

Title Change in fruit quality and cell wall polysaccharides in bruised papaya cultivars 'Khak Dum' AND 'Holland'

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Abstract

Papaya bruising is a major postharvest problem that substantially reduces fruit quality. During the process of ripening, Thai papaya 'Khak dum' is softer than imported cultivar 'Holland' (Pak Mai Lai). 'Khak dum' is more susceptible to bruising than 'Holland'. Due to lack of detailed knowledge about bruising mechanisms, effective bruise prevention is difficult. Pulp firmness at bruised site were approximately 60 and 30 N before impact then rapidly dropped to about 30 and 20 N after 2 days following impact, while it dropped to about 45 and 28 N in control for 'Khak dum' and 'Holland', respectively. The bruised tissues expanded, became darker in color to larger bruise areas of 20.42 and 24.09 cm², respectively and decayed 2 and 4 days following impact. Respiration rate also increased by 1.5-times in 24 h following impact then declined. Soluble solids content was not significantly different between bruised and control fruit, but slightly increased by the end of storage. Pulp softening at the bruise area was associated with the increase in water soluble pectin fraction approximately 3 and 1.5 times as compared to the control in 'Khak dum' and 'Holland', respectively, while CDTA and 4 M KOH soluble fractions slightly decreased by the end of storage. Na₂CO₃ slightly increased in 'Khak dum' while it decreased in 'Holland'.