

## Lecture 20 - Diseases of Coffee

### Coffee

#### Coffee leaf rust - *Hemileia vastatrix*

##### Symptoms

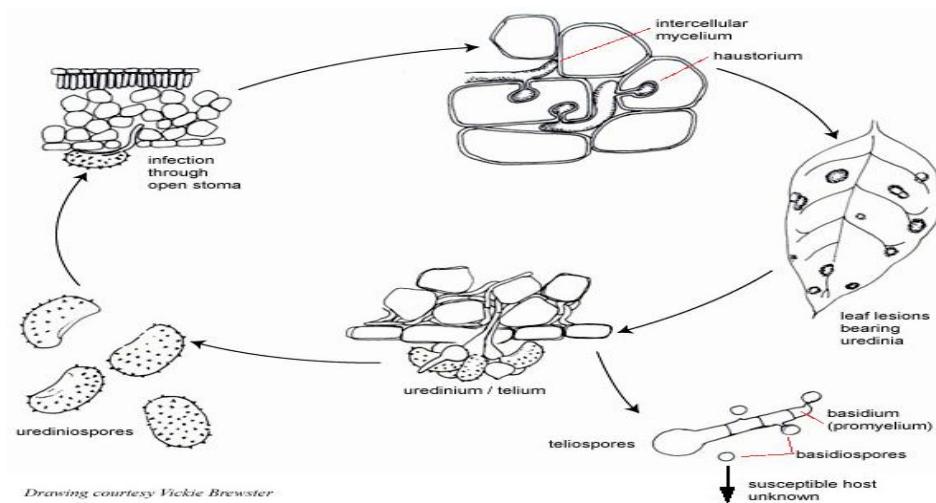


Small pale-yellow spots on the lower surface of infected leaves, orange-yellow spore mass appears, defoliation and die-back. Results in serious crop loss and causes fluctuations in production.

##### Pathogen

The mycelium is intercellular and sends haustoria into the cells. The mycelium sends out erumpent stalks through stomata which bear the uredospores. The uredospores are reniform or orange segment like in shape. The convex side of the spores are echinulated and the lower side is smooth and measure 26 – 40 x 20 – 30 micron meter. The telial stage succeeds the uredial stage in the later stage.

##### Disease Cycle



## **Mode of spread and survival**

One lesion produces 1.5 lakhs uredospores which are spread by rain splash and wind. Many animals (insects, birds etc.,) can also carry spores over long distances. Infection requires the presence of water for uredospores germination and only occurs through stomata, which are on the underside of the leaf.

## **Management**

Three applications of 0.5% Bordeaux mixture for susceptible varieties.

### **Black rot (*koleroga roxia*)**

## **Economic Importance**

In India it occurs in Karnataka and Tamil Nadu. In south India the disease is severe only in those areas growing with *C. arabica*. It is influenced by south west monsoon period from June – Sep.

## **Symptoms**

Blackening and rotting of affected leaves, young twigs and berries. Affected leaves get detached and hang down by means of slimy fungal strands. Defoliation and berry drop occur.

## **Pathogen**

The hyphae are hyaline when young and turn light brown with age. Fructifications arise with numerous basidia and basidiospores. Basidia are simple, oval rounded or pyriform. Basidiospores are hyaline, elongated, rounded at one end, slightly concave on one side. At a later stage the fungus forms sclerotia or hyphal clumps by repeated branching of short cells.

## **Mode of spread and survival**

The pathogen penetrates the leaves through the stomata on the lower side and the hyphae invade intercellularly in the palisade tissue. The fungus mostly spreads by contact from leaf to leaf through the vegetative mycelium. The pathogen spread through infected plant debris. Mycelium lies in twigs throughout year.

## **Management**

Remove and burn affected parts. Apply 1% Bordeaux mixture close to the south westerly monsoon if needed. Centre the coffee bushes, regulate the overhead canopy.

## Berry blotch

### Symptoms

Necrotic spots on the exposed surface of green berries enlarge and cover the major portion. Fruit skin shrivels and sticks fast.

### Pathogen

*Cercospora coffeicola* conidiophores are short, fasciculate and olivaceous. Conidia are subcylindrical, hyaline, 2-3 septate and 40-60x 3.5 micron meter in size.

### Mode of spread and Survival

The pathogen is seed borne and conidia are spread by wind.

### Management

Spray 1% Bordeaux mixture during june and late august, maintain medium shade overhead.

## Damping off / Collar rot – *Rhizocotonia solani*

### Symptoms

It caused pre emergence damping off and post emergence damping off. In post emergence damping off collar region near soil level is infected leading the rotting of tissue and death of seedlings.



### Mode of spread and survival

The disease is soil borne

### Management

Soil drenching with Copper oxychloride 0.25%.

## Die back or Anthranose – *Collectorichum coffeaeum*

### Symptoms



On leaves circular to grayish spots of 2-3 m in dia. On berries small dark coloured sunken spots are formed. Beans become brown. Die back also occurs.

#### **Mode of spread and survival**

The fungus occurs as a saprophyte on dead tissue on the outer layer of the bark, which provides the major source of inoculum. It releases large numbers of water borne conidia during the wet season. Conidia are spread by rain water percolating through the canopy and rain splash can disperse conidia between trees. Long distance dispersal occurs primarily by the carriage of conidia on passive vectors such as birds, machinery etc.

#### **Management**

Spraying Mancozeb 0.25%

