

BAKANAE DISEASE OF RICE

Causal Organism:

Gibberella fujikuroi [sexual stage]

Order: Moniliales

Family: Tuberculariaceae

The fungus has micro and **macroconidiophores** bearing micro and **macroconidia**). Microconidiophores are single, lateral and formed from hyphae.

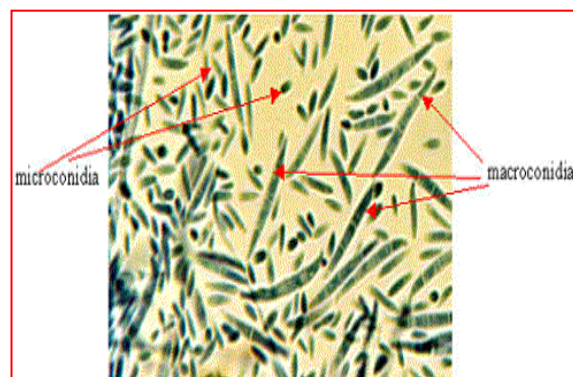
Macroconidiophores consist of a basal cell bearing 2-3 apical phialides which produce macroconidia. Macroconidia are multi-celled (3 to 7 septate), slightly curved or bent at pointed ends, typically canoe-shaped and measure 25-60 x 2.5-4 μm .

Microconidia are one-celled, ovoid or oblong, borne singly in chains or false head on laterally borne conidiophores and measure 5-12 x 1.5-2.5 μm . Some conidia are intermediate, with two or three cells, oblong or slightly curved.

Note: The anamorph form produces gibberellin---causes elongation; Fusaric---cause stunting

Symptoms

- Infected plants several inches taller than normal plants in seedbed and field
- Thin plants with yellowish green leaves and pale green flag leaves
- Dying seedlings at early tillering
- Reduced tillering and drying leaves at late infection
- Partially filled grains, sterile, or empty grains for surviving plant at maturity
- In the seedbed, infected seedlings with lesions on roots die which may die before or after transplanting.



Bakanae is primarily a seed-borne disease. Sowing un-germinated seeds in infested soil gives rise to infected seedlings.

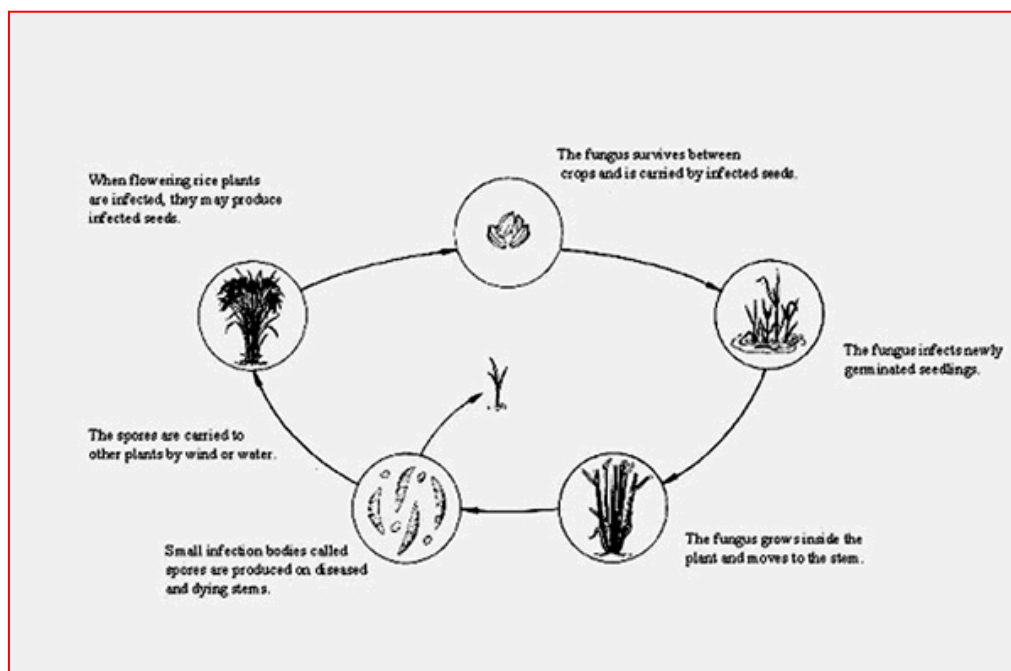
Soil temperature of 35°C is most favorable for infection.

Application of nitrogen favors the development of the disease. Wind or water easily carries the spores from one plant to another.

High temperature, ranging from 30 to 35°C favors the development of the disease. Wind or water easily carries the conidia from one plant to another.

The bakanae disease is primarily seed borne and the fungus survives under adverse conditions in infected seeds and other diseased plant parts.

Life cycle



Epidemiology:

The fungus has a wide range of temperature for optimum growth, which is between 30 and 35°C. It grows best at high moisture content. Thus incidence of disease is more in wet than dry nurseries. Excess of nitrogenous fertilizers predisposes the plant to the attack of pathogen.

MANAGEMENT

Clean seeds should be used to minimize the occurrence of the disease.

Salt water can be used to separate lightweight, infected seeds from seed lots and thereby reduce seed-borne inoculum.

1. Seeds must be collected from the areas free from disease.
2. Seed should be stored under dry conditions.
3. Seed dressing by suitable fungicides like Benlate, Topsin-M etc.
4. Irrigation water should not be allowed to go from infected fields to the healthy ones.
5. Resistant varieties should be sown.