IS PROLINE ACCUMULATION UNDER WATER DEFICIT REVERSIBLE IN COTTON?

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Abstract

Proline is an amino acid which is used in biosynthesis of proteins is widely accepted as a biochemical indicator for various stress environment and species. In order to assessed the function of proline we aimed to determine if proline accumulation in cotton leaves under water deficit condition is reversible or not. For this purpose, a pot experiment was conducted under fully controlled growth chamber. Cotton plants (*Gossypium hirsutum* L.) subjected to well water (WW), water deficit (WD) and water deficit/re-watering (WDR) treatments 8 weeks after sowing. Canopy Temperature Depression (CTD) and transpiration decreased with stress treatment and rapidly recovered with re-watering whereas SPAD value didn't clearly respond to water treatments. Leaf area and dry weight of plants significantly decreased under both stress treatment while root and stem dry weights didn't change. The highest water use efficiency was found under WDR treatment. Proline content of leaves was similar under WW and WD treatments whereas it was markedly higher in WDR treatment.

Key words: proline, cotton, water deficit, SPAD, CTD.