

Title Ripening in papaya fruit is altered by ACC oxidase cosuppression

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Abstract

Papaya (*Carica papaya*) is a very important crop in many tropical countries but it is highly susceptible to parasitic diseases, physiological disorders, mechanical damage and fruit overripening. Here we report a study on ACC oxidase cosuppression and its effects on papaya fruit ripening. Papaya ACC oxidase was isolated using PCR and embryogenic cells transformed by biolistic using the CaMV 35S promoter to drive the expression of the PCR fragment in sense orientation. Fifty transgenic lines were recovered and 20 of those were grown under field conditions. Southern analysis showed incorporation of the transgene in different copy numbers in the papaya genome. Fruits were evaluated in terms of texture (firmness), colour development, respiration and ethylene production. A sharp reduction in ethylene and CO₂ production was detected, whereas softening and colour development of the peel were also altered. Overall, transgenic fruits showed a delay in ripening rate. A reduction in mRNA level for ACC oxidase in transgenic fruit was clearly detectable by northern blot. More studies are necessary before this technology can be used to extend the shelf life of papaya fruit.

<http://www.springerlink.com/content/e160n515702415t5/fulltext.pdf>