

Effect of Nutrient Solution Culture on Stomatal Response to Drought Stress in *Tradescantia virginiana* Grown Under High Relative Air Humidity

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Abstract

In this research, we aimed to elucidate the effect of nutrient solution culture on stomatal response to drought stress in high relative air humidity (RH) grown plants using the new method of chlorophyll fluorescence measurement under low oxygen concentration. According to the results, stomata of high RH grown plants failed to close fully in response to drought stress. However, growing plants in nutrient solution under high RH produced stomata which closed quickly in response to drought stress. Moreover, stomata of plants grown with a split root system in soil and nutrient solution under high RH closed quickly in response to drought stress. Removing roots from nutrient solution in plants grown with a split root system resulted in diminished closure of stomata in response to drought stress. Evidently, some as yet unidentified positive signals produced by roots growing in nutrient solution, transferred to leaves and resulted in the production of efficient stomata.

Keywords: *Stomata, Relative air humidity, Drought stress, Nutrient solution culture, Tradescantia virginiana.*