

Title Characterization of chlorophyll degradation in banana and plantain during ripening at high temperature

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Abstract

Bananas fail to fully degreen when ripening at tropical temperatures, but this abnormal symptom does not occur in plantain. To elucidate the temperature effect on banana degreening, comparison of the colour change and chlorophyll degradation pathway between banana and plantain during ripening at 20 or 30 °C was carried out. Compared to bananas ripening at 20 °C and plantains at 20 °C or 30 °C, bananas at 30 °C contained significantly higher levels of chlorophylls, chlorophyllide a and pheophorbide a at the end of the ripening process, linearly correlating to the colour scores of a^* , b^* and Hue angle. Whilst higher chlorophyllase activity was recorded in both banana and plantain at 30 °C as to the fruits at 20 °C, 30 °C inhibited Mg-dechelataase activity in banana, but not in plantain. The reduction of Mg-dechelataase activity in banana peel at 30 °C may contribute to repressed chlorophyll degradation and lead to uneven degreening.