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花粉直感对杨梅果实品质及不同蔗糖代谢酶活性的影响

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摘 要:【目的】探究杨梅的花粉直感效应。**【方法】**以‘东魁’‘荸荠种’为母本,选用黄岩、舟山的雄株作为花粉源进行人工授粉,并以自然授粉为对照,观察其对当年果实品质的影响,并且测定2个不同发育时期的杨梅果实蔗糖磷酸合成酶(SPS)和蔗糖合成酶(SS)的活性。**【结果】**以‘荸荠种’为母本的授粉组合中,单果质量比对照低6.5%~18.6%,果实纵径比对照低4.62%~9.16%,亮度比对照低5.1%~16.4%,总糖含量比对照低14.17%~16.67%,维生素C含量比对照低6.73%~10.3%,可滴定酸含量比对照高17.1%~20.3%。以‘东魁’为母本授粉组合中,与自然授粉相比,果实质量、果实横纵经、可食率等方面差异不显著,色差比对照低8.1%~9.3%,‘东魁’×黄岩花粉可溶性固形物含量、总糖含量和可滴定酸含量分别比对照高31.95%、3.06%、25.39%。杨梅人工授粉不同雌雄组合表现出花粉直感现象。SPS活性在5月19日和6月19日最高的分别是‘荸荠种’×舟山花粉和‘东魁’×舟山花粉。SS活性在5月19日和6月19日最高的分别是‘荸荠种’×黄岩花粉和‘东魁’×黄岩花粉。**【结论】**‘荸荠种’×舟山花粉、‘东魁’×黄岩花粉为最佳组合,‘荸荠种’和‘东魁’都与黄岩和舟山的杨梅花粉有亲和力。从容易取材及品质改良两方面综合考虑,黄岩和舟山的杨梅雄株在品质改良中有着一定的优势,舟山的杨梅花粉为‘荸荠种’授粉对品质的改良更好,黄岩的杨梅花粉为‘东魁’授粉对品质的改良更佳。

关键词:杨梅;花粉直感;果实品质;蔗糖代谢酶

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Effect of xenia on fruit quality and sucrose metabolism enzyme activity in red bayberry

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Abstract:【Objective】Xenia is a phenomenon that pollen source influences fruit traits, including color, size, soluble solids, seed size and so on. In this study, we evaluated different pollination combinations in improving fruit quality.【Methods】Pollens from different parent cultivars were collected from Huangyan and Zhoushan counties in Zhejiang province before the male flowers opened and stored under −20 ℃. Female flowers were selected from 15-year-old trees of *Myrica rubra* ‘Biqizhong’ and ‘Dongkui’ in Haining county, Zhejiang province. The pollination combinations included natural pollination of ‘Biqizhong’ (CK1), ‘Biqizhong’ × Huangyan(BH), ‘Biqizhong’ × Zhoushan (BZ), natural pollination of ‘Dongkui’ (CK2), ‘Dongkui’ × Huangyan (DH), ‘Dongkui’ × Zhoushan (DZ). The fruit weight, size, color, hardness, TSS, total sugars, titratable acids, and vitamin C were tested. Fruit weight was measured using a balance, size with a caliper, color parameters detected with a spectral photometer (HITACHI307), hardness using a texture analyzer and TSS with a saccharimeter. The contents of total sugars, titratable acids, and vitamin C were determined with alkaline acid solution method, sodium hydroxide solution method, and 2, 6-dichlorine indophenol solution, respectively. Sucrose phosphate synthase (SPS) and sucrose synthase (SS) catalyze the synthesis of sucrose in plants. The activities of both enzymes on May 19 and Jun 19 were deter-

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