

Title Combination of gamma irradiation and sulfur dioxide fumigation on the quality and disease incidence of longan fruit cv. Daw

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Abstract

The major problems for exporting longan are pericarp browning, fungus infection and insect infestation. Now a day in Thailand, sulfur dioxide (SO₂) fumigation has been used as commercial treatment to control diseases and prevent the browning while gamma irradiation has been used to control insect infestation in longan fruit for the US market. Sea transportation is cheap cost, but takes time to get the destinations e.g. 21 days to the US. Therefore, the objective of this research was to study to effects of sulfur dioxide and polyethylene (PE) bag on qualities of 'Daw' longan during storage at 2°C for 30 days. Fruits were fumigated with SO₂ at the commercial concentration at the packhouse in Chiangmai Province and then transported to laboratory within 24 h. The fruit were packed in polyethylene bag with 2 or 3 sheets of the dual release sulfur dioxide (DRSD) pad (Sardas Co.Ltd.) and then put in carton boxes. Whereas, fruit packed in carton box without plastic bag and the DRSD pad was served as the control. Sulfur dioxide content in pericarp was gradually reduced as storage time increase while there was no sulfur dioxide residue in pulp. DRSD pads significantly reduced disease incidence in comparison with that of control. Pericarp browning, indicated by L value, was reduced when the fruit were stored in PE bag with 3 sheets of DRSD pads. PE bag significantly delayed the weight loss and maintained soluble solids content compared to non-PE bag.