

### **Abstract**

When Cavendish banana is ripened at tropical ambient temperature (27°C) the peel fails to degreen although the pulp has softened. However, the peel will degreen to a yellow colour when the fruit is ripened at 18°C. The inability of the peel to degreen could be due to the retention of plastids and chlorophyll during the ripening process. A study was carried out to investigate the relationships among the plastids ultrastructures, chlorophyll contents and peel colour of Cavendish banana ripened at 18±2 (C18) and 27±2°C (C27). The peel of Cavendish banana undergo complete degreening when the fruit was ripened at temperature of 18±2°C to produce a yellow fruit at ripening stage (RS) 6 after 9 d of ripening. In contrast, C27 failed to degreen even though the pulp had softened. By day 5 after ripening with acetylene, brown specks started to appear on the fruit peel indicating that senescence had commenced. Transmission electron microscopy revealed that the grana-thylaloid membrane of C27 at day 5 was retained with retention of 57% total chlorophyll content in the fruit peel. Total chlorophyll content of C27 correlated significantly with L\*,C\* and h° colour values. The higher percentage of total chlorophyll retained in C27 compared to C18 did not allow the existing peel carotenoids to express the yellow peel colour completely, thus producing a pale-green fruit.