

猕猴桃3个品种果实耐冷性差异研究

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Chilling Tolerance Difference Among Three Kiwifruit Cultivars

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摘要 以猕猴桃早熟红肉品种‘红阳’、中熟黄肉品种‘华优’和晚熟绿肉品种‘徐香’的果实为试材, 研究其在0℃(RH 90%~95%)低温贮藏过程中冷害发生情况及相关生理生化变化。结果表明: 不同品种耐冷性不同, 中华猕猴桃‘红阳’和‘华优’耐冷性较弱且冷害表现早于美味猕猴桃‘徐香’。贮藏后期‘红阳’和‘华优’冷害指数、冷害率、MDA含量和LOX活性显著高于‘徐香’, 且乙烯释放量及前期的呼吸速率也较高; 而‘徐香’冷害程度较轻, 整个贮藏始终保持较高的POD活性和较低的PPO活性, 好果率高且失重率低, 贮藏效果好于‘红阳’和‘华优’, 且‘华优’硬度下降较快。表明‘红阳’和‘华优’对低温的耐性弱于‘徐香’, 这种耐冷性差异为今后选育耐冷性品种提供一定的依据。

关键词:

Abstract: Kiwifruit of three different cultivars (early-ripening red pulp type ‘Hongyang’, mid-ripening yellow pulp type ‘Huayou’ and late-ripening green pulp type ‘Xuxiang’) were stored at 0℃ (90%–95% RH) to study the differences of chilling injury (CI) development, relative physiological and biochemical indexes among three cultivars. The results indicated that chilling tolerance of the kiwifruits showed differences among three cultivars. ‘Hongyang’ and ‘Huayou’ (*Actinidia chinensis*) exhibited more chilling-sensitive and occurred chilling injury earlier than ‘Xuxiang’ (*Actinidia deliciosa*). The chilling injury index, chilling injury incidence, malonaldehyde (MDA) content and lipoxygenase (LOX) activity of ‘Hongyang’ and ‘Huayou’ were significantly higher than that of ‘Xuxiang’ at later storage, while ethylene production and respiratory rate maintained in high levels at earlier stage. ‘Xuxiang’ exhibited lighter chilling injury, maintained higher peroxidase (POD) activity and lower polyphenol oxidase (PPO) activity than that of ‘Hongyang’ and ‘Huayou’ during storage. It also had higher accepted fruit percentage and lower weight loss than that of ‘Hongyang’ and ‘Huayou’, and the firmness of ‘Huayou’ decreased quickly. Results suggested that ‘Hongyang’ and ‘Huayou’ were more sensitive to CI than ‘Xuxiang’, which may be useful in breeding cultivars with improved storage life at low temperatures.

Keywords: kiwifruit, cultivar, low temperature storage, chilling injury, chilling

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