



PHYTOMEMATODES FAUNA AND ECOLOGY OF NORTH-EASTERN UZBEKISTAN

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Abstract

This study is dedicated to the study of the fauna and ecology of phytomematodes in the territory of North-Eastern Uzbekistan. The study analyzed the species of phytomematodes, their ecological characteristics, and their impact on various agroecosystems. The data can be applied to preserve the biodiversity of phytomematodes and increase agricultural productivity.

Keywords: Phytomematodes, Fauna of Uzbekistan, Agroecosystems, Soil Ecology, Biodiversity, Meloidogyne, Pratylenchus, Agricultural Pests, Ecological Factors, Soil Analysis.

Introduction

To identify the fauna and ecological characteristics of phytomematodes in North-Eastern Uzbekistan and study their impact on agroecosystems. The study was conducted from 2022 to 2024 in various agroecosystems of North-Eastern Uzbekistan. 15 sample areas were chosen for soil sampling from the Tashkent, Namangan, and Fergana regions.

Sampling Methodology

- Soil samples of 20×20 cm size were collected from a depth of 20 cm.
- Samples were checked for plant roots, soil particles, and moisture content.

Separation of Phytomematodes:

Phytomematodes were separated from the soil using the Baermann technique. The separated samples were identified under a microscope based on morphological features. Nematodes were classified by genus and species, and the ecological conditions of the biotopes, such as soil type, pH, and moisture levels, were studied.

Data Analysis:



Data were analyzed using Excel and R programs.

Results:

1. Species and Diversity of Phytomematodes:

The study identified phytomematode species such as *Pratylenchus*, *Meloidogyne*, *Heterodera*, and *Tylenchus*.

- The most frequently encountered species were *Meloidogyne incognita* and *Pratylenchus penetrans*.
- Species diversity was linked to the soil type and moisture levels of the agroecosystem.

2. Impact of Ecological Conditions:

- Neutral pH (6.5–7.5) and moderate moisture levels created favorable conditions for the multiplication of phytomematodes.
- In sandy soils, the number of *Pratylenchus* species was higher, while in clay soils, *Meloidogyne* species predominated.

3. Impact on Agroecosystems:

- Phytomematodes caused significant damage to cotton, vegetables, and cereal crops.
- Nematodes were responsible for a 15–20% reduction in cotton yields.

The study demonstrated the uniqueness of phytomematode fauna in North-Eastern Uzbekistan. The physical and chemical properties of the soil significantly affect the biodiversity of nematodes. These findings are important for developing strategies to combat agricultural pests.

Conclusion:

The study identified a variety of phytomematode species in North-Eastern Uzbekistan. The ecological factors of the soil have a significant influence on their distribution. The results of this research can serve as the basis for developing biological and ecological control methods for phytomematodes.



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