

**Title** Expression patterns of cell wall modifying genes from banana during fruit ripening and in relationship with finger drop

**Author** Mbéguié-A-Mbéguié D., Hubert O., Baurens F.C., Matsumoto T., Chillet M, Fils-Lycaon B. and Sidibé-Bocs S.

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### **Abstract**

Few molecular studies have been devoted to the finger drop process that occurs during banana fruit ripening. Recent studies revealed the involvement of changes in the properties of cell wall polysaccharides in the pedicel rupture area. In this study, the expression of cell wall modifying genes was monitored in peel tissue during postharvest ripening of Cavendish banana fruit, at median area (control zone) and compared to that in the pedicel rupture area (drop zone). To this end, one pectin methylesterase (MaPME2) and two xyloglucan endotransglycosylase/hydrolase (MaXTH8 and MaXTH9) genes were isolated. The accumulation of their mRNAs and those of polygalacturonase (MaPG4), expansin (MaEXPI, MaEXP4 and MaEXP5) and pectate lyase (MaPEL1 and MaPEL2) genes already isolated from banana were examined. During postharvest ripening, transcripts of all genes were detected in both zones, but accumulated differentially. The main molecular changes occurred 1-4 days after ripening induction. Contrary to MaEXP2, all other genes examined were highly expressed in drop zone compared to control. The transcriptional data obtained here suggested that finger drop involved at molecular level, changes on main cell wall components including pectin, xyloglucan as well as its physical properties. These findings also led us to propose a sequence of molecular events leading to finger drop and to suggest some candidates.