

房祥军, 邵海燕, 宋丽丽, 陈杭君, 毛金林, 杨倩. 减压贮藏保持茭白采后品质及调控细胞壁物质代谢[J]. 农业工程学报, 2013, 29(12): 257-263

### 减压贮藏保持茭白采后品质及调控细胞壁物质代谢

## Hypobaric storage maintains postharvest quality and regulates cell wall metabolism in water bamboo shoot

投稿时间: 2012-12-22 最后修改时间: 2013-05-27

中文关键词: [贮藏](#), [品质调控](#), [酶](#), [减压贮藏](#), [茭白](#), [木纤维化](#), [原果胶](#), [水溶性果胶](#)

英文关键词: [storage](#) [quality control](#) [enzymes](#) [hypobaric storage](#) [water bamboo shoot](#) [fibrosis](#) [protopectin](#) [water soluble pectin](#)

基金项目: 国家自然科学基金项目 (30800773)

作者	单位
<a href="#">房祥军</a>	<a href="#">浙江省农业科学院食品科学研究所, 杭州 310021</a>
<a href="#">邵海燕</a>	<a href="#">浙江省农业科学院食品科学研究所, 杭州 310021</a>
<a href="#">宋丽丽</a>	<a href="#">浙江省农业科学院食品科学研究所, 杭州 310021</a>
<a href="#">陈杭君</a>	<a href="#">浙江省农业科学院食品科学研究所, 杭州 310021</a>
<a href="#">毛金林</a>	<a href="#">浙江省农业科学院食品科学研究所, 杭州 310021</a>
<a href="#">杨倩</a>	<a href="#">浙江省农业科学院食品科学研究所, 杭州 310021</a>

摘要点击次数: 145

全文下载次数: 81

中文摘要:

为了明确减压贮藏对茭白的保鲜效果。以常压冷藏为对照, 研究减压冷藏对“龙茭2号”茭白采后品质和细胞壁代谢的影响。减压贮藏可以较好的保持茭白壳的绿色, 降低其失水, 减轻木纤维化, 70~80 kPa压力效果较好。贮藏至第60天时, 40~50和70~80 kPa处理组可溶性总糖(1.2%、1.5%)、维生素(Vc)的质量分数(2.8、3.94 mg/100g)和硬度(2.67和3.47 kg)都保持较高, 对照组与70~80 kPa处理组差异显著; 对照组和40~50 kPa处理组过氧化物酶(peroxidase, POD)的活性分别为70~80 kPa压力组的1.90和1.54倍; 苯丙氨酸解氨酶(phenylalanine ammonia-lyase, PAL)活性分别为70~80 kPa压力组的1.49和1.23倍, 差异显著; 70~80 kPa压力下可溶性果胶含量分别为对照组和40~50 kPa处理组的1.65和1.15倍, 差异显著; 70~80 kPa压力处理木质素质量分数为0.47%, 对照组和40~50 kPa处理组分别为其1.6和1.98倍, 与对照差异显著。2种压力水平相比较, 70~80 kPa压力贮藏保鲜效果较好, 经2个月的贮藏后, 仍能保持较好的外观品质, 可溶性总糖和Vc也保留在较高水平, POD、PAL和肉桂醇脱氢酶活性(cinnamyl-alcohol dehydrogenase, CAD)的活性维持较低水平, 木纤维化程度较轻, 保持了茭白独特的商品价值。

英文摘要:

Abstract: Water bamboo shoots (*Zizania caduciflora* L.), a kind of health-caring vegetable, is becoming more and more popular due to its special flavor and taste in China in recent years. However, water bamboo shoots are very perishable and deterioration with quality, which results in a short shelf life after being harvested. Hypobaric storage has been shown to inhibit postharvest ripening and senescence and extend shelf life of fruits and vegetables. However, there are no published data on the effects of hypobaric storage on the quality of water bamboo shoots during storage. To study the efficacy of hypobaric storage as a new technique in maintaining the quality of water bamboo shoots (WBS), ambient atmospheric pressure with cold storage was used as a control. The effects of low-pressure storage on quality and cell-wall metabolism of 'Longjiao 2' WBS were investigated. The hypobaric storage maintained the green color of the water bamboo shoot shell, decreased water loss and released fibrosis. The effects of 70-80 kPa treatment were better than 40-50 kPa. After 60 days storage, water-soluble sugar (1.2%, 1.5%), Vc content (2.8, 3.94 mg/100g) and firmness (2.67, 3.47 kg) were kept at a high level in the 40-50 and 70-80 kPa group. There was a significant difference between the control group and the 70-80 kPa group. POD activity in the control treatment and the 40-50 kPa group was 1.90 and 1.54 times than that in the 70-80 kPa group. PAL activity was 1.49 and 1.23 times than that in 70-80 kPa group. There was also significant difference between the control treatment and the 70-80 kPa group. Mass fraction of water-soluble pectin in the 70-80 kPa group was 1.65 and 1.15 times than that in control and the 40-50 kPa groups. The difference between them was also significant. The mass fraction of lignin was 0.47% in the 70-80 kPa group, which has a significant difference from that in the control group, 1.6 times of its mass fraction. These results indicated that hypobaric storage could delay the degradation of total soluble sugar and Vc, suppress the increasing rate of POD, PAL and CAD activities, inhibit the decrease of water soluble pectin content and the rise of lignin content in postharvest WBS significantly, and delay the process of lignification. Compared with storage under ambient atmospheric pressure or 40-50 kPa, the storage of WBS under 70-80 kPa maintained better appearance quality, higher levels of total soluble sugar and Vc as well as lower enzyme activities of POD, PAL and CAD. After 2 months of storage, hypobaric storage under 70-80 kPa also maintained the characteristic qualities and commercial value of WBS with low degree of lignification.

[查看全文](#) [下载PDF阅读器](#)

关闭

您是第6245272位访问者

