

Class -3<sup>rd</sup> year

Semester- Second semester

Course Title- Diseases of Field and Horticultural crops & their Management

College of Agriculture – College of Agriculture, Powarkheda

Name of Teacher- Dr. Dhananjay Kathal (Plant Pathology)

Topic - Diseases of Stem gall of coriander

## Stem gall of coriander

C.O. *Protomyces macrosporus*

### Disease symptoms:

- The disease appears in the form of tumor-like swellings of leaf veins, leaf stalks, peduncles, stems as well as fruits.
- The infected veins show a swollen hanging appearance to the leaves.
- Initially the tumors are glossy which rupture later on and become rough. They are about 3 mm broad and up to 12.5 mm long.
- Badly affected plants may be killed. In the presence of excessive soil moisture, especially under shaded conditions, when the stem fails to harden and remain succulent, the tumors are numerous.

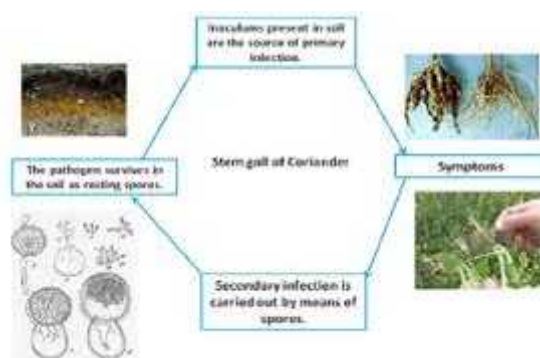
### Pathogen

- Hyphae are intercellular, closely septate and broad, branching is irregular, scattered cells in the hyphae swell, form ellipsoidal or globose bodies, which later develop in to chlamydo spores.
- As the chlamydo spores mature, a thick, hyaline and three- layered wall measuring 50 to 60µm in diameter surrounds them.
- The mycelium of the fungus is only found in the tumours although the resting spores of the fungus cause systemic infection.

### Survival and spread:

- The disease is soil borne and the inoculum present in the soil are the source of primary infection. Pathogen may survive in soil as resting spore for several years.

### Favourable conditions:



- Relatively high soil moisture and soil temperature are favourable for the infection.

## **Disease cycle**

## **Management**

### **Common cultural practices:**

- Deep ploughing of fields during summer to control nematodes population, to expose pupae, propagules of soil borne pathogens and weeds.
- Soil solarization: Cover the beds with polythene sheet of 45 gauge (0.45 mm) thickness for three weeks before sowing for soil solarization which will help in reducing the soil-borne pests including weeds.
- Timely and line sowing should be done.
- Field sanitation, rouging
- Destroy the alternate host plants
- Soil test based application of manures and fertilizers.
- Growing castor or marigold as a trap crop for the management of Spodoptera.
- Plant tall border crops like maize, sorghum for the management of mites and thrips.
- Incubated Trichoderma @500g in 100 Kg FYM for 15 days prior to its application in one acre field
- Maintain the optimum moisture to minimize the stem gall. See common cultural and biological practices
- Hexaconazole as seed treatment (0.2%) and foliar spray after 40,60 and 75 DAS (0.2%) is more effective treatment for management of stem gall disease of coriander

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**Topic - Diseases of Turmeric**

**Turmeric Leaf Spot**

C.O.- Colletotrichum capsici

**Symptoms-**

Oblong brown spots with grey centres are found on leaves. The spots are about 4-5 cm in length and 2-3 cm in width. In advanced stages of disease black dots representing fungal acervuli occur in concentric rings on spot. The grey centers become thin and gets teared. Severely effected leaves dry and wilt. They are surrounded by yellow halos. Indefinite number of spots may be found on a single leaf and as the disease advances; spots enlarge and cover a major portion of leaf blade.

**Favorable condition**

The disease is usually appears in October and November • Relative humidity of 80% and temperatures of 21 – 230C favours the primary infection

**Disease cycle**

The fungus is carried on the scales of rhizomes which are the source of primary infection during sowing. The secondary spread is by wind, water and other physical and biological agents. The same pathogen is also reported to cause leaf-spot and fruit rot of chilli where it is transmitted through seed borne infections. If chilli is grown in nearby fields or used in crop rotation with turmeric, the pathogen perpetuates easily, building up inoculum potential for epiphytotic outbreaks.

## Management

- Select seed material from disease free areas.
- Treat seed material with mancozeb @ 3g/litre of water or carbendazim @ 1 g/litre of water, for 30 minutes and shade dry before sowing.
- Spray mancozeb @ 2.5 g/litre of water or carbendazim @ 1g/litre; 2-3 sprays at fortnightly intervals.
- The infected and dried leaves should be collected and burnt in order to reduce the inoculum source in the field.
- Spraying Blitox or Blue copper at 3 g/l of water was found effective against leaf spot.
- Crop rotations should be followed whenever possible.
- Cultivate tolerant varieties like Suguna and Sudarshan.