

1. Castor

Ricinus communis Family: Euphorbiaceae

1. Phytophthora Blight

Disease Symptom:

❖ Dead seedling

- The disease first makes its appearance on both the surfaces of the cotyledonary leaves in the form of roundish patch of dull green colour which soon spreads to the point of attachment causing the leaf to rot and hang down.

❖ Spot on older leaf

- The infection further spreads to the stem with the result that the seedling is killed either due to the destruction of growing point or by the collapse of stem.
- The true leaves of seedlings and the very young leaves of older plants may also be affected; but ordinarily not much injury is caused.
- The leaf spots turn yellow and then brown and concentric zones of lighter and darker brown colour are formed.
- The disease spots coalesce at a later stage and cover almost the entire leaf.
- The affected leaves shed prematurely. Under moist conditions, a very fine whitish haze is found on the under-surface of the leaf spots.
- In case of mature plants also the disease may spread from young leaves to the stem through the petiole.



Seedling Blight : *Phytophthora colocasiae*

Disease cycle: The pathogen survives in soil or collateral host or alternate hosts. The various *Phytophthora* species survive cold winters or hot, dry summers as oospores, chlamydospores, or mycelium in infected roots or stems. **These structures may also survive in the soil.** In the spring, the oospores and chlamydospores germinate by means of zoospores, whereas the mycelium grows further and produces zoosporangia that release zoospores. The zoospores swim around in the soil water and infect roots of susceptible hosts with which they come in contact.

More mycelium and zoospores are produced during wet, cool weather and spread the disease to more plants.

Management

- Well drained, damp and low lying localities should be avoided for sowing castor.
- Seed treatment with *Trichoderma viride* @ 4g or Metalaxyl 3g/kg seed can reduce disease incidence.
- Soil drenching with Copper oxychloride @3g /lit or Metalaxyl 2g/lit

2. Bacterial Leaf Spot/Blight

The disease has been reported from Gujrat (Patel et al., 1951).

Symptoms

- The pathogen attacks cotyledons, leaves and veins and produces few to numerous small, round, water-soaked spots which later become angular and dark brown to jet black in colour.
- The spots are generally aggregated towards the tip. At a later stage the spots become irregular in shape particularly when they coalesce and areas around such spots turn pale-brown and brittle.
- Bacterial ooze is observed on both the sides of the leaf which is in the form of small shining beads or fine scales.
- Diseased areas consist of bacterial exudation as small beads on both the surfaces. Elongate dark lesions may also develop on petioles and young branches.
- The bacterium is **seed borne**.

Causal organism: *Xanthomonas campestris pv. ricini*

Disease cycle: Seed is most important source of inoculum but the pathogen can survive in partially un-decomposed plant debris. The pathogen enters the host through stomata, hydathodes or wounds. Long distance dissemination occurs through seed and local spread through rain droplets

Etiology:

- The bacterium is gram negative, liquefies gelatin, hydrolyses starch, digests casein, peptonises milk, reduces litmus, produces ammonia and hydrogen sulphide and does not reduce nitrates.
- The optimum temperature for the growth of the bacterium and its thermal death point are 31 °C and 51 °C respectively.

Disease Management:

Cultural:

- Field sanitation help in minimizing the yield loss as pathogen survives on seed and plant debris.
- Hot water treatment of seed at 58°C to 60°C for 10 minutes.
- Grow tolerant varieties like 413A, DD Castor and X 453 etc .

Chemical

- Spray copper oxy chloride (0.3%) or (500 PPM) streptomycin 1g in 5 litres of water or Paushamycin (0.025%).
- Spray combination of Paushamycin (0.025%) + Copper oxy Chloride (0.3%) gave the best results in disease management.