

Date-01-02-2025  
online class.

Department of Botany - U.G. part-III - paper-V E. Copy  
J. J. College, Ara., Or Sunil Pandit., Group-B, plant pathol

**Question** → Describe the role of enzymes in the development of plant disease or plant pathogenesis?

**Ans** → The enzymes which are secreted by the disease producing microbes are always helpful in creating disease in the host plants. The microbes when come to host plant or animals, they secrete some enzymes which destroy the cell wall of the host and make a way to enter the microbes into the body of the host. First of all the microbes attach to the body of host and secrete hydrolytic enzyme which destroy the cell wall of the host tissue, as a result the coherence of the cells is lost. Following are some enzymes secreted by microbes:

1. **pectic enzyme** → This enzyme is secreted by several bacteria nematodes and fungi. This enzyme may be divided into two groups.

(a) **pectinesterases (PE)** - This enzyme is also known as pectin methyl esterases.

(b) **polygalacturonases (P.G)** - These are a chain of enzymes which break the galacturonic acid unit related with pectic substances.

(2) **Macerating enzymes**:- protopectinases enzymes attack on protopectin substances and convert the soluble substance from insoluble ones and decompose the middle lamella.

(3) **cellulytic enzymes**:- These enzymes mainly destroy the cell walls and give nutrition to the microbes.

(4) **Hemicelluloses**:- Several saprophytic and parasitic microbes secrete this enzyme which convert them into pentoses and uronic acids.

(5) **Lignolytic enzymes**:- The bacteria are not capable of producing such enzymes but several fungi (about 500-550) of class basidiomycetes produce these enzymes which decompose lignin.

(6) **proteolytic enzymes**:- These enzymes are produced by *Trichoderma reesei*, *Phytophthora infestans*, *Stemphylium botryosum*, *Helminthosporium oryzae*.

(7) **Lipolytic enzymes**:- The enzymes are also called as lipase and phospholipidases. The lipolytic enzymes decompose lipids of several bacteria, fungi and nematodes found in atmosphere.

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Date- 01-02-2025 Department of Botany: B.Sc part-III Hons E. Copy  
online class. J.J. College Ara, Dr. Sunil Pandit. Time- 10:30-11:30  
Group-B- plant pathology.

**Question** → Describe the etiology, symptoms and Control of little leaf of brinjal?

**Ans** → The disease is caused by mycoplasma and carried out by Hishimonas phycitis vector. The bitter melon, water melon and carrot are the host for vector including brinjal.

The disease is first reported from Coimbatore in 1939 by Thomas and Krishnaswamy. The disease is very harmful and contagious. There is hardly any variety resistant to it. It is very common disease in Bihar.

**Symptoms:**— The following symptoms are observed in the diseased plant:—

1. The plants show extreme reduction in size of leaves and nodes giving a bushy appearance.
2. In a heavily infected plant the flowering and fruiting is very negligible.
3. Virescent and phyllod flowers are very common as reported by Angoniah and Rama Krishna (1972)

**Control:** → To check the disease following treatments should be given to the plant:—

- (i) The tetracycline treatment is very effective in controlling the disease.
- (ii) Spray of tetracycline at 500 ppm. has given a good result.
- (iii) The use of insecticides like diazinon or parathion with a mixture of 0.1% GHC and DDT in equal ratio is also effective.
- (iv) Burning of infected plants is also a preventive measure to be taken for the control of the disease.

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Date-01-02-2025  
online class

Department of Botany B.Sc part-II Home E. Copy  
Dr. Sunil Pandit

J.T. College, Ara Group-B, paper-II plant patho

Time-9:30-10:30

**Question** → Describe the symptoms, etiology and control of tundu disease of wheat  
**Ans** → Tundu disease of wheat is a bacterial disease caused by Corynebacterium tritici. The disease is also known as yellow slime. The Corynebacterium is a gram positive, rod shaped with single polar flagellum. It is believed that the bacterium complete its life cycle as symbionts with a nematode Angitia tritici. The nematode lives in soil and perhaps it carries the bacterium from one place to another. The seedlings are infected in the beginning, but the symptoms are visible at maturity.

**Symptoms** → The infected plant gives following symptom:—

- (i) The lower leaves become wrinkled and the middle leaves twisted.
- (ii) A bright yellow sticky slimy substance is exuded which envelops the whole ear.
- (iii) The stem, leaf sheaths, leaves etc. are also enveloped with the slimy substance.
- (iv) The stem and ears become distorted.
- (v) The growth of plant is retarded.



Fig Tundu disease of wheat.

**Control of disease** → The disease may be controlled by taking the following measures:—

- (i) The infected plants should be rooted out and burnt at distance.
- (ii) The seeds should be obtained from disease free area.
- (iii) The seed should be sown after a hot water wash.
- (iv) The seed should be treated with lime (40 lb salt in 25 gallon of water).

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