

# **DISEASES OF CRUCIFERS VEGETABLE**

**DFHCM (2+1)**

**THEORY CLASS**

**5THSEM**

# ALTERNARIA LEAF SPOT

- Common on cabbage, cauliflower and mustard.

**PAHOGEN:** *Alternaria brassicola*, *A.brassicae*, *A.raphani*

## SYMPTOMS

- Spots are small, dark coloured, they enlarge, soon become circular & 1mm. in diameter
- Under humid conditions groups of conidiophores will be formed in the spot.
- Spots develop concentric rings type.
- Finally the spots coalesce leading to blighting of leaves.
- The fungus is seed borne and cause shriveling of seeds and poor germination
- Linear spots also appear on petioles, stems, pods & seeds

## DISEASE CYCLE

- P.I: Mycelium persisting in the seed or as spores on seed or from debris
- S.I: Wind or insect borne conidia

## MANAGEMENT

- Hot water treatment at 50°C for 30min.
- Seed treatment with agrosan.
- Foliar spray with Mancozeb@0.2% or COC@ 0.3% twice.

**ALTERNARIA LEAF SPOT:  
*ALTERNARIA BRASSICOLA*,  
*A. BRASSICAE*, *A. RAPHANI***



# BLACK ROT OF CRUCIFERS

## SYMPTOMS

- First appear near the leaf margins as chlorotic or yellow (angular) areas
- The yellow area extends to veins & mid rib forming characteristic 'v' shaped chlorotic spots.
- Veins and veinlets turn brown and finally black this is the characteristic symptom.
- The vascular blackening extend beyond affected veins to midrib, petiole and stem.
- Bacterial ooze can also be seen on affected parts.
- If the infection is early, the plants wilt and die.

**PATHOGEN:** *Xanthomonas campestris pv. campestris*

- **Rod shaped bacteria measuring about  $0,7-3.0 \times 0.4-0.5 \mu$  with single polar flagellum. It produce pale yellow colonies in agar media.**

## **DISEASE CYCLE**

- Bacterium is internally seed and soil borne. It also survives on plant debris
- Bacteria enter through stomata of cotyledons.
- Also enters through hydathodes on leaf margin and also through wounds
- S.I: Bacterium through irrigation water or wind splashed rain and also by mechanical means

## **MANAGEMENT**

- ST with Agrimycin or Aureomycin 0.01%.
- Hot water treatment at 50 °C for 30min, for killing seed borne inoculum followed by a 30min dip in streptomycin 100ppm.
- Spray Agrimycin-100 or Streptomycin-50ppm at transplanting, curd formation and pod formation.
- Crop rotation for 2-3 yrs with non cruciferous crop.
- Drenching seed bed with 5% formalin or any antibiotic solution in nursery beds.
- R.V: Cabbage: Cabaret, Defender, Gladiator, Pusa Muktha
- Cauliflower: Pusa ice, Pusa snow ball-K-I-F, Sel-12

# BLACK ROT OF CRUCIFERS



# **DISEASES OF BHENDI**

***Sc.name:Abelmoschus esculentus***



# YELLOW VEIN MOSAIC OF BHENDI

**PATHOGEN:** *Bhendi Yellow vein mosaic virus or bhendi vein clearing virus* CONTAIN SSRNA AND BELONGING TO TYMOVIRUS GROUP

## SYMPTOMS

- Yellowing of the entire network of veins in the leaf blade (vein clearing) is the characteristic symptom.
- In severe infections the younger leaves turn yellow, become reduced in size and the plant is highly stunted.
- In a field, most of the plants may be diseased and the infection may start at any stage of plant growth.
- Infection restricts flowering and fruits are not formed, if formed, turns smaller, harder and rough.
- Loss in fruit yield ranges from 50-100% based on disease incidence

## DISEASE CYCLE

- P.I: Infected plant parts
- S.I: The virus is transmitted by the **whitefly**, *Bemisia tabaci*.

## MANAGEMENT

- **Tolerant varieties:** *Parbhani Kranti, Pusa savani, Janardhan, Haritha, Arka Anamika* and *Arka Abhay*.
- The disease spread can be restricted by spraying Dimethoate 2ml/lit.



# YELLOW VEIN MOSAIC



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