

STUDY OF THE EFFECT OF TOMATO *PROSYSTEMIN* GENE EXPRESSION IN TOBACCO PLANTS

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Systemin, an octadeca-peptide isolated from tomato is the signalling molecule involved in the local and systemic wound response. It derives from the C-terminal region of prosystemin, a prohormone of 200 amino acids (McGurl and Ryan, 1992). Prosystemin orthologues have been found in other *Solanaceae* species such as potato, bell pepper and black nightshade, all members of the *Solaneae* subtribe, whereas they were not detected in tobacco, which belongs to the *Nicotianae* subtribe. Tobacco systemins, two hydroxyproline rich peptides released from the same precursor, are functionally related to tomato systemin but do not share with it sequence similarity. Moreover Prosystemin gene does not share any identity with the tobacco and tomato HP-rich systemin precursors. Although tobacco does not respond to externally applied tomato systemin (Scheer et al, 2003), it has been shown recently that the constitutive expression of the tomato prosystemin gene in tobacco is associated with a significant increase of the amount of a number of proteins involved in the protection of plants from pathogens and oxidative stress (Rocco et al., 2008). In order to better characterize the impact of the tomato prosystemin gene on the expression of tobacco defence genes, a new set of transgenic plants expressing a systemin mutated allele missing the systemin encoding exon, were produced. Transgenic plants were fully characterized and analyzed as far the expression of a set of genes involved in plant defence. The modification in gene expression registered between transgenic tobacco expressing the tomato prosystemin gene and the mutated allele is reported and discussed along with the possible role of the N-terminal region of the prosystemin protein precursor.

References

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