OB5. QTLs analysis for agronomic characters in an *Oryza sativa*/*O. rufipogon* BC_1F_6 population

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Objectives

This study was conducted to identify QTLs associated with traits of agronomic importance in a population from an interspecific cross between *Oryza sativa* and *O. rufipogon*.

Materials and Methods

Plant materials - BC_1F_6(120 lines) from a Hwayeongbyeo**2/*O. rufipogon* cross

Trait evaluation - 12 traits including days to heading, grain shedding and spikelets per panicle

Genotyping, QTL analysis and map construction - SSR marker, Mapmaker V3.0, QTL cartographer V2.0

Results and Discussion

1. Twelve traits were evaluated in an BC_1F_6 population and transgressive segregants were detected for most of the traits.
2. The genetic linkage map was developed consisting of 124 SSR markers with an average interval size of 15.0 cM.
3. Association between phenotype and marker genotype was investigated using the composite interval mapping method. The number of QTLs for traits detected at the level of LOD 3.0 ranged from 1 to 7 and no QTL was detected for grain fertility and panicle length.

Table 1. QTLs detected for each trait by composite interval mapping method

Trait	QTL	Chr	Interval	LOD	Trait	QTL	Chr	Interval	LOD
1*	qDTH-1	1	RM246-RM5954	3.6	6	qGL-1	1	RM5954-RM302	4.7
	qDTH-2	2	RM3284-RM5651	13.4		qGL-2	2	RM485-RM110	5.0
	qDTH-3	3	RM545-RM517	10.5		qGL-3-1	3	RM489-RM545	3.9
	qDTH-4	4	RM518-RM3524	5.2		qGL-3-2	3	RM218-RM232	4.0
	qDTH-5-1	5	RM201-RM413	6.6		qGL-5	5	RM507-RM2010	5.9
	qDTH-5-2	5	RM161-RM480	5.8		qGL-6	6	RM465B-RM454	3.9
	qDTH-6	6	RM527-RM465B	6.0	7	qGW-1	1	RM246-RM5954	8.5
2	qCL-1	1	RM472-RM104	7.3		qGW-2	2	RM110-RM279	5.8
	qCL-2	2	RM201-RM205	3.8		qGW-3	3	RM489-RM545	6.2
3	qPN-3	3	RM251-RM554	3.0		qGW-5	5	RM413-RM194	7.2
4	qSH-1-1	1	RM495-RM476	6.8	8	qGT-1	1	RM157B-246	5.4
	qSH-1-2	1	RM265-RM472	6.2		qGT-2	2	RM485-RM110	5.8
	qSH-6	6	RM217-RM5850	3.1		qGT-3-1	3	RM489-RM545	6.5
5	qSPP-1-1	1	RM495-RM476A	3.4		qGT-3-2	3	RM554-RM487	9.5
	qSPP-1-2	1	RM302-RM265	3.7		qGT-5	5	RM194-RM516	4.0
	qSPP-2	2	RM263-RM525	3.1	9	qLW-1	1	RM5954-RM302	4.8
	qSPP-3-1	3	RM489-RM545	3.5		qLW-2	2	RM279-RM6895	4.7
	qSPP-3-2	3	RM3392-RM218	3.0		qLW-5	5	RM413-RM194	3.4
	qSPP-5	5	RM161-RM480	3.2		qLW-8	8	RM5911-RM1235	3.5
	qSPP-6	6	RM527-RM465B	3.1	10	qAL-8	8	RM331-RM531	6.1

*1: Days to heading 2: culm length 3: panicle no. 4: grain shedding 5: spikelets per panicle 6: grain length 7: grain width 8: grain thickness 9: grain L/W ratio 10: awn length

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