Development of postharvest handling of longan for exporting

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Abstract

Longan is one of the important economic crops for export from Thailand but it has a short shelf life of 2-3 days. Fruit fumigated with sulfur dioxide (SO2) could commercially extend shelf life during export for 30-40 days but it frequently produces residues over tolerance standards in imported countries, i.e. P.R. China. The Office of Agricultural Research and Development Region 1, Chiang Mai province conducted a study on postharvest management of longan in 2010-2013. Adoption of a SO2 Good Fumigation Practice standard decreased residues and 65 SO2 fumigation plants were certified. A SO2 waste scrubber was developed using lime and increasing media thickness. In addition, the study on the research found some other techniques for decreasing SO2 residue in fruit flesh for export, i.e. fruit wetting from rain should be dipped in HCl 1% containing sodium metabisulfite 5% for 5 minutes. The results found that SO2 residue in fruit flesh was significantly less than the conventional method. The research on the alternatives to replace SO2, i.e. edible coatings, cold and hot treatments, food preservatives, antioxidants, acid dips and gases used in the fruit were studied. The results found that dipping in HCl 6.4% for 5 minutes showed the highest efficacy and prolonged shelf life for 35 days at 2-5ºC and 85-90% r.h. This treatment had low HCl residue in fruit flesh and thus safe for consumer. The exporter and consumer acceptances had 82 and 80%, respectively. Therefore, original dipping machine was developed in order to replace manual dipping. The capacity of this method was 10 baskets per 5 min/time and this could be greatly benefited for longan exporters on a commercial scale.

Keywords: sulfur dioxide (SO2), hydrochloric acid (HCl), Good Fumigation Practice for SO2 fumigation plant