**Exercise # 3**

**DOWNY MILDEWS**

This group of diseases belongs to order Perenosporales and class Oomycetes. Downy mildew fungi are obligate parasites and obtain their nutrition through intercellular haustoria. Sporangiophores of these fungi emerge out from leaf natural openings i.e. stomata and give rise to sporangia. The downy growths on lower surface of the infected leaves are in fact sporangiophores. In downy mildew of cucurbits, first chlorosis occurs which forms angular lesions surrounded by veins and later on these lesions become necrotic. Downy mildew of pearl millet caused by *Sclerospora graminicola* converts floral parts into green leafy like structures, such type of infected flowers in ears do not produce seeds.

**Materials**

Samples of downy mildews of onion (*Pseudoperonospora destructor*), crucifers (*Peronospora parasitica*) and cucurbits (*Peronospora cubensis*)

**Procedure**

1. Study the symptoms of downy mildews on different crops.
2. Observe shape, size, colour and nature of young and older lesions of downy mildews.
3. Examine the severity of downy mildews, either more on young or older leaves.
4. Observe leaf like structures in the infected ears of pearl millet and note the presence of oospore using microscope.
5. Make slides of oospore and examine them under microscope.
6. Draw different structures of various downy mildew fungi.

**Questions**

1. What are haustoria?

Root like structure of fungus that abosorbs nutrients and water from the plant cells

Also known as absorbing organ of fungus

1. What are intercellular haustoria?

These abosrbing organs or haustoria are found between cells

Inter means between

1. What is green ear disease of pearl millet?

Green ear disease is also known as downy mildew of pearl millet

Pearl millet is known as Bajra

Green ear disease caused by a soil borne fungus

Sclerospora graminicola

1. What is difference between sporangiospore and conidia?

Sporangiospores and conidia both are asexual spore

Sporangiospores are produced inside sac like structure sporangia

Conidia are produced externally by cutting off terminal cells

1. What is mode of spread of downy mildews?

Through air