

Abstract

Chinese bayberry fruit were stored either in air (control) or pure oxygen for up to 12 days at 5°C to investigate the effects of high oxygen on fruit decay control and its relation to the induction of defense enzymes activities. The results indicated that exposed to pure oxygen was only 16.67% while that of control fruit reached 54.44%. Pure oxygen caused a significant increase in chitinase and β -1, 3-glucanase activities which reach a peak at day 6 of storage. Phenylalanine ammonium-lyase and peroxidase activities as well as total phenolics content were also increased by exposure to pure oxygen, and maintained at significantly higher levels compared with the control fruit throughout the storage period. These results suggested that the induction of defense enzymes activities was correlated with the inhibitory effects of high oxygen on decay incidence. The induced disease resistance may be involved in the mechanisms by which high oxygen inhibiting fruit decay in Chinese bayberry fruit.