

鸭梨果实接种轮纹病菌及生长期、贮藏期防御酶系活性变化的研究

Changes of defense enzyme activity in 'Ya' pear fruit inoculated with *Botryosphaeria berengriana* during growth and storage periods

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英文关键词: ['Ya' pear fruit](#) [Botryosphaeria berengriana f. sp. piricola](#) [defense enzymes](#) [period of growth](#) [period of storage](#)

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中文摘要:

该文研究了鸭梨果实受轮纹病原菌(*Botryosphaeria berengriana* f. sp. *piricola*)侵染后, 及其在不同的生长期、贮藏期防御酶活性的变化。结果表明: 鸭梨果实中多酚氧化酶(PPO)活性在接种轮纹病菌48 h内显著高于对照, 苯丙氨酸解氨酶(PAL)活性在接种120 h内一直呈上升趋势, 过氧化物酶(POD)和过氧化氢酶(CAT)活性在接种后72 h出现活性高峰, 超氧化物歧化酶(SOD)活性在接种后120 h内也显著高于对照, 说明这些酶对鸭梨果实抵抗轮纹病密切相关。鸭梨果实生长期抗性相关酶主要是PPO、POD、PAL和CAT, 在盛花后25~75 d能够保持较高的活性, 而后均显著下降; 在近成熟期与果实抗病性相关酶主要是SOD和PAL, SOD活性在盛花后75 d快速升高至成熟采收达到最大值, PAL活性在花后115 d出现较小的活性高峰。鸭梨果实贮藏期间与抗病性相关的这5种酶活性总体呈下降趋势, 对抵抗病原扩展能力减弱。果实不同时期对病原菌的抵抗能力与果实中防御酶活性变化密切相关。

英文摘要:

The activities of Polyphenoloxidase (PPO), Phenylalanine Ammonia Lyase (PAL), Peroxidase (POD), Superoxide dismutase (SOD) and Catalase (CAT) in 'Ya' pear fruit inoculated with *Botryosphaeria berengriana* f. sp. *piricola* and sound pear fruit in growth and storage periods were studied. The results show that compared with the uninoculated pear fruit, the PPO activity of the pear fruit inoculated by the pathogen markedly increase in 48 hours after the inoculating treatment, the PAL activity is on the rise during the 120 hours after inoculation, POD and CAT activities reach a peak at 72h after inoculation, and the SOD activity of the inoculated treatment is also obviously higher than that of the contrast, which suggests that those enzymes are closely-related to pear fruit against *Botryosphaeria berengriana* f. sp. *piricola* infection. The main defense enzymes at the young stage of pear fruit are PPO, POD, PAL and CAT, which activities are higher at 25~75 d after blossom, and lower from then on; The main defense enzymes with high activity at the premature stage of pear fruit are SOD and PAL. In addition, the activity of SOD heightens sharply at 75 d after blossom, peaks at mature stage of fruit. And the activity of PAL appears a little peak at 115 d after blossom. The activities of these enzymes all declines during storage period, and the ability to resist the growth of pathogen reduces sharply. The disease resistance of pear fruit during different periods concerns the defense enzymes activity very nearly.

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