Catalase, Ascorbate Peroxidase and Glutathione S-Transferase activities of *Jatropha curcas* L. Seedlings in Response to Water Restriction

Santiago, L. S.[1]; Santos, P. C. [1]; Virgens, I. O.[1]; Castro, R. D.[1]; Fernandez, L. G.[1]

[1]Laboratório de Bioquímica, Biotecnologia e Bioprodutos, Instituto de Ciências da Saúde, Universidade Federal da Bahia, Salvador, Bahia, Brazil.

INTRODUCTION: *Jatropha curcas* is an oilseed species known as being tolerant to adverse environmental conditions and a source of antioxidant compounds which may be effective against chronic diseases related to lipid peroxidation and to imbalance between oxidants and antioxidant enzymes. **OBJECTIVES:** To evaluate the activity of antioxidant enzymes catalase (CAT), ascorbate peroxidase (APX) and glutathione S–transferase (GST) in *Jatropha curcas* seedlings from non-primed and osmoprimed seeds subjected to growth under water restriction stress. **MATERIAL AND METHODS:** After initial viability characterization, part of the seeds were kept unprimed and another part submitted to osmopriming for 7 days at 25ºC in polyethylene-glycol (PEG) solution at -0.4 MPa. Thereafter, non-primed (control) and primed seeds were sown in pots containing sand irrigated with water (0,0 MPa) at 25ºC until germination, after which seedlings from non-primed and primed seeds were submitted to growth under 2 different watering conditions: (1) control seedlings were watered daily with 100% of water holding capacity, whereas (2) plants under water restriction conditions were watered daily with 60% of water holding capacity. Total proteins were extracted and quantified, and the activity of antioxidant enzymes determined by spectrophotometry using specific methods for each enzyme. **RESULTS AND DISCUSSION:** Total protein content was affected by the treatments and tissues analyzed, i.e. roots and shoots. As for the activity of APX there were significant differences between tissues, but no differences in relation to osmopriming. For the activity of CAT and GST there were no significant differences between both treatments and between roots and shoots. **CONCLUSIONS:** *J. curcas* is a plant grown naturally in semiarid regions, and therefore requires an internal and intrinsic defense system to support environmental stresses. The evaluation of the antioxidant enzymes promoted a better understanding of how priming and water restriction interfere with the behavior and growth of *J. curcas* seedlings.

Key words: Antioxidant Enzymes, Osmopriming, Physical nut.

Acknowledgment: CAPES/PNPD, CNPq, PETROBRAS