

Superoxide dismutase is a critical enzyme to alleviate oxidative stress in *Aloe vera* (L.) Burm. plants subjected to water deficit

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Background: *Aloe vera*, a plant with crassulacean acid metabolism naturally adapted to water deficit, was introduced in the semi-arid regions of Chile in 1999. **Aims:** Our objective was to evaluate how *A. vera* scavenged the superoxide ion ($O_2^{\cdot-}$), formed during oxidative stress, induced by water deficit. **Methods:** Total and specific activity, enzyme accumulation and expression of genes encoding superoxide dismutase (SOD) were determined in leaf tips and leaf bases collected from plants subjected to different levels of water deficit. **Results:** Two isoenzymes, Mn-SOD and Cu/Zn-SOD, accumulated significantly under water deficit, with a higher accumulation of Mn-SOD in the leaf bases, and of Cu/Zn-SOD in the leaf tips of plants under different degrees of water deficit (soil water availability ranged from 100% to 25% of field capacity; FC). The expression of *sod* genes increased only in gradually stressed individuals, where plants were pre-treated at 75% FC or 50% FC prior to being subjected to a sev