

Effects of Sodium Nitroprusside and Salicylic Acid on Morpho-physiological Characteristics of Common Bermuda Grass under Water Deficit Stress

S. Taheri, M. Arghavani* and S.N. Mortazavi¹

Water deficit is a major limiting factor for turfgrass management in arid and semi-arid regions. This experiment was conducted to investigate morphophysiological responses of Bermuda grass (*Cynodon dactylon* (L.) Pers.) to water deficit stress and the application of sodium nitroprusside and salicylic acid. The experiment was carried out based on completely randomized design with four replications. First factor included three water deficit stress levels (40, 70 and 100% of soil available water), and four levels of second factor were salicylic acid (SA) (2 mM), sodium nitroprusside (SNP) (500 μ M), 2mM SA + 500 μ M SNP and control (distilled water). Water deficit reduced shoot growth and relative water content. Whereas root growth, chlorophyll content, electrolyte leakage, total phenol, leaves antioxidant capacity and proline content increased with decreasing soil available water. Results showed that application of sodium nitroprusside and salicylic acid ameliorate adverse effects of water deficit in Bermuda grass by increasing leaves antioxidant capacity and proline and chlorophyll content as well as reducing electrolyte leakage and this effect was more noticeable in combined application of sodium nitroprusside and salicylic acid.

Keywords: Bermuda grass, Morphophysiological responses, Salicylic acid, Sodium nitroprusside, Water deficit stress.

1. Former M.Sc. Student, Assistant Professor and Associate Professor of Horticultural Science, University of Zanjan, Zanjan, Iran, respectively.

* Corresponding author, Email: (arghavani@znu.ac.ir).