

**Effect of salicylic acid on sod and cat activity during water stress and rehydration in *Panicum virgatum* L.**

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Salicylic acid (SA) is a hormone that regulates the responses to biotic stress. Recently, it has been reported that this compound also plays a role in plant responses to abiotic stresses such as drought. The action of SA is related to enzymatic system and antioxidant activity, which is increased and relieves stress damage. The aim of this study was to investigate the effect of SA pretreatment on the antioxidant enzymes activity of superoxide dismutase (SOD) and catalase (CAT) during water stress and rehydration in *Panicum virgatum* L. The response of cvs. Kanlow and Greenville (tolerant and sensitive to water stress, respectively) were evaluated. The experiment was conducted in 220 cm<sup>3</sup> pots in a growth chamber programmed with 16 h light (300  $\mu$ E. M<sup>2</sup>.s<sup>-1</sup>) at 29 ° C, and 8 hours of darkness at 20 ° C. Water stress was provided by suspension of irrigation at 55 days after planting. Exogenous application of 1 mM SA was supplied at field capacity, watering twice a day for three days prior to start drought treatment. To evaluate the recovery at 12 and 24 h after rehydration the pots were watered with distilled water.

Baseline activity of both enzymatic systems was similar in well-watered plants of both cultivars. However, increases in the activity level of both systems produced by drought and subsequent rehydration were markedly higher in the tolerant cultivar Kanlow compared to sensitive cultivar Greenville. SOD activity in cv. Kanlow increased significantly during water stress, and this activity continued rising at 12 and 24 h of rehydration. In addition, plants pretreated with SA had a significantly increased in enzyme activity in all treatments compared to no treated plants. SOD activity had a similar behavior in plants of cv. Greenville except by the fact that that SA-pretreated plants have no significance difference in SOD activity compared to no treated plants. CAT activity also increased under water stress, and kept rising at 12 and 24 h of rehydration in both cultivars ( $p < 0.05$ ). Significant differences in CAT activity due to SA treatment were solely observed during rehydration of plants from cv. Kanlow. The observed results indicate that SOD and CAT activity are regulated by SA, at least in cv. Kanlow.