

Deuteromycotina – Fusarium

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Habit and Habitat of *Fusarium*

- Fusarium is represented by large number of species which occur both in temperate and tropical regions of the world.
- Majority of the species are saprophytic, some are mild facultative parasite while some species are parasitic and cause serious diseases like wilt or 'rot' of economically important plants.

Vegetative Structure of Fusarium

- Mycelium is branched, septate, hyaline or coloured, inter-or intracellular and uninucleate to multinucleate.
- Hyphae invade the tracheids and vessels of xylem, ramify there, produce toxic substances and block them completely.
- As a result the plants wilt and die.

Reproduction of Fusarium

- **It takes place by the formation of there kinds of asexual spores.These are:**
 - Micro conidia,
 - Macro conidia, and
 - Chlamydo spores.

Micro Conidia

- Microconidia are uninucleate which germinate poorly with germination efficiency ranging from 1 to 20%.
- The microconidia are the most abundantly produced spores.
- They are oval, elliptical or kidney shaped and produced on aerial mycelia.
- The micro conidia and macro conidia are produced in same sporodochia (fruiting body).
- These sporodochia develop on the surface of stem, leaves and other parts of the host plant.
- The fungal mycelium collects near the surface of the host tissue as an pseudoparenchymatous mass.
- It gets exposed by the rupturing of the epidermis.
- From the fungal hyphae arise many short and cylindrical structures, the conidiophores.
- The ultimate branches of conidiophores which produce conidia are called phialides. The phialides are subulate i.e. owl shaped and have some kind of heel (characteristic of *Fusarium*, Fig. 3).
- Micro conidia are small, unicellular or bi-celled, spherical or oval in shape. Their size varies from $5 \times 15 \mu$ x $2-4 \mu$. They are borne single or in chains on the conidiophores by abstraction method.

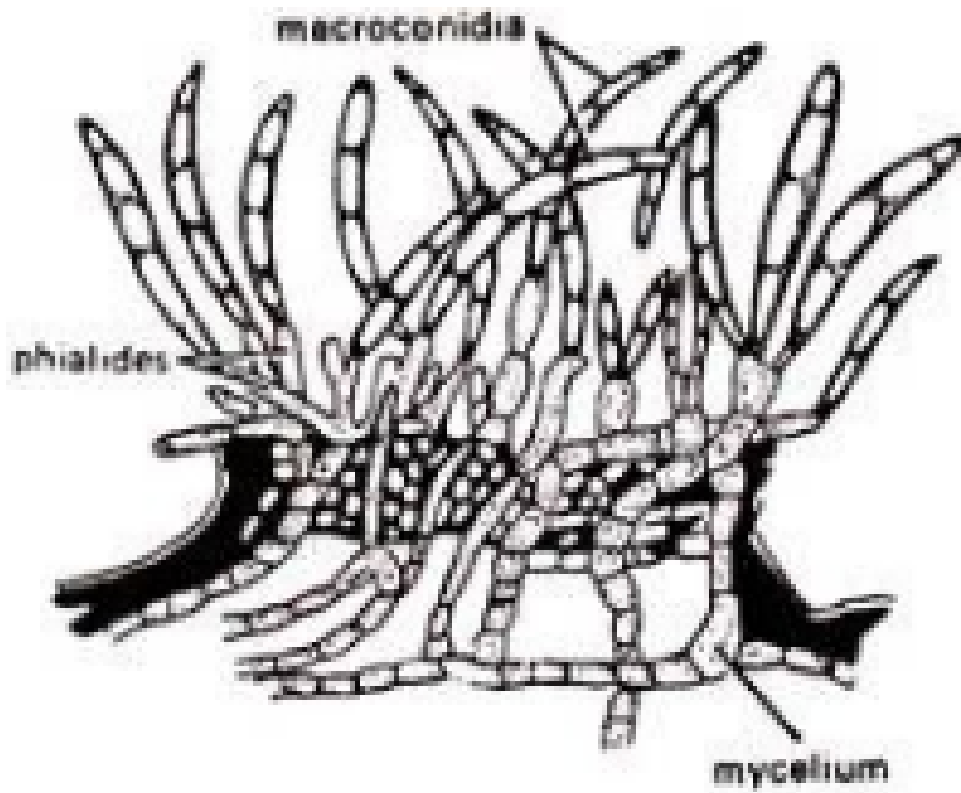


Fig. 2. *Fusarium* : Sporodochium.

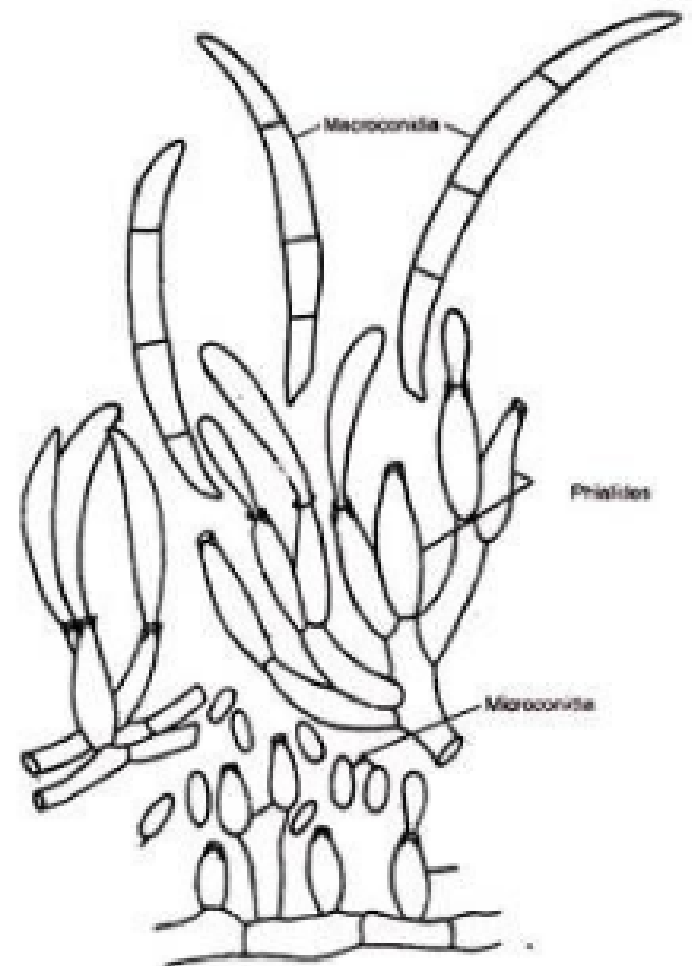


Fig. 3. *Fusarium* : Phialide, microconidia and macroconidia.

Macro Conidia

- The macro conidia are long, sickle or crescent shaped, multi-septate (3-5 septa), pointed at the end and broad in the middle.
- They measure 15-50 μ in length and 3-5 μ in breadth.
- Both macro conidia and micro conidia are produced in vast numbers.
- They are easily disseminated by wind and after falling on the suitable substratum, they germinate and infect the host plants.

Chlamydospores

- Under relatively starvation and dry conditions, the mycelial hyphae produce ovoid or spherical thick walled cells.
- These are called chlamydospores.
- They occur either single or in chains and may be terminal or intercalary in position.
- After maturity they get separated from the parent hyphae and act as resting spores, under favourable conditions they germinate by means of germ tubes to form a fresh mycelium.

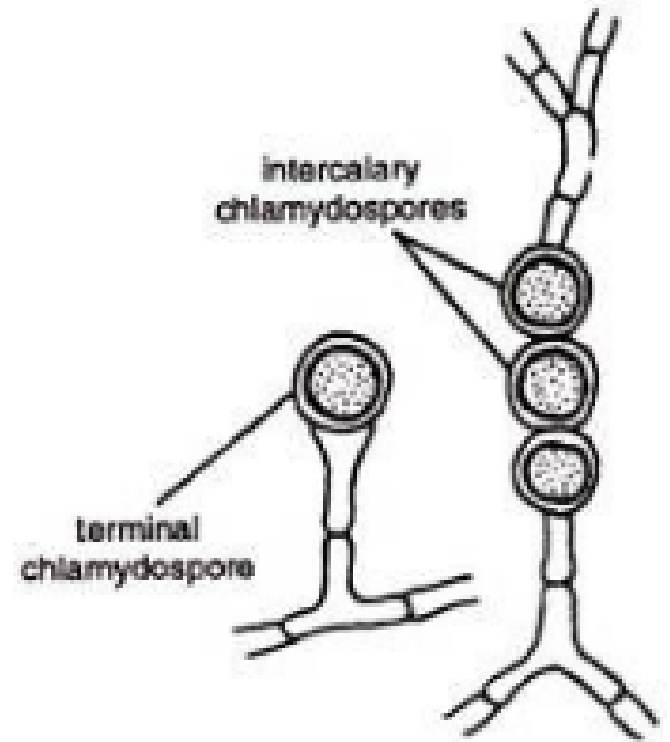


Fig. 4. *Fusarium* : Chlamydospores

- The pseudoparenchymatous mycelium of *Fusarium* often forms black, compact bodies known as sclerotia.
- They act as storage organ and also serve as means of perennation and vegetative reproduction.