

Alternaria:

Contents:

1. Habit and Habitat of Alternaria
 2. Symptoms of Alternaria
 3. Vegetative Structure of Alternaria
 4. Reproduction in Alternaria
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1. Habit and Habitat of Alternaria:

Alternaria is represented by about 50 species. Several form-species are found as saprobes on dead and decaying plant parts and in the soil while some form-species are facultative parasites, infecting a large number of higher plants.

The conidia are picked by the wind from the soil and invade laboratories and houses. In laboratories, conidia contaminate the cultures and in houses these conidia are responsible for allergies, skin diseases and hay fever. The most commonly occurring disease of potato early blight is caused by *Alternaria solani*.

2. Symptoms of Alternaria:

Alternaria shows the symptoms of blight. Early symptoms appear in the form of yellowish-brown spots on the leaves, which enlarge in size and become round to form the concentric rings.

If we study these spots with the handlens, they appear like the ‘target boards’ and hence the symptoms are called target board effect (Fig. 1). In severe infection entire lamina, petiole, stem and even tubers are badly damaged. Edible parts of the tuber turn brown.

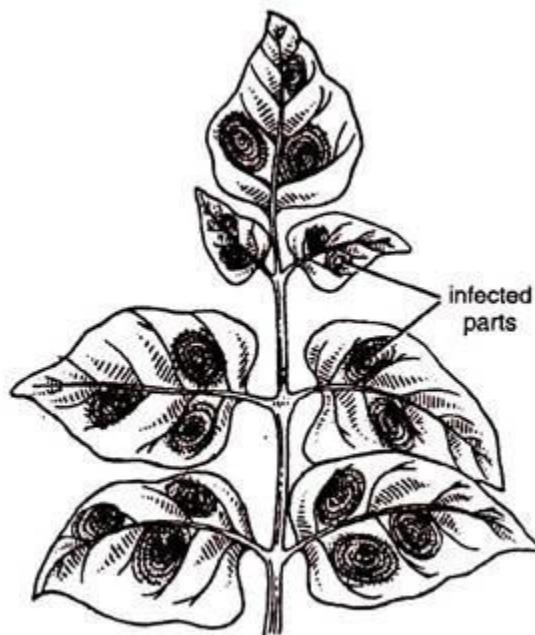


Fig. 1. *Alternaria solani* : symptoms on leaves of potato.

3. Vegetative Structure of *Alternaria*:

The mycelium is endophytic, profusely branched and septate. In parasitic species it is both inter—and intracellular, geniculate, light brown and without haustoria. Each cell of the hypha is usually multinucleate (Fig. 2).

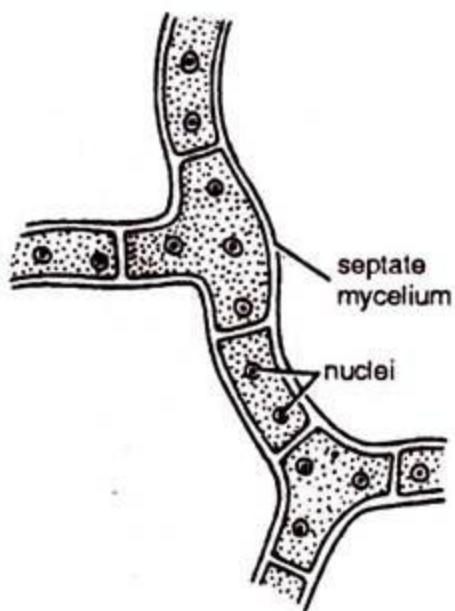


Fig. 2. *Alternaria*. Mycelium

4. Reproduction in Alternaria:

Alternaria reproduces only by conidia which are produced at the tips of conidiophores. The endophytic mycelium grows out as erect and aerial hyphae through the stomata or ruptured epidermis of the infected host tissue. The conidiophores are short, dark coloured, aerial, septate structures and cannot be easily distinguished from the somatic hyphae.

A conidium develops as an apical bud from the uppermost cell of the conidiophore. The young conidium first divides by transverse septa and some of its cells divide by longitudinal septa. Conidia with transverse and longitudinal septa are called ‘muriform’ or dictyospores (Fig. 3).

Conidiophore gives rise to one or two conidia exogenously at the tip, but in synthetic media chains of conidia may be produced (Fig. 3). Sometimes branching of the conidial chain is also observed. Any lower cell of the condium produces a bud which develops into conidium.

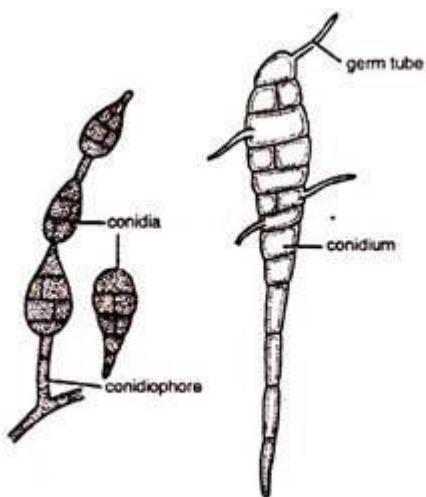


Fig. 3. Alternaria. (A-F) Conidia in acropetal chain and germinating conidium.

A mature conidium is multicellular, obclavate, elliptical or beaked, about $30-12 \mu$ long, $12-30 \mu$ broad and has transverse and longitudinal septa (Fig 3). It is surrounded by two layered wall of which the outer wall is pigmented and the inner wall is hyaline. The conidia are readily disseminated by wind.

In the presence of moisture and suitable temperature each conidium germinates by producing 5-10 germ tubes at a time (Fig 3). The germ tubes infect the host plant through stomata or, epidermal cells or injuries caused by insects. The perfect stage of *Alternaria* belongs to Pleospora infectoria of Loculoascomycets fungus (Fig. 4).

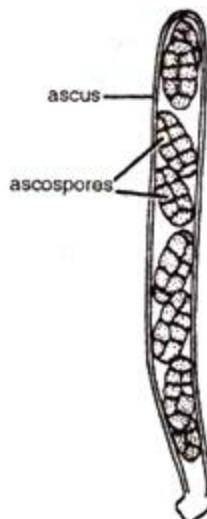


Fig. 4. *Alternaria*. Ascus of *Pleospora infectoria* representing the perfect stage of *Alternaria*.

Early blight of potato*	<i>Alternaria solani</i>
Black point disease of wheat	<i>A. alternata</i> (= <i>A. tenuis</i>)
Leaf blight of wheat	<i>A. triticina</i>
Leaf spot of crucifers	<i>A. brassicae</i>
Leaf spot of cucurbits	<i>A. cucumerina</i>
Leaf spot of tobacco	<i>A. longipes</i>