Agrobacterium MEDIATED GENE TRANSFER FOR CHILLI VARIETIES GROWN IN SRI LANKA

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The transgenic approach provides a sustainable solution to overcome problems associated with crop losses. Until now there has been no efficient and reliable regeneration and transformation protocol for local chilli varieties. This study was undertaken to establish a routine protocol for the development of transgenic chilli plants from local varieties mediated by *Agrobacterium tumefaciens*.

Regeneration ability of three *Capsicum annum* L. varieties KA2, MI2 and MI Hot were investigated *in vitro* using cotyledonary leaves and hypocotyls as source of explant cells. Explants were cultured on MS medium supplemented with 0.5 mg/l TDZ and three combinations of BAP and IAA. Highest shoot bud initiation percentage (76.6%) was achieved in cotyledonary explants of the variety MI Hot induced on MS containing 7.5 mg/l BAP and 1 mg/l IAA. Elongations of shoot buds were obtained on 1/2 MS medium with 0.5 mg/l IAA. Successful shoot elongation took more than three months.

In the second part of the investigation, *Agrobacterium tumefaciens* strain LBA 4404 harbouring the plasmid pBI 121 was used to transform MI hot chilli. Cotyledonary explants were precultured for 2 days in regeneration medium and used for transformation. Individually excised cotyledons were immersed in *Agrobacterium* suspensions for few seconds. Infected leaves were transferred to the same plates for co-cultivation. After 2 days infected leaves were washed with sterilized distilled water containing Cefotaxime and transferred on to regeneration medium with 500 mg/l Cefotaxime. After 2 weeks they were transferred to the regeneration medium with 50 mg/l Kanamycin and Cefotaxime. Transgenic nature of the putatively transformed callus cells were obtained and confirmed by the histochemical GUS staining.

Key words: *Capsicum annum* L, Cotyledon, Genetic transformation, Regeneration.