

Growth dynamics in some mulberry genotypes during water deficit stress

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SUMMARY

Water is the most limiting factor for plant productivity and plant growth rates are proportional to water availability. As water plays an essential role in plant metabolism, any decrease in water availability has an immediate effect on plant growth. Mulberry, *Morus* spp., plants respond to drought on a whole plant basis. Research on the effects of stress in mulberry has so far focused mainly on above ground organs, leaving many questions about the sensitivity of the root system to stress. It is, therefore, present investigation was carried out in mulberry to study root growth responses to water deficit conditions. Cuttings of Local, K-2, S-13, S-36, V-1 and AR-10 were raised in nursery. Crop wise pot plantations were taken up utilizing the saplings and respective water deficit, mild water stress, moderate stress and severe stress were imposed. Impact of water stress treatments on shoot and root systems was studied *vis-à-vis* control for five crops. Adverse impact of different stress treatment on leaf yield and yield attributes was observed. Maximum reduction in leaf yield was recorded in K-2 followed by S-36 showing a stress index of 16.8 and 20.6 per cent, respectively in response to severe stress as compared to their controls. Maximum reduction in leaf yield was in the genotype K-2 (83.16%) where as the least reduction in S-13 (65.62%). Among the varieties the root weight per plant under severe stress was 32.26 g in AR-10 followed by 31.71 g in S-13 with least in K-2 (23.62 g). The shoot-to- root ratio was found to be 0.98 in AR-10 and 0.95 in Local revealing more root mass. Water relation studies indicated variety specific variation in relative water content (RWC) and water saturation deficit (WSD) to stress treatments.

Key Words : Water deficit, Stress, Growth, Mulberry, Genotypes

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