



Diseases of Mango

Mango Anthracnose

Symptoms

- On mango, anthracnose symptoms appear on leaves, twigs, petioles, flower clusters (panicles) and fruits.

Leaf symptoms

- On leaves, lesions start as small, angular, brown to black spots that enlarge to form dead areas.
- The lesions may drop out of leaves during dry weather.

Symptoms on panicles

- The first symptoms on panicles are small black or dark-brown spots, which can enlarge, coalesce and kill the flowers.

Symptoms on petioles, twigs and stems

- Petioles, twigs, and stems are also susceptible and develop the typical black lesions found on fruits, leaves and flowers.

Fruit Symptoms

- Ripe fruits affected by anthracnose develop sunken, prominent, dark brown to black decay spots before or after picking.
- Fruits may drop from trees prematurely.
- The fruit spots coalesce and can penetrate deep into the fruit, resulting in extensive fruit rotting.
- Mostly infections on green fruit remain latent until ripening.
- The fruits that appear healthy at harvest can develop significant anthracnose symptoms rapidly upon ripening.

Tear Staining Symptoms

- Tear stain becomes visible in which linear necrotic regions develop on the fruit.
- Deep cracks in the epidermis may extend into the pulp.

Epidemiology

- Lesions on stems and fruits may produce prominent spore masses under wet conditions.
- Wet and warm weather conditions favor anthracnose infections in the field.
- Warm and humid temperatures favor postharvest anthracnose development.

Disease cycle

Dissemination: Conidia of the pathogen are dispersed by splashing rain or irrigation water.

Inoculation: Spores land on infection sites (panicles, leaves and branch terminals).

Infection and pathogen development:

- On immature fruits and young tissues, spores germinate and penetrate through the cuticle and epidermis to ramify through the tissues.
- On mature fruits, infections penetrate the cuticle, but remain quiescent until ripening of the fruits begins.

Pathogen reproduction:

- Masses of conidia are produced in fruiting bodies (acervuli) on symptomatic tissue, especially during moist conditions.
- Many cycles of disease can occur as the fungus continues to multiply during the season.

Pathogen survival

- The pathogen survives between seasons on infected and defoliated branch terminals and mature leaves.

Symptoms on Mature Leaves





Symptoms on Young Leaves



Fruit Symptoms











Anthracnose Symptoms on very Young Fruit



Tear Stain Lesions on Fruit



Symptoms on Panicles



Symptoms on Stem

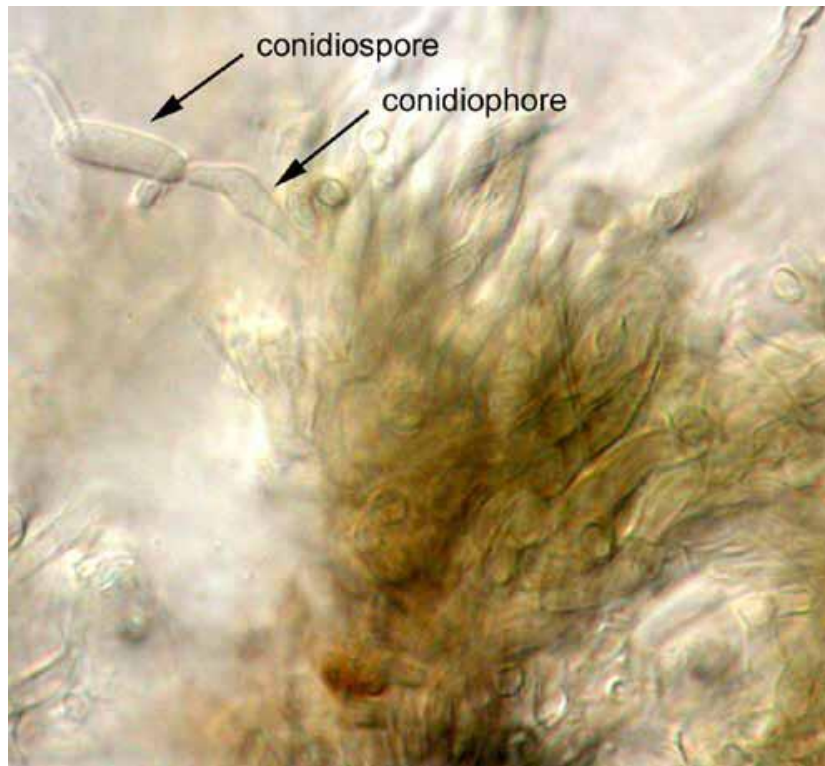


Postharvest Symptoms



Causal organism

- *Colletotrichum gloeosporioides* Penz & Sacc



Management of Anthracnose

1. Cultural management

- Tree skirting
- Clipping of diseased branches alongwith some healthy part.
- Removal of malformed parts.
- Fallen fruit and tree trash should be destroyed.

2. Resistance management

3. Chemical control

Spray of Topsin-M @ 1 gm/L water

Mango Sudden Death

- This is a very destructive disease of mango trees in Pakistan.
- This syndrome of mango is a complex problem and results due to combination of fungi resulting in die back, root rot, tip dieback, gummosis and drying and dying of trees.
- During 1995 mango growers of Muzaffargarh first time reported sudden death disease in mango trees.
- A subsequent survey by PARC confirmed the disease incidence (20-25%) in mango orchards of Punjab and Sindh.

Symptoms

- Mango sudden decline syndrome (MSDS) describes a series of disease symptoms including blight, canker, gummosis, twig blight, tip dieback and vascular staining.
- The disease is widespread and can be very destructive, particularly when introduced into a new area.

Mango Sudden Death





- MSDS causes parts or all of the tree to wilt and die.
- Amber coloured gum exudes from the bark of branches and trunks and vascular tissue is discoloured.
- Brown staining of vascular tissue.
- Pin-sized holes, caused by the mango bark beetle, which can spread the disease, are also often present.

Etiology

- *Ceratocystis fimbriata*
- *Ceratocystis manginecans*
- *Lasiodiplodia theobromae*
- **Transmission**
- Transmission of *C. fimbriata* by bark beetle, *Hypocryphalus mangiferae* Stebbing, has been proved as a vector of mango sudden decline in mango orchards.

Management

- Good orchard management
- Removal of severely affected trees.
- Properly control bark beetle and termite infestation.
- Spray of Topsin M @ 2 gm / liter of water.
- Remove the affected bark and apply paste of Topsin M or Carbendazim.

*Sources

- 1. Recommended books.
 - 2. Latest research articles downloaded from Google.
 - 3. Google images.
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- *Solely for academic purpose and guidance of students.