



وزارة التعليم العالي والبحث العلمي

جامعة الانبار / كلية الزراعة

قسم وقاية النبات

(امراض خضر - Vegetable diseases)



Fourth stage

المرحلة الرابعة

Plant Protection Dept.

قسم وقاية النبات

د. رشيد مشرف ذير

Dr. Rashid M. Theer

Compositae or Asteraceae family diseases

1- Downy Mildew of Lettuce

The most important fungal diseases that affect the lettuce plant, especially in humid areas with a cold climate, and as a result of infection with this disease, the commercial value of this crop decreases, and damage occurs during transportation and storage.

❖ Favorable conditions

Disease suits high air humidity; If the dew or rain is necessary for the germination of the reproductive unit of the infection events, the temperature suitable for the development of the disease is (15) C, and irrigation of plants using sprinklers helps in increasing the severity of the infection.

❖ Symptoms

- 1- As in the other symptoms of downy mildew, where a white downy growth appears against the affected spots, which are of a pale yellow color.
- 2- Young seedlings die as soon as they appear above the soil surface.
- 3- On larger plants, pale green or yellowish spots appear on the upper surface of the outer leaves, especially close to the soil surface.
- 4- In severe infections, the affected plant will be reduced in size, and in case of increased humidity or during shipping, the plant may rot as a result of infection with scaling rot fungi or bacteria.



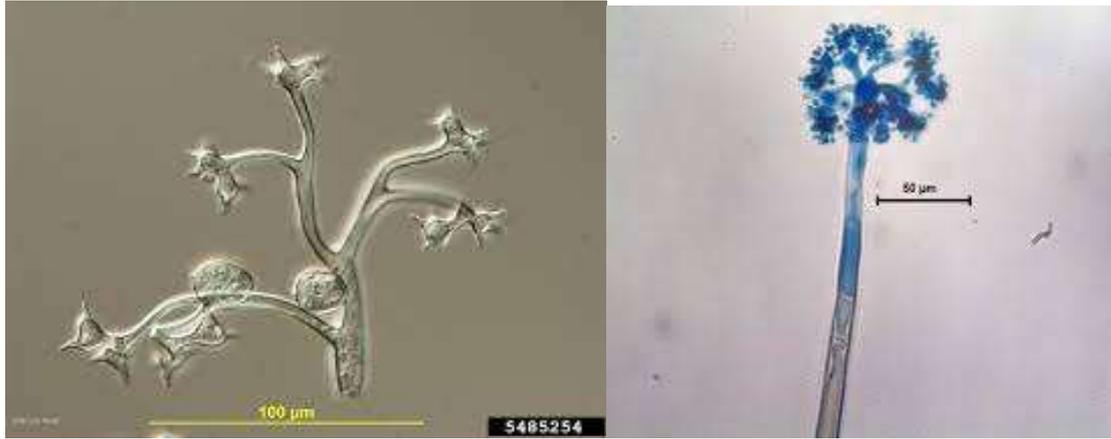
Symptoms downy mildew on Lettuce

Pathogen:

Bremia lactucae

The sporangia sac holders for this fungus are often dichotomous, with stratified ends emerging from their edges from 3-5 stamens, each carrying one sporangia sac oval or lemon-shaped.

Inside it there are spherical blackboards with two fringes, which are asexual blackboards, Zoo spore, and the fungi are sexual blackboards known as Oospore and they have thick walls.



Bremia lactucae

Cycle life

The fungus spends the winter on wild lettuce, and when the right conditions of heat and humidity arrive, the sporangia sacks spread to the seedlings and lettuce plants, where they sprout directly and give a germination tube.

Or it sprouts indirectly and gives ciliated spores, which germinate in the presence of free water points on the plant, and the occurrence of the infection requires the presence of high humidity in the air up to 100% and the presence of drops of free water on the surfaces of the leaves. about 15%.

Control:

- ❖ As in the resistance of other downy mildew, where the disease is combated by periodic spraying with appropriate fungicides such as thiram, and focus must be placed on removing the bush and wild lettuce.
- ❖ Cultivation of healthy seeds and not intensive cultivation.

- ❖ Collecting and removing infected leaves and plant residues and burning them
- ❖ It is not usually recommended to spray lettuce with fungicides to maintain public health, but when necessary, the seedlings can be sprayed with a solution of one of the fungicides recommended by the Ministry of Agriculture.

2- Marginal blight of Lettuce

Symptoms:

- 1- The first symptoms of the disease appear on the edges of the leaves that turn dark brown or black and the infection extends inward until it includes the entire leaf, causing it to wilt. After the germination of the seed and the blackening extends to the bottom causing its death or poor growth.
- 2- In the atmosphere saturated with moisture, soft rot forms in the marrow of the stem, which takes a dark olive color, but if the weather is dry, the edges of the leaves dry out and their color fades.



Symptoms Marginal blight of Lettuce

Pathogen:

The disease is caused by *Pseudomonas Marginalis*, an accram-negative bacteria that moves by one terminal flagellum. The bacteria are a bluish-green tint in the environment and grow at temperatures from 7-37°C and the optimum between 26-30°C.



Pseudomonas Marginalis

Control:

- 1- Follow an agricultural cycle in which susceptible crops are not planted.
- 2- Extermination of susceptible weed.
- 3- Take into account good drainage and avoid sprinkler irrigation.
- 4- Remove and destroy the affected leaves and store the plant in well-ventilated and low-temperature places.

3- Gray mold -5

Symptoms:

- 1- The infection begins on the leaves with the appearance of small yellow spots, but soon these spots grow and may extend to include the entire leaf, with a grayish-white or yellowish-brown color.

2- In wet weather, the affected parts become covered with a grayish-brown felt cover. This cover consists of mushroom spores, and stone bodies may form on the affected stems.

3- Flowers Water spots appear on the flowers and become in the form of a mass of fluff and spores under the right conditions.

4- The fruits are infected from the side connected to the neck, and the infection spreads quickly, forming grayish-brown spots. As the infection progresses, the fruits rot and remain gray in color.



Symptoms Gray mold

Pathogen:

Botrytis cinerea

In general, the fungus has an abundant amount of gray mycelium and the conidia are long and branched, with a spherical top, whose cells carry clusters of transparent oval conidia and their clusters resemble grape clusters.



Botrytis cinerea

Control:

- 1- Reduce humidity in greenhouses by ventilation or heating.
- 2- Exposing plants to the sun and good ventilation.
- 3- Do not waste watering and avoid sprinkler irrigation and late irrigation.
- 4- Maintaining cleanliness in the sense of removing old and decomposing plant parts and leaves first.
- 5- Pay attention to fertilizing with calcium and potassium or any element that enters into the formation of calcium pectate for cells, which limits the penetration of the fungus into tissues and indirectly works to resist disease.

References

- 1. Agriose, G. 2004. Plant Pathology. Fifth Edition .Academic Press.**
- 2.<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/fusarium>**
- 3.<https://www.britannica.com/science/plant-disease>**
- 4.<https://extension.umaine.edu/ipm/plant-disease/>**
- 5.<https://bsppjournals.onlinelibrary.wiley.com/journal/13653059>**