of satRNA, was examined 5 days and 15 days after inoculation on the same hosts with CMV-R3 being included as a non-satRNA control. The RRLs for both genomic RNA and satellite RNA of the CMV-RS displayed a similar host- and time-effect trend. On all the inoculated hosts, the RRL increased from day 5 to day 15 and RRL of CMV-RS for both genomic RNA and satRNA was in the quantitative order of *N. tobacum* > *N. glutinosa* > *Nicandra. physalodes* and tomato. At 18 ~ 21 ℃, CMV-HC4, a severe tomato isolate containing a necrosis satRNA, was tested after 5 days, 10 days, and 15 days inoculation on 5 hosts. The RRLs of HC4 genomic and satellite RNAs were under the influence of host and inoculation time. The RRLs for satRNA and genomic RNA were similar but had some degree differences among the hosts. On day 10 post inoculation, the relative amount of both genomic RNA and satRNA was ordered as tomato> *N. glutinosa* > *N. tobacum*. The results also showed that different CMV isolates have obvious preference among hosts for replication and accumulation of viral RNAs.

Key words cucumber mosaic virus, satellite RNA, loading, host effect, inoculation-time effect

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小经验介绍

血清中血管紧张素转换酶活性测定与临床应用

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1 试剂和材料

电泳缓冲液: 20 mmol/L pH 9.0 硼酸-硼酸盐溶液 (含 50 mmol/L SDS).

底物反应液: 8.7 mmol/L 马尿酸-组氨酸-亮氨酸溶液 (HHL, Sigma 公司. 以含 500 mmol/L NaCl、100 mmol/L pH 8.3 硼酸-硼酸盐溶液溶解 HHL).

马尿酸标准液: 3.0 mmol/L (Hip, Sigma 公司. 以蒸馏水溶解 Hip).

病人血清.

2 仪器

P/ACE5010 毛细管电泳仪 (Beckman 公司), 石英毛细管 75 μm × 37 cm, pHS-3C 酸度计, 电热恒温水箱.

3 实验方法

压力进样 3 S, 电压 16 kV, 电泳时间 7.5 min, 检测波长 200 nm, 实验温度 20 ℃. 检测前石英毛细管以 0.1 mmol/L NaOH、蒸馏水、电泳缓冲液各冲洗 10 min, 每个样品间用电泳缓冲液冲洗 2 min.

4 酶促反应

在 0.2 ml 离心管中加入 50 μl 底物反应液、10 μl 血清混匀, 37 ℃水浴 120 min, 取出加 0.1 mmol/L HCl 90μl 终止反应, 对反应液进行电泳分析, 得马尿酸峰面积, 其迁移时间 4.327 min.

5 马尿酸标准曲线、酶活性计算

以 0.1 mmol/L HCl 将马尿酸标准液稀释成 0.01 ~ 0.9 mmol/L系列浓度溶液, 按上述第 3 部分方法进行测定, 以峰面积 (A) 对浓度 (c) 作线性回归方程, $A = 304\,320 \times c - 1281$ $r = 0.996$.

血管紧张素转换酶活性单位 (U) 定义: 37 ℃条件下血清与底物反应每分钟催化底物产生 1 μmol 马尿酸的酶量为一个单位 (μmol/min), 临床常以 1 L 血清中酶浓度表示酶活性 (U/L, 即 $\mu mol \cdot min^{-1} \cdot L^{-1}$).

根据马尿酸生成量计算酶活性, 酶活性= $c_{HIP} \times 10^3 \times V_{total}/V_{serum} \times 1/t = 125\ c_{HIP}$, 其中 $V_{total} = 150 \times 10^{-6}$ L; $V_{serum} = 10 \times 10^{-6}$ L; $t = 120$ min.

6 临床应用

取 50 例体检正常人的血清标本按上述方法检测血管紧张素转换酶活性, 血管紧张素转换酶活性范围 5.2 ~ 21.9 U/L ($\bar{x} \pm 1.96s$). 另外测定不同病例组病人的血清血管紧张素转换酶活性, 发现高血压病人中无脑梗塞病人组的酶活性高于有梗塞病人组 ($P < 0.05$), 肺结节病例组、无糖尿病肾病组酶活性明显高于正常对照组 ($P < 0.01$), 肺癌患者组酶活性明显低于正常对照组 ($P < 0.01$).