

园艺—研究报告

低温胁迫下外源甜菜碱对香蕉叶片和根系内源甜菜碱合成的影响

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摘要:

通过用不同浓度外源甜菜碱预处理香蕉幼苗后, 置于人工气候箱中模拟低温胁迫, 分别测定香蕉叶片和根系内源甜菜碱的含量和甜菜碱合成关键酶甜菜碱醛脱氢酶 (BADH) 活性, 以研究外源甜菜碱对香蕉叶片和根系内源甜菜碱合成的影响。结果表明, 一定浓度的外源甜菜碱可极显著提高香蕉幼苗叶片BADH活性, 极显著促进叶片内源BT的积累, 胁迫24 h后根系内源甜菜碱的含量虽显著高于常温对照, 但BADH活性却无显著提升。结论: 外源甜菜碱可促进低温胁迫下香蕉内源甜菜碱的合成和积累, 叶片是其主要合成器官, 根系可作为甜菜碱的贮存场所。

关键词: 合成机理

Effects of Exogenous Betaine on the Endogenous Betaine Synthesis in Leaf and Root of Banana under Low Temperature Stress

Abstract:

After being treated with different concentration of BT, then stressed in the artificial bioclimatic chamber under 7°C low temperature, the effects of exogenous betaine on the endogenous betaine synthesis in leaf and root of banana were studied by measuring the content of endogenous betaine and the activity of the betaine key synthetase BADH in the leaves and roots of banana seedlings. The results indicated that after being treated with suitable concentration of BT, the activity of BADH and the content of endogenous betaine in leaves were also increased with highly significant difference. Though the content of endogenous betaine in roots was significantly higher than that in controller which grows under normal circumstance, the activity of BADH was not significantly increased. So it could be drew a conclusion that exogenous betaine could improve the synthesis and content of endogenous betaine in banana under low temperature stress, and leave is the place for synthesis, root is the place for storage.

Keywords: synthetic mechanism

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