

植物生理科学

外源氯化钙对盐胁迫下西兰花抗氧化酶系统及离子吸收的影响

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摘要:

摘要: 以美国“格福”与日本“山水”两种耐盐性不同的西兰花为试验材料, 采用基质营养液栽培, 研究了外源氯化钙对盐胁迫下西兰花鲜重、干重、MDA、抗氧化酶活性及离子吸收的影响。结果表明: 外源钙的添加, 可显著促进西兰花的生长, 减轻盐胁迫, 增加地上部、地下部干重及鲜重。外源钙处理明显降低了西兰花叶片MDA含量, 减轻盐胁迫对叶片膜脂过氧化程度。外源钙处理对西兰花SOD、POD、CAT活性的影响因品种耐盐性不同表现不一。外源钙处理可减少西兰花地上部、地下部Na⁺的积累, 增加K⁺、Ca²⁺的浓度。外源钙处理对盐敏感品种的效果要好于耐盐品种。最佳的钙浓度为10mmol/L。

关键词: 关键词: 钙 盐胁迫 西兰花 抗氧化酶 离子吸收

Effects of exogenous calcium chloride on antioxidant enzymes activities and ions uptake of broccoli under salt stress

Abstract:

Abstract: Broccolis Gefu(salt tolerant) and Shanshui(salt sensitive) were conducted to study the effects of exogenous calcium chloride on fresh weight, dry weight, ions content and different antioxidant enzymes activities under salt stress. The results showed that exogenous calcium could promote the growth of broccoli significantly, alleviate the effect of salt stress and increase the fresh and dry weight of broccoli. Exogenous calcium reduced MDA content and alleviated the level of membrane lipid peroxidation in broccoli under salt stress. The effect of exogenous calcium on the activities of SOD, POD and CAT differed with the varieties of broccolis. Exogenous calcium could increase the K⁺, Ca⁺ uptake of shoot and root, but there was a negative effect on Na⁺. Compared with the salt-tolerance broccoli, the effect of exogenous calcium on salt-sensitive broccoli was better. During experiment, we found that 10mmol/L was the best concentration of exogenous calcium to alleviate salt injury of broccoli.

Keywords: Key words: calcium, salt stress, broccoli, antioxidant enzymes, ions uptake

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