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利用“微创刷”法获得抗草甘膦转基因大豆

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摘要: 以发芽3 d的大豆成熟种子胚尖生长点为作用点，利用“微创刷”法将抗草甘膦基因(EPSPS)转入绥农22中，对转化植株T_1代进行草甘膦筛选，对筛选后的抗性植株进行PCR检测，得到抗草甘膦转基因大豆。同时研究了不同浓度草甘膦对野生型绥农22与抗草甘膦转基因绥农22大豆植株的影响。结果表明：绥农22 T_0代成株率为97.38%，对T_1代具有草甘膦抗性的植株进行PCR检测，初步证明EPSPS基因成功转入大豆中，T_1代转化效率为6.20%；对野生型绥农22与“微创刷”法获得的转基因绥农22大豆在不同浓度草甘膦进行相关生理指标测定，抗草甘膦转基因绥农22大豆在不同浓度草甘膦作用下叶片叶绿素含量指数、光合速率高于野生型绥农22大豆，莽草酸含量低于野生型绥农22大豆，进一步证明了大豆抗性植株对草甘膦的抗性。

Abstract: Growing points of embryonic tips from mature soybeans after 3 days post germination were used as a receiving point of Agrobacteria carrying recombinated vectors for the transformation of glyphosate-resistant gene (EPSPS) into soybeans (Suinong 22) by using “minimal wound brush” method, and transformed T_1?plants were screened by glyphosate and tested by PCR. Chlorophyll content index, shikimic acid concentration, and photosynthetic rate of wild-type and transgenic soybean plants were determined. The results showed that surviving rate of T_0 soybean plants was 97.38%, transformation rate for T_1?soybean plants was 6.20%. Meansurements of related physiological factors from wild-type and transgenic plants were taken and it was found that chlorophyll content index and photosynthetic rate were higher in trangenic plants than wild types; meanwhile, shikimic acid concentration were much lower in transgenic plants than wild types. The above physicological results confirmed the resistance of glyphosate in transgenic soybeans plants.

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