

Guava Anthracnose Disease: Diagnosis & Control

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Anthracnose is the most commonly observed disease that affects both pre- and postharvest management of guava. Guava anthracnose was found more prevalent during the main season (April-September) than in offseason (November-February). The causal organisms of guava anthracnose is *Colletotrichum gloeosporioides* and *Botryodiplodia theobromae*. Among the tree fruit plants guava starts bearing within the shortest possible time and produce abundant fruits. A total of 10 diseases have been reported on guava of which anthracnose is recognized as the second most important disease. High prevalence of the disease has been reported. The disease becomes a serious obstacle to guava cultivation, food values and market price are falling and cause a great threat to germplasm preservation. The farmers think to avoid the cultivation of guava owing to a great loss by this disease. So, work is necessary to protect the nutritious and highly productive guava fruits from anthracnose.

What is Anthracnose in Guava?

Anthracnose is the most commonly observed disease that affects both pre- and postharvest management of guava. This disease can cause considerable postharvest losses and can affect young developing flowers and fruit. It has been reported in all guava-growing areas around the world where high rainfall and humidity are present.

What does guava plant look like in Anthracnose?

Anthracnose is manifested in symptoms as die-back, twig blight, wither tip and fruit spot. On the unripe fruits small, dark brown, sunken and small spots of pin head size are observed. These

spots gradually enlarge to 5 – 6 mm in diameter; coalesce to form a corky hard lesion having cracks. The ripe fruits become soft and at times drop off. Unopened buds and flowers are also shed. Foliage develops necrotic gray lesion at tips and margins. Tender branches dry from tip downward exhibiting 'die back'. The growing tips of the branches die and necrotic and dead areas spread downwards. The leaves, flowers and fruits are unripe fruits remained mummified. Fruits carry the incipient infection from the field that manifests itself in storage causing rotting of fruits.

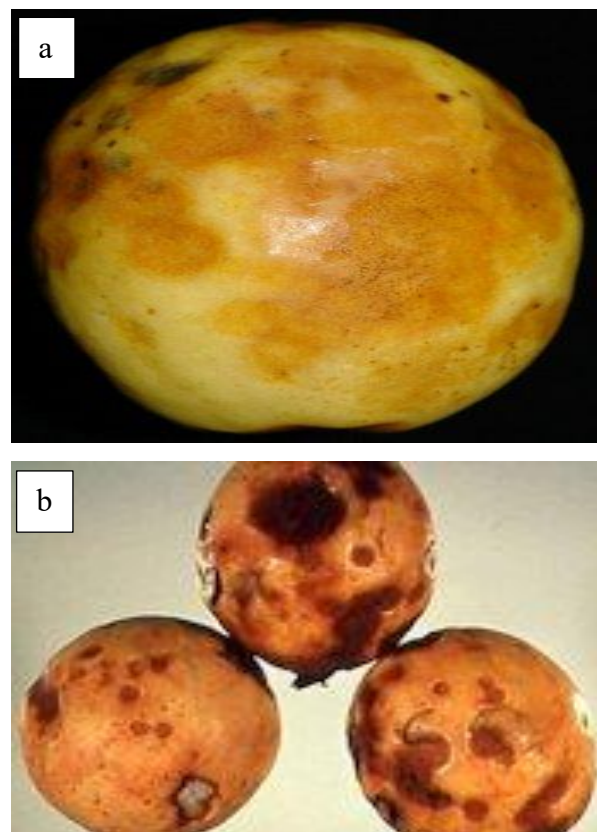


Fig 1: (a) Initial symptom of disease *Colletotrichum psidii*. (b) Circular black spots on fruit

How this Diseases is spread in orchard?

Anthracnose infection commonly occurs in the fields during the flowering and fruiting stages.

Different factors may affect *Colletotrichum* infection, including humidity, temperature, fruit condition, and inoculum concentration. Host infection generally begins with conidial germination and is followed by the formation of appressoria and penetration pegs, which are fungal structures that assist in the penetration into host tissues. In some cases, direct penetration occurs through wounds or natural openings. Anthracnose pathogens infect not only fruits, but also other plant organs, including the leaves, flowers, twigs, and branches. The conidia and spores formed in these infected tissues are subsequently released and dispersed during rainy days through water splashes or during high humidity periods, thus becoming the primary inoculum for fruit infection at the preharvest stage. The most visible anthracnose symptoms are black or dark brown sunken lesions containing conidial masses on the surface of infected fruits. Small individual lesions may merge to produce larger lesions. These black or dark brown lesions on the surface appear unattractive to consumers and significantly reduce the market value of such fruits

After infection, many anthracnose pathogens adopt quiescence or latency, which is common in pathogens causing postharvest diseases, including *Colletotrichum*. During the latent period, anthracnose pathogens remain dormant within the host tissues until environmental conditions, and the host physiology are conducive for their reactivation and further development. Reactivation occurs particularly when fruits ripen. Anthracnose

symptoms often develop after harvest, during storage, transportation, and marketing.

The spread of the disease is by air-borne conidia and numerous insects and birds which frequently visit banana flowers also spread the disease. The disease is favoured by high atmospheric temperature and humidity, wounds and bruises caused in the fruit and susceptibility of the variety.

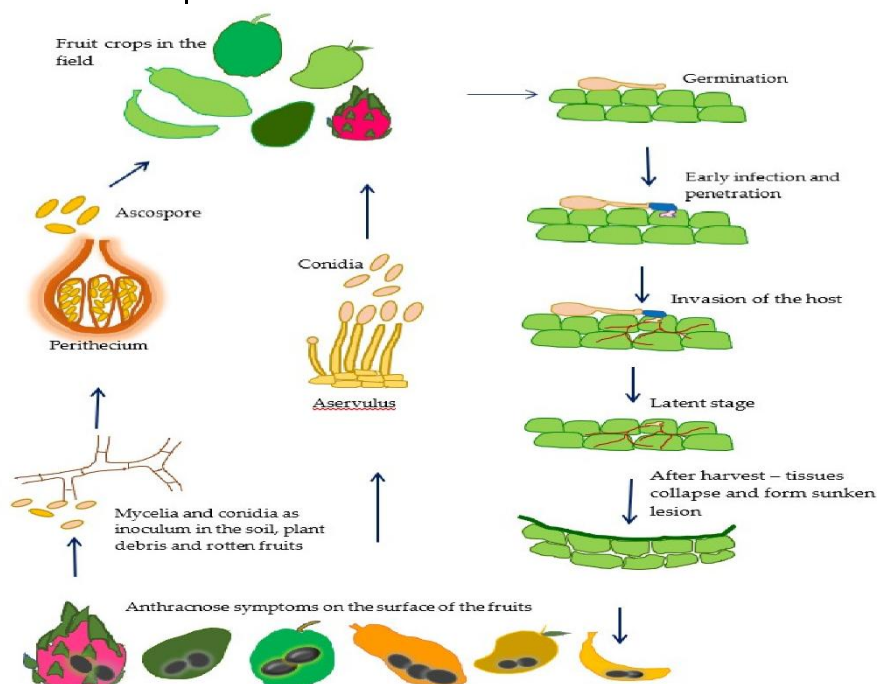


Fig 2: Anthracnose disease cycle of Guava crop.
(Image source: Latiffah Zakaria)

How can I protect our farm from this disease?

These are the simple steps you can take to protect your farm

In order to control and manage anthracnose diseases treatment of fruits at harvest with biofungicides based on Arabic gum together with 1% chitosan and mixture of different plant variety has been used with some success to avoid the growth of pathogen including citric extracts, *Zingiber officinale*, rhizome extract, *Acacia albida* and during cultivation of spraying of Chlorothalonil (0.2%) and Bavistin (1%) four times at 15 days interval is recommended, banana bunches can be sprayed with

mancozeb(0.25%) and benzimidazoles(0.05%) Minimising bruising; proper sanitation of handling and prompt cooling to 14°C are essential in minimising the disease in cold storage. The Sprayings of Bordeaux mixture (3:3:50) or Copper oxychloride (Blitox 0.2%) at weekly intervals starting from the month of July manage the disease. Among systemic fungicides Carbendazim (Bavistin 0.1%) or Thiophanate methyl (Topsin M or Roko 0.1%) provide effective disease control of Anthracnose.

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