

## Transcriptional regulation of Banana EIN3-like genes expression in fruit

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### Abstract

Ethylene signal transduction initiates with ethylene binding at receptor proteins and terminates in a transcription cascade involving the EIN3/EIL transcription factors. In order to get more insights into the ethylene responsiveness process of banana fruit, we have isolated from banana fruit four cDNA homologs of the Arabidopsis EIN3/EIN3-Like gene, *MaEILs* (*Musa acuminata* ethylene insensitive 3-like). Sequence comparison with other banana EIL genes already registered in the database led us to conclude that, at this day, at least 5 different genes namely *MaEIL1*, *MaEIL2/AB266318*, *MaEIL3/AB266319*, *MaEIL4/AB266320* and *AB266321* exist in banana. Expression of these genes were further analysed in peel and pulp tissues, in relationship with changes of fruit ethylene responsiveness and ripening processes. *MaEIL* mRNAs were detected in all examined tissues but at lower level in peel than in pulp. According to tissues, *MaEIL* genes were differentially regulated by ripening and ethylene in mature green fruit. *MaEIL2/AB266318* was the unique ripening- and ethylene-induced gene, *MaEIL1*, *MaEIL4/AB266320* and *AB266321* genes were down-regulated while *MAEIL3/AB266319* presented an unusual pattern of expression. Interestingly, a marked change was observed mainly on *MaEIL1* and *MaEIL3/AB266319* mRNA accumulation, concomitantly with changes in ethylene responsiveness of fruit. Data presented in this study suggest the importance of a transcriptionally step control in the regulation of *EIL* genes during banana fruit ripening.