

Abstract:

Heat treatments can be employed as a non-chemical means of insect disinfestation to satisfy quarantine requirements for many fruits, including apples, and may also be applied prior to storage to better maintain quality attributes of the product. For disinfestation, the treatment temperature applied is usually higher than 46°C whilst for quality modification; temperatures below 45°C are more common (Whiting et al., 1999, Paull and Chen, 2000, Tang et al., 2000). Heat can be applied in various ways: by hot air or vapour treatments or by immersion or flow-through hot water systems (Bollen and Dela Rue, 1999). Bruising is an economically important quality defect in apples and many studies have addressed factors which influence bruise susceptibility (Pang et al., 1996, García et al., 1995). The risk of bruising is generally accepted to be higher at lower temperatures, but Saltveit (1984) also noted an increased tendency to bruising at higher than ambient temperatures (30°C). There appear to be no reports of bruise susceptibility following heat treatments, so this study was made to assess the risk of bruising damage to apples after hot air and hot water treatments.