

## Effect of Saline Water Irrigation on Some Physiological and Biochemical Features of *Rosa chinensis* 'Old Blush'

A. Shaghaghy, M.M. Jowkar\*, A. Alirezalu and M. Omidi Ghaleh-Mohammadi<sup>1</sup>

*Rosa chinensis* is one of the most important urban landscape plants. One of the main important uprising problem facing urban landscape development and extension is salinity stress caused by excess NaCl in water and soil. Therefore, in the present study the impacts of NaCl salinity stress on some physiological and biochemical features of *Rosa chinensis* were studied in a factorial experiment based on completely randomized design. Plants were irrigated by saline water (4, 8, and 12 dS m<sup>-1</sup>) and irrigation water (EC of 0.8 dS m<sup>-1</sup>, as control) for 40 days. After the mentioned period, some physiological features such as leaf relative water content (RWC), leaf photosynthetic pigment (such as chlorophyll a, chlorophyll b, and carotenoids), beside activity of some enzymes involved in plant resistance to salinity stress (such as catalase, guaiacol peroxidase and superoxide dismutase) and phenol content were measured. Results indicated that leaf relative water content reduced by salinity stress and the reduction was significant at 12 dS m<sup>-1</sup>. Leaf chlorophyll and carotenoid pigments also showed a significant reduction at 12 dS m<sup>-1</sup> salinity level. Salinity stress increased the activity of antioxidant enzymes such as catalase, guaiacol peroxidase and superoxide dismutase. Similarly leaf phenol content of stressed plants increased accordingly as level of salinity stress increased. Catalase and superoxide dismutase activity significantly increased at 12 dS m<sup>-1</sup> salinity level, while guaiacol peroxidase and phenol content increment was significant at 8 dS m<sup>-1</sup>.

**Keywords:** Catalase, Chlorophylls content, Guaiacol peroxidase, Oxidative stress, Phenol content, Superoxide dismutase.

1. M.Sc. Student, Department of Horticultural Sciences, College of Agriculture, Urmia University, Urmia, Assistant Professor, Department of Horticulture, College of Agriculture, Kermanshah Branch, Islamic Azad University, Kermanshah, Assistant Professor, Department of Horticultural Sciences, College of Agriculture, Urmia University, Urmia and Ph.D. Candidate, Department of Horticultural Sciences, College of Agriculture, Tehran University, Karaj, Iran, respectively.

\*Corresponding author, Email: (mjowk@iauksh.ac.ir).