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Research Paper

PHYSIOLOGICAL AND BIO-CHEMICAL MARKERS ASSOCIATED WITH ROOT ROT RESISTANCE IN MULBERRY

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ABSTRACT

The sole purpose of mulberry (*Morus* spp.) cultivation is for rearing silkworms (*Bombyx mori* L.) to produce lustrous silk. Of late, due to the introduction of high yielding varieties, mulberry has become vulnerable to many species of phyto-pathogens affecting the quality and quantity of leaves. Until recently, only the foliar diseases such as leaf spot, leaf rust, powdery mildew and leaf blight were considered as serious contributing to the reduction of leaf yield by 10 -12 % besides deteriorating the nutritional quality. But diseases of the root system pose more serious problems than foliar diseases during mulberry cultivation. Among soil borne diseases, root rot disease has become more alarming because of its epidemic nature and propensity to kill the plant completely. Root rot, which was earlier considered to be a minor disease in India, has become a serious one in recent years particularly in South India. The outbreak of the disease at field level is increasing day by day due to the complex nature of soil borne pathogens and associated edaphic factors. Though short term management technologies have been evolved, a permanent solution to this problem is to evolve resistant mulberry varieties. As an initial step in disease resistance breeding, a study was taken up to identify dependable morpho-physiological and biochemical markers associated with the infection of pathogens to screen the mulberry germplasm genotypes against root rot disease and identify the tolerant and susceptible genotypes for disease resistance breeding. Based on the results, leaf temperature, phenol content and total carbohydrates were identified as physiological and biochemical markers for screening of mulberry genotypes for root rot resistance.

Key words: Biochemical markers, germplasm, *Morus* spp., physiological markers, root rot resistance.