

## Diseases of Chickpea and Their Management

Vishwa Vijay Raghuvanshi<sup>1</sup>, Prabha Siddharth<sup>1</sup>, Heenashree Mansion<sup>3</sup>, Amit kumar<sup>4</sup>

Department of Plant Pathology, College of Agriculture, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya (UP)- 224229

<sup>3</sup>Department of Entomology, College of Agriculture, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya (UP) - 224229

<sup>4</sup>Department of Entomology, Post Graduate College of Agriculture, Dr. Rajendra Prasad Central Agriculture University, Pusa (Bihar) 848125

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### Abstract:

Chickpea (*Cicer arietinum* L.) is one of the most widely cultivated pulse crop in India. Various biotic and abiotic factors are great constraints to the production of chickpea. The biotic factors include insect pests and diseases caused by fungi, bacteria, viruses and nematodes. The fungal disease such as Fusarium wilt (*Fusarium oxysporium* f. sp. *Ciceris*), Ascochyta blight (*Ascochyta Drabei*), Collar rot (*Sclerotium rolfsii*), Verticillium wilt (*Verticillium dahlia*), Black root rot (*Fusarium solanii*), Phytophthora root rot (*Phytophthora megasperma*) and Seed rot (*Aspergillus flavus*) etc. More than 50 diseases of chickpea have been reported. Among which soil borne diseases such as Fusarium wilt, Dry root rot and Collar rot have been reported to be major diseases which causes great damage to the plant.

**Key Word:** Dry root rot, Collar rot, Seed rot, Soil borne

### Introduction:

Chickpea is a legume, self-pollinated, diploid crop widely cultivated in semi-arid tropics. They are rich in high protein concentration not only at nutritional level but also on active supply of peptides. Chickpea contains antioxidant, antihypertensive, hypocholesterolemia and anticancer properties. It has different metabolites with different pharmacological activities.

Chickpea is sometimes referred to as “Poor man’s meat” as they are consumed by millions of people in countries having high poverty rates. It is high in proteins and other nutrients such as calcium, iron, phosphorous and other minerals. Chickpea is a good source of carbohydrate in comparison to other pulse crops.

Chickpea is a Rabi crop grown in Andhra Pradesh. It is a type of legume which consists of deep tap root system, which enhances its capacity to withstand in drought conditions.

The chickpea has a potential health benefit which reduces cardiovascular, diabetic and cancer risks.

**Ascochyta Blight:**

**Causal organism:** *Ascochy tarabei*

**Symptoms:**

- All parts of plant are affected.
- Symptoms appears as water-soaked lesions on the leaves of plant with small circular brown spots.
- These spots enlarge rapidly and coalesce under favourable condition thus, blighting the leaves including buds.
- During severe infection, suddenly the whole plant dries up causing the development of lesions on stem and petioles.
- Wet and warm weather is favourable condition conducive to spread of disease.

**Management:**

- Disease free seeds should be sown.
- Intercropping should be done with barley, wheat and mustard.
- Seed treatment with Carbendazim @ 1g/kg of seed.
- Spraying of @ 2.5 g/lit. Mancozeb fungicide.

**Fusarium wilt:**

**Causal organism:** *Fusarium oxysporum f.sp.ciceri*

**Symptoms:**

- Any stage of the crop can be affected by this disease with considerable loss in most of gram growing regions.
- Symptoms may be seen at seedling stage.
- The leaves start yellowing and dries up.
- Roots turns black and ultimately starts decomposing.

**Management:**

- Resistant varieties like Avrodhi, Uday, C-214.
- Treatment of seed with Carbendazim at the rate 2.5 gm/kg of seed.

**Collar rot:**

**Causal organism:** *Sclerotium rolfsii*

**Symptoms:**

- The symptoms appear in early stage.
- Foliage turns slightly yellow resulting in seedling chlorosis and drying of plant.
- The collar region between stem and root turns slightly soft brown white in colour and begins to decay.
- When roots are cut into two halves dark brown to black rotting is seen in between.

**Management:**

- During summers deep ploughing is required.
- Avoid excessive moisture during sowing.
- Roughing and weeding should be done.
- Treat the seed with mixture of Carbendazim @ 1gm/kg of seed.

**Powdery mildew:**

**Causal organism:** *Oidio psistaurica*

**Symptoms:**

- White powder like small patches appears on leaves with the onset of disease.
- When there is severe infection, the whole plant is covered with powdery mildew.

**Management:**

- Proper field sanitation.
- Spray of Dithane M-45 or Carbendazim @ 2.5g/lit.

**Grey mold:**

**Causal organism:** *Botrytis cineria*

**Symptoms:**

- Symptoms usually appears on vegetative parts (twigs, leaves, petioles and flowes)
- Appearance of brown necrotic spots on affected parts are seen.
- Affected stems break and plant dries up.

**Management:**

- Use disease free seeds.

- Spraying should be done with 0.2% Carbendazim.

**Rust:**

**Causal organism:** *Uromyze scicerarietini*

**Symptom:**

- Appearance of symptom on under surface of leaves with small, round to oval, dark brown pustules which later turns black.
- The pustules later may spread on upper surface of leaf and affected leaf prematurely falls off.

**Management:**

- Resistant varieties such as Pusa-256, Gaurav should be used.
- Spray 0.2% Mancozeb 75 WP.

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