

## CLONING AND DIFFERENTIAL EXPRESSION OF BANANA GENES ENCODING FOR EIN3-Like PROTEINS INVOLVED IN ETHYLENE MODE OF ACTION

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We attempt to get more insight into molecular mechanisms that govern ethylene responsiveness in banana fruit. We report here the isolation of one complete and three partial cDNAs encoding for banana ETHYLENE-INSENSITIVE3-like protein (EIL). In the proposed model of the ethylene signal transduction pathway, the EIL protein is a transcription factor that acts downstream from the ethylene receptors. The partial MaEIL cDNAs, namely MaEIL1 (1817 bp), 2 (1840 bp) and 3 (1920 pb) encode for a protein of 495, 517 and 517 amino acids, respectively. These clones are 51 to 70% and 35 to 70% identical at nucleotide level and at polypeptide level, respectively; MaEIL3 being more homologous to MaEIL1 than MaEIL2. The full length cDNA (MaEIL4) is 2435bp long and encodes for a protein of 635 amino acids. It is 40 to 70% and 32 to 75 identical to the three others at nucleotide level and protein levels, respectively. The predicted polypeptide sequence of all these clones contains the conserved domains of EIN3-like proteins in their N-terminal half, including the proline-rich domain and the basic domains III, IV and V. In phylogenetic analysis, although MaEIL1, 3 and 4 belong to the cluster consisting of EIN3 and EIN3-like proteins known to be involved in ethylene transduction pathway, they constitute a quite different subgroup. MaEIL2 appears to be the most distantly related to this cluster. RT-PCR and northern blot experiments were performed to analyze the regulation of each gene expression by ripening and ethylene.

**Keywords:** Banana, Ethylene, Fruit, Musa, Ripening, Signal transduction