



Stem rot of mustard

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Introduction

- Most serious disease of oilseed crop *Brassica juncea* (राई)
- first reported from Pusa (Bihar) in 1915.
- Heavy losses occur in Gujarat and Haryana.
- In mustard growing regions of Northern M.P., heavy incidence of the disease have been found. Yield losses of up to 40-50% have been reported in this area.

Symptoms

- The symptoms are visible on stem after flowering.
- The symptoms first appear in lower leaves as small circular brown spots.
- These spots gradually increase in size.
- Later the spots coalesce to form larger spots.
- Severe infection results in exfoliation.
- Stem affected when 5-6 feet in height.
- First symptoms on a stem appear as thick whitish felting (woolen growth).
- Stem girdled with lesions become weak and lodge.
- Plants become straw coloured.
- Pellet like sclerotia of pathogen are found inside infected stem and pods.



Causal organism

Sclerotinia sclerotiorum

Perfect stage belongs to Ascomycetes

Fungus produces small black sclerotia.

Sclerotium of fungus germinate to produce apothecia (Shown in picture)



A single sclerotium with multiple carpogenic germinations showing apothecial discs at various stages of development.

Disease Cycle

- Sclerotia fall on ground and serve as primary inoculum.
- They survive in plant debris on the soil and also with seeds as contaminant for up to 5 years.
- They germinate to produce mycelia or apothecia.
- The mycelia infect the plant at or below soil level.
- Large amount of ascospores are discharged in air from the apothecia.
- The ascospores travel up to several kilometres.
- The ascospores germinate and germ tube enters through cuticle or wound of the host plant and brings about infection.

Control and Prevention

- The disease first appears in February.
- It is first observed on Collateral hosts for example- Chinopodium, *Beta vulgaris*, cauliflower, cabbage etc.
- The pathogen is polyphagous (pathogen which feeds on many different plants).
- **Cultural practices** include deep ploughing during summer, crop rotation with rice, wheat, Barley etc., use of healthy certified seed, keeping a check on Collateral hosts, destruction of disease crop debris.
- **Seed treatment** with Carbendazim @ 2 gram per kg of seeds.
- **Use of resistance varieties** NPC-9, Kiran, Pusa Karisma, RLM-619.

References

- Plant Pathology by AGRIOS
- Plant Pathology by R.P.Singh
- Plant pathology by R.S.Singh