

SOME COMMON DISEASES OF CUCURBITS AND THEIR MANAGEMENT

Purushotam Sharma

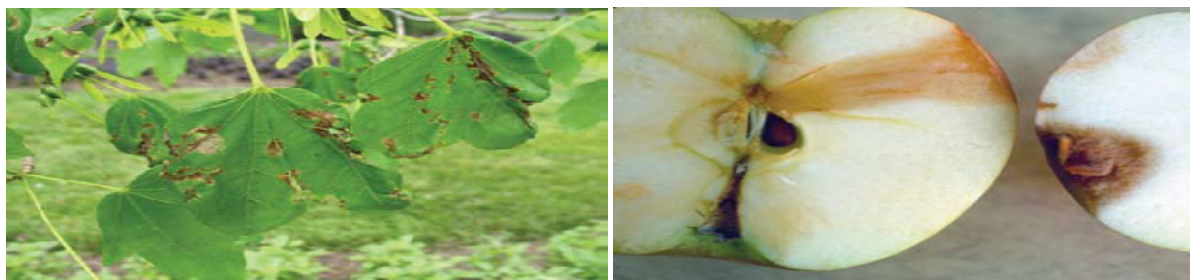
Department of Agricultural Entomology S.K.N. College of Agriculture Jobner; Jaipur 303328

E-mail: purushotamsharma420@gmail.com

Anthracnose (*Colletotrichum orbiculare* & *C. lagenarium*)

Symptoms

Disease on leaves is observed as water soaked small yellow spots that enlarge and turn to brown. The necrotic portion dries and shatters. Elongated water soaked, sunken lesions appear on stem. Light yellow to brown discoloration of these stem lesions is due to abundant sporulation. Severe incidence resulting infection in juvenile fruits as small, sunken, light brown, cracked spots are observed. Two species are involved in cucurbits because the size of spots is distinct and appear in different weather condition. Anthracnose on leaves Anthracnose on fruits



Symptoms of anthracnose disease on plant leaves and fruit

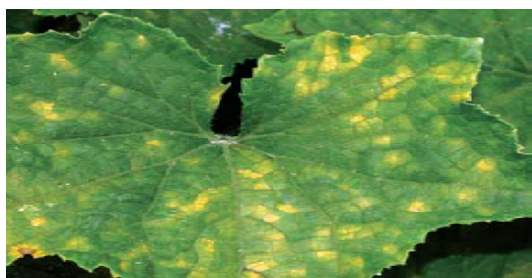
Management

Always seed should be collected from healthy fruits and disease-free area. Seeds must be treated with Carbendazim @ 0.25%. Field sanitation by burning of crop debris. Grow crop on bower system to avoid soil contact. Maintain proper drainage in the field. Seed production should be preferably carried out in summer season because summer crop is often free from pathogen. Foliar sprays of Carbendazim @ 0.1% or Chlorothalonil @ 0.2% but spray must be started soon after infection.

Downy Mildew (*Pseudoperonospora cubensis*)

Symptoms

Disease appears as irregular, numerous, small, yellow areas surrounded by green tissues scattered all over the leaf lamina. It appears just like in definite mosaic pattern particularly in cucumber. The yellow areas are angular and bounded by veins. Symptoms on bitter gourd are light brown while grayish brown on pointed gourd without prominent yellowing on these hosts. In high humid weather, faint white downy growth of fungus is observed. Yellow lesions on cucumber leaf.



Yellow Lesions on Cucumber and Brown Lesions on Bottle Gourd

Management

Crop should be grown with wide spacing in well-drained soil. Air movement and sunlight exposure helps in checking the disease initiation and development. Bower system of cropping reduces the disease incidence. Field sanitation by burning crop debris to reduce the inoculums. Seed production should be preferably carried out in summer season because summer crop is often free from disease. Use tolerant cucumber lines like Summer Prolific. Protective spray of Mancozeb @ 0.25% at seven days interval gives good control. In severe case one spray of Metalaxyl + Mancozeb @ 0.2% may be given but it should not be repeated.

Powdery Mildew (*Sphaerotheca fuliginea* and *Erysiphe cichoracearum*)

Symptoms

Disease appears on all foliar part as white to dull white, powdery growth. This white growth quickly covers most of the leaf surface and leads to heavy reduction in photosynthesis area. Plants may wither and die. Growth of plant and fruits seized. Transpiration rate is very fast from infected leaves.



Management

Foliar sprays of Penconazole @ 0.05% or Tridemorph @ 0.1% or Carbendazim @ 0.1%, give very good control of the disease. Use tolerant line.

Fruit Rots

(*Phytophthora cinnamomi*, *Pythium*, *Rhizoctonia*, *Phomopsis cucurbitae*)

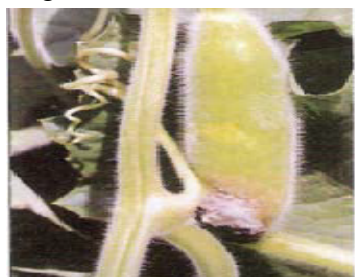
Powdery Mildew on Bottle Gourd

Symptoms

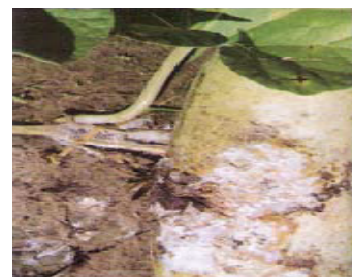
Disease is mostly observed on-matured fruits as comparatively dry rotting with characteristic pycnidia over it. Generally lower portion of fruits touching soil surface are affected. *P. cinnamomi* is causing rotting of vines, leaves and fruits of pointed gourd, *Rhizoctonia* fruit rot is most severe in muskmelon, while *Phomopsis* fruit rot on ash gourd.



Pythium and Phytophthora Rot



Sclerotium Rot



Sclerotinia Rot

Management

Avoid soil contact of fruit by using bower system of cultivation and staking of plant. Provide proper drainage in the field. Green manuring followed by soil application of *Trichoderma* @ 5 kg/ha in soil is very effective in checking most of the fruit rotting. Collect affected fruits and burn them to reduce primary inoculum.

Gummy Stem Blight

(*Didymella bryoniaeteleomorph* and *Phoma cucurbitacearum* anamorph)

Symptoms

This disease is now becoming severe in muskmelon, bottle gourd and sponge gourd. Most of the hybrids are susceptible to the disease. Introduction of hybrids introduced this disease in all cucurbits growing area. Initially water soaked area are observed on the stem near soil line. Later on translucent gum like exudates released from the affected portion is deposited over it. Black dot like pycnidia is also observed on the affected bark. Gummy stem lesions on muskmelon



Management

Avoid exotic hybrids and varieties due to high degree of susceptibility. Summer ploughing and green manuring followed by *Trichoderma* application. Maintain proper drainage and aeration in the field. Seed treatment with Carbendazim @ 0.25%. One drenching of Carbendazim @ 0.1% near collar region. Avoid injury near collar region.

Gummy Stem Lesions On Muskmelon

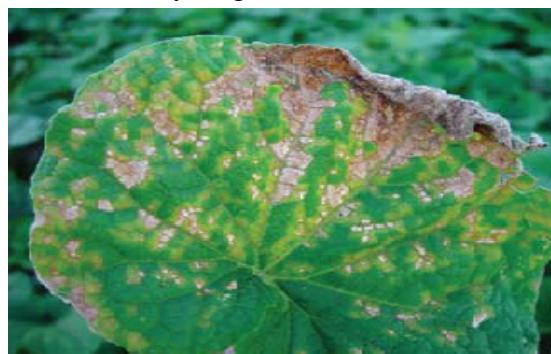
Leaf Spots (*Cercospora citrullina*, *Alternaria cucumerina* and *Corynespora melonis*, *Didymella bryoniae* (teleomorph) and *Phoma cucurbitacearum* anamorph)

Symptoms

Severity of the disease is increasing every year and engulfing ridge gourd, bottle gourd, pointed gourd, pumpkin and sponge gourd. Hybrids and exotic materials of bottle gourd and ridge gourd are highly susceptible to *Didymella* leaf blight. It is spreading throughout the cucurbits growing area. Papery with rhythmic large spots followed by shot hole is observed in *Didymella*. Black small dot like fruiting structures are also observed on the old spots. White fungus growth is clearly visible on outer margins of the spots in morning periods. Several other types of leaf spots occur on different cucurbits. Often these leaf spot diseases are more pronounced at maturity stage.



Cercospora Leaf Spot On Bottle Gourd



Didymella Blight On Ash Gourd

Management

Field sanitation, selection of healthy seeds and crop rotation reduces disease incidence. Fungicidal sprays of Mancozeb @ 0.25% alternated with one spray of Hexaconazole @ 0.05%. Seed production should be preferably carried out in summer season because summer crop is often free from disease.

Bacterial Wilt (*Erwinia tracheiphila*)

Symptoms

Bacterial wilt is a common and often destructive disease on cucumber, muskmelon, squash and pumpkin. The first signs of wilt appear usually on individual leaves as drooping, which become flaccid in sunny weather. As the disease progresses, more leaves wilt and eventually an entire plant is wilted. When wilted stems are cross sectioned, viscid and sticky bacterial matrix exudates from the vascular bundles is observed. This feature is used as a means of diagnosis. This is vascular pathogen and differs from other *Erwinia* spp. Unable to degrade middle lamella. The bacteria lives in the bodies of adult cucumber beetles particularly red striped and spotted beetle. Primary infection is produced when beetles feed upon young leaves or cotyledons. The bacteria present in the vessels of infected plants die within 1 or 2 months after the dead plants dry up. Sudden wilting in cucumber



Management

Control of cucumber beetles at initial stage from the soil with neem cake or systemic granular insecticides. Tolerant varieties with restricted use of exotic cucumber lines should be grown. Summer ploughing of soil to expose all the stages of beetles.

Mosaic and Leaf Distortion

Symptoms:- Most of the cucurbits grown in rainy

Sudden Wilting In Cucumber

season are affected by virus disease like cucumber mosaic, green mottle, leaf distortion, water mosaic etc. Generally alternate green and yellow patches with mottling symptoms are observed. Sometimes leaves deform and curl downwards. Smelling and narrowing of the leaves is also observed in leaf distortion virus. Plants become small and excessive branching, proliferation of the leaves, twigs, petioles, bushy appearance of the plants are observed. Yellow mosaic of pumpkin Stem proliferation in bottle gourd



Yellow Mosaic Of Pumpkin



Stem Proliferation In Bottle Gourd

Management

Management of the disease involves destruction of diseased hosts and weeds. Virus free seeds must be used to check the seed transmission. Initial rouging of the infected plants. Periodical spray of systemic insecticides up to flowering stage to control vectors. Seed production should be preferably carried out in summer season because summer crop is often free from virus infection. Restricted use of exotic hybrids and varieties in bottle gourd, bitter gourd and cucumber.

References

<http://www.agritech.tnau.ac.in>

NHM manual for post harvest management and integrated pest management:

<http://www.nhm.nic.in>

AVRDC the world vegetable center: <http://www.avrdc.org>

FAO Regional Vegetable IPM Programme in South & Southeast Asia: