

P 47

Plant Regeneration and Callus-GUS Activity in Colored Rices

Hyang Mi Park¹, Jong Min Ko¹, Gi Hwan Yi¹, Yong Jae Won¹, Jun Hyeon Cho¹,
Myoung Gun Choung¹, Soon Cheol Kim¹, Young Soo Jeong², In Koo Rhee³, Min Hee Nam¹

¹National Younngnam Agricultural Experiment Station, RDA, Milyang 627-130, Korea

²Dong-A University 840 Hadan2-dong Saha-gu Busan 602-714, Korea

³Kyung Pook National University, Daegu 702-701, Korea

Objectives

The colored rice possessing flavonoids and anthocyanin in endosperm is receiving considerable attention as health-promoting nutraceuticals. Aim of this study is to select genotype showing high plant regeneration and GUS activity in colored rice useful as potential material of transformation.

Materials and Methods

1. Materials: 10 varieties of colored rice
2. *Agrobacterium tumefaciens* strains: LBA4404 (pTOK233)
3. Callus induction: NB medium
4. Plant regeneration: N6S3-CH-I medium

Results and Discussion

Plant regeneration efficiencies and GUS activity of transgenic calli initiated from scutellum of colored rices were depending on genotype (Table 1). Heukhyang-byo and Milyang 188 showed high regeneration efficiencies, but showed low activities of GUS. Otherwise, Heukjinju-byo showed low regeneration efficiencies, but high activities of GUS. In case of Milyang 152, plant regeneration efficiency was comparably lower, but GUS activity was higher than any other colored rice genotypes. These results implied that Milyang 152 is best genotype for development of transgenic colored rice having functions to promote our health.

Table 1. Efficiencies of callus induction and plant regeneration in different colored rices.

Varieties	No. of inoculated seed	Callus induction (%)	No. of regenerated callus	Plant regeneration (%)	GUS-activity in Callus
Tohoku149	200	127(63.5)	208	54(26.0)	++
Perurutung	170	123(72.3)	235	5(2.1)	
Heukjinju-byo	170	103(60.6)	205	3(1.5)	++++
Heuknam-byo	190	121(63.7)	218	5(2.4)	
Hansan heukmi	190	38(20.0)	205	23(11.2)	
Jajin	30	15(50.0)	105	23(21.9)	
Heukhyang-byo	190	134(70.5)	205	74(36.1)	++
Milyang 152	200	147(73.5)	205	39(19.0)	++++
Milyang 175	200	143(71.5)	105	23(21.9)	+
Milyang 188	180	103(57.2)	205	70(34.1)	+
Hwayoung-byo	190	117(61.6)	205	79(38.5)	