

Detail description of different type of spores

1. Uredial Stage → The Aecidiospores after liberation from Barberry leaf can not effect of Barberry plant but it infect on the leaf of wheat plant through the stomata of the leaf. Inside the leaf they develop a pustule by the end of February and march in northern India. But in southern India it may appear as early as November. The uredospores is made up of fine reddish brown powder. That is uredospores which burst through the epidermis of the host. These uredospores are looks like a rust of iron. So the disease is known as rust disease.

Each uredospores contains dense cytoplasm, oil drops and brown colour pigment. The structure is oblong and the cell wall is spiny and binucleate. When they mature, they get detached from their stalk and lastly they disappeared by wind. After returning suitable condition or present of suitable host each Uredospores germinate by producing one or more germ tube through the stomata of leaf and stem, which takes 6 to 20 days and again the infected hypha develop a new dikaryotic mycelium and these mycelium produce another spores.

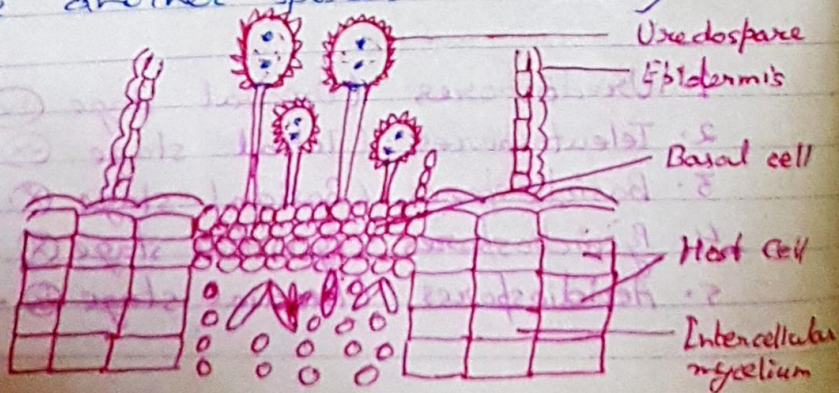


Fig - Uredospores of Puccinia graminis

2. **Telial Stage** → After 15 days the mycelium of *Uredospora* produce another kind of spore that is *Teleutospore*. These spores develop inside the leaf or stem and burst like *Uredo*-spore. Each *Teleutospores* is elongated or oblong pointed and smooth cell wall is present. They develop black colour or patches on the culms or on the leaf sheath. That is known as *teleutospoxi* so the name is given Black rust. Each *Teleutospores* consist binucleate smooth cell wall and pointed which is found above the leaf by means of a stalk. The cell wall is of two layers. That is outer exospore which is thick and inner endospore which is thin. After maturity each *teleutospores* form papilla like structure and a single germ pore is found in each cell and each cell also have a prominent vacuole, cytoplasm and oil drops.

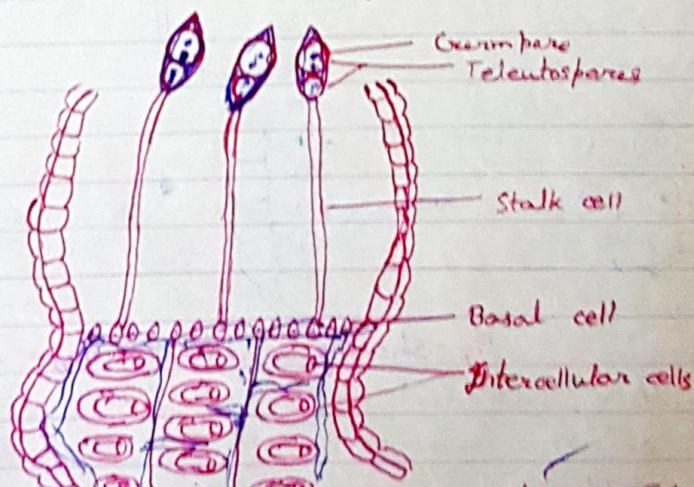


Fig- T.S of the *Teleutospores* showing *Teleutospores* Like *Uredo* spores each *teleuto*-

spore germinates. After some days or some months. So they are called resting spores. On the return of favourable condition each