LIFE CYCLE OF ALTERNARIA

PROFESSOR SANJAY KUMAR DATTA
GOVT. APPROVED PART TIME TEACHER
DEPT. OF BOTANY
NARAJOLE RAJ COLLEGE

Systematic Position

Kingdom	–	Mycota/ Fungi
Division	–	Eumycota
Sub division	–	Deuteromycotina
Class	–	Hypomycetes
Order	–	Hypomycetales
Family	–	Dematiaceae
Genus	–	*Alternaria*
Species	-	*solani*

Description of *Alternaria*

- Mycelium is short, septate and branched. The hypal cells are multinucleate.
- There is no sexual reproduction; only asexual mode of reproduction by conidia is noted.
- Some short and dark-coloured somatic hyphae behave as conidiophores.
- Conidia are produced at the tips of conidiophores in chains or singly.
- Conidia are large, elliptical to ovoid, dark coloured, several celled and beaked.
- The number of cells varies from 8-14 or even more. The septa dividing the spore into cells are both transverse and vertical.
- Conidia are measuring 20 – 100 µm in length (average 40 µm) and 5-16 µm in breadth (average 12 µm).

Alternaria

- The mold *Alternaria* is a well recognized allergy causing fungus.
- *Alternaria* spores can be detected from spring through late fall in most temperate areas, and can reach levels of thousands of spores per cubic meter of air.
- *Alternaria* spores can be at their highest concentrations during dry, windy conditions that are ideal for the spores to become airborne.

Alternaria

- *Alternaria* is currently comprised of about 40-50 species.
- It is commonly isolated from plants, soil, food, and indoor air.
- One of the species, *Alternaria alternata*, has been isolated from numerous kinds of organic materials in damp situations, including textiles, stored food, canvas, cardboard and paper, electric cables, polyurethane, jet fuel, sewage and effluents.

Alternaria

- Airborne spores of *Alternaria alternata* and *Alternaria tenuissima* are found in very high numbers in the outdoor environment during summer.
- The presence of *Alternaria* together with other molds such as *Ulocladium* spp, *Stachybotrys* spp, *Fusarium* spp and *Phoma* spp, in indoor environment is indicative of humid conditions.

Alternaria

- *A. alternata* is not commonly isolated from indoor building materials and in most instances spores found in indoor air environment may have originated from outdoor sources.
- *A. alternata* is recognized as an important allergen with airborne spores and mycelial fragments being responsible for the allergic symptoms in individuals with rhinitis or bronchial asthma.

Alternaria

- *Alternaria* sensitivity can also lead to severe and potentially fatal asthma.
- . It has also been shown that prolonged heavy exposure to *A. alternata* spores and mycelial fragments mimics that of other allergens such as cat dander and dust mites.
- It has also been recorded as an opportunistic pathogen causing skin diseases particularly in immunocompromised patients such as the bone marrow transplant patients.

Morphological Description

- Colonies are fast growing
- black to olivaceous-black or greyish
- suede-like to floccose
- Temperature: optimum 25-28C; maximum 31-32C.

- Microscopically, branched acropetal chains (blastocatenate) of multicellular conidia (dictyoconidia) are produced sympodially from simple, sometimes branched, short or elongate conidiophores.
- Conidia are obclavate, obpyriform, sometimes ovoid or ellipsoidal, often with a short conical or cylindrical beak, pale brown, smooth-walled or verrucose.

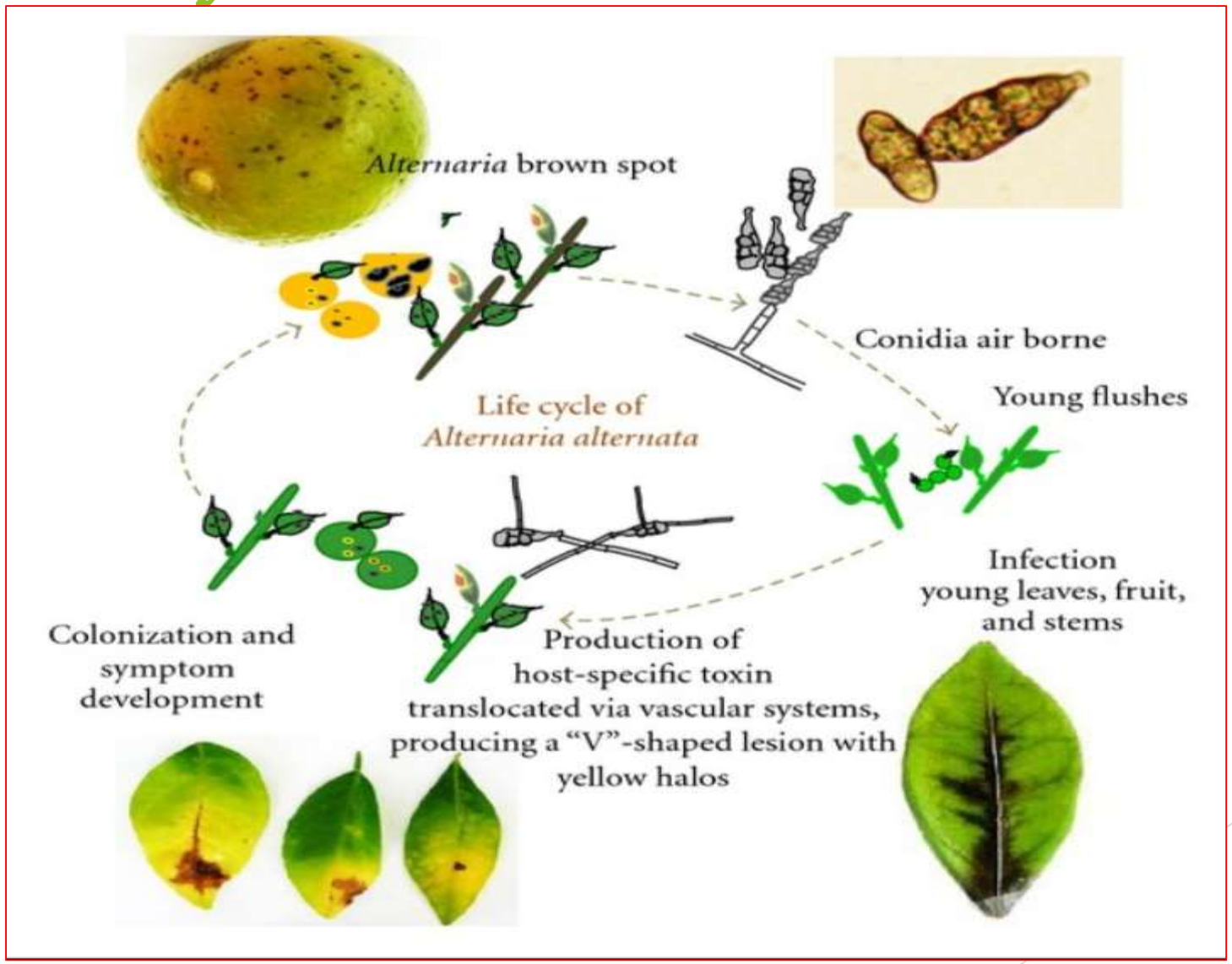
Alternaria alternata colonies are black to olivaceous-black or greyish, and are suede-like to floccose.

Alternaria alternata showing branched acropetal chains and multicelled, obclavate to obpyriform conidia with short conical beaks.

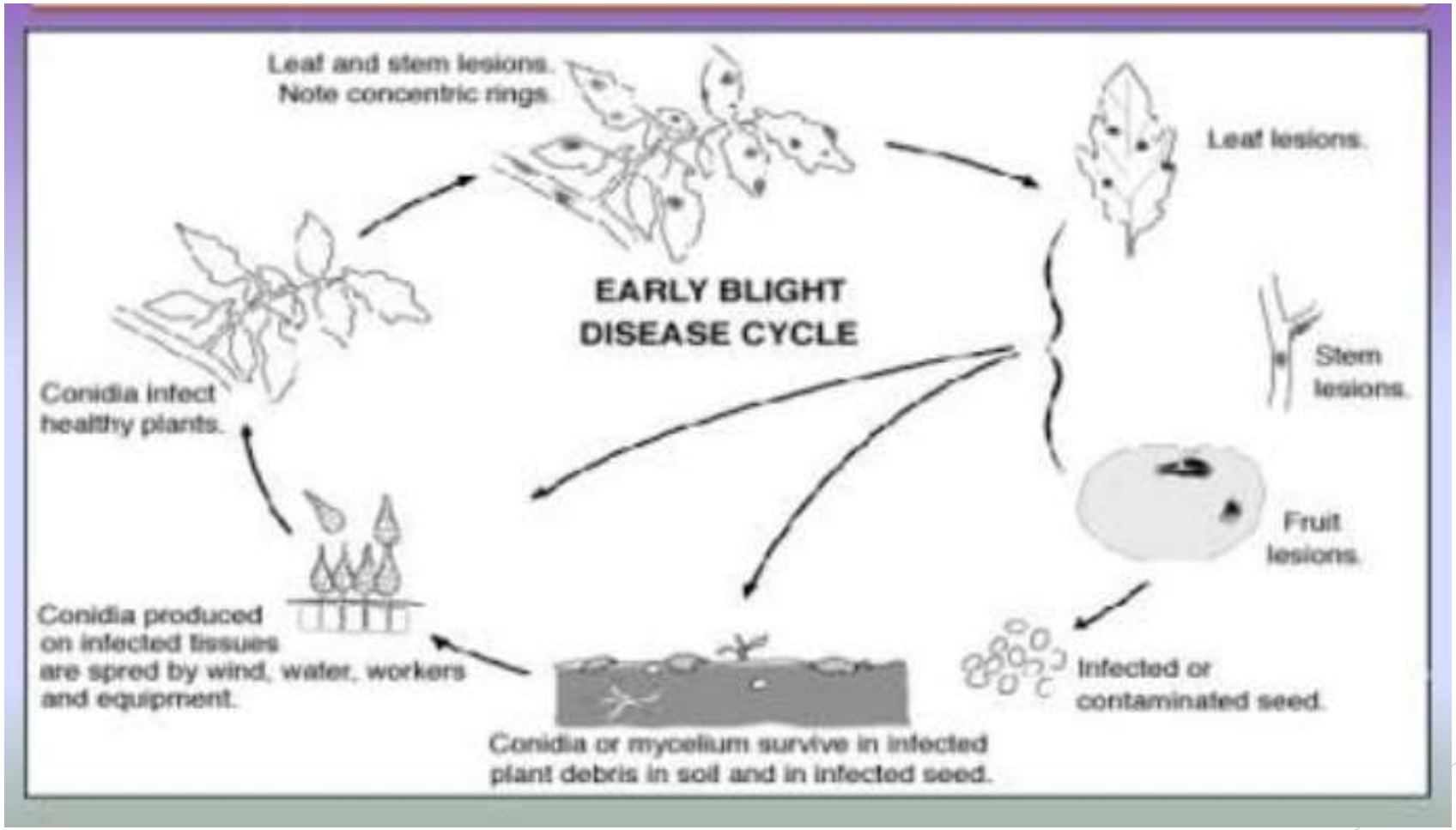
- *Alternaria* species soon lose their ability to sporulate in culture. Potato dextrose agar and cornmeal agar are the most suitable media to use, and incubation under ultra-violet light is recommended to maintain sporulation.
- Although usually seen as saprophytic contaminants, *Alternaria*species in particular *A. alternata* and *A. infectoria* are recognised causative agents of subcutaneous phaeohyphomycosis and mycotic keratitis.

COMPILED AND CIRCULATED BY PROFESSOR SANJAY KUMAR DATTA,
GOVT. APPROVED PART TIME TEACHER, DEPARTMENT OF BOTANY, NARAJOLE RAJ COLLEGE

Life Cycle of Alternaria Alternata



Life Cycle of Alternaria Solani



THANK YOU