

A4. SNP Survey on Disease Resistance-related Genes in Soybean.

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Objectives

Fungal pathogens and nematodes are an important issue for agricultural system because significant yield losses have been caused by disease. Using crop germplasms, breeders have developed crop varieties resistant to major plant diseases. This study was performed to identify single nucleotide polymorphism (SNP) on disease resistance-related genes in soybean among six soybean genotypes which were used as parents for RIL mapping populations.

Materials and Methods

Materials- Preunkong, Jinpumkong 2, PI96188, Jinju 1, SS2-2, Jangyupkong

Methods- Primer design with Oligo Lite 6.0 program. PCR

Sequencing using a Big Dye Terminator Cycle Sequencing kit

Real SNP detection with ABI Prism Seqscape 1.1v software

Result and Discussion

A total of 17 sets of primers are designed to survey SNP across parents from Preunkong × Jinpumkong 2, PI96188 × Jinju 1, SS2-2 × Jangyupkong. SNPs and indels are detected with 8 set primers. A total of 66 SNPs and 46 Indels were found spanning 7150bp. These SNP may be used for genetic mapping and marker assisted selection for the development of soybean variety with plant disease resistance.

Table 1. SNPs and Indels number in six soybean genotypes

Gene	Genebank Accession Number	PCR Product size (bp)	Variety	Polymorphism		Total
				SNP	Indels	
Rps1-k	U96748	494	PJ	3	-	3
			PIJ	1	-	1
			SJ	2	-	2
RGA5	U55808	400	PJ	2	-	2
			PIJ	-	-	-
			SJ	-	-	-
RGA8	U55811	312	PJ	3	-	3
			PIJ	-	-	-
			SJ	3	-	3
Rpp1	BM188558	394	PJ	1	-	1
			PIJ	7	-	7
			SJ	9	-	9
Rhg1	AF506517	536	PJ	-	-	-
			PIJ	-	12	12
			SJ	-	-	-
BS2	BM178607	424	PJ	7	3	10
			PIJ	3	-	3
			SJ	16	28	44
RGA2	U55804	386	PJ	2	2	4
			PIJ	4	1	5
			SJ	2	-	2
VR	BI785416	410	PJ	.	.	.
			PIJ	.	.	.
			SJ	2	-	2
Total Frequency		3356		67	46	113

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