Title Post Harvest Strategies to Control Pericarp Browning and Quality in Litchi Fruits

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Abstract

Fruits of "Shahi" litchi were treated with sulphur fumes by burning sulphur @ 50 g/100 kg fruits in a closed chamber for one hour. Bleached sulphured fruits then dipped in HCl at different pH levels (0, 0.2 and 0.4 pH) for 10 minutes. After air drying these fruit were precooled at 10±2°C for 4-6 h and stored either at ambient temp (32±2°C and 55±5 % RH) and low temperature (4±1°C with 85±5 % RH). Unsulphited fruits were also stored at similar temperature regimes. Bleached sulphited fruits could retain their brilliant hue following acid treatment. High acid concentration (OpH HCl) caused skin cracking, offensive smell, rapid physiological weight loss (PLW) and more decay than the control fruits kept in similar environment. However, fruits with HCl at 0.2 pH and 0.4 pH treatment could register only 5.05 and 5.16 per cent PLW and 6.64 and 6.69 per cent spoilage on 33rd day of storage respectively when stored at 4±1°C. Untreated fruits completely lost their acceptability on 5th day when stored at ambient condition. Initial increase in TSS and total sugar followed by decline upto last day of observation was observed under all the treatments. Although, pace of change in quality parameters including fruit decay was significantly lower at 4±1°C storage temperature, these fruits were able to maintain quite high amount of ascorbic acid upto 33rd day of storage. SO_2 fumes and both the levels of HCl could retard and hydrolytic processes in these fruits towards senescence and decay and maintained their colour by increase in the pH of the rind. But effect of 0.4 pH HCl was more conspicuous in maintaining quality in terms of decay, TSS, total sugar, ascorbic acid, acidity and overall acceptability on the basis of aril flavour, colour, texture, taste and overall marketability under which about 72.5% fruits were acceptable on 29th day of storage. Thus acid treatment at low pH of sulphured litchi fruits followed by precooling and then storing fruits at 4°C with 90% humidity could be the best possible way to maintain litchi fruit for one month.