

**Vivekanand College, Kolhapur (Autonomous)**

**Department of Botany**

**B.Sc. II: Plant Protection**

**Topic: Grain Smut of Jowar**

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**M.Sc., Ph.D.**

# Grain Smut of Jowar



# Sorghum

Grain smut /kernel smut/covered smut/short smut

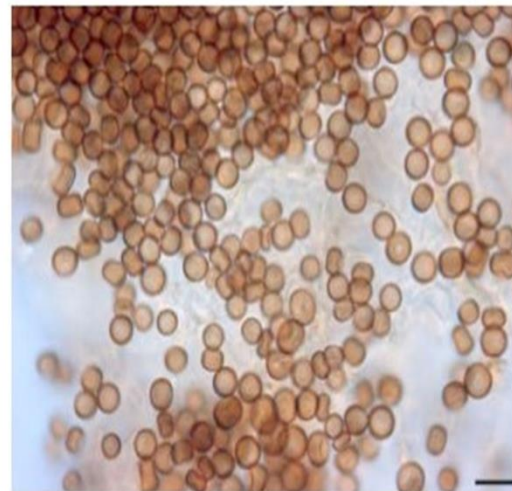
Sphacelotheca sorghi

## Economic importance

- It is considered as the most destructive disease among all the smuts of sorghum
  - The extent of damage is even upto 25% of the grain yield .
- It is widely prevalent in Maharashtra , UP, AP, Tamil Nadu ,Gujarat and Karnataka when the seed is not disinfected with fungicides .
- However , recently the losses due to this disease are reduced since the seeds are being treated by fungicides before sowing
- Most varieties of the cultivated species of Sorghum vulgare are susceptible , along with S. halapense and S. sudanens .

## Symptoms

- The disease becomes apparent only at the time of grain formation in the ear
- The individual grains are replaced by smut sori which can be localized at a particular part of the head or occur over the entire inflorescence.
- The sori are dirty white to gray in colour , oval or cylindrical and are covered with a tough white cream to light brown skin(peridium) which often persists unbroken up to threshing.



## Disease cycle

The disease is **externally seed borne** and **systemic**. The **spores germinate with the seed** and **infect the seed** by **penetrating** through the **radicle or mesocotyl** to establish **systemic infection** that develops along the meristematic tissues. At the time of flowering, the fungal hyphae get converted into spores, replacing the ovary with the sori. **At threshing**, the **healthy grains become contaminated with the smut spores** released from the bursting of the sori. **The spores remain dormant** on the seed **until next season**.



## Management

- Use disease free seeds.
- Grow resistant varieties like T 29/1, PJ 7K , PJ 23 K, Nandyal and Bilichigam .
- Treat the seed with fine sulphur powder @0.5% or Captan or [Thiram](#) @ 0.3%.
- Follow crop rotation.
- Collect the smutted ear heads in cloth bags and dip boiling