

外源油菜素内酯对番茄铜胁迫的缓解效应

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Exogenous EBR on alleviating copper stress in tomato seedlings

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摘要 采用营养液水培的方法, 以改良“毛粉802F1”番茄为材料, 研究外源2,4-表油菜素内酯(2,4-EBR, 简称EBR)对铜胁迫下番茄抗氧化酶系统及生长发育的影响。结果表明: 与铜胁迫处理相比, 外源EBR处理能显著激活铜胁迫下抗氧化酶系统[过氧化物酶(POD)、超氧化物歧化酶(SOD)、过氧化氢酶(CAT)、抗坏血酸过氧化物酶(APX)]和根系活力, 使丙二醛含量明显降低, 叶绿素含量和生物量显著升高; 铜胁迫显著提高了番茄铜含量(尤其是根系), 而外施EBR能够显著降低铜胁迫下番茄叶片和根系铜的含量, 提高带有相同电荷的竞争性离子Fe、Zn、Mn含量, 利于养分平衡, 维持番茄正常的生长代谢。

关键词: 番茄 铜胁迫 油菜素内酯 抗氧化酶 矿物质元素

Abstract: Through nutrient solution cultivating in greenhouse, the tomato cultivar, Gailiang Maofen 802F1, was selected as the plant material to investigate the effects of 2,4-EBR on anti-oxidizing enzyme system and growth under copper stress. The results show that the exogenous EBR could effectively improve the activities of anti-oxidizing enzyme systems (POD, SOD, CAT, APX) in leaves and root activity under the copper stress, while the MDA content is remarkably reduced. As an effect of a long period, the content of chlorophyll and plant weight are significantly increased. For mineral elements, excessive copper obviously enhances the copper uptake and transplant in tomato plant,

Keywords: tomato copper stress EBR anti-oxidant enzyme mineral element

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