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SA-dependent gene PR5 is expressed under drought in *Panicum virgatum* L.

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Panicum virgatum L. (switchgrass) is a warm-season perennial grass native to USA introduced in the semiarid Pampas region; currently is intensely studied as a source of cellulosic biomass for bioenergy production. In the response to abiotic stress, abscisic acid (ABA) is widely involved, while salicylic acid (SA) is associated with response to biotic stress. Currently, there is increasing evidence of a complex interaction (synergistic / antagonistic) between these two hormones in response to both biotic and abiotic stress. In our laboratory two cultivars of contrasting behavior against drought (i.e sensitive cv Greenville and tolerant cv. Kanlow) were studied in order to analyze the interaction between ABA and SA. To this end, a trial of exogenous application of a 100 μ M ABA was performed and its effect on the response to water stress in the tolerant cultivar Kanlow and the sensitive cultivar Greenville was evaluated. Water stress was provided by water deprivation at 55 days after sowing, until a relative water content (RWC) of 50% was reached. The expression of SA-dependent gene PR-5 (Pathogenesis Related Protein 5) was analyzed. Expression analysis was carried out by semi-quantitative PCR, images of the gels analyzed with Image J software and statistical analysis (ANOVA and LSD test) with InfoStat software. Three biological replicates consist of a pool of four plants were used. In drought, PR5 gene expression increased in plants of both cv. Greenville and Kanlow, suggesting the involvement of a SA-dependent response. However, when plants exposed to drought were pre-treated with ABA, PR5 did not expressed, in a similar way to well-watered plants. In summary, our results would suggest a negative interaction in pathways governed by ABA and SA under water stress. That is, facing severe water stress, both pathways may be activated. However, when ABA levels are higher, SA-dependent pathway would be silenced.