Title Oxidative stress and antioxidant enzyme response in ripening bananas (*Musa sapientum*)

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Abstract

Bananas are considered to be good sources of natural antioxidants against cancer and heart disease, however they deteriorate very fast. In this study, oxidative stress and antioxidant enzyme response were investigated in two dessert banana cultivars, *Musa* (AAA) 'Dwarf Cavendish' and 'Gros Michel: dwarf mutant', and a cooking banana cultivar, *Musa* (ABB) 'Bluggoe Cacambou', during ripening. In the three banana cultivars studied, the lipid peroxidation product malondialdehyde (MDA) decreased during the early stages of ripening (hard green stage to more green than yellow stage), while superoxide dismutase (SOD) activity, increased. However, MDA increased during the late stages of ripening (more yellow than green stage to yellow with large black patches stage) with a concomitant decrease in SOD activity. These results suggest that oxidative stress is associated with the late stages of ripening in the three banana cultivars as expressed by an increase in lipid peroxidation and decrease in antioxidant enzyme response, thus, accelerating senescence and decreasing the shelf life of these fruits. The importance of employing postharvest storage conditions that can reduce ripening and oxidative stress in these fruits to slow deterioration and extend their shelf-life is discussed.