

عنوان مقاله:

Water Deficit Decreases Gas Exchange Parameters and Marketable Quality of Rosa hybrida 'Club-Nika' Irrespective of Training Systems

محل انتشار:

مجله علوم و فناوری کشاورزی، دوره 22، شماره 3 (سال: 1399)

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خلاصه مقاله:

The present study was carried out to investigate biochemical, morphological, and physiological processes involved in the adaptive processes of cut roses grown in arching and high-rack culture systems under water deficit condition. Rose plants 'Club-Nika' were subjected to three water regimes [control (100% of irrigation needs), moderate water stress (75%), and severe water stress (50%)] factorially combined with two training systems defined as arching and high-rack systems. Water deficit significantly reduced morphological and qualitative traits as well as water relations of cut roses. Water deficit significantly reduced Net CO₂ assimilation rate (PN), transpiration rate (E), and stomatal conductance (gs), whereas it did not affect Water Use Efficiency (WUE_i) and intercellular CO₂ concentration (C_i). Surprisingly, water deficit did not affect chlorophyll content [chl a, chl b and total chl (a + b)] and proline accumulation of leaves. Considering the lack of change in intercellular CO₂ concentration, it seems likely that both stomatal closure and metabolic impairment limit photosynthetic CO₂ assimilation under water deficit. Regardless of irrigation regimes, rose plants trained with high-rack culture system showed a superiority for most of the qualitative and quantitative attributes compared to those trained with arching system. The high-rack system resulted in 60% higher extra-quality stems (> 60 cm) compared with the plants trained with arching. It can be concluded that cut roses respond to water deficit through adaptive changes in physiological and morphological levels to reduce water loss without any negative impact at biochemical level.

کلمات کلیدی:

Cut roses, Photosynthesis, Relative water content, Shoot Bending, Water use efficiency

لینک ثابت مقاله در پایگاه سیویلیکا:

