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Screening of the highly regenerable lines and efficient transformation system using *Agrobacterium* in lettuce (*Lactuca Sativa* L.)

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For screening of highly regenerable lettuce lines, to cotyledon explants excised from 7-day-old seedlings and primary leaf explants excised from 10~12-day-old seedlings were cultured on MS medium containing 2mg/l kinetin, 0.1mg/l NAA, 3% sucrose and 0.25% phytigel for shoot induction. Shoots were regenerated from explants of cotyledons and primary leaf in all of tested lettuce line. The percentages of explants containing shoots were recorded after 30days of culture. The regeneration rate varied between 13~91.2% depending upon the type of tissues and lettuce line. After screen the highly regenerable line, we established the optimum transformation condition using transient expression of *gus* gene by *Agrobacterium*-mediated transformation. The disarmed hypervirulent *Agrobacterium tumefaciens* strain LBA4404 carrying the binary plasmid pCAMBIA1301 was used as a vector system. Based on the histochemical staining of the GUS, optimum acetosyringone concentration, infection time and co-cultivation time were 150 μ M, 15min and 3day, respectively.