

不同抗性苹果果实受轮纹病菌侵染后亚显微结构的变化

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The Ultrastructural Changes of Apple Fruit with Different Resistance Infected by *Botryosphaeria dothidea*

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摘要 用苹果轮纹病菌菌株Ls1的菌丝接种苹果抗病品种‘红玉’和感病品种‘金冠’及其杂种后代高抗单株O2-24-036和高感单株O2-38-071的果实, 采用扫描和透射电镜技术观察其表面及皮下组织亚显微结构的变化情况。结果发现, 病菌侵染后, 红玉、金冠和O2-24-036果面均产生特殊的分泌物, 其中红玉和O2-24-036产生的分泌物抑制菌丝繁殖, 金冠果面产生的分泌物不能抑制菌丝繁殖。说明病菌侵染后果面产生的分泌物与抑菌和抗侵入有关。菌丝由果面皮孔或伤口侵入组织后, 抗病的红玉和O2-24-036皮下细胞内嗜铁颗粒簇积累, 而感病的金冠和O2-38-071未见嗜铁颗粒簇的积累。说明红玉和O2-24-036果实对苹果轮纹病的抗性属于诱导抗性, 既表现为抗侵入, 也表现为抗扩展。

关键词: 苹果 果实 轮纹病菌 抗病性

Abstract: The ultrastructural changes of the surface and subcutaneous tissue were observed through scanning and transmission electron microscopy using resistant varieties ‘Jonathan’ and susceptible cultivars ‘Golden Delicious’ and their hybrid seedings (Jonathan × Golden Delicious) including highly resistant O2-24-036 and highly susceptible O2-38-071 as materials inoculated by the strong pathogenic Ls1 strain [*Botryosphaeria dothidea* (Moug.) Ces. et de Not.]. It found that parents and O2-24-036 all produced special secretions after infection. The secretions of Jonathan and O2-24-036 significantly inhibited the invasion and reproduction of hyphae on fruit surface, while secretions of Golden Delicious couldn't do that. Results showed that these special secretions were connected with bacteriostasis and resistance to invasion. After hyphae invaded tissue through lenticel and wound, accumulation of osmiophilic globule was found in Jonathan and O2-24-036, while this phenomenon was not observed in Golden Delicious and O2-38-071. These results suggested that the resistance in Jonathan and O2-24-036 to apple fruit ring rot disease is induced resistance, which performed both anti-intrusion and resistance to expansion.

Keywords: *Malus domestica*, fruit, *Botryosphaeria dothidea*, resistance

引用本文:

杨丽丽, 庄艳, 王忆等. 不同抗性苹果果实受轮纹病菌侵染后亚显微结构的变化[J]. 园艺学报, 2012, V39(5): 963-969

YANG Li-Li, ZHUANG Yan, WANG Yi etc. The Ultrastructural Changes of Apple Fruit with Different Resistance Infected by *Botryosphaeria dothidea*[J]. ACTA HORTICULTURAE SINICA, 2012, V39(5): 963-969

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