vitamin C, which makes them valuable for medicine and a healthy diet.

In rose hips, ascorbic acid is about 10 times more than in black currant berries, and 50 times more than in lemon, 60-70 times more than in the needles of pine, spruce, fir or juniper. The most valuable in this respect are white-flowered and red-flowered species. The hypanthium of pink-flowered species of vitamin C contains much less, and in the hypanthium of yellow-flowered species it is very small, but there are a lot of tannins and tannins. Depending on the place of growth, the chemical composition of the fruits of different species of rose hips changes.

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The flesh of the wild rose hips, which is of industrial importance, contains about 1% (by wet weight) of vitamin C. Fresh rose hips in the European part of Russia contain 1.5% of vitamin C, and in the Irtysh basin in Kazakhstan - 4.5%. The highest content of vitamin C among the species growing on the territory of the former USSR is in the Begger's rose hips - from 7 to 20%.

## Material and research methods

The material for this work was the samples of rosehip plants and its root soil collected during 2020-2021. in the territories of the northern districts of the Surkhandarya region. The studies were carried out by the generally accepted route method [2]. To study the nematodological complex of rosehip plants, 250 plant and 250 soil samples were collected and analyzed. Of these, 932 individuals of phytonematodes were extracted by various methods.

Phytonematodes were removed by the Berman funnel method and fixed with 4% formalin solution. Enlightenment of nematodes was carried out in a mixture of glycerol with alcohol (1:3), and permanent preparations on glycerol were prepared for in-office processing of the material according to the Seinhorst method [6]. Soil samples for the presence of cyst nematodes were usually analyzed according to the standard Decker method [1].

The species composition of nematodes was studied under an MBR-3 microscope. To determine the species, we used morphometric indicators obtained according to the generally accepted De Man formula [3] in its modification according to Micoletzky [5]. The degree of dominance of phytonematodes in plant and soil samples was determined from the percentage state of individuals of certain species to the number of all those found by Witkowsky [4].

## RESULTS AND DISCUSSION

During the period of phytohelminthological studies (in the root soil and root system of rosehip plants) in the northern regions of the Surkhandarya region, we identified 29 species of phytonematodes belonging to 18 genera, 12 families, 5 orders and 2 subclasses.

652 individuals (69.9% of the total number of detected phytonematodes) were registered in the root soil of the dog rose, belonging to 29 species.

In the root soil of plants from 5 orders of the nematode class, the most diverse are orders Tylenchida-9 species, Rhabditida-8, Dorylaimida-5, Aphelenchida-4.

The main faunal complex of phytonematodes in the basal soil of rose hips is composed of the species *Cephalobuspersegnis*, *Eucephalobusoxyuroides*, *Acrobelloidesbuetschlii*, *Chiloplacussclerovaginat*, *Panagrolaimus*, *Rhabditisbrevispina*, *Aphelenchusavenastae*, *A. capitatus*, *Helicotylenchuserythrinae*, *Pratylenchuspratensis*, *Ditylenchusdipsaci*, and some relatively few species.

In the rosehip root system, 280 individuals (30.1% of the total number of detected phytonematodes) were found, belonging to 15 species. Among the parasisobionts, only *D.communis* is found in the root system. *C. persegnis*, *E. oxyuroides*, *A. buetschlii*, *Ch.quintastriatus*, *Ch.sclerovaginat*, and *P.rigidus* prevailed from the group of devisaprobates. Among the eusaprobionts, *Rh.brevispina* was common. Among the representatives of phytohelminths of nonspecific pathogenic effect, *A. avenae*, *A. parietinus*, *A. blastophthorus*, *A.composticola*, *A. graminis* and *A. limberi* dominate. From the group of phytohelminths with a specific pathogenic effect, *Q. capitatus*, *H. erythrinae*, *P. pratensis* and *D.dipsaci* prevailed.

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The main phytonematode community of the rosehip root system consists of the species *C. persegnis*, *Ch.sclerovaginitus*, *P.rigidus*, *Rh.brevispina*, *A.avenae*, *A.parietinus*, *A.composticola*, *A.graminis*, *A.limberi*, *Q.capitatus*, *H. erythrinae*, *P. pratensis* and *D. dipsaci*.

In the root system of rose hips, of the 4 orders of the nematode class, the most diverse are orders Tylenchida - 6 species, Rhabditida-5 and Aphelenchida - 4 species. Among the above orders, in terms of species composition, representatives of the order Tylenchida dominate, containing 33.4% of all detected species in the root system of plants. In terms of the number of individuals, representatives of the order Aphelenchida prevail, which is 42.6% of all registered individuals in the roots of rose hips.

The following species dominate in the root soil and root system of rosehip plants: *D.communis*, *C. persegnis*, *E. oxyuroides*, *A. buetschlii*, *Ch.quintastriatus*, *Ch.sclerovaginitus*, *P.rigidus*, *Rh.brevispina*, *A.avenae*, *A. parietinus*, *A.blasthophthorus*, *A.clarolineatus*, *A.composticola*, *A.graminis*, *A.limberi*, *A.macronucleatus*, *B.dubius*, *Q.capitatus*, *H..dihystera*, *H.erythrinae*, *P.pratensis*, *P.hamatus* and *D.dipsaci*.

All detected nematodes (in the root soil and in the root system of wild rose plants) are distributed by orders as follows: Order Tylenchida is represented by 10 species, Rhabditida-7, Dorylaimida-6, Aphelenchida-5 and order Enoplida - 1. In terms of the number of individuals among the orders, the first place The Aphelenchida detachment occupies 44.1% of the total number of detected nematodes.

In the conducted phytohelminthological studies of the rosehip plantation in the northern regions of the Surkhandarya region, numerous species of rosehip plant phytonematodes included *C.persegnis*, *Ch.sclerovaginitus*, *Ch.quintastriatus*, *P.rigidus*, *A.buetschlii*, *E. oxyuroides*, *D.communis*, *Rh.brevispina*, *A.avenae*, *A.parietinus*, *A.composticola*, *A.limberi*, *A.blasthophthorus*, *A.graminis*, *A.dactylocercus*, *A.macronucleatus*, *H.erythrinae*, *P.pratensis*, *Q.capitatus*, *D. dipsaci* and *D. myceliophagus*.

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