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GENETIC ENGINEERING A SUNFLOWER SULPHUR-RICH PROTEIN GENE INTO SOYBEAN

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Transgenic soybean plants were obtained from cultivars Asgrow 3237 and Bert using the *Agrobacterium*-mediated cot-node method to deliver a gene construct pBSF16. This plasmid contains the CaMV 35S- ***bar*** gene as a selectable marker, CaMV 35S-*uid*A (GUS) and a seed-specific sulphur-rich protein gene coding for sunflower seed albumin. Cotyledonary node explants from 5-day-old seedlings were treated with *Agrobacterium* (AGL1) harboring pBSF16, cocultivated 3 days in 1/10th concentration of B_5 minerals containing 200 µM acetosyringone. Explants were transferred to full-strength of B5 medium supplemented with 5 mg/L phosphinothricin (PPT) from the herbicide Liberty (AgrEvo) for four weeks. Explants were then transferred to MS medium supplemented with zeatin, IAA, GA_3 and 2.5 mg/L PPT for subsequent growth of PPT-resistant shoots. More than 30 transgenic shoots were produced. The frequency of transgenic shoots obtained varied between 0.5 - 4.0% of the cot-node explants. Many of the transgenic shoots were lost during the rooting process. Transgenic shoots were rooted in MS medium supplemented with 1 mg/L IBA and transferred to growth chambers. GUS activity was observed in T_0 leaves, stem tissue, pollen and T_1 embryos as determined by histochemical GUS assay. Leaves of a regenerated soybean plant were resistant to PPT application at rates as high as 2 g/L indicating expression of the ***bar*** gene. Three GUS-positive plants grown in a growth chamber produced T_1 generation seeds. T_1 generation plants of one T_0 plant segregated in a 3:1 Mendelian ratio for GUS expression. Characterization of the other plants and biochemical tests are in progress.