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摘要: ?硼在维持植物细胞壁和细胞膜等方面有着重要的作用。以大豆品种吉林小粒7号为试验材料，研究硼浓度对大豆子叶节丛生芽的诱导的影响，并在不同硼元素浓度下采用农杆菌介导法将报告基因（GUS）导入大豆中，用组织化学法测定GUS基因的表达并计算瞬时表达率，最后采用PCR和斑点杂交做进一步的鉴定，以探讨硼介导的大豆转化效率及可行性。结果显示高硼和低硼培养基对大豆丛生芽诱导均有一定的抑制作用，尤其是高硼情况下丛生芽诱导率显著降低。30 mg·L^{-1}硼酸环境下农杆菌介导的大豆转化效率较之正常硼酸环境下有显著的提高，GUS瞬时转化率高达35.92%。这一现象对建立新的大豆遗传转化体系的意义有待于进一步探究。

Abstract: ???? Boron plays an important role in maintaining the structural and functional integrity of cell wall and cellularmembrane in plant. In the present experiment, the influence of concentration of boron element in the medium on the regeneration of cotyledonary node and induction of multiple shoots as well as the transformation efficiency of Agrobacterium mediated report gene(GUS)were investigated using seedlings of Jilinxiaoli 7 soybean as culture explant. The transient expression rates of GUS gene expression were calculated based on the histochemical method and the stable transformed shoots were further detected by PCR and Dot blotting to explore the efficiency of soybean transformation in a suitable boric acid concentration. The results showed that both high boron and low boron medium had an inhibition effect on induction of multiple shoots of cotyledonary node, especially at high level boron multiple shoots induction rates were significantly reduced. However, Agrobacterium-mediated transformation efficiency in soybean explant were significantly risen at 30 mg·L^{-1}boric acid concentration compared with normal boric acid environment, with the GUS transient conversion rate as high as 35.92%. The significance of this phenomenon remains to be further explored for establishment of a new soybean genetic transformation system.

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