

## **EXPRESSÃO DO GENE MDDHN11 DA MACIEIRA (MALUS DOMESTICA) EM SOJA VISANDO MAIOR TOLERÂNCIA AO ESTRESSE ABIÓTICO**

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### **Abstract:**

Soybean (*Glycine max* (L.) Merrill) is one of the most important legumes in the world as it is an excellent source of oil and protein. Soybean production is highly dependent on rainfall or abundant irrigation. Under dry conditions soybean yield can be reduced by more than 50%, causing substantial financial losses. Drought is a significant climate risk for soybeans and requires effective mitigation strategies. Genetic engineering techniques can be used to develop plants with tolerance to water stress. Dehydrins (DHNs) are protective proteins related to several developmental responses in apple (*Malus × domestica* Borkh) that involve dehydration, such as seed desiccation and abiotic stresses. Transgenic *Arabidopsis* plants expressing MdDHN11 under severe water stress confirmed the protective relevance of DHNs during long-term water deficit. In view of the importance of the soybean crop, and the risks that changes in precipitation patterns represent for the crop, the objective of this work was to genetically transform soybeans to express the *MdDHN11* gene in order to increase tolerance to water stress. It was generated a vector to express the *MdDHN11* in soybean, under the control of the *actin 2* promoter from *Arabidopsis thaliana*. In addition, it was added the *Atahas* gene that confers tolerance to herbicides of imazapyr, which was used to select transgenic events. The vector was used to transform soybean embryos by the biolistic method. Presence of the transgenes in regenerated plants was confirmed by PCR amplifications. Plantlets were allowed to set seeds and the transgenes segregated in a Mendelian fashion. Effect of *MdDHN11* transgene expression on physiology of transgenic soybean plants will be presented.

**Key-words:** Drought tolerance; *Glycine max*; Biotechnology; ;

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