Salt stress and phyto-biochemical responses of plants

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ABSTRACT

The ability of plants to tolerate salts is determined by multiple biochemical pathways that facilitate retention and/or acquisition of water, protect chloroplast functions and maintain ion homeostasis. Essential pathways include those that lead to synthesis of osmotically active metabolites, specific proteins and certain free radical enzymes to control ion and water flux and support scavenging of oxygen radicals. No well-defined indicators are available to facilitate the improvement in salinity tolerance of agricultural crops through breeding. If the crop shows distinctive indicators of salt tolerance at the whole plant, tissue or cellular level, selection is the most convenient and practical method. There is therefore a need to determine the underlying biochemical mechanisms of salinity tolerance so as to provide plant breeders with appropriate indicators. In this review, the possibility of using these biochemical characteristics as selection criteria for salt tolerance is discussed.

Keywords: salt stress; proline; chlorophyll; sugar; protein, antioxidants