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## TOMATO'S PHYTOPHTHORA DISEASE AND MEASURES TO CONTROL THEM IN GREENHOUSES

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### ABSTRACT

*One of the factors hindering the rich, high-quality and environmentally friendly yield of tomato plants grown in greenhouses of the Republic is the presence of various groups of microorganisms (fungi, bacteria, viruses) and various diseases caused by adverse environmental conditions, including phytophthora. An analysis of the literature on measures to combat them is given.*

**KEYWORDS:** Tomatoes, Phytophthora infestans, fungal diseases, monitoring

### INTRODUCTION

So far, the scientific basis of diseases of tomato plants in greenhouses and the types of fungi that cause them, their development, distribution laws and measures to combat them have not been developed. Positive resolution of the above issues is one of the most pressing issues of today.

The disease is caused by Phytophthora infestans oomycete fungus. In recent years, tomato phytophthora has become a common disease in greenhouses in Uzbekistan. In cool and humid weather, 60–70 percent of tomato fruits can be damaged. The disease begins during flowering plants. The leaf bands bend down and the leaves hang down; spots appear on the leaves, similar to burns in boiling water, which then turn brown or dark brown, then the leaf tissue becomes slightly pale and thin paper-like [3].

The disease begins during flowering plants. The leaf bands bend down and the leaves hang down; spots appear on the leaves, similar to burns in boiling water, which then turn brown or dark brown, then the leaf tissue becomes slightly pale and thin papery. In humid weather, a soft, thin, oozing mold layer appears around the spots under the leaves. At high humidity and warm temperatures the leaves can completely rot and almost all plants die. When the inflorescences are damaged, the inflorescences and petals darken and dry out. Infected twigs develop elongated or variable shape, reddish-brown spots, the twigs and leaves look like burns. On the fruits appear hard, irregularly shaped, brownish, slightly rough spots and sores on the surface. Such fruits quickly rot completely under the influence of secondary microorganisms. High humidity (rain, dew) and cool

temperature (10 -25°) are favorable conditions for the development of the disease.

The fungus overwinters in open fields in plant debris on the soil and in weeds belonging to the ovipositor family. The disease is also spread from potatoes and tomatoes in fields adjacent to the crop. The emergence of disease in nurseries is very dangerous; symptoms of the disease may not occur at high temperatures, they form phytophthora foci when transplanted into the open field [8].

### METHOD OF DETERMINATION OF MUSHROOM TYPES IN HOSPITAL AIR

To study the prevalence of facultative parasitic fungal species that cause disease in the greenhouse, we used Petri dishes with Susa - if, Chapeka, potato agar, Bilay nutrient media. We placed them on top of the plates near the tomato and cucumber plants, placing the first plate on the ground and the rest every 0.5 m upwards. After 5 - 10 min, we covered the plates and allowed them to grow in the laboratory at a temperature of 23 - 25°C. From 3 to 4 days, we conducted observations every day. In doing so, we looked at the microscope with a small object from the back without opening the plates. Once the colonies were well grown, we transferred them to nutrient medium solutions in front of the flame with a sterilized microbiological loop and identified fungal species.

### MEASURES AGAINST

Development and application of resistant and tolerant varieties; raising the grooves; pre-sowing seed treatment with an effective seed sprayer; crop rotation; not planting in fields where tomatoes or



potatoes were planted the previous year; planting in fields away from other potato and tomato crops; ensuring good wind circulation in the crop (timely pruning of excess branches, ventilation); giving the recommended minimum amounts of nitrogen fertilizers (these, especially nitrate forms, lead to a strong development of the disease); fungicide for prophylaxis of tomato plants with the appearance of the first signs of disease in the early potato crop during the growing season (mancotseb alone or in combination with metalaxyl, 0.2% ridomil, 0.5% captan, 0.4% copper chloride, 1% Bordeaux liquid and b.) spraying; it is recommended to remove plant debris from the field and dispose of it [5].

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