

Root rot, due to its epidemic nature and potential to kill the plants, is a dangerous disease of mulberry. It is widely distributed in almost all the sericultural areas, mainly caused by *Rhizoctonia bataticola* (Taub.) Butl. [= *Macrophomina phaseolina* (Tassi.) Goid]. It occurs in all types of soils throughout the year, resulting in 30% mortality of plants with 14% leaf yield reduction due to wilting, defoliation, drying and death of plants. The disease spreads at a faster rate in soils with 30-35°C temperature range and moisture level of <40%. The disease is characterized by sudden withering of plants followed by decaying of roots and death of the affected plants. The disease initially appears in few plants as isolated patches, which act as infective centers, leading to the mortality of well established plants within a short span. The pathogen enters in to root cortex and forms black and numerous pycnidio spores. As the cortex around root dry and disintegrate, other secondary fungi such as *Fusarium* spp., *Botryodiplodia theobromae* etc., colonize and decay the root.

Application of Indofil M-45 (Mancozeb 75% WP) or fungicides belonging to sulphur, organo fungicides, carbamates, fumigants, systemic fungicides as well as Raksha (*Trichoderma harzianum*) along with Indofil M-45 and neem oil cake, have been suggested for control of the disease. But some of these methods did not provide desirable results and some were not commercially successful. Further, the use of chemicals is expensive and their application may affect beneficial microbes in the soils.

This situation warranted the development of an eco-friendly technology for the control of the disease. Navinya, an eco-friendly formulation with 80% plant components and 20% chemicals developed at CSR&TI, Mysore is highly effective in control root rot disease. By adoption of this technology, the cost benefit ratio was worked out to be 1:4.5.

Navinya is a target specific, eco-friendly plant based formulation and does not affect beneficial microflora in the soils.

The shelf life of the formulation is two years.

Preparation & method of application

- Prepare Navinya solution by adding 10 g/litre of water and stir well (1 kg Navinya/100 litre is sufficient for 100 plants).
- Prune the dried/wilted plants, 15-30 cm above the ground level.
- Make a shallow ring basin around the plant stump to avoid run off the solution.
- Pour 1 litre solution over the pruned stump to drench completely up to the ground level.
- Treat the surrounding plants also to prevent spread of the disease.
- Treat the plants, which show symptoms such as blackening of leaf margin and withering immediately to avoid disease spread.



Precautions

- Do not irrigate the treated mulberry plants for 4-5 days.
- Remove the dead mulberry plants, burn and expose the soil to sunlight.
- Replant with new saplings after dipping their roots in 0.4 % Navinya solution for 15 minutes before planting.
- Maintain optimum organic content in soil by applying compost/manure to rise the level >0.5% in soils. Keep the soil moisture level above 40% through irrigation to prevent the disease.
- The product has been commercialized to
M/s. Nandi Agro Vet,
Bangalore in Karnataka
(M: 09449016259) and
M/s. Rainbow Agro-Vet Seri
Technologies, Pvt. Ltd.,
Kadapa in A.P (M: 09848477199).



Before application



After application

NAVINYA

A PLANT BASED PRODUCT
FOR MANAGEMENT OF
ROOT ROT DISEASE IN MULBERRY



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