



SYMPTOMOLOGY AND MANAGEMENT OF HORSE GRAM (*Macrotyloma uniflorum*) POWDERY MILDEW CAUSED BY *Erysiphe polygona*

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Horse gram is a Leguminosae crop grown in various tropical and subtropical areas. It is native to tropical southern Asia. The horse gram is named for the fact that it is often used for horse feed and human consumption. Horse gram, Kulthi, Hurali gram, Madras gram, Kannam, and Kollu are some of the names given to it. Horse gram is grown extensively throughout India, including Tamil Nadu. In Tamil Nadu, production and protectivity are moderately high compared with other states in India. Particularly southern Indian peoples continuously cultivated for consumption purposes. Cultivated in intercropping as well as slow cropping system. The mature plants, empty pods are used for animal feed and also used for green manure/fodder crops for tropical countries. It's a highly drought-tolerant (20 to 30 °C (68 to 86 °F) crop so perfectly suitable for rain field conditions. In horse gram there are several benefits are there as an antioxidant, complex nutrient, ayurvedic and medicinal uses.

Different factors are highly interrupted horse gram cultivation. Among them, the biotic (living organisms) factor most serious problem for all the Leguminosae crops, Powdery is one of the most devastating fungal diseases in horse gram at an early stage to harvesting. The only one Powdery mildew fungal genera are

causing that disease namely *Erysiphe polygona*. That is a newly associated disease, particularly in the warm and cool climatic areas of Tamil Nadu.

SYMPTOMOLOGY:

The Powdery mildew fungus produces an abended white mycelial growth on both surfaces of the leaves. Initially, it causes the circular round powdery patches, but later it covers the entire leaves and also highly infects the older leaves.

In the later stage, infected plant leaves get defoliated due to more powdery growth that affects photosynthesis, leading to loss of chlorophyll and drying of the infected leaves. In severely infected plants, they are completely wilting. Infected plants have reduced flower and seed production.

PATHOGEN:

The fungus is an obligate parasite, producing white mycelium with septate. The fungus produces the asexual spores through a chain of conidiophores with single-celled hyaline conidia. As the conidial population grows, the infected plant parts develop white powdery patches.



In the sexual stage, the fungus produces a closed sexual fruiting body, namely Cleistothecium (Many asci). At the time of mature cleistothecium, five or eight ascospores (single-celled) are released. Both conidia and ascospores infect the host plant. The conidia mostly cause high damage. Both conidia and ascospore transmit the wind and rain flash, which causes the primary infection. Ascospores also survive in the soil, causing secondary infections.



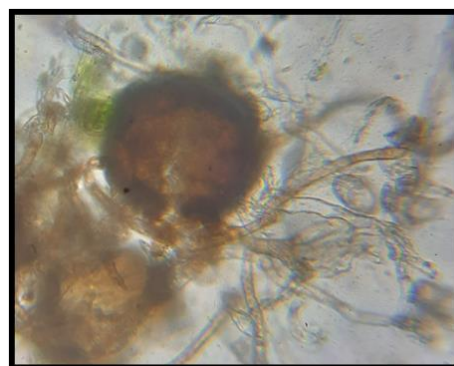
Fig.1. White superficial mycelial growth on affected plants



Conidiophore



Single celled-conidia



Cleistothecium-myceloid appendage



Life cycle of *Erysiphe polygoni* on *Macrotyloma uniflorum*

MANAGEMENT:

- At the time of initial infection, spray both Neem seed kernel extract @ 5% and Neem seed oil @ 3% twice, spraying at 10-day intervals.

- After the initial infection, spray fresh leaves with an extract of Eucalyptus globulus at a concentration of 10%. It helps to reduce the pathogens' infectivity assay.
- In chemical, spray Wettable sulphur @ 1500ml/ha or Propiconazole 500ml/ha at the initial stage and ten days after infection. Completely reduced the pathogen infection compared with the above-mentioned botanicals.