

## Expression patterns of ethylene biosynthesis genes from banana during fruit ripening and in relationship with finger drop

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### Abstract

Banana finger drop is expressed as a dislodgement of individual fruits from the hand at the pedicel rupture area. As bananas fruit are marketed in hands of generally 4-9 fruits, this postharvest disorder considerably reduces the commercial value of the product. Together with a burst of ethylene production, finger drop phenomenon was found to be one of the main features closely associated with banana ripening. We have shown that finger drop process occur early after ripening induction and imply ethylene-regulated gene. In this study, we investigate at molecular level the putative relationship between ethylene and finger drop processes during ripening of Cavendish banana fruit. To this end, expression of ethylene biosynthesis genes (*MaACO1*, *MaACO2*, *MaACS1*, *MaACS2*, *MaACS3* and *MaACS4*) was examined at median area (control zone) and compared to that in the pedicel rupture area (drop zone). During the 4 first days following the ripening induction, transcripts of all genes were detected in both zones, but accumulated differentially. *MaACO2* mRNA levels did not change in either zone. Levels of *MaACO1*, *MaACS1*, *MaACS2*, *MaACS4* mRNAs accumulated highly in the drop zone. A high the mRNA of *MaACS3* gene accumulated highly in drop zone only at the harvest time. One day after ripening induction, this level decreased drastically at comparable level to that observed at median zone, and remain constant in both zones throughout postharvest ripening. The results demonstrate that finger drop process involved ripening ethylene biosynthesis. They also suggest that ethylene can be one of the regulator cues of finger drop process.