

Role of Salicylic Acid in Alleviating Chromium Toxicity in Chickpea (*Cicer Arietinum L.*)

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Abstract : Heavy metals are significant pollutants in environment and their toxicity is a problem for survival of living things while salicylic acid (SA) is signaling and ubiquitous bioactive molecule that regulates cellular mechanism in plants under stress condition. Therefore, exogenous application of salicylic acid (SA) under chromium stress in two chickpea varieties were investigated in hydroponic experiment with five treatments comprising of control, 5 μM Cr + 5 mM SA, 5 μM Cr + 10 mM SA, 10 μM Cr + 5 mM SA, and 10 μM Cr + 10 mM SA. Results revealed that treatments of plants with 10 mM SA application under both 5 μM Cr and 10 μM Cr stress resulted in maximum improvement in plant morphological attributes (root and shoot length, root and shoot fresh and dry weight, membrane stability index and relative water contents) relative to 5 mM SA application in both chickpea varieties. Results regarding Cr concentration showed that Cr was more retained in roots followed by shoots and maximum reduction in Cr uptake was observed at 10 mM SA application. Chickpea variety BRC-61 showed maximum growth and least concentration of Cr in root and shoot relative to BRC-390 variety.

Keywords : chromium, Chickpea, salicylic acid, growth

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