

研究报告

铅胁迫对黄瓜幼苗抗氧化酶活性及同工酶的影响

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摘要

采用水培法和聚丙烯酰胺凝胶电泳法, 研究铅胁迫对黄瓜幼苗过氧化物酶(POD)、超氧化物歧化酶(SOD)、过氧化氢酶(CAT)活性及同工酶的影响. 结果表明, 铅胁迫下黄瓜幼苗地上部POD活性除第5天外均随铅浓度的增加而逐渐降低, POD同工酶谱带和表达量减少. 在0~500 mg·L⁻¹铅浓度范围内, SOD活性随铅浓度的增加而增加, 第7天达到最大值后急剧下降, 低于同期对照值, 900 mg·L⁻¹铅处理SOD活性随时间的延长逐步降低, SOD酶谱带和表达量与铅浓度呈负相关. CAT酶谱带无明显变化, 而表达量存在差异.

关键词 [铅胁迫](#) [黄瓜幼苗](#) [同工酶](#) [过氧化物酶](#) [超氧化物歧化酶](#) [过氧化氢酶](#)

分类号

Effects of lead stress on anti-oxidative enzyme activities and isoenzymes in cucumber seedlings

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Abstract

With hydroponics and polyacrylamide gel electrophoresis (PAGE), this paper studied the effects of lead stress on the activities of peroxidase (POD), superoxide dismutase (SOD) and catalase (CAT), and their isoenzymic band numbers in cucumber seedlings. The results showed that the isoenzymic bands and expression quantity of POD decreased gradually with increasing lead concentration. The SOD activity increased with increasing lead concentration within the range of 0~500 mg Pb·L⁻¹, reached the maximum at 7th day, and then decreased rapidly, being lower than the control of the same period. Under the concentration of 900 mg Pb·L⁻¹, the SOD activity decreased with time. The isoenzymic bands and expression quantity of SOD were negatively related to lead concentration. No significant change was observed in the isoenzymic bands of CAT, but a significant difference was found in the expression quantity of CAT isoenzymes.

Key words

[Lead stress](#) [Cucumber seedling](#) [Isoenzyme](#) [Peroxidase](#) [Superoxide dismutase](#) [Catalase](#)

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