

Title Effects of Hot Air Conditioning on the Quality of 'Carabao' Mango Fruits Subjected to Extended Hot Water Dip

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Abstract

China is one of the biggest potential markets of the Philippine 'Carabao' mango. In the past years, Quarantine treatment is not required. However, with the reported interception of fruit flies, quarantine treatment such as extended hot water dip was imposed. Internal breakdown however, occurred in some fruits subjected to EHWD especially those harvested during the early season. This study was conducted to determine the effects of hot air conditioning on the incidence of internal breakdown and quality of mango fruits subjected to EHWD.

Green mature 'Carabao' mango fruits were subjected to two conditioning temperatures, 38-40°C and 26-30°C, for 12, 24, 36 and 48 h. For the 38-40°C conditioning, mangoes were placed in thermostatically-controlled hot air chambers while for the 26-30°C, mangoes were kept under ambient condition. After each conditioning period, mangoes were subjected to EHWD using a water temperature of 47-48°C. After attaining the disinfestations temperature of 46°C pulp temperature, it was maintained for 15 min followed by air- and hydrocooling. The fruits were then ripened at ambient condition (26-30°C).

A higher conditioning temperature of 38-40°C was more effective in reducing the incidence of internal breakdown of mango fruits subjected to EHWD compared with 26-30°C conditioning. The duration of conditioning especially those at higher temperature did not have any significant influence on the incidence of internal breakdown. Some of the observed physico-chemical effects of conditioning prior to EHWD include increase in peel color rating, reduced fruit firmness, increase in total soluble solids content and decrease in titratable acidity. Ripening of the fruits subjected to conditioning prior to EHWD proceeded normally and the fruits were acceptable to the panelists when subjected to sensory evaluation at the ripe stage. The incidence of anthracnose and stem end rot was considerably reduced regardless of conditioning temperature and duration prior to EHWD.