

Effect of Drought and Re-watering on Fructan Metabolism in *Vernonia herbacea*
(Vell.) Rusby

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Fructans are widely distributed among vascular plants and have been regarded as second to starch and sucrose in importance as a storage carbohydrate. The high contents of inulin-type fructans found in underground systems of some cerrado species suggest they also contribute to drought resistance in plants undergoing low water availability. *Vernonia herbacea*, one of this species, accumulates 80% of inulin in the underground organs (rhizophores). The aim of this work was to analyze the fructan composition and metabolism in plants submitted to complete water suppression. The plants were divided into 3 treatments: daily watering (control-C), water suppression for 22 days (WS) and re-watering after 15 days (RW). Samplings were taken at day zero and 3, 7, 10, 12, 17 and 22 days after water suppression. Plants under WS treatment, showed a decrease in stomatal conductance, photosynthesis and transpiration rates and maintenance of water use efficiency. The high proline contents in leaves and rhizophores under water deficit may have contributed to osmoregulation or signaling responses. Fructan-exohydrolase and invertase activities increased under WS, and, together with frutansiltransferases promoted fructan mobilization and increases in oligosaccharides and reducing sugars. Results presented suggest a role of these low-weight compounds in osmotic adjustment in response to water deficit. After re-watering, the plants showed similar values as observed in the control. The assumption that fructans act in the adaptation of *V. herbacea* to abiotic stresses, including drought, seem consistent with these results, since plants subject to water suppression showed changes in fructan metabolism and low water loss mainly in rhizophores and rapid absorption of water after re-watering.

Key words: fructans, *Vernonia herbacea*, water deficit.
Supported by: FAPESP and CNPq