

B.Sc. Third Year, Semester - V
Botany Paper No. XVI (C)
Plant Pathology Unit-2

Plant Pathology

ii) Classification of Plant Diseases



Dr. S. S. Patale

Associate Professor

Department of Botany

**Smt. S. K. Gandhi Arts, Amolak Science
and P.H. Gandhi Commerce, Kada Dist. Beed**

Email- sspatale@rediffmail.com Ph. 9823937501



General symptoms are basically belonging to three main categories:

I. Necrosis

II. Hypertrophy and hyperplasia

III. Hypoplasia

I. Necrosis:

It is commonest and most destructive type of effect. The pathogen causes immediate and severe damage to host tissue and obtain their nutrients from cells killed in advance by secretion of enzymes and toxins. They are thus called necrotrophs. Some pathogen does not kill cells in advance, but they invade and kill host cells.

1) Leaf spot:

Localized lesions on leaves consisting of dead and collapsed cells. They are of various size and shape. If dead tissue shrinks and separates from the healthy tissue, the condition is known as shot hole.





2) Streak or Stripe –

In the form of Elongated, narrow lesions on leaves, usually of brown shade.



3) Blight –

General and extremely rapid and sudden browning and death of leaves, branches, twigs and floral parts or entire seedling/young plant turns brown to black and soon disintegrate.



4) Damping-off –

Soil born pathogen causes fast death and toppling down of young seedlings due to disintegration of stem tissues at ground level.



5) Burn, Scald or Scorch - In succulent organs like fruits, limited area die and turn brown.

6) Rots :

i) Root rot - Decay or disintegration of part on the entire root system.

ii) Stem rot: Disintegration of the stem mostly at the basal region.

iii) Soft rot and dry rot- Maceration and disintegration of fruits, roots, bulbs, tubers, corns, rhizomes and fleshy leaves.



7) Wilting –

Wilting of infected leaves due to plugging of Xylem vessels by fungus or mucilaginous substances is caused by some fungi. Later the whole plant wilts and dies.





8) Die Back –

Death of plant parts, as stem or branches from tip backwards.



9) Canker –

Localized dead area in bark or cortex of woody stems, often appears sunken.



10) Chlorosis –

Discoloration from normal color is common in some cases. The green pigments may be destroyed and the tissue becomes yellow. Caused by Viruses and fungi.



11) Blotch-

Due to infection some fruit develop superficial growth appearing as a blotch area.



12) Scab -

Localized, rough, slightly raised or sunken and cracked lesions on fruit, leaf, tuber etc.



13) White Bristles or Pustules -

White blister-like pustules on leaves or stem which break open at maturity exposing powdery mass of spores.



14) Rust -

Number of small pustules on leaves or stems, usually of a powdery mass of brown rusty color.



15) Smut -

Infected ovaries or galls filled with sooty or charcoal like, dark brown to almost black powdery mass of spores or mycelium of the fungus.

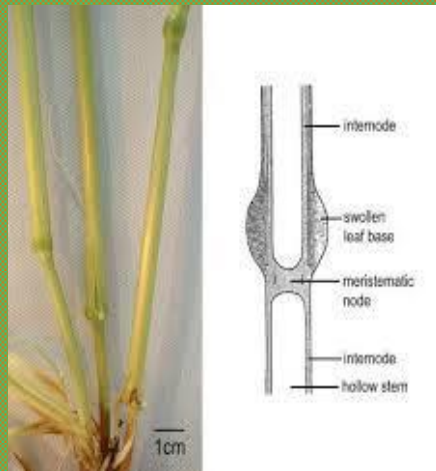


16) Mildew –

Disease areas on leaves stems, blossoms and fruits, covered with whitish mycelium and the fructifications of the fungus. In downy mildew the areas show a fur-like downy growth of sporangiophores and sporangia on the undersurface of leaves, which appear pale yellow, water-soaked area on the upper surface. In powdery mildews, the area is covered with superficial whitish powdery mass of oidia and oidiophores of the pathogen gives a dusty appearance.

II. Hypertrophy and hyperplasia (over development):

In some cases, there is abnormal increase in size of an organ or of entire plant, this is due to increase in size of individual cells of affected tissue is. Hypertrophy or due to increase in number of cells as a result of cell division, i.e. hyperplasia.



1) Elongated internodes:

Some of infected plants develop elongated internodes and become abnormally tall.

2) Galls and tumors:

These are globose, elongated irregular large sized outgrowth formed on attacked part. Smaller galls are warts tubercles





3) Witches' broom:

They are formed by fungi, bacteria and certain viruses as well as insects and mites. They arise basically from stimulation of structures which normally remain dormant as buds. The broom appears as an upright cluster of small shoots, contrasting with horizontal growth habit of normal shoots.



4) Curls:

The leaves are arched, puckered, twisted, curled and distorted.



5) Floral abnormalities:

Some fungi caused the infected inflorescence to enlarge; green and fleshy with stamens converted into leafy structures. The inflorescence becomes distorted.

III. Hypoplasia (under development):

In these instances, there is reduced development of the whole plant, parts of the plant, certain tissue, flowers or fruit, or chlorophyll. In extreme cases the organ or tissue does not develop at all.

1) Chlorosis:

Reduced development of chlorophyll results into various kinds of Chlorosis, mosaic and molting. Chlorosis may take the form of streaking. There may vein clearing or vein banding or a general Chlorosis.





2) Reduction of individual organ:

Individual leaves and Flowers may be reduced in size or altered in shape. Internodes are reduced in dwarf bunt of wheat.



3) Floral abnormalities:

In anther smut of Caryophyllaceae, stamens become sterile. One very common and characteristic floral abnormality is Phyllode i.e. transformation of floral parts into green leafy twisted structures.

Thank you