Wilt of arhar

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Symptoms

Plants are attacked when they are 5-6 weeks old.

- First symptoms are premature yellowing of leaves.
- This is followed by wilting of leaves and then weathering of leaves also takes place in the infected plants.
- The plants appear blighted.
- The disease progresses from bottom towards tip.
- Finally the entire plant dies due to plugging of vascular tissues (vessels of xylem) of stems and roots of plants with fungal mycelia.
- Due to this the, water ascent to leave is interrupted.
- At the same time the fungi produces various toxic substances and gum through tyloses in the xylem vessels which kills the plant cells.
- It remains in the soil as a saprophyte growing on the dead plant debris.

Causal Organism

- ***Fusarium oxysporum***
- The mycelium of the fungus is septate,branched and colourless. Hyphae are inter and intracellular. In the host tissue fungus produces microconidia, macroconidia and chlamydospores.
- **Microconidia** are produced at the tip of conidiophore, they are usually unicellur
- **Macroconidia** they are long sickle shaped 3-4 septate with tapering end. The entire fruiting body in which these are produced is called **Sporodochium.**
- **Chlamydospores are** thick walled, rounded or oval structures formed in the hyphae. Their position in the hyphae may be terminal or intercalary. They are produced singly or in chains. They function as resting Spores.

Disease cycle

- The mycelium of the fungus, macro and microconidia and chlamydospores remain in the soil in dormant phase.
- Later, germination of these dormant structures take place.
- The germ tube of these structures attached to the root surface and bring about infection in the root.
- This further results in colonization of the xylem vessels .
- Toxic substances and gum are produced in the xylem vessel.
- This results in blocking of xylem vessels.
- Finally this results in the drooping, wilting and death of the plant.
- Again the microconidia, macroconidia and chlamydospores are produced in the plant which remain in the soil.

Fig. 1. Wilt of Arhar.

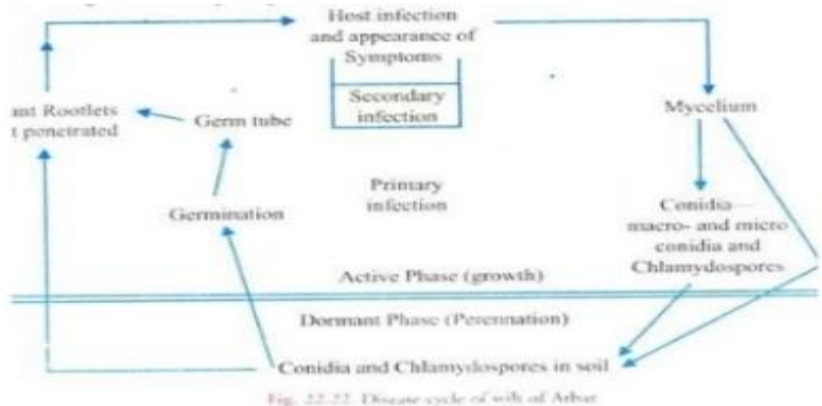

Fig. 2. Disease Cycle of Wilt of Arhar.

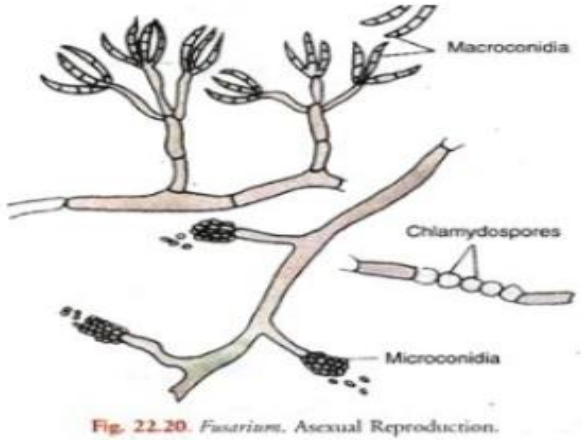

Fig. 22.20. *Fusarium*. Asexual Reproduction.

Fig. 3. Asexual Reproduction of Fusarium.

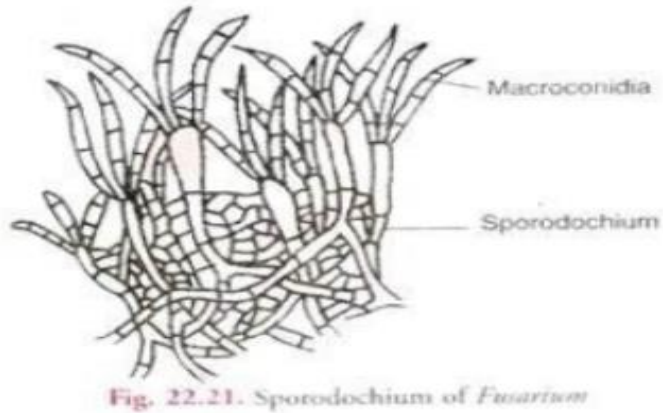

Fig. 22.21. Sporodochium of *Fusarium*

Fig. 4. Sporodochium of Fusarium.

Control

- Use of resistant varieties is the best method(N P 15 and NP 38 are resistant varieties).
- Crop rotation.
- Field sanitation.
- Hot weather cultivation
- Continuous cropping of arhar should be avoided as it results in 50% loss
- Soil treatment with **Bavistin** (2000 PPM).
- Chemical control can be done by **brassicol** and **PMA** (phenyl mercuric acetate), **Diathane Z-78, Zinocap.**