

Efficient *Agrobacterium*-mediated transformation using immature embryo of Korean wheats

Jung-Hun Moon, Sang-Kyu Lee, Kyung-Hee Kim and Byung-Moo Lee*
Department of Plant Resources, Dongguk University, Seoul 100-715, Korea

Objectives.

The purpose of this study was to develop an efficient method of *Agrobacterium*-mediated transformation from immature embryos and to determine effect of *Agrobacterium* strains, treatments on transformation using immature embryos of Korean wheat cultivars.

Materials and Methods.

Materials :

- Wheat cultivars : Alchanmil, Geurumil, Gobunmil, Keunkangmil, Tapdongmil, Urimil.
- *Agrobacterium* strain / plasmids : KYTR1, EHA105 / pCAMBIA1305.1

Methods :

- Treatments : sonication, vacuum infiltration, and the combination of sonication and vacuum infiltration.
- *Agrobacterium* density : OD₆₀₀ = 1.0~1.5
- Transformation : Co-cultivation with *Agrobacterium* for 3days at 25°C under the dark conditions.
- Analysis : GUS assay (Histochemical assay)

Results and Discussion.

Efficiency of *Agrobacterium*-mediated transformation was determined by GUS gene expression in immature embryos of wheat. Transient GUS expression was confirmed on 3 days after co-cultivation. In comparison of *Agrobacterium* strains, KYTR1 showed a higher in most cultivars (Fig 1.). The combination of sonication and vacuum infiltration showed high GUS expression efficiency compared with other treatments (sonication, vacuum infiltration) (Fig 2.). The GUS expression showed clearly difference among the cultivars.

*Corresponding author: TEL: 02-2260-3307 E-mail: bmlee@dongguk.edu

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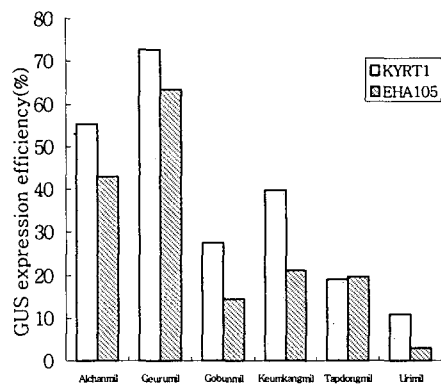


Fig. 1. The effect of *Agrobacterium* strains on GUS expression in immature embryos

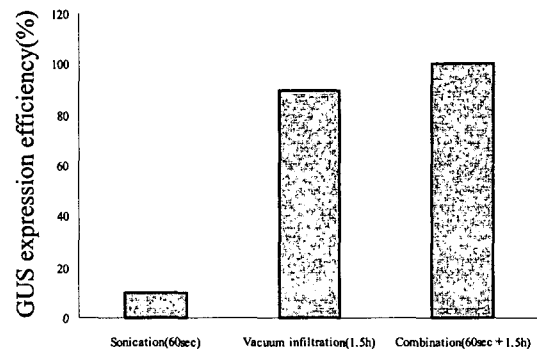


Fig. 2. The effect of treatments on GUS expression in immature embryo of wheat (cv. Geurumi).

Efficiency(%) = Number of GUS expressed immature embryos / Number of immature embryos × 100.