

Title Fruit ripening characteristics in a transgenic ‘Galia’ male parental muskmelon (*Cucumis melo* L. var. *reticulatus* Ser.) line

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Abstract

‘Galia’ is a high-quality muskmelon cultivar that is grown in greenhouses or tunnels to maximize fruit quality and yield. ‘Galia’ has a short shelf life of 2–3 weeks due to rapid fruit softening. *In vitro* regeneration and transformation of ‘Galia’ melon parental lines with antisense technology, targeting enzymes involved in the ethylene biosynthesis pathway, is a feasible strategy that can be used to increase its fruit shelf-life. In this study, the male parental line of ‘Galia’ muskmelon was transformed with two different constructs: one plasmid was bearing the *uidA* (GUS) reporter gene and another the ACC oxidase gene (CMACO-1) in antisense orientation. Transgenic ACC oxidase antisense (TGM-AS), azygous (PCR negative), transgenic GUS (TGM-GUS) and wild type (WT) fruit, from plants grown in the greenhouse, were harvested at zero-, half-, and full-slip developmental stages. Fruit firmness of full-slip TGM-AS was almost twice that of wild type, azygous and TGM-GUS. Ethylene production and ACC oxidase in half-slip wild type, azygous and TGM-GUS fruit were greater than those from TGM-AS fruit. TGM-AS ‘Galia’ male parental melon fruit exhibited delayed softening compared to wild type fruit.