



Lecture No.: 19

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CORE CONCEPT OF
Group C - Microbiology

HONOUR'S PART 1
Paper - 1

SYMPTOMS OF VIRAL DISEASES

The symptoms of the majority of plant virus diseases are most conspicuous on plants making rapid growth.

Some of the symptoms frequently encountered are :

External Symptoms - The most common symptom in the green tissues of higher plants is the alteration in the normal development of chlorophyll-**chlorosis**. This may be a component with various other malformation. Besides this necrosis of tissue and dwarfing, distortion of a particular organ of the entire plant are also common symptoms.

The systematic symptoms are of widespread occurrence in the host tissue. Some of the external symptoms are described :

1. Chlorosis - The disbalance of normal development of chlorophyll leading to yellowing or formation of different shapes of green without pattern is the chlorosis.

2. Mosaic - The interspersion of various degrees of chlorosis with the normal green colour of the leaf resulting in mosaic pattern of yellow and green forms the mosaic symptom.

3. Mosaic Mottling - When the leaves show a mottling of light or dark-green, yellow or even white it is known as the mosaic mottling.



4. Necrosis - Death of the host cells or necrosis is a symptom of many virus diseases and may consist of small areas on the leaves streaks on the stem or large areas of dead tissue which ultimately cause the death of the whole plant.

5. Ring Spots - These spots consists of various types of chlorosis and necrosis. In each ring spot numerous concentric rings develop on the leaves with a central spot. Spots of circular chlorotic areas are known as **chlorotic ring spots**.

6. Vein clearing and Veinbanding - In infected leaves, when a clearing or chlorosis of the tissue in or immediately adjacent to the veins takes place is referred to as vein clearing.

7. Yellowing - Leaves and other green parts instead of developing green colour turn yellow, this is known as yellowing.

8. Distortion and Overgrowths - Distortion of the leaves is a common symptom of virus disease and may take the form of **crinkling** and **curling** or upward **rolling** of margins.

9. Stunting - This is shown by reduction in size of leaves or other organs of the entire plant. Stunting is frequently a complaint with rosetting. This is shown by shorter internodes, smaller leaves and fruits.

10. Premature Defoliation and Death - Premature dropping of leaves is also a symptom of virus disease. This may also lead to premature death of the affected plant.

Internal Symptoms - This will include intracellular inclusions. Certain abnormal intracellular inclusions are characteristic of various infections, they do not occur



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in diseases caused by other infectious agents. There are several different kinds of intracellular inclusions : **crystalline** or **fibrous** or **striate material**; **amorphous** known as **x-bodies**; **vacuolate material**; **intranuclear inclusions**; and **other types of inclusions**.

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