

Title Effect of 1-methylcyclopropene on ripening of postharvest persimmon (*Diospyros kaki* L.) fruit
Author Zisheng Luo
Citation LWT - Food Science and Technology, Volume 40, Issue 2 , March 2007, Pages 285-291
Keywords Persimmon fruit; 1-Methylcyclopropene; Ripening; Pectic substance; Pectinmethylesterase;
Polygalacturonase

Abstract

Postharvest persimmon fruit (*Diospyros kaki* L. cv. Qiandaowuhe) was stored at 20 °C after being exposed to 3 $\mu\text{l l}^{-1}$ 1-methylcyclopropene (1-MCP) for 6 h or not (control). Several parameters (firmness, respiration and ethylene production, pectic substances and cell wall hydrolysis enzymes activities) were examined to determine the efficacy of 1-MCP treatment in delaying persimmon fruit ripening. Results showed that 'Qiandaowuhe' persimmon fruit displayed a typical climacteric pattern of respiration and ethylene production. Peak CO_2 production and ethylene production was observed on the fourth day. Fruit softening was accompanied by a progressive increase in water-soluble pectic substances (WSP) and a progressive decrease in chelator-soluble pectic substances (CSP) and alkali-soluble pectic substances (ASP). The activities of pectinmethylesterase (PME) and polygalacturonase (PG) started increasing sharply and reached a maximal value on days 4 and 6, respectively, and then decreased slowly. 1-MCP treatment delayed the onset of climacteric ethylene production and respiration in persimmon fruit, and also significantly retarded the activities of PME and PG during ripening at 20 °C. Consistent with the activity trends of cell wall hydrolysis enzymes, 1-MCP treatment also delayed the depolymerization of CSP and ASP and reduced the increase of WSP compared with the control fruit. Thus, application of 1-MCP can greatly extend the postharvest life of 'Qiandaowuhe' persimmon fruit.