

不同参数评价植物耐铝性的研究

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Study of different parameters for evaluating Al tolerance in plants

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摘要

利用相对根伸长率、根尖Al含量和根尖胼胝质含量等三项参数结合苏木精染色法, 研究Al胁迫下, 各参数在评价植物耐Al性上的地位, 以及各参数间的相互关系。结果表明, 不同植物和品种间三个参数变异幅度很大, 相互间大都达到显著差异水平。各参数以及苏木精染色法在衡量同一植物不同品种间的耐Al性差异时是一致的, 衡量不同植物耐Al性时则有所差别。通过相关性分析, 确定根尖Al含量和根尖胼胝质含量都可以在一定程度上反映植物或品种间的耐Al性差异, 在需要时可以作为替代相对根伸长率或作为补充对植物的耐Al性差异进行评价。

关键词: 铝胁迫 相对根伸长率 铝含量 胼胝质 铝胁迫 相对根伸长率 铝含量 胼胝质

Abstract:

Relative root elongation, Al content and callose content in root tips and hematoxylin staining were compared in evaluating plants' tolerance of Al stress. The results showed that each of the three selected parameters varied among different plants or cultivars, and they could reflect the degree of Al tolerance in plants to some extent, especially among different cultivars in the same plant. Hematoxylin staining could qualitatively differentiate the Al accumulation in root tips. Relative root elongation is generally considered as a simple and common approach in evaluation of Al tolerance in plants, but sometimes it did not work very well. Al content and callose content in root tips could be good alternatives or supplemental methods for evaluating the degree of Al tolerance among plants.

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