

Title Identification of ethylene induced genes in abscission zones of *Rosa hybrida* L. by use of differential display

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Abstract

Ethylene plays a crucial role as a coordinator of floral senescence in many ornamental plants, especially during handling and shipping. The most deteriorating effects of ethylene on miniature rose quality appear as leaf yellowing and abscission, petal wilting or flower abscission. Ethylene has a regulatory effect at the transcriptional and translational levels and the study of the molecular aspects of these regulations shed light on the ageing process. The pedicel of miniature roses, *Rosa hybrida* L. cv. Lavender turns yellow after exposure to ethylene. RNA was isolated from pedicels and petioles which were exposed to exogenous ethylene for 0 or 72 h. In order to identify ethylene induced genes, Differential Display Reverse Transcription Polymerase Chain Reaction (DDRT-PCR) was carried out on mRNA isolated from pedicel and petiole of ethylene treated and non treated rose plants. A total of 88 cDNA fragments were found to be up-regulated, whereas 72 were down-regulated in response to ethylene. Five ethylene-response cDNAs out of 88 were confirmed as differentially expressed by qRT-PCR. Three of them were identified from petiole and two from pedicel. The differential expression level of these cDNAs was assayed in various tissues of non- and ethylene treated miniature roses.