

Study on leaf spot or blight disease of wheat

Symptoms:

The symptoms first appear as small, elongated to oval, brown to almost black discolored lesions, which are irregularly scattered on the leaves. As lesions mature, the centers often turn a light brown to tan color, surrounded by an irregular dark brown margin. A well-developed lesion is typically elliptical with abundant sporulation and can cover large area of leaves. Consequently the whole leaves become blighted. Stem and node infection results in lodging.

Normally, individual spikelets are infected, but under favorable conditions the whole ear including the awn is severely diseased. The lesions on the glumes are sometimes oblong with dark brown margin. If in seed, seed may be discolored, shriveled and oblong.

Causal Organism: *Bipolaris sorokiniana*

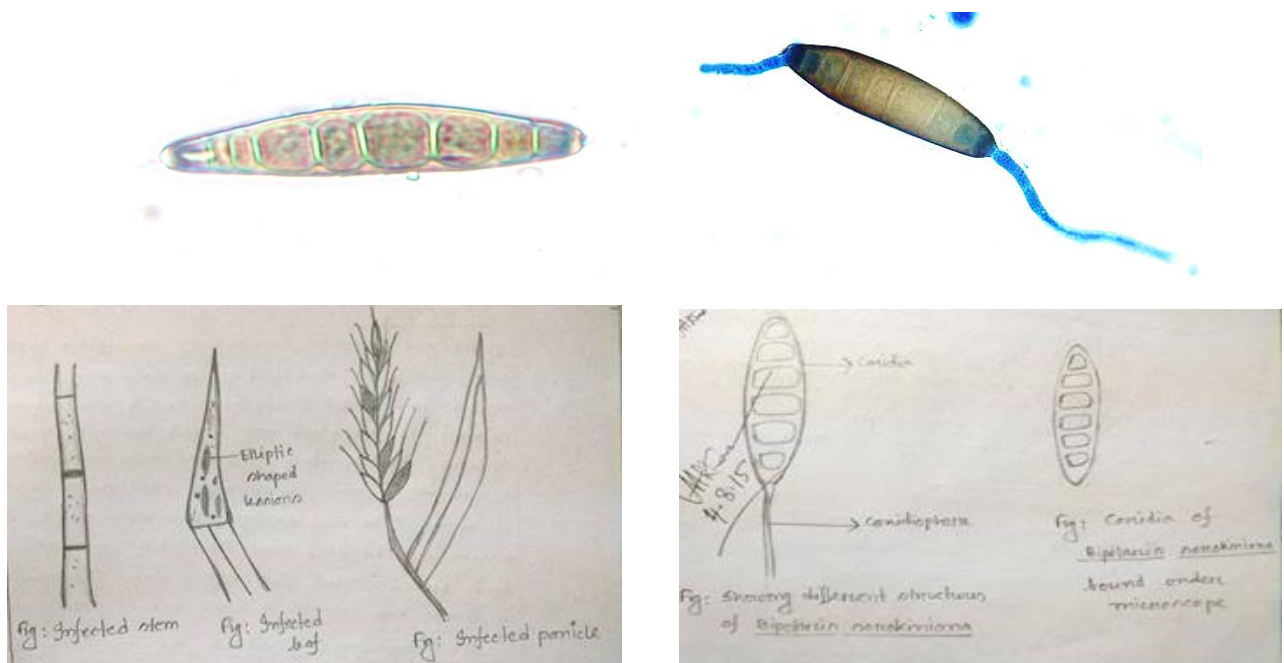
Pathogenic characters:

Mycelium light to dark in color, conidiophores brown, short or long, erect, septate, single or branched, more or less irregular or bent.

Conidia ellipsoid, dark brown to black, smooth, mostly straight or slightly curved, wall thick but less towards the ends, broadest in the middle, ends rounded, scar clearly seen with in the basal cell, 3-12 distoseptate but generally 6-12.

Taxonomic position:

Kingdom –Fungi Division- Deuteromycota Class- Hyphomycetes Order- Moniliales Family- Dematiaceae Genus- *Bipolaris* Species- *B. sorokiniana*.



Study on stem rust disease of wheat

Symptoms:

The symptoms appear at later stage of plant growth and its onset/ marked by eruption of elongated brown pustule on stem, leaf sheath and leaves. The pustules coalesce and burst and exposed brown uredospores. This reinfect the host plant and repeat the cycle. That's why the cycle is called repeating cycle and spore is called repeating spore. At maturity of plant the pustules produce mahogany brown teliospore and the sori develops color that's why this disease called black rust. The pustules gradually change from brown to black color. At this stage the epidermis ruptures and exposed a black bed of teliospores.

Causal Organism: *Puccinia graminis* f. sp. *tritici*

Pathogenic characters:

Uredospore: The formation of Uredospores on leaves and stem is externally manifested by appearance of brown pustule. Each Uredospore has a long stalk at a single, oval, elliptical cell. The cell is spiny and dikaryotic.

Teleutosorus: The presence of teleutosorus is manifested by the appearance at dark brown pustule on stems and leaves. Each teliospore has long stalk and 2 terminal cell. Each cell is dikaryotic. The cell wall is thick and brown pigmented.

Taxonomic position:

Kingdom –Fungi Division- Basidiomycota Class- Teliomycetes Order- Uredinales Family- Pucciniaceae Genus- *Puccinia* Species- *P. graminis* f. sp. *tritici*

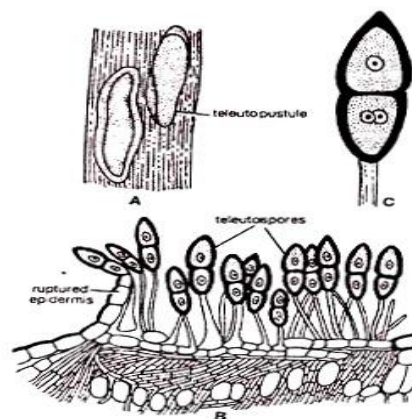
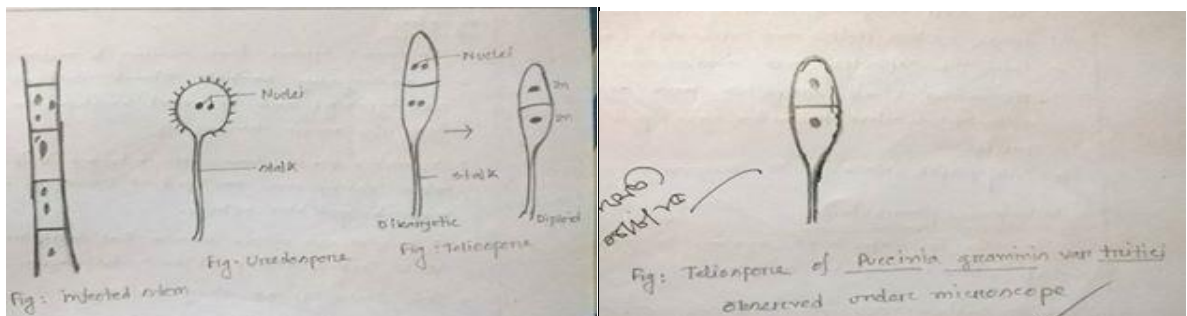


Fig. 5 (A-C). *Puccinia graminis* : (A) Teteutopustule on wheat. (B) Vertical section of leaf passing through teleutosorus; (C) A single teleutospore