



Overexpression of soybean R2R3-MYB transcription factor, *GmMYB12B2*, and tolerance to UV radiation and salt stress in transgenic *Arabidopsis*

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ABSTRACT. MYB, v-myb avian myeloblastosis viral oncogene homolog, proteins play central roles in plant stress response. Previously, we identified a novel R2R3-MYB transcription factor, *GmMYB12B2*, which affected the expression levels of some key enzyme genes involved in flavonoid biosynthesis in transgenic *Arabidopsis*. In the present study, we analyzed the expression levels of *GmMYB12B2* under salt, low temperature, drought, abscisic acid (ABA), and ultraviolet (UV) radiation treatments in soybean using semi-quantitative reverse transcription polymerase chain reaction. The expression of

GmMYB12B2 was drastically induced by UV irradiation and salt treatment, but no response was detected under low temperature, drought, and ABA stresses. A detailed characterization of the *GmMYB12B2* overexpression lines revealed that *GmMYB12B2* might be involved in response of plants to UV radiation and salt stresses. Transgenic *Arabidopsis* lines constitutively expressing *GmMYB12B2* showed an increased tolerance to salt and UV radiation treatment compared with wild-type plants. The expression levels of certain salt stress-responsive genes, such as *DREB2A* and *RD17*, were found to be elevated in the transgenic plants. These results indicate that *GmMYB12B2* acts as a regulator in the plant stress response.

Key words: NaCl treatment; Germination; Plant height; Proline