What do you mean by Smut ?

Write the symptoms of Covered Smut and Loose Smut with example.

The smuts are multicellular fungi characterized by their large numbers of teliospores. The smuts get their name from a Germanic word for dirt because of their dark, thick-walled, and dust-like teliospores. They are mostly Ustilaginomycetes (phylum Basidiomycota) and can cause plant disease. The smuts are grouped with the other basidiomycetes because of their commonalities concerning sexual reproduction.

Smuts are cereal and crop pathogens that most notably affect members of the grass family (Poaceae) and sedges (Cyperaceae). Economically important hosts include maize, barley, wheat, oats, sugarcane, and forage grasses. They eventually hijack the plants' reproductive systems, forming galls which darken and burst, releasing fungal teliospores which infect other plants nearby. Before infection can occur, the smuts need to undergo a successful mating to form dikaryotic hyphae (two haploid cells fuse to form a dikaryon.

Smut, plant disease primarily affecting grasses, including corn (maize), wheat, sugarcane, and sorghum, caused by several species of fungi. Smut is characterized by fungal spores that accumulate in sootlike masses called sori, which are formed within blisters in seeds, leaves, stems, flower parts, and bulbs. The sori usually break up into a black powder that is readily dispersed by the wind. Many smut fungi enter embryos or seedling plants, develop systemically, and appear externally only when the plants are near maturity. Other smuts are localized, infecting actively growing tissues. Control includes growing resistant varieties in noninfested soil, treating seeds with a fungicide, using disease-free transplants, and destroying infected plants or plant parts before the spores are released.

Symptoms of Covered Smut

Infected plants do not demonstrate symptoms until heading. Kernels of infected plants are replaced by masses of dark brown smut spores. Smutted heads are hard and compact. Infected plants may be stunted. Occasionally smut sori may also develop in leaf blades, where they appear as long streaks.

Example- Covered smut of barley is caused by the fungus Ustilago hordei.

Symptoms of Loose smut

The major symptom of loose smut is the "smutted" grain heads, which contain masses of black or brown spores where the grain would normally be. The spores completely replace the grain head so that there is no grain to be harvested on infected plants. It may be possible to identify infected plants in the field before they reach the flowering stage by looking for plants which are taller and more mature than the rest of the field. The fungus causes infected plants to grow slightly taller and mature slightly sooner than the uninfected plants in the field. Since it must infect through the open florets, this gives the fungus a competitive advantage by allowing it to fall down to the healthy plants and ensuring that the fungus has a little extra time to produce and disperse spores before the florets of the healthy plants open.

Example- Loose smut of barley is caused by Ustilago nuda. It is a disease that can destroy a large proportion of a barley crop.