Volume 2, Issue 4, April - 2024 **ISSN (E):** 2938-379X

METHODS OF DISTINGUISHING PHYTONEMATODES IN PLANTS

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Abstract
Information is given on the methods used in the isolation and study of plant nematodes. The advantages, disadvantages and features of the methods are mentioned.

Keywords: Mashrut, compressor, funnel methods and their application.

Introduction

We use the following methods for extracting plant phytogelments. 1. Mashrut method - it is used to study the nematode fauna of trees and shrubs and to know the distribution of phytohelminths. For this, the circumference of the sampled plant is dug 40 cm deep, 1-1.5 meters wide for shrubs, 2-2.5 meters wide for trees, and the small roots of the plant are separated from the soil. In addition, a 1-1.5 kg sample is taken from the soil around the roots. We receive samples mainly in May-June. In the Mashrut method, samples are collected along the diagonal of the plantation, the samples are put in polyethylene bags, and the location, time, and plant type of the sample are written on paper and glued to the polyethylene bags. Our phytohelmetological laboratory should have optical instruments, apparatus, small auxiliary devices, reagents and other equipment. For analysis of plant roots and soil, a table covered with glass or smooth materially coverings is needed. It is necessary to observe cleanliness when working with phytogelments. The special table should be washed and wiped with alcohol. Then the notes on the sample label are written on the record sheet. A special table covered with glass or smooth material is needed for plant and soil analysis. To determine the number of phytonematodes, the isolated plant organs are cut into small pieces of 0.3-0.5 cm using a scalpel or scissors. In this regard, phytonematodes are isolatedsmall pieces are cut with the help of 0.3-0.5 cm. In this regard, phytonematodes are isolated

A more visual method is used to isolate and identify phytonematodes from plant tissues. Visual method - this method can relatively easily determine whether there are phytonematodes in infected plant organs.

For this, a piece of an infected leaf, stem, root, tuber, rhizome is taken, mixed with a certain amount of water in a watch glass or Petri dish, and the plant tissue is cut into pieces using an entomological needle. In addition, with the help of a scalpel, plant organs can be divided into small pieces and placed in water. Phytohelminths emerge from plant tissue very quickly and can easily be seen under binoculars.

A number of methods can be used to isolate the nematodes present in the above-ground organs and root system of plants. This largely depends on the properties and amount of plant material.

Compressor method. This method makes it possible to study young and very delicate plant organs. After the root of the plant is completely washed and freed from the soil, it is dipped in water mixed with iodine solution (1%) for 10-15 minutes. After that, it is cut to a length of 1-2 cm and placed in the window of the product. 1-2 drops of water are dripped on it, and it is densely covered with glass of the 2nd item. Phytohelminths of yellow-brown color are very well visible under binoculars among plant tissues that are not stained in iodine solution.

Funnel method. This method is based on the active release of phytonematodes from infected plant tissues, and the nematodes that have come out into the water sink to the bottom of the fistula-test tube. Plastic or glass funnels with a diameter of 12-15 cm are used to determine the total number and type of phytohelminths in plant organs. A 10-15 cm rubber hose is inserted into the thinned part of the funnel and is clamped with a clamp spring. In the next free part of the rubber hose, an entomological test tube for collecting phytonematodes is placed. Funnels with a rubber hose and a test tube are placed vertically on a wooden stand with special holes. A flat sieve made of iron or plastic with a diameter of 10-12 cm and a mesh size of 0.5-2 mm is placed in the funnels. The funnel is filled with clean tap water or 0.15-0.3% hydrogen peroxide solution so that the plant samples placed on the sieve should be completely immersed in the liquid. In addition, placing the plant samples on a milk (cotton) filter or hygroscopic cotton allows for clean isolation of nematodes in the test tube. In the process of pouring water into the funnel, it is necessary to pay attention that air does not remain in the rubber hose. In such cases, it is necessary to squeeze out the air by hand. A label with the sample number and the date of placement is placed on the edge of the funnel. At the same time, the sample can be encrypted and printed on the field log and label. Taking into account the type of plant (stem, stem, root) and the time of decay, samples are taken after 12 (fast rotting), 24, 48, 72 hours. If the test tube is removed long after the expiration date, then the nematodes remain in the sludge formed by organic compounds, which makes it difficult to isolate and count phytohelminths. However, if the test tubes are removed long before the deadline, then the phytohelminths will not come out completely, but only partially. This means that it is necessary to determine the optimal time for each phytohelminth. Using a pipe clamp, 15-20 ml of water in the funnel is poured from its thinned part into a test tube or penicillin container. If it is not possible to analyze the samples on the same day, then the nematodes in the test tube are kept in a water bath at 50-550s for 2-4 minutes, then 1 part of 40% formaldehyde solution is poured into 10-20 parts of nematode suspension. We often use the above, but there are also methods of homogenization, soil washing and analysis, filtration, centrifugation, and paper strip methods.

Conclusion

In conclusion, the methods facilitate the isolation and identification of phytogelment studies, but each method has some disadvantages. For example, in the funnel method, the slow-moving nematodes cannot get out of the plant tissue for a day or two, and we cannot fully see the nematodes. Unfortunately, there is no one method that is ideal for all nematode species under all conditions. Nematodes vary in size, surface structure, and mobility; composition, compactness and organic matter content of plant and soil samples. In addition, the choice of

method depends on the purpose of mining, the time and equipment available, the required efficiency and preferences of the person performing the mining.

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