

## 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 (SO<sub>2</sub>) 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 SO<sub>2</sub> Good Fumigation Practice standard decreased residues and 65 SO<sub>2</sub> fumigation plants were certified. A SO<sub>2</sub> waste scrubber was developed using lime and increasing media thickness. In addition, the study on the research found some other techniques for decreasing SO<sub>2</sub> 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 SO<sub>2</sub> residue in fruit flesh was significantly less than the conventional method. The research on the alternatives to replace SO<sub>2</sub>, 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 2-5°C and 85-90% RH. 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 minutes/time and this could be greatly benefited for longan exporters on a commercial scale.

Keywords: sulfur dioxide (SO<sub>2</sub>), hydrochloric acid (HCl), Good Fumigation Practice for SO<sub>2</sub> fumigation plant