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**Abstract:** We evaluated drought response of miniature rose Meshkinjan under open door environment during a period of water deficit (21 days) and subsequent rewatering. After 21 days of drought, stem water potential, relative water content, turgid weight to dry weight ratio and starch concentration decreased significantly compared with control. While, the amount of proline and potassium increased significantly that could indicate ability of osmotic adjustment in this species. Also the increase in water potential and relative water content values after rewatering period indicate the good recovery of this plant.

**Key words:** Miniature roses, osmotic adjustment, plant water status

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## INTRODUCTION

Water deficit, taken with high solar radiation and high temperatures during the summer has been considered the main limiting factor for plant growth in Mediterranean-type ecosystems (Cagri, 1981). This stress affects the establishment, survival, growth and performance of shrubs and trees in urban and suburban landscape environments (Fernandez *et al.*, 2006) so, under water restriction conditions one strategy to improve the landscape may be the selection of drought-tolerant plants (Niu *et al.*, 2008). Some species actively accumulate solutes during water stress and decrease osmotic potential (Zayed and Zeid, 1998). Decrease osmotic potential under water stress that has been referred to as osmotic adjustment, has been considered to be a selection criterion for plants in drought-prone regions (Liu and Stutzel, 2002). Osmotic adjustment through accumulation of compatible solutes has been reported in many crops. Accumulation of sugars (Wang and Stutte, 1992), proline (Sarker *et al.*, 2005), sodium and potassium ions (Handa *et al.*, 1983) and organic acid (Turner, 1979) are common metabolic responses of higher plants to several stresses, namely water deficit.

Miniatur rose *Rosa chinensis* Jacq. Var. *minima* Rehd hybrids is a small deciduous plants that is commonly used as an ornamental plant in landscapes, parks, homes, gardens etc. in many parts of Iran (Salehi Najaf-Abadi, 1995). Meshkinjan is a beautiful cultivar of miniature rose. This study was undertaken to quantify leaf water relations and osmotic adjustment of miniature rose cv. Meshkinjan under drought stress and recovery period.