

抗裂与易裂枣内源激素含量和细胞壁代谢相关酶活性比较

曹一博, 李长江, 孙帆, 张凌云*

北京林业大学森林培育与保护教育部重点实验室, 北京 100083

Comparison of the Endogenous Hormones Content and the Activities of Enzymes Related to Cell-wall Metabolism Between Jujube Cultivars Susceptible and Resistant to Fruit Cracking

CAO Yi-bo, LI Chang-jiang, SUN Fan, and ZHANG Ling-yun*

Key Laboratory of Forest Silviculture and Conservation of the Ministry of Education, Beijing Forestry University, Beijing 100083, China

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摘要 以枣抗裂果品种‘圆铃枣’和易裂果品种‘俊枣’为材料, 测定了果实生长发育曲线、果形指数及种子败育率, 并对果皮、果肉、种子中内源激素含量及果皮、果肉中细胞壁代谢相关酶的活性进行了检测。结果表明, ‘俊枣’果形指数和种子败育率均显著高于‘圆铃枣’。果实发育后期‘俊枣’果皮中的GA3含量、果肉中的IAA含量明显高于‘圆铃枣’, 而‘圆铃枣’果肉及种子中的ABA含量高于‘俊枣’; ‘俊枣’果肉及种子中(GA3 + IAA + ZT)/ABA的比值在整个果实生长发育期均高于‘圆铃枣’。果实生长发育后期‘俊枣’果皮中的果胶酶及纤维素酶活性高于‘圆铃枣’, 且‘俊枣’果肉中的POD及PPO活性也较高。以上结果显示, 枣果实生长发育后期易裂品种‘俊枣’果肉中的IAA积累较多, 而抗裂品种‘圆铃枣’果肉及种子中ABA含量显著高于易裂品种; 易裂品种‘俊枣’果肉及种子中(GA3 + IAA + ZT)/ABA的比值较高, 果皮中的果胶酶、纤维素酶活性影响裂果的发生, 其POD及PPO活性相对较高。

关键词: 枣 裂果 内源激素 酶活性

Abstract: In this study, the cracking-resistant ‘Yuanling’ and the susceptible ‘Jun’ jujube were used as materials. The fruit growth curve, fruit shape index and the abortive rate of seed were measured. Endogenous hormones content in pericarp, pulp, seed and the activities of enzymes related to cell-wall metabolism in pericarp and mesocarp were determined. The result showed that the fruit shape index and seed abortive rate of ‘Yuanling’ cultivar was significantly higher than ‘Jun’ cultivar. The GA3 content in pericarp and IAA content in pulp of ‘Jun’ was evidently higher than ‘Yuanling’ during the late developmental stages of fruit, however, the content of ABA in pulp and seed of ‘Yuanling’ was significantly higher than ‘Jun’ cultivar. The ratio of (GA3 + IAA + ZT) /ABA in pulp and seed of ‘Jun’ was higher than ‘Yuanling’ cultivar during the whole developmental stages of fruit. Compared to ‘Yuanling’ cultivar, ‘Jun’ has a higher activities of pectinase and cellulase in pericarp and activities of POD and PPO in pulp during the late developmental stages. The result showed that the accumulation of IAA in the pulp of fruit during the late developmental stage was higher in susceptible cultivar, but the content of ABA in the pulp and seed of fruit was significantly higher in cracking-resistant cultivar, the variety which has the high ratio of (GA3 + IAA + ZT) /ABA were more susceptible to cracking. The pectinase and cellulase activity in the pericarp of fruit during the late developmental stage affect the occurrence of the cracking, the activity of POD and PPO in the susceptible cultivar was higher than cracking-resistant cultivar.

Keywords: [jujube](#), [fruit cracking](#), [endogenous hormones](#), [enzymes activities](#)

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