

**D-09: *Agrobacterium tumefaciens* mediated genetic transformation of local Mustard (*Brassica juncea*) and Tomato (*Lycopersicon esculentum*) species**

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Introduction of genes responsible for agronomic traits can be employed to improve crops. The present study investigates the possibility of introducing genes into *Brassica* and *Lycopersicon* through the *Agrobacterium* vector system. Specific objectives of the study are the assessment of susceptibility to *Agrobacterium* infection and subsequent regenerability of infected cells of explants of *Brassica* and *Lycopersicon*.

*Agrobacterium* strain LBA 4404 harbouring the binary plasmid pBI 121 was used in this study. The vector contained CaMV 35S promoter cloned upstream of the  $\beta$  - glucuronidase gene with NOS terminator as well as a gene conferring Kanamycin resistance under the direction of NOS promoter.

*Brassica* cotyledonary petioles infected with *Agrobacterium* regenerated shoots with little callus on MS medium containing 20  $\mu$ M BA, 500 mg/l Carbenicillin/Cefotaxime and 15 mg/l Kanamycin within ten days. The frequency of shoot regeneration was 8.3% of which 43% were green shoots and therefore were putative transformants. Of the different explants used in *Lycopersicon*, internodes initiated shoots in MS medium with 0.3 mg/l IAA and 3 mg/l BA following *Agrobacterium* infection and Kanamycin selection. Hypocotyl and cotyledonary explants initiated shoots in MS with 1 mg/l IAA and 2.5 mg/l BA, or 0.2 mg/l IAA and 1 mg/l BA. Frequency of shoot initiation however was poor in *Lycopersicon* and was only 1.6% of the total cultured explants.

In *Brassica* complete shoot system was excised and rooted in MS medium containing 2 mg/l IBA. After seven weeks these putative transformants were transferred to soil. The putative transformants will be analysed by assaying for the GUS expression, histochemically and fluorimetrically.

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