Agri Articles
(e-Magazine for Agricultural Articles)
Volume: 03, Issue: 05 (SEP-OCT, 2023)
Available online at http://www.agriarticles.com
©Agri Articles, ISSN: 2582-9882

Diseases of Rapeseed-Mustard and their Management

(*Lokesh Yadav[1] and Rakesh Punia[2])
[1]Maharana Pratap Horticultural University Karnal, Haryana, India
[2]CCS Haryana Agricultural University, Hisar, Haryana, India
*Corresponding Author's email: royalkhola@gmail.com

Rapeseed/Toria and mustard belong to the family: Brassicaceae (Cruciferae) are the third most important edible oilseed crops of the world after soybean and oil palm. The temperate regions of Europe are considered as place of origin of this crop. Rapeseed-mustard group includes Indian mustard, brown and yellow mustard, raya and toria crop. Indian mustard is grown in Rajasthan, Madhya Pradesh, UP, Haryana and Gujarat also in some areas of south like Andra Pradesh, Karnataka and Tamil Nadu. Yellow mustard is taken as *Rabi* crop in Assam, Bihar, Orissa and West Bengal where as in Punjab, Haryana, UP and Himachal Pradesh it is taken as catch crop. Earlier brown mustard was cultivated in most of the area now its area under cultivation is decreases and replaced by Indian mustard. Brown mustard has two ecotypes *i.e.* Lotni and Toria. Toria is short duration crop sown under irrigated condition. Gobhi mustard is new emerging oilseed, it is long duration crop grown in Haryana, Punjab, and Himachal Pradesh. This crop accounts for nearly one-third of the oil produced in India, making it the country's key edible oilseed crop. The oil content varies from 37 to 49%. The seed and oil are used as condiment in the preparation of pickles, curries, vegetables, hair oils, medicines and manufacture of greases. The oil cake is used as feed and manure. It can be grown on sandy loam to clay loam soils but thrive best on light loam soils. Toria should be sown from the mid to the last week of September. Sowing of mustard and rai must be completed in the first fortnight of October. Despite the high quality of oil and meal and also its wide adaptability for varied agro-climatic conditions, the area, production and yield of rapeseed-mustard in India have been fluctuating due to various biotic and abiotic stresses. This article is focused on main biotic stresses of this crop and their management practices.

Main diseases and control measures

1. Alternaria blight: This disease is caused by *Alternaria brassicae*. The pathogen perpetuates through seed and affected plant parts in the soil. The stems develop water-soaked spots which later may be covered with a cottony white growth. Concentric black spots on the leaves, stem and pods can also be observed. Girdling of the stem may result in premature ripening and in lodging of plants. Infected pods contain shriveled and undersized seeds.
Management: Deep summer ploughing is helpful in destroying the fungal inoculum at field level. Healthy disease freed seeds should be used for sowing. Crops sown from 10 to 15 October are less affected with this disease. Spray Dithane M-45 @0.2% at 15 days interval as soon as the symptoms are observed. Collect and burn the affected plant portions after the harvest of the crop.

2. Sclerotinia Stem Rot: This disease is caused by fungus *Sclerotinia sclerotiorum* which is also known as stem blight or white blight. Earlier it was the disease of minor importance but

now it became serious disease of crucifers. Sudden drooping of leaves followed by drying of plants are the characteristic symptoms of the disease. White cottony, fungal growth is visible near collar region of the infected plant and large cavities lined by fluffy mycelium & numerous black sclerotia of the fungus can be seen after split opening of the stem. These sclerotia are responsible for over wintering and further spread of this disease.

Management: This disease can be managed by following long crop rotation with non-host crops (maize/wheat/ onion etc.). Crop residue should be burnt to destroy sclerotia. Deep ploughing of field is also helpful in managing this disease. Late sowing of the crop (Third week of October) is also effective and reduces the disease incidence. Treat seed with Bavistin @ 2 gm per kg seed before sowing. Foliar spray with carbendazim @ 0.1% is recommended at 60 DAS for managing this disease.

3. White rust: The fungal pathogen responsible for this disease is *Albugo candida* and it affects all the crucifer crops. Infected flowers exhibit "staghead" formation in which the flowers are sterile, malformed and green. White creamy pustules of variable shape & size appear on the leaves, stem & inflorescence. Large patches are formed when these pustules are merged and after rupturing the host epidermis these become powdery in appearance. This is called white rust due to presence of white creamy pustules and sporangia give white rusty appearance.

Management: Healthy, clean and certified seed should be used for planting. Sowing of raya up to 15th of October can reduce the disease incidence. Two foliar sprays with Dithane M-45 @0.2% at 15 days interval should be done as soon as the symptoms appear.

4. Downy Mildew: *Peronospora parasitica* is the fungal pathogen which is responsible for this disease. The infected plants show grayish to white irregular necrotic spots on the lower surface of leaves. Later on, under favourable environmental conditions brownish to white fungal growth may be observedn on the spots. The stems of flower clusters become swollen. Hypertrophy of the peduncle of inflorescence is also the main symptom of downy mildew disease.

Management: Collection and burning of the affected plant tissues after the harvest of the crop is helpful in managing this disease. Disease free seed should be used for sowing.

5. Club root: It is caused by the fungus *Plasmodiophora brassicae* and got its name from the club-like roots it induces in infected plants. Affected plant remains stunted and tiny nodules to large club shaped outgrowths can be observed in roots. Leaves turn pale green or yellow followed by wilting and under severe conditions the plants dies ultimately.

Management: Club root disease is very hard to control and serious impediment in crucifer crops. The proper management can be achieved through exclusion of the pathogen. Disease free planting material should be used. Proper crop rotation should be practiced with non-host crops. Remove and destroy the infected plats from field as they harbor the pathogen for many years. Since this disease is more prevalent in acidic soils so adding lime to soil is very effective in controlling this disease.