

## A12 RAPD를 이용한 찰벼 품종간 유연관계와 메벼와 찰벼 품종간의 다형성 비교

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### Use of RAPD for the Study of Genetic Diversity within Glutinous Rice Cultivars and Comparison of Polymorphism between Glutinous and Non-glutinous Cultivars

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#### Objectives

Molecular marker based on PCR has been broadly utilized to identify cultivar and to detect genetic diversity in major food crops. The objectives of this work were 1) to search the genetic diversity of Korea- and China-origin seventeen glutinous rice cultivars, 2) to identify these cultivars, and 3) to compare DNA polymorphism between glutinous and non-glutinous cultivars using RAPD.

#### Materials and Methods

- **Experimental plants** : Seventeen glutinous rice cultivars (Korea- and China-origin) and four non-glutinous cultivars.
- **DNA extraction** : Genomic DNA was isolated from young leaves grown in greenhouse using CTAB method.
- **RAPD marker** : Twenty two Operon primers (OPB01~OPB12, OPC01~OPC10) were used to obtain RAPD markers. PCR products were separated in 1.2% agarose gel.
- **Genetic diversity and DNA fragment** : Genetic diversity of 21 rice cultivars used was examined on RAPD marker. DNA fragments produced were compared in glutinous and non-glutinous rice cultivar populations.

#### Results and Discussion

Sixteen primers among twenty two primers used produced reproducible RAPD fragments on the genomic DNA from 21 rice cultivars (Fig. 1). Cultivar identification within seventeen glutinous cultivars was possible based on RAPD markers and more polymorphisms were detected in glutinous cultivars than non-glutinous cultivars. When compared DNA fragments produced between glutinous and non-glutinous cultivars, more genetic diversity within glutinous cultivars was observed. Cluster dendrogram is similar to above result (Fig. 2). Based on these results, RAPD can be widely used in rice genetic study of glutinous rice germplasms.

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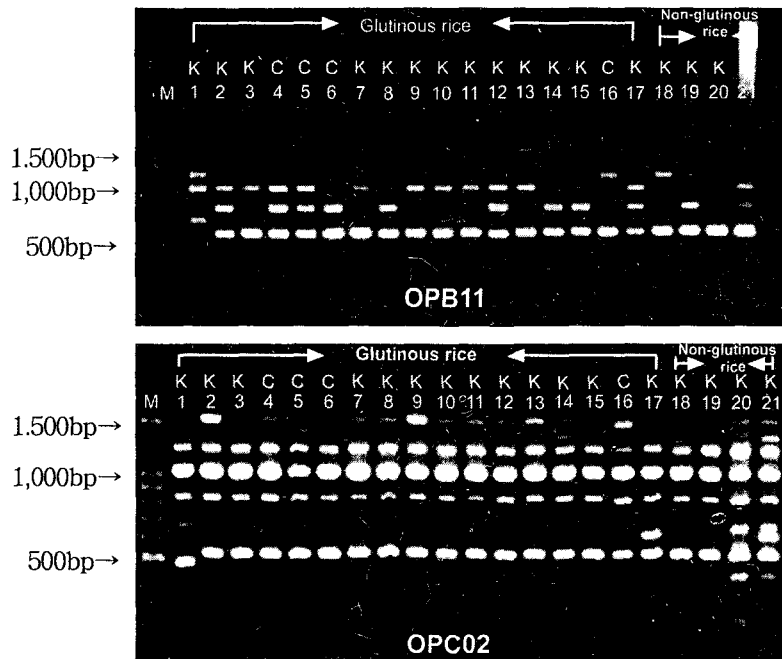


Fig. 1. RAPD patterns obtained with primer OPB11 and OPC02. M is molecular marker, K is Korea-origin and C is China-origin rice cultivar.  
 1,Beongok; 2,Daegoldo; 3,Damyang1; 4,Degukbyeo; 5,Dongsamsung42;  
 6,Dongsamsung51; 7,Hochokjindo; 8,Hwanghaedo; 9,Inbujido; 10,Jeokjo;  
 11,Jindo; 12,Jodo; 13,Josindo; 14,Modo; 15,S5194; 16,Seogsamy;  
 17,Yangdo; 18,Hwayoungbyeo; 19,Dongjinbyeo; 20,Daesanbyeo; 21,Daegubyeo.

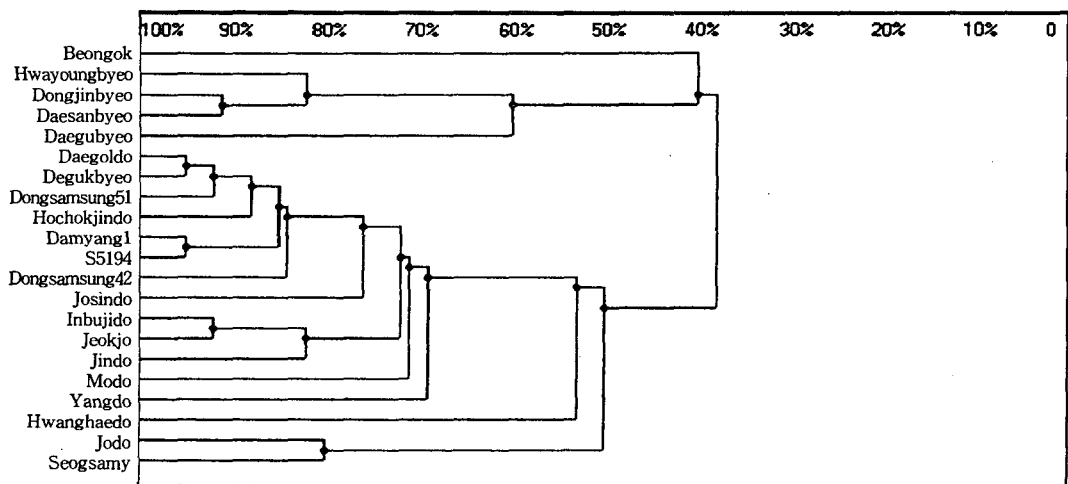


Fig. 2. Cluster dendrogram for 21 rice cultivars by RAPD marker.

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