BINDING PROTEIN (BIP)-MEDIATED INCREASES IN WATER DEFICIT TOLERANCE: THE SOYBEAN CASE

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BiP is a protein involved in several ER- associated cellular processes. BiP plays an role as a sensor of the UPR. Plants are challenged by environmental stress conditions, such as water deficit and may use the UPR protective pathway as an adaptive response. In this investigation, we evaluated whether the acquired physiological advantages demonstraded in *N. tabacum* overexpression BiP plants could be extended to economically important crops, such as soybean. We have obtained soybean transgenic lines constitutively expressing *soyBiPD* to examine the effect of BiP overexpression on the developmental performance of the transgenic plants and on their response to water deficit. The integration of the transgene was confirmed and the protein level was monitored. As judged by subcellular fractionation, BiP over-accumulated in the RE of the transgenic lines. Water stress condition was rapidly induced by withholding watering from transgenic plants T3. Alternatively, water stress condition was gradually achieved. Under both water deprivation regimes, a water stress-tolerant phenotype was clearly developed by the transgenic plants. The shoot turgidity and water content of the transgenic lines were correlated with the leaf water potential as compared to the wild type counterpart. We are currently evaluating the effect of BiP overexpression on the expression of known positive and negative regulators of the osmotic stress response in plants. Supported by CNPq and FAPEMIG.