European Journal of Interdisciplinary Research and Development
Volume- 45 November- 2025
Website: www.ejird.journalspark.org ISSN (E): 2720-5746

DISEASES OF CUCUMBERS GROWN IN GREENHOUSES AND MEASURES TO COMBAT THEM

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Abstract:
This article covers the main diseases of cucumber plants grown in greenhouses, their causes and development conditions. In particular, the symptoms of such common diseases as Fusarium, Cladasporiosis (brown spot, olive mold, and squid disease) are analyzed in detail. Also, modern methods of preventing and combating diseases - agrotechnical prevention, the effectiveness of biological and chemical protection measures - are considered on a scientific basis. The article provides practical recommendations for ensuring stable yields in greenhouses, maintaining plant health, and growing environmentally friendly products.

Keywords: Greenhouse, cucumber, Fusarium, brown spot, olive mold, squid, Plant, Cladosporiosis, protection, control.

Introduction

The disease is caused by the hyphomycete fungus (Fusarium oxysporum f.sp. cucumerinum). The pathogen rots the seeds and sprouting shoots of cucumber (and melon) planted in the soil, as well as young plants that have emerged from the soil; it is especially dangerous within 3-4 weeks from the date of planting. Wilt is widespread in open fields and especially in greenhouses in all regions of the world, including Uzbekistan (in melon and watermelon, wilt is caused by the adapted forms of the fungus F. oxysporum, f.sp. melonis and f.sp. niveum, respectively, which are also the most dangerous diseases of these crops in Uzbekistan.

The affected cotyledons turn yellow and rot, and the crop becomes very sparse. The roots and root collar of plants that have developed galls become dark brown, the bark rots; they lag behind in growth, and first some leaves, then all, wither and dry up. Sometimes a plant that appears healthy will wither overnight. In mature plants, the main symptom of the disease is the wilting of one or several lower leaves, then gradually of the upper ones, and finally of the entire plant. The vascular tissues in the stem, especially in the root collar, take the form of clearly visible silvery-white threads. If their roots or root collar are cut, dark yellow or reddish-brown spots can be seen on the water-conducting veins. The causative fungi are transmitted from season to season through plant residues, soil and seeds, and are preserved in the soil for many years with

the help of chlamydospores. Replanting melon crops in the same field in subsequent years leads to an increase in soil and crop contamination from year to year. Pathogens are spread within the field and from field to field by soil and infected plant particles, wind, soil-processing equipment and irrigation water.

RESEARCH RESULTS

Control measures. Maintain a moderate temperature and humidity in greenhouses; water the crops with warm water; disinfect the greenhouse walls, ceiling, and soil; sterilize equipment with boiling water; immediately uproot the first wilted plants and remove them from the greenhouse and burn them (remove plants with red mold very carefully to prevent the spread of conidia); plant resistant varieties in greenhouses and fields; treat seeds with an effective fungicide (Vitavax 200FF) before planting; apply balanced fertilizers; it is recommended to establish a crop rotation in the fields, which involves replanting melon crops every 4-5 years.

Cucumber cladosporiosis (Brown spot, Olive spot, Squid spot). The disease is caused by the hyphomycete (Cladosporium cucumerinum). The disease occurs in all regions of the world in open fields and especially in greenhouses, and is also widespread in Uzbekistan. Cladosporiosis can also affect melons, watermelons, and squash, but it is most common and develops strongly in cucumbers. The cotyledons, petioles, stems, leaf sheaths, and fruits of cucumbers are affected. Symptoms of the disease on the leaves resemble bacterial multi-edged spotting: spots and ulcers that resemble scalding with boiling water first develop on the leaves, usually round or oblong, sometimes irregular in shape, with a yellow border, brown in color, and multi-edged Dry wounds develop on the stem. Young, damaged tissues dry out quickly. The internodes between the leaf blades become short. Cucumber fruits are more affected than other organs. Small, colorless spots, similar to those burned with boiling water, first appear on them, which grow and turn into sunken, crater-shaped wounds with a diameter of 4-5 mm (photo). The fruits acquire an ugly shape and do not grow. In conditions of high humidity, a velvety layer of fungus, consisting of mycelium, conidiophores and conidia of the pathogen, develops on the spots on the leaves and wounds on the fruits, and on the fungus, drops of a brownish-green (olive-colored) or light gray-olive-colored, sticky liquid that quickly hardens in the air, appear. Dry sores develop on the stem. Damaged young tissue quickly dries up. Palak joints become shorter.

The fungus spreads through the crop by means of its conidia. Cladosporiosis affects plants at temperatures of 5-30°C and 32-100% humidity, but it develops strongly when the weather changes sharply, with cool nights (16-18°C) and hot days (28-32°C), and high humidity. The incubation period of the disease is on average 6-7 days. The incidence of the disease decreases in warm weather. The fungus overwinters in plant debris with its mycelium and conidia, as well as on seeds. Symptoms of the pathogen. The fungal layer that develops on the leaves and fruits of the affected plant consists of the mycelium and spore-forming organs of the pathogen. Conidiophores are up to 400 µm long, 3-5 µm wide, the lower part is swollen and up to 8 µm wide, light-olive-brown in color Conidia are usually 1-2-celled, up to 30 µm long, 3-5 µm wide. Conidia are long, in branched chains, 1, rarely 2-celled, cylindrical, ellipsoid, spheroidal or almost spherical, smooth or covered with small wart-like surfaces, light olive-brown in color,

4-25 (30) x 2-6 µm in size, often 4-9 x 3-5 µm

The control measures given in the section “Tomato cladosporiosis” are also effective against this disease. Creating and using resistant varieties; treating seeds with an effective fungicide before planting; disinfecting greenhouse walls, ceilings, and equipment; removing and burning plant debris from the field; deep autumn plowing; spraying the crop with fungicides is recommended when the first signs of the disease appear; of the available fungicides, Bordeaux mixture, copper oxychloride, benzimidazoles, zineb, and chlorothalonil are sufficiently effective against cladosporiosis.

CONCLUSIONS

Control measures (continued). At the same time, taking into account the consumption of fresh cucumber fruits, it is recommended to apply environmentally friendly preventive and agrotechnical measures to protect crops from cladosporiosis, powdery mildew, false powdery mildew, bacteriosis and some other diseases, and only in extreme cases (when epiphytotic development of the disease is expected), to use pesticides that are low in toxicity to humans and have minimal residues in the fruit (Bordeaux liquid, cuproxate, etc.), while at the same time providing the crop with high doses of potassium fertilizer.

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