

**Title** Physiological responses of ‘Salalah’ banana during ripening at different storage conditions and changes in postharvest quality attribute

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#### **Abstract**

‘Salalah’ banana is one the most important locally grown and consumed banana in Oman. It is well known for its excellent organoleptic properties, including flavour, aroma and sweetness. Currently, there is a dearth of scientific information on the postharvest physiology of ‘Salalah’ banana to underpin the development innovative postharvest technology for fruit storage and ripening. Consequently, both storage and shelf life are limited and the price of imported banana can be up to 60% higher, mainly attributable to better overall visual quality. As part of a strategic research project funded under His Majesty’s Strategic Research Trust Fund, the aim of this study was to investigate the physiological responses of ‘Salalah’ banana to different storage conditions (13°C & 90% RH, 22°C & 60-70%RH and 28°C & 50%RH) during ripening and to characterize the changes in fruit quality attributes. Results obtained showed that the rate of fruit weight loss and decline in fruit firmness were significantly higher at elevated storage temperatures. Irrespective of storage temperature, both sugar and vitamin C contents increased during fruit ripening. However, sugar content was higher in fruit stored at higher temperature while vitamin C was higher in fruit stored at lower temperature. After one day of storage, both respiration rate ( $\text{ml CO}_2 \text{ kg}^{-1} \text{ hr}^{-1}$ ) and ethylene production ( $\text{ml C}_2\text{H}_4 \text{ kg}^{-1} \text{ hr}^{-1}$ ) were significantly higher in fruit stored at elevated temperatures; however, the effect of storage temperature was more profound on the rate of ethylene production. Based on the storage conditions studied, storing mature green ‘Salalah’ at 13°C and 90% RH offered the best potential for extended storage, while 22°C and 60-70%RH offered the best ripening temperature.