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Evaluation of Various Sunflower ( *Helianthus annuus* L.) Genotypes for *Agrobacterium tumefaciens*-mediated Gene Transfer

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**Abstract:** In this work, 10 sunflower ( *Helianthus annuus* L.) genotypes were evaluated for their suitability for *Agrobacterium tumefaciens*-mediated gene transfer based on detection of a reported gene expression (GUS). A number of factors including the type of shoot-tip explant (split vs. intact), bacterial strain/binary vector combinations and wounding intact shoot-tips by particle bombardment were examined. Genotypes showed significant differences in their transformation efficiencies ranging from 0.0 to 82.7% GUS positive explants, hybrid genotypes being more responsive to *Agrobacterium* infection than inbred lines. Use of split shoot-tip explants did not increase the transformation efficiency over intact explants but the AGL-1/pKIWI strain/vector combination was more effective than the LBA4404/pTOK233 combination. Wounding explants by particle bombardment prior to inoculations with *Agrobacterium* had no positive effect on transformation.

**Key Words:** Sunflower, gene transfer, *Agrobacterium tumefaciens*, genotypes.

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