



Diseases of Groundnut

Leaf spots

Early leaf spot: *Cercopora arachidicola*
(Sexual Stage: *Mycosphaerella arachidis*)

Late leaf spot: *Phaeoisariopsis personata*
(Syn : *Cercospora personata*)
(Sexual stage : *Mycosphaerella berkeleyii*)

Kingdom: Fungi

Phylum: Ascomycota

Class: Dothideomycetes

Order: Capnodiales

Family: Mycosphaerellaceae

Genus: *Cercospora*

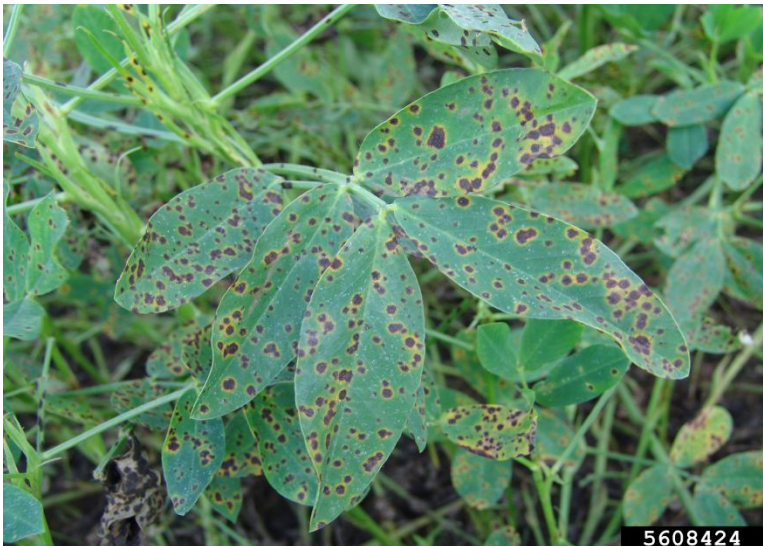
Species: *Cercospora arachidicola*



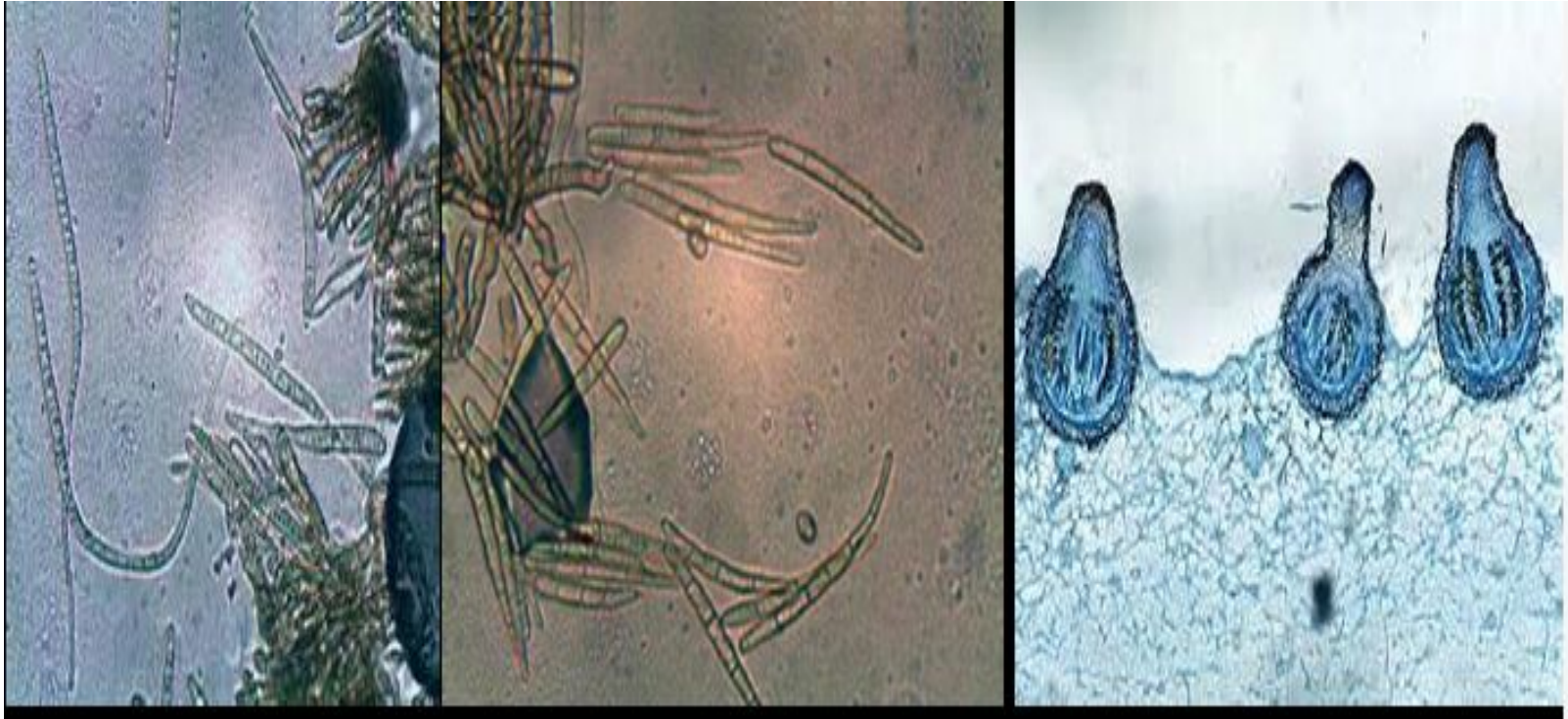
Symptoms

The disease occurs on all above ground parts of the plant, more severely on the leaves. The leaf symptoms produced by the two pathogens can be easily distinguished by appearance, spot colour and shapes.

Both the fungi produce lesions also on petiole, stem and pegs. The lesions caused by both species coalesce as infection develops and severely spotted leaves shed prematurely. The quality and yield of nuts are drastically reduced in severe infections



PATHOGEN



EARLY LEAF SPOT

CAUSAL ORGANISIM: *Cercospora arachidicola* (Asexual stage)

[Subdivision-Deuteromycotina, Order-Moniliales, Family-Dematiaceae]

Mycosphaerella arachidis (Sexual stage)

[Subdivision-Ascomycotina, Order-Sphaeriales, Family-Mycosphaerellaceae]

- The mycelium first intercellular but later become intracellular when host cells die.
- No haustoria are found.
- The fungus produces abundant sporulation on the upper surface of the leaves.
- Conidiophores are olivaceous brown or yellowish brown in colour, short, 1 or 2 septate.
- Conidia are subhyaline or pale yellow, obclavate, often curved, 3-12 septate and 35-110 x 2.5-5.4 μm in size.
- The perfect stage of the fungus produces perithecia as ascostromata which are globose with papillate ostiole.
- Asci are cylindrical to clavate and contain 8 ascospores.
- Ascospores are hyaline, slightly curved and 2 celled, apical cell larger than the lower cell.

Late leaf spot

CAUSAL ORGANISIM: *Phaeoisariopsis personata*

(Asexual stage) (Syn: *Cercosporidium personatum*)

Mycosphaerella berkeleyi(Sexual stage)

- The mycelium is septate and intercellular.
- The haustoria are found in pellisade and mesophyll cells.
- The conidiophores develop on dense,oval,brown to black and 1-2 septate.
- The conidia are cylindrical or obclavate,short,measure 18-60x610µm, hyaline to olive brown, usually straight or slightly curved and with 1-7 septa.
- The fungus in its perfect stage produces perithecia as ascostromata which are globose or broadly ovate with papillate ostiole.
- Asci are cylindrical to ovate, contain 8 ascospores.
- Ascospores are 2celled and constricted at septum and hyaline.

Epidemiology:

Favorable conditions:

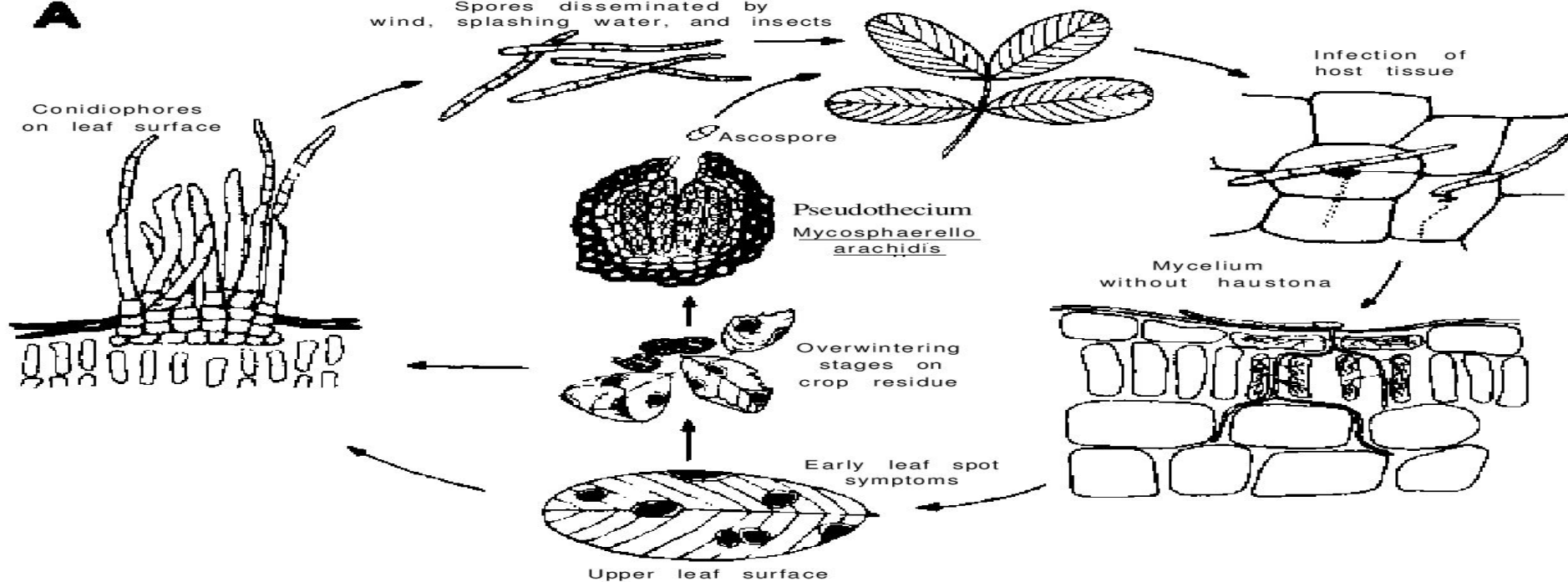
- Wet weather - High relative humidity (>85 %).
- Heavy rainfall.
- Leaf wetness.
- Moderate temperature of 22-25°C.

Disease cycle:

- The primary infection is by ascospores or conidia from infected plant debris or infected seeds.
 - The secondary spread is by wind blown conidia.
- Rains splash also helps in the spread of conidia.

Disease Management:

1. Remove and destroy the infected plant debris.
2. Eradicate the volunteer groundnut plants.
3. Keep weeds under control.
4. Treat the seeds with Carboxin + Thiram (Vitavax power) at 2g/kg.
5. Spray Carbendazim +mancozeb @ 0.2 % or Chlorothalonil @ 0.2% and if necessary, repeat after 15 days.
6. Grow moderately resistant varieties like ALR 1.

A**B**