

Lecture 22 - Diseases of Rose

Black spot- *Diplocarpon rosae*

Economic Importance

Black spot of rose is a serious problem in chill and cold climate of temperate regions. The disease causes marked reduction in the size and number of flowers.



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Symptoms

Black lesions with feathery margins surrounded by yellow tissue are found on the leaves. Infected leaves drop prematurely. Purple/red bumpy areas on first year canes may be evident. Plants may be weakened due to defoliation and reduced flower production may be observed.

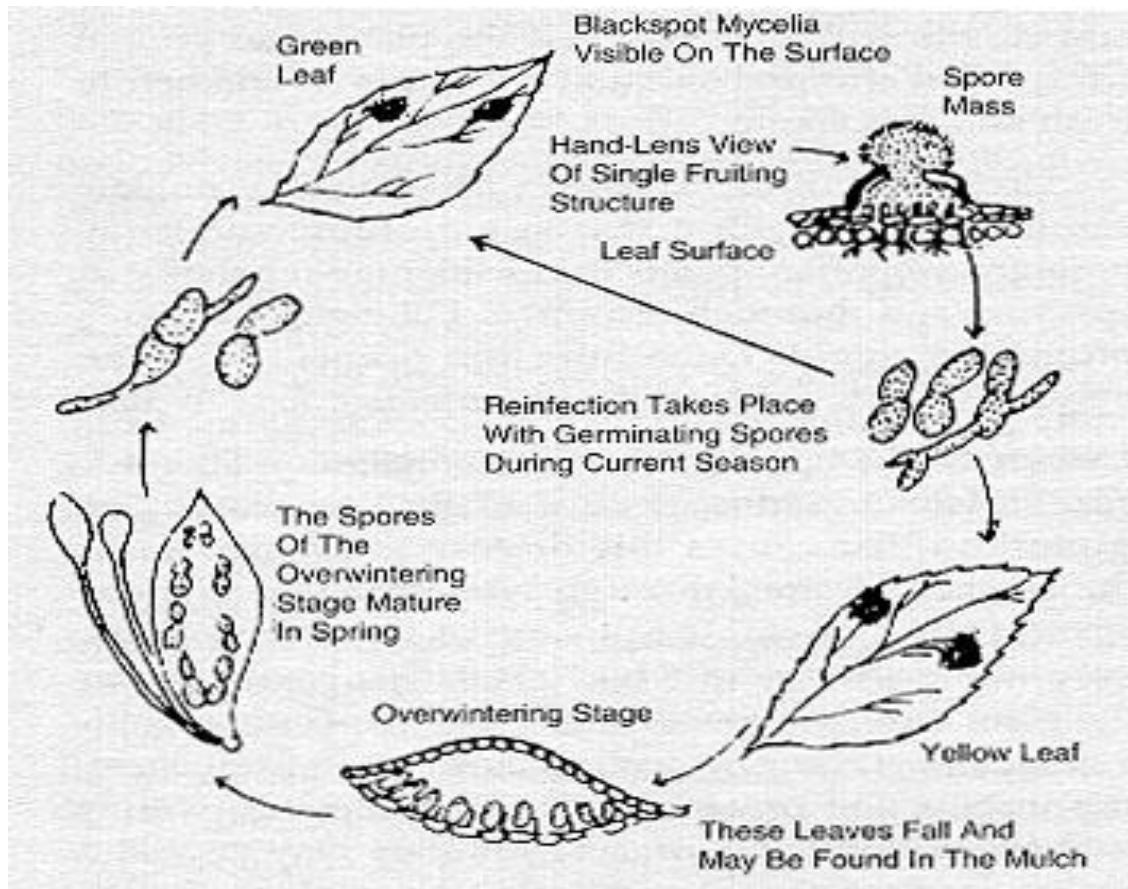
Pathogen

The vegetative body of the fungus consists of two parts viz., the subcuticular mycelium and the internal mycelium. The fungus produces acervuli on the central part of the tar spots as blister like projections. Ascii are discoid, sub epidermal, erumpent and 84 to 224 micron meter in diameter. Stroma is thin. Conidiophores are hyaline short and cylindrical. Conidia are hyaline, two celled, fusiform or allantoid to obclavate, upper end round, base narrow, guttulate, 18 – 25 x 5 – 6 micron meter.

Mode of spread and survival

The fungal spores are spread primarily by splashing rain or water. Germination of the spores and infection occur when free water remains on the leaf surface for a period of 6 hours or longer. Leaf spots develop within 5 to 10 days.

Disease Cycle



Management

Cultural-Roses should be planted where the sun can quickly dry the night's dew. Space roses far enough apart for good air circulation. Avoid overhead watering and keep foliage as dry as possible. Remove infected canes and burn diseased leaves. Spraying with Mancozeb (or) Chlorothalonil 0.2% (or) Benomyl 0.1% or a copper dust.

Powdery mildew – *Sphaerotheca pannosa*

Economic Importance

It is one of the widely distributed disease of rose. Powdery mildew is prevalent during Oct – Jan in south India and Dec- Feb in North India.

Symptoms

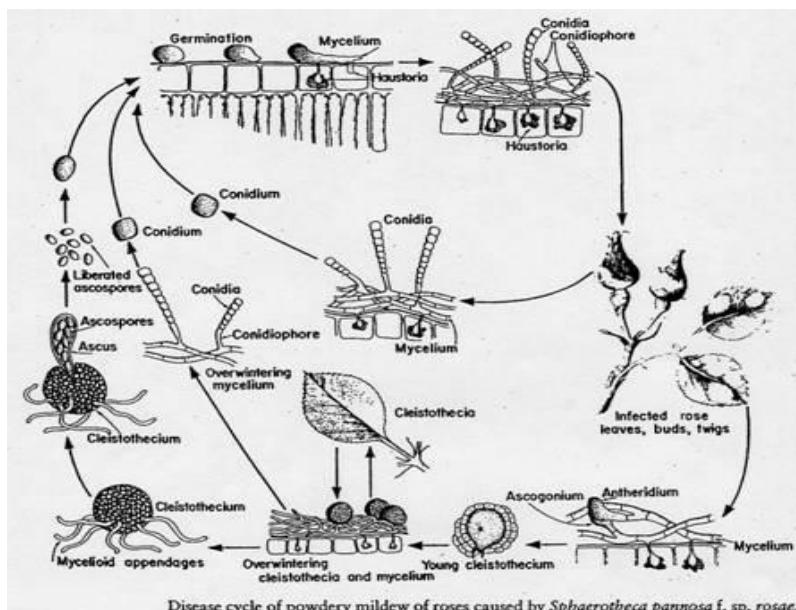
The symptom appears as grayish-white powdery substance on the surfaces of young leaves, shoots and buds. Infected leaves may be distorted, and some leaf drop may occur. Flower buds may fail to open, and those that do may produce poor-quality flowers. It can occur almost anytime during the growing season when temperatures are mild (70 - 80 °F) and the relative humidity is high at night and low during the day. It is most severe in shady areas and during cooler periods.



Pathogen

Mycelium is white, septate, ectophytic and sends globose haustoria into the epidermal cells of the host. Conidiophores are short and erect. Conidia are one celled, oblong, minutely verrucose with many large fat globules and 22.5 – 29.0 x 12.9 to 14.5 micron meter. Cleistothecia are formed towards the end of the season on the leaves, petals, stems and thorns. Cleistothecia are with simple myceloid appendages. Each ascus contains eight ascospores.

Disease Cycle



Mode of spread and survival

The fungus over winters as mycelium in dormant buds and shoots which are not entirely killed. Either conidia or ascospores serve as primary inoculum. The secondary spread is through wind borne conidia.

Management

Collection and burning of fallen leaves. Spray with Wettable sulphur 0.3% (or) Dinocap 0.07% (or) Carbendazim 0.1% 2-3 sprays at 15 days interval is effective. Sulphur dust at 25 kg/ha. Use of sulphur at higher temperature conditions will be phytotoxic.

Die back – *Diplodia rosarum*

Economic Importance

In India it was first reported in 1961 from Delhi. Now it occurs in all the rose growing areas.

Symptoms

Drying of twigs from tip down wards. Blackening of twigs. The disease spreads to root and causes complete killing of the plants.



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Pathogen

The fungus produces round, black pycnidia which bear spores. The pycnidiospores are dark coloured and two celled. Perithecia are immersed in the host tissue and are surrounded by a pseudostroma. Ascospores are ellipsoidal or fusoid, hyaline, two celled with the septum in or near the middle.

Mode of spread and survival

The fungus persists in dead twigs and the stalks of the withered blooms.

Management

Pruning should be done so that lesions on the young shoots will be eliminated. Apply chaubatia pastic in the pruned area. Spray with COC 0.2% (or) Difolatan 0.2% (or) Chlorothalonil 0.2% (or) Mancozeb 0.2%

Rust – *Phragmidium mucronatum*

Economic Importance

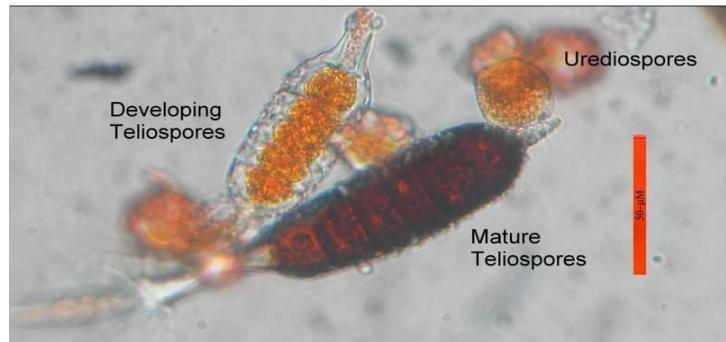


Rose rust is restricted to higher altitudes. It occurs in Jammu and Kashmir, Himachal Pradesh, Punjab, Tamil Nadu and Uttar Pradesh. Outbreaks of rust disease was reported from Udaipur district of Rajasthan in the variety Chaiti Gulab.

Symptoms

Damage to lemon yellow pustules appear on lower surface of the leaves and stems. Then the color changes to blackish red. The affected leaves turn yellow deformed and fall prematurely. Die back symptom also appear due to weakening of the plant.

Pathogen



Phragmidium mucronatum on rosa sp. Aecidiospores are verrucose, orange yellow, 24 – 25 x 18- 21 micron meter. They are surrounded in the aecidium by club shaped paraphyses. Uredospores are ellipsoid or ovate, echinulate, orange yellow and 21 – 28 x 14 -20 micron meter. The uredospores are borne on short pedicels and are surrounded by paraphyses. Teleutospores are dark coloured, cylindrical, 6- 8 celled with a pointed papilla and 65 – 120 x 30 – 40 micron meter.

Management

Collection and burning of fallen leaves. Spray with Carboxin 0.1% or Wettable sulphur 0.25% or Captan 0.2%