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Development of Doubled Haploid Population through Anther Culture in Rice (*Oryza sativa* L.)

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Objectives

The production of doubled haploid (DH) lines through anther culture allows the rapid production of homozygous lines, thereby considerably reducing the time to develop genetically fixed lines compared with conventional breeding methods that require at least six or seven generations. We developed 3 population to analysis th QTLs associated with agronomicaly important characteristic.

Materials and Methods

1. Plant materials : 'Samgangbyeo', 'Nakdongbyeo', 'Chungchungbyeo', 'Junambyeo'
2. Methods
   - Anther culture by cold pretreatment method using Chu media.
   - Callus induction: Chu+1 mg/L 2,4-D+0.1 mg/L Zeatin+20 g/L Sorbitol+20 g/L Maltose+5 g/L Gelrite
   - Plant regeneration: Chu+2 mg/L Kinetin+0.2 mg/L IAA+ 30 g/L Sucrose+5 g/L Gelrite

Results and Discussion

We had generated 3 populations of DH lines through anther culture. The efficiency ratio of anther culture showed at the Table 1. Among these population Chungchungbyeo/Nakdongbyeo association's regeneration ability was higher than others. In 2002 years summer, we had investigated agricultural character of Samgangbyeo/Nakdongbyeo and Chungchungbyeo/Nakdongbyeo associations. These population could be used for constructing genetic map of rice.

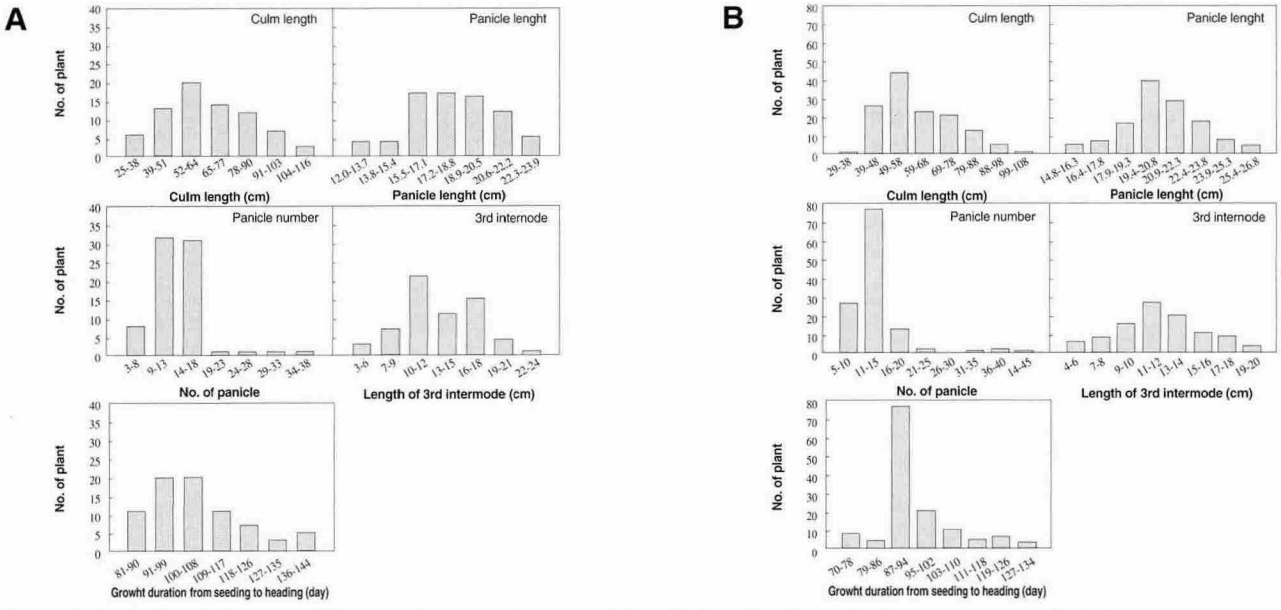

Figure 1. Agricultural character of Samgangbyeo/Nakdongbyeo (A) and Chunghungbyeo/Nakdongbyeo population(B).

Table 1. Plant regeneration ratio of three associations

Cross combination	No. of anther	Callus induced (%)	Albino plants (%)	Green plants (%)
Samgang/Nakdong F_1	25,957	807 (3.10)	136 (0.52)	324 (1.25)
Chungchung/Nakdong F_1	12,300	460 (3.74)	103 (0.84)	301 (2.45)
Junam//Samgang/Nakdong1 F_1	14,164	770 (5.43)	143 (1.01)	458 (3.23)

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