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黄瓜花叶病毒感染引起甜瓜植株苯丙氨酸解氨酶和叶绿素的变化

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Changes of Phenylalanine Ammonialyase and Chlorophyll in Muskmelon Plants Infected by CMV-Xinjiang Isolate

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摘要 研究黄瓜花叶病毒新疆株(cucumber mosaic virus-XJ，CMV-2-XJ)感染抗性不同的甜瓜品种后苯丙氨酸解氨酶和叶绿素含量的变化，结果表明：与健康对照相比，受感染植株的酶活性均有所增高，但抗性品种“新玉”增高的幅度是感性品种“网纹香”的2倍，酶活性峰早出现12 d，即抗性品种酶活性增高幅度大，酶活性峰出现早；叶绿素的变化则与抗性呈负相关，抗性品种“新玉”受CMV-XJ感染后的叶绿素含量与健康对照差异不大，而感性品种“网纹香”的叶绿素含量则比健康对照下降了62.9%.说明苯丙氨酸解氨酶和叶绿素含量的变化均与甜瓜品种对CMV-2-XJ的抗性呈现规律性的相关性，这种规律性可用于甜瓜品种对CMV-XJ抗性鉴定的生物化学分析.

关键词： 黄瓜花叶病毒新疆株(CMV-2) 甜瓜 苯丙氨酸解氨酶 叶绿素

Abstract: Changes of phenylalanine ammonialyase and chlorophyll in muskmelon cultivars of different resistance to cucumber mosaic virus-XJ (CMV-XJ) were investigated.Compared with healthy control,the enzyme activity increased in all infected muskmelon plants,but the increase in enzyme activity for resistant cultivar “Xinyu” was two times of that for susceptible cultivar “Wangwenxiang” and the peak of enzyme activity for “Xinyu” appeared 12 days earlier,that is bigger increase range of enzyme activity and earlier enzyme activity peak for resistant cultivar.But the change of chlorophyll was negatively related with the resistance to the virus;after infection by CMV-XJ,the chlorophyll content of resistant cultivar “Xinyu” is not different significantly from that of the healthy control,but the chlorophyll content of susceptible cultivar “Wangwenxiang” decreased by 62.9% compared with the healthy control.There is regular relation between resistance of the muskmelon cultivar and changes of phenylalanine ammonilyase and chlorophyll after infection by CMV-XJ.The regularity can be used as the biological criterion for the determination of susceptibility and resistance to CMV-XJ for muskmelon cultivars.

Key words: cucumber mosaic virus-XJ muskmelon phenylalanine ammonialyase chlorophyll

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[1] 田波，龚祖埙.病毒与农业 [M].北京:科学出版社，1985.

[2] 郑光宇，王志民，李国玄，等.新疆哈密瓜病毒病的免疫电子显微镜诊断[J].植物病理学报，1984，14(1):47-50.

[3] FRANCKI R I B,HATA H.Cucumber Mosaic Virus [A].In:Commonw.Mycol Inst/Assoc Appl Biol Descriptions of Plant Viruses [C].United Kington:WM Culross and Son Ltd,1979，(213).

[4] FRANCKI R I B,HATA T.Cucumber Mosaic Virus-Variation and Problem of Identification [J].Acta Horticulture,1980,110:167-174.

[5] HYODO H,YANG S F.Ethylene-Enhanced Synthesis of Phenylalanine Ammonialyase in Pea Seedlings [J].Plant Physiology,1971,48(6):765-769.

[6] 张志良.植物生理学实验指导 [M].北京:高等教育出版社，1990.

[7] JANE K,KOUKOL J,CONN E E.The Metabolism of Aromatic Compounds in Higher Plants [J].Journal of Biological Chemistry,1961,236(10):2 692-2 698.

[8] HAGA M,HARUYAMA T,KANO H,et al.Dependence on Ethylene of the Induction of Phenylalanine Ammonialyase Activity in Rice Leaf Infected with Blast Fungus [J].Agri. Biol.Chem.,1988,5(4):943-950.

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