

Efficiency of soaking method on *Agrobacterium tumefaciens* mediated transformation of LeGSNOR to rice

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[Introduction]

The *Agrobacterium*-mediated transformation method has been successfully used to introduce useful foreign genes to plants. Rice is usually transformed using *Agrobacterium tumefaciens*. *Agrobacterium*-mediated transformation method mainly introduces and selects callus, this method takes a long time whereby there is a disadvantage that Variants may occur during the cultivation duration.

[Materials and Methods]

The materials HV8, HV23 with drought gene and control Ilmi were grown during the summer of 2015 on the field of Kyungpook National University Research Facilities in Gun-wi, Gyeongbuk, Korea. Spikes with flag leaf sheath of these plants were sampled 18 to 20 days before heading. Cutting and inoculating aseptically when anthers of spikelet in the middle spikes and cultured on N6-Y1 medium. Rice anthers cultured using both one-step and two-step culture methods. The regenerated plantlets were placed in a box of 1 g/L HYPOneX® Professional 20-20-20 (HYPOneX COOPERATION, USA) for 7 days for root growth. Haploid plantlets derived from anther culture were treated with 0.2 % colchicine for 1 day.

[Results and Discussions]

In this study, efficient transformation was attempted using infection soaking method. Experiment with binary vector pGreen::LeGSNOR of genus *Agrobacterium* GV3101, used japonica rice (*Oryza sativa* L.) cv. were Dongjin and Nagdong. Seeds immersed in soaking solution for 48 hours inoculated into *A. tumefaciens* suspension after 1, 2, or 3 days, and then were co-cultivated for 6 days. Transferred plantlet that grew 4 weeks on medium to greenhouse without regeneration stage. Transformed plants were confirmed to 2 out of 68 in Nagdong and 5 out of 51 in Dongjin using PCR. To obtain the sequences information on the transferred DNA(T-DNA) integration into plant genome, we analyzed left border(LB) flanking sequences by nested PCR method. This infection soaking method is expected to be useful for future studies and may help reduce time and effort.

[Acknowledgements]

This work was supported by a grant from the Next-Generation BioGreen 21 Program (No. PJ013647032018), Rural Development Administration, Republic of Korea.

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