Title Effects of conditioning on the response of 'Carabao' mango (*Mangifera indica* L.) fruits to extended hot water dip

Author S.J.E. Kitma and E.B. Esguerra

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Abstract

Extended hot water dip (EHWD) is one of the heat treatments that can disinfest fruits of certain pests like fruit flies at a relatively lower cost and without posing health risks as compared to other quarantine treatments. This treatment however, could cause internal breakdown (IB) in 'Carabao' mango fruits. This study was conducted to determine the effects of hot air conditioning prior to EHWD on the incidence of internal breakdown and quality of mango fruits. Green mature 'Carabao' mango fruits were subjected to two conditioning treatments, hot air (38-40°C) or ambient (23-27°C) temperatures for 12, 24, 36 or 48h prior to EHWD. During EHWD, water temperature at time of dipping was 47-48°C. Once the fruit core temperature reached 46°C, it was maintained for 15 min followed by 10 min air cooling then hydrocooling for 30 min. The fruit were then ripened at ambient condition (26-30°C). Hot air conditioning effectively reduced the incidence and severity of IB regardless of duration of conditioning prior to EHWD. Conditioning at ambient temperatures was also found to significantly reduce the incidence and severity of the disorder. Conditioning prior to EHWD resulted in increased peel color index, total soluble solids content and pH while it decreased titratable acidity. Ripening of the fruit subjected to conditioning prior to EHWD proceeded normally. The incidence and severity of both anthracnose and stem end rot were reduced regardless of conditioning temperature and duration.