Title Extending shelf-life of persimmon (*Diospyros kaki* L.) fruit by hot air treatment

Author Zisheng Luo

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Abstract

'Qiandaowuhe' persimmon fruits (*Diospyros kaki* L.) were stored at 20 °C after exposed to 20 °C (control), 44 °C (T_{44}), 48 °C (T_{48}) or 52 °C (T_{52}) hot air for 3 h, respectively. Firmness, weight loss, peel color, total carotenoids content, soluble solids content (SSC), titratable acidity (TA), respiration, and ethylene production and cell wall hydrolysis enzymes activities were monitored to determine the efficacy of hot air treatment in delaying persimmon fruit ripening. Results showed that 'Qiandaowuhe' persimmon fruit displayed a typical climacteric pattern of respiration and ethylene production. Peak of CO_2 and ethylene production was observed after 4 days. Fruit softening was accompanied by a progressive increase in weight loss, total carotenoids content and decrease in $h°$. The activities of pectinmethylesterase (PME) and polygalacturonase (PG) sharply increased and reached maximal values after 4 and 6 days, respectively. Hot air treatment significantly delayed the onset of climacteric ethylene production, respiration, PME and PG activities in persimmon fruit. Moreover, it also significantly retarded the increase in carotenoids content and SSC, while decreased the firmness, $h°$, and TA. The hot air treatment promoted fruit weight loss. The shelf-life of persimmon ripening increased 4 days by T_{44}, and 6 days by T_{48} or T_{52}. Results suggest that hot air treatments can greatly extend the postharvest life of 'Qiandaowuhe' persimmon fruit.