

Title Cloning and characterization of transcripts differentially expressed in the pulp of ripeningpapaya

Author João Paulo Fabi, Franco Maria Lajolo and João Roberto Oliveira do Nascimento

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Abstract

Papaya (*Carica papaya*) is a relevant tropical crop and physico-chemical changes take place very quickly, as a consequence of activation of biochemical pathways by *de novo* synthesis of several proteins. Thus, in order to have information on the changes in gene expression in ripeningpapaya, transcripts from the pulp of unripe and ripe fruit were profiled by differential-display RT-PCR (DDRT-PCR). Seventy transcript derived fragments (TDFs) isolated from gels were re-amplified by PCR and differential expression of 40 papaya genes was confirmed by reverse northern blotting. Twenty-nine positively cloned TDFs were sequenced, and 17 were putatively identified by homology search. Ten of these genes were down-regulated during ripening and UDP-glucoseglucosyltransferase, α -2 importin, RNase L inhibitor-like protein, and a syntaxin protein were identified. Among the up-regulated genes there was a carboxylesterase, an integral membrane Yip1 family protein, a glycosyl hydrolase family-like protein and an endopolygalacturonase. Considering their relatedness to papaya quality, the fragments of genes potentially implicated in carbohydrate metabolism and pulp softening may be considered of interest for further studies. According to the results, differential display was a feasible approach to investigate differences in gene expression during fruit ripening, and can provide interesting information about those fruits whose genomic data is scarce, as is the case of papayas.