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## Agrobacterium tumefaciens-mediated transformation of maize (*Zea mays*) inbred line using a simple binary system

It is highly desirable to be able to transform maize (*Zea mays*) inbred lines that possess good economical traits for gene discovery and trait improvement. However, elite maize inbred lines of good economical performance so far tested are much less amenable for both regeneration and Agrobacterium tumefaciens-mediated transformation (Ishida et al., Nature Biotech 14:745-750, 1996; Zhao et al., Pioneer HiBred International, Inc., 1999). Among a number of maize inbred lines, B73, elite maize inbred line, represents good economical values and has been used extensively for maize genome projects for gene discovery. We have tested many different N6-based media amended with varying compositions of 2, 4-D, casein hydrolysate, L-proline, and silver nitrate. In spite of these efforts, our results demonstrated an extreme low regeneration from the inbred line, B73, in agreement with the previous study (Armstrong et al., Theor Appl Genet 84:755-762, 1992). On the other hand, maize Hi-II B, elite maize inbred derived from B73 and A188 has showed good regeneration in previous studies (Armstrong et al., Theor Appl Genet 84:755-762, 1992; Temple et al., EXPRESS internship program 2003) and therefore suggests its potential to be a good genotype for Agrobacterium-mediated transformation. Hence, we have conducted further experiments to evaluate critical conditions enhancing Agrobacterium-mediated maize transformation using a simple binary system. We employed the T-DNA transfer procedures as described previously (Frame et al., Plant Physiol. 129:13-22, 2002) with varying co-cultivation conditions including duration, impact of dessication, and antioxidants. We inoculated the immature embryos of Hi-IIB with Agrobacterium strain EHA101 carrying binary vector pZY102. The T-DNA transfer efficiency was first evaluated using GUS assay 7 days after resting period. So far, results indicate that the Hi-IIB has good potential to be transformed by Agrobacterium-mediated T- DNA transfer. We are now in the process of collecting data representing more stable transformation at later culture stages, and results will be presented in poster presentation.