DUMMY ABSTRACT FOR PASAE 2022 CONFERENCE

Clean Postharvest Technologies to Control Diseases in Fruit

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The susceptibility of papaya to postharvest diseases is high. Fungal growth and anthracnose are considered one of the most significant. Synthetic fungicides are the most commonly used for postharvest disease control. Nevertheless, these products have restricted application due to the negative effects on human health. The aim of this work was to study the effects of clean technologies as alternative for quality and pathology control during postharvest handling of papaya. Fruit were selected and subsequently treated with several clean technologies: Mild Heat Treatment at 45°C for 5 minutes (MHT45), Mild Heat Treatment at 70°C for 1 minute (MHT70), Ultrasounds at ambient temperature for 10 minutes (USTA) and Ultrasounds at 50°C for 1 minute (US50). Additionally, non-treated fruit were used as control. After treatment, fruit were dried and stored at 8°C. Weight loss, respiration rates, firmness, aerobic mesophilic bacteria, mould, yeast counts and anthracnose incidence were monitored after 0, 5, 14 and 21 days of storage. Fruit treated with ultrasounds had an increase in respiration rate and weight loss, whilst the application of MHT lead to lower respiration rate and weight loss. Conversely, the treatments assessed, especially US50 and MHT70, resulted in fruit with higher firmness compared to the control. After US50, MHT45 and MHT70 treatments followed by 21 days of storage, bacterial counts were 6.45, 5.79 and 7.21 cfu.g^{-1}, respectively, versus counts of 9,95 cfu.g^{-1} for control fruit. These treatments also resulted in lower fungal counts of 4.95, 2.00 and 3.30 cfu.g^{-1} versus counts of 6.93 cfu.g^{-1} detected for control fruit. Consequently, the anthracnose visual incidence was reduced by up to 80% following the application of MHT treatment. Thus, the application of treatments such as MHT at 70°C might be a suitable alternative for the control of pathogens and enhancing postharvest quality of papaya fruit.

Keywords: Clean technologies, anthracnose, postharvest quality, papaya

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