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# Optimization of regeneration and *Agrobacterium*-mediated transformation of citrus (*Citrus aurantifolia*)

**Seyedeh Maedeh Feizbakhsh[1,2], Masuod Tohidfar[2], Seyed Hasan Marashi[1], Nasrin Moshtaghi[1], Motahare Mohsenpoor[2], Mohsen Mardi[2]**

1- University of Ferdowsi, Mashhad
2- Agricultural Biotechnology Research Institute of Iran
* Corresponding Author, Email: gtohifar@abrii.ac.ir

## ABSTRACT

Mexican lime is one of the most important and economic fruit crops in the southern regions of Iran. This crop is susceptible to Citrus Tristeza Virus (CTV) and Witches Broom Disease of Lime (WBDL). Therefore, optimization of regeneration and transformation system for this plant is necessary for its improvement. In this project, the effect of different factors such as internode and epicotyl explants; two different regeneration media containing different concentrations of BAP and NAA, different Agrobacterium strains: "LBA4404" and "EHA105", each harboring a binary vector pBI were studied in a factorial experiment. The results showed that the etiolated epicotyl was the best explants for regeneration and callus production. There was no significant difference between two regeneration media. Furthermore, EHA105 was the best *Agrobacterium* strain for this purpose. Polymerase Chain Reaction (PCR) using *gus*-specific primers has been carried out on DNA extracted from all regenerated plants. Twenty-one shoots were carrying this gene but only 8 shoots out of these 21 showed the expression of this gene. Furthermore, the lack of *Agrobacterium*-related infections has been confirmed using *vir*G-specific markers.

## Key Words

*Agrobacterium*, Transformation, Mexican Lime, *gus* Gene, Genetic Engineering.





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