

Table 3. List of significant markers, QTLs and candidate genes found in this study

No	QTL name	Chr	Trait	Marker	Position	Start -25 kb	End + 25 kb	<i>p</i>	$-\log(p)$	MSU ID	RAP Locus ID	Orthologous in Arabidopsis	Gene description (http://rice.plantbiology.msu.edu)	PlantTFDB family
1	<i>qREP1.1</i>	1	REP	Sj01_11858181R	11858181	11833181	11883181	1.63E-04	3.789	LOC_Os01g21240.1	Os01g0314700	AT3G46730	MLA6 protein, putative, expressed	
										LOC_Os01g21250.1	Os01g0314800	AT4G02380	late embryogenesis abundant protein, putative, expressed	
2	<i>qRPPUE1.2</i>	1	RPPUE	Dj01_24709143F	24709143	24684143	24734143	2.172E-07	6.663	LOC_Os01g43220.1	Os01g0619800	AT4G01040	chitinase domain-containing protein 1 precursor, putative, expressed	
				Dj01_24709146R	24709146	24684146	24734146	2.172E-07	6.663	LOC_Os01g43250.1	Os01g0620100	AT1G64350	WD domain, G-beta repeat domain containing protein, expressed	
										LOC_Os01g43270.1		AT1G01420	hydroquinone glucosyltransferase, putative, expressed	
3	<i>qRPPUE1.3</i>	1	RPPUE	Sj01_25844707R	25844707	25819707	25869707	1.908E-05	4.719	LOC_Os01g45510.1	Os01g0642600	AT5G23100	DUF617 domain containing protein, expressed	
				Sj01_25852184F	25852184	25827184	25877184	1.908E-05	4.719	LOC_Os01g45520.1	Os01g0642700	AT2G19130	D-mannose binding lectin family protein, expressed	
										Os01g0642801				
										LOC_Os01g45530.1	Os01g0642900	AT3G18580	single-stranded DNA-binding protein, putative, expressed	
						LOC_Os01g45550.1	Os01g0643300	AT2G01420	auxin efflux carrier component, putative, expressed	OsPIN3t				
4	<i>qRRSR1.4</i>	1	RRSR	Sj01_33199299R	33199299	33174299	33224299	1.20E-05	4.921	LOC_Os01g57390.1	Os01g0782901		lysM domain containing protein, putative, expressed	
										LOC_Os01g57400.1	Os01g0783000		lysM domain containing protein, putative	
										LOC_Os01g57410.3	Os01g0783100	AT1G09900	pentatricopeptide repeat domain containing protein, putative, expressed	
										LOC_Os01g57420.1	Os01g0783200	AT2G20900	diacylglycerol kinase, putative, expressed	
										LOC_Os01g57440.1	Os01g0783400	AT1G27410	DNA repair metallo-beta-lactamase, putative, expressed	
										LOC_Os01g57450.1	Os01g0783500	AT1G11360	universal stress protein domain containing protein, putative, expressed	
										LOC_Os01g57460.1	Os01g0783600	AT4G03240	frataxin, putative, expressed	
										LOC_Os01g57470.1	Os01g0783700	AT5G54490	EF hand family protein, putative, expressed	
LOC_Os01g57480.1	Os01g0783800	AT4G27290	serine/threonine-protein kinase receptor precursor, putative, expressed											

										LOC_Os01g57490.1	Os01g0783900	AT4G21390	D-mannose binding lectin family protein, expressed	
5	<i>qRPUpE1.5</i>	1	RPupE	Dj01_38369792F	38369792	38344792	38394792	1.71E-07	6.768	LOC_Os01g66070.1	Os01g0883400	AT1G77250	PHD-finger domain containing protein, putative	
				Dj01_38369795R	38369795	38344795	38394795	1.71E-07	6.768	LOC_Os01g66100.1	Os01g0883800	AT4G25420	gibberellin 20 oxidase 2, putative, expressed	
										LOC_Os01g66110.1	Os01g0883900	AT5G64030	methyltransferase, putative, expressed	
6	<i>qRPUpE1.6</i>	1	RPupE	Sj01_42818140R	42818140	42793140	42843140	2.75E-04	3.560	LOC_Os01g73880.1	Os01g0970400	AT4G18040	eukaryotic translation initiation factor, putative, expressed	
										LOC_Os01g73890.1	Os01g0970500	AT4G24440	transcription initiation factor IIA gamma chain, putative, expressed	
										LOC_Os01g73900.1	Os01g0970600		DEAD-box ATP-dependent RNA helicase, putative, expressed	
										LOC_Os01g73910.1	Os01g0970700	AT3G27110	peptidase, putative, expressed	
										LOC_Os01g73950.1	Os01g0970900	AT3G48250	PPR repeat containing protein, expressed	
7	<i>qRPUpE3.7</i>	3	RPupE	Dj03_33994297R	33994297	33969297	34019297	2.47E-04	3.608	LOC_Os03g59660.1	Os03g0811300	AT2G17380	clathrin adaptor complex small chain domain containing protein, expressed	
				Dj03_34003211F	34003211	33978211	34028211	2.47E-04	3.608	LOC_Os03g59670.1	Os03g0811400	AT2G41130	basic helix-loop-helix, putative, expressed	bHLH
										LOC_Os03g59680.1	Os03g0811500	AT2G47350	PAPA-1-like conserved region family protein, expressed	
										LOC_Os03g59690.1	Os03g0811550	AT4G39610	DUF617 domain containing protein, expressed	
										LOC_Os03g59700.1	Os03g0811600	AT2G38730	peptidyl-prolyl cis-trans isomerase, putative, expressed	
										LOC_Os03g59710.1	Os03g0811700	AT5G12190	RNA recognition motif containing protein, putative, expressed	
										LOC_Os03g59720.1	Os03g0811800	AT5G20180	ribosomal protein L36 containing protein, expressed	
										LOC_Os03g59730.1	Os03g0811850	AT3G04070	No apical meristem protein, putative, expressed	NAC
										LOC_Os03g59740.1	Os03g0811900	AT5G14670	ADP-ribosylation factor, putative, expressed	
				Dj03_34260933R	34260933	34235933	34285933	3.29E-05	4.483	LOC_Os03g60190.1	Os03g0816500	AT3G14160	oxidoreductase, 2OG-Fe oxygenase family protein, putative, expressed	
				Sj03_34263611F	34263611	34238611	34288611	3.29E-05	4.483	LOC_Os03g60200.1	Os03g0816600	AT2G41080	pentatricopeptide, putative, expressed	
										LOC_Os03g60210.1	Os03g0816700	AT5G01750	DUF567 domain containing protein, putative, expressed	
										LOC_Os03g60220.1	Os03g0816800	AT5G01750	DUF567 domain containing protein, putative, expressed	

8	<i>qRPUpE3.8</i>	3	RPUpE							LOC_Os03g60240.1	Os03g0816900	AT2G38440	SCAR-like protein 1, putative, expressed			
														Os03g0817000		
												LOC_Os03g60250.1	Os03g0817100	AT2G38480	membrane associated DUF588 domain containing protein, putative, expressed	
												LOC_Os03g60260.1	Os03g0817200	AT3G11900	ANT1, putative, expressed	
												LOC_Os03g60279.1	Os03g0817400	AT2G33590	cinnamoyl-CoA reductase family, putative, expressed	
9	<i>qRPUpE4.9</i>	4	RPUpE	Sj04_30000756F	30000756	29975756	30025756	3.48E-06	5.458	LOC_Os04g50216.1	Os04g0592600	AT4G17790	SNARE associated Golgi protein, putative, expressed			
				Sj04_30001687R	30001687	29976687	30026687	3.48E-06	5.458	LOC_Os04g50660.1	Os04g0592700	AT5G16750	WD domain, G-beta repeat domain containing protein, expressed			
										LOC_Os04g50680.1	Os04g0593200	AT3G02940	MYB family transcription factor, putative, expressed	MYB		
										LOC_Os04g50700.1	Os04g0593400		pathogenesis-related Bet v I family protein, putative, expressed			
										LOC_Os04g50710.1	Os04g0593500	AT1G24020	pathogenesis-related Bet v I family protein, putative, expressed			
										LOC_Os04g50720.1	Os04g0593600	AT1G32340	ara54-like RING finger protein, putative, expressed			
										LOC_Os04g50730.1	Os04g0593700	AT1G32340	RWD domain containing protein, expressed			
										LOC_Os04g50740.1	Os04g0593800	AT1G32340	ara54-like RING finger protein, putative, expressed			
										LOC_Os04g50760.1	Os04g0594000	AT1G32340	ara54-like RING finger protein, putative, expressed			
10	<i>qRPPUE5.10</i>	5	RPPUE	Dj05_17594815F	17594815	17569815	17619815	9.242E-05	4.034	LOC_Os05g29740.1	Os05g0360900		invertase/pectin methylesterase inhibitor family protein, putative, expressed			
				Sj05_17598635F	17598635	17573635	17623635	9.242E-05	4.034	LOC_Os05g29750.1	Os05g0361000		cytochrome P450 71E1, putative, expressed			
										LOC_Os05g29760.1	Os05g0361200	AT2G30390	ferrochelatase-2, chloroplast precursor, putative, expressed			
11	<i>qRRSR5.11</i>	5	RRSR	Dj05_18415203R	18415203	18390203	18440203	1.81E-04	3.741	LOC_Os05g31610.1	Os05g0380800	AT3G50950	Leucine Rich Repeat family protein, expressed			
											LOC_Os05g31620.1	Os05g0380900	AT1G24620	OscML15 - Calmodulin-related calcium sensor protein, expressed		
											LOC_Os05g31670.1	Os05g0381400	AT1G04560	AWPM-19-like membrane family protein, putative, expressed		
12	<i>qRPPUE5.12</i>	5	RPPUE	Dj05_20855111F	20855111	20830111	20880111	1.685E-05	4.773	LOC_Os05g35110.1	Os05g0425700	AT1G21410	OsFBL22 - F-box domain and LRR containing protein, expressed			
											LOC_Os05g35140.1	Os05g0426000	AT1G21460	nodulin MtN3 family protein, putative, expressed		

										LOC_Os05g35160.1	Os05g0426100	AT1G03050	clathrin assembly protein, putative, expressed		
13	qRPPUE7.13	7	RPPUE	Dj07_20403776R	20403776	20378776	20428776	5.826E-05	4.235	LOC_Os07g34110.1	Os07g0525100	AT5G64700	integral membrane protein DUF6 containing protein, expressed		
											LOC_Os07g34130.1	Os07g0525400	AT5G54780	TBC domain containing protein, expressed	
											LOC_Os07g34140.1	Os07g0525500	AT5G13930	chalcone synthase, putative, expressed	
14	qRPPUE7.14	7	RPPUE	Dj07_25716591R	25716591	25691591	25741591	0.0002934	3.533	LOC_Os07g42910.1	Os07g0621600	AT1G22450	cytochrome c oxidase subunit, putative, expressed		
											LOC_Os07g42924.1	Os07g0621800	AT1G22440	dehydrogenase, putative, expressed	
											LOC_Os07g42940.1	Os07g0622000	AT4G33950	CAMK_CAMK_like.7 - CAMK includes calcium/calmodulin dependent protein	
											LOC_Os07g42950.1	Os07g0622100	AT5G10360	40S ribosomal protein S6, putative, expressed	
											LOC_Os07g42960.1	Os07g0622200	AT1G22410	phospho-2-dehydro-3-deoxyheptonate aldolase, chloroplast precursor, putative,	
											LOC_Os07g42970.1		AT1G22380	UDP-glucuronosyl and UDP-glucosyl transferase domain containing protein,	
15	qRPUPE9.15	9	RPUPE	Sj09_06995517R	6995517	6970517	7020517	2.29E-05	4.640	LOC_Os09g12270.1	Os09g0293900	AT3G12340	peptidyl-prolyl cis-trans isomerase, FKBP-type, putative, expressed		
											LOC_Os09g12290.1	Os09g0294000	AT4G19710	bifunctional aspartokinase/homoserine dehydrogenase, chloroplast precursor,	
											LOC_Os09g12300.1		AT2G17220	serine/threonine-protein kinase NAK, putative, expressed	
											LOC_Os09g12310.1	Os09g0294300	AT3G15355	ubiquitin-conjugating enzyme domain containing protein, expressed	
16	qRPUUE9.16	9	RPUUE	Dj09_10399982F	10399982	10374982	10424982	1.35E-05	4.868	LOC_Os09g16980.1	Os09g0339300	AT1G21240	OsWAK86 - OsWAK pseudogene, expressed		
				Dj09_10404314F	10404314	10379314	10429314	9.96E-05	4.002	LOC_Os09g17000.1	Os09g0339800	AT1G66970	glycerophosphoryl diester phosphodiesterase family protein,		
				Dj09_10404317R	10404317	10379317	10429317	1.35E-05	4.868	LOC_Os09g17010.1		AT3G53380	lectin-like receptor kinase 1, putative, expressed		
				Dj09_10411340R	10411340	10386340	10436340	1.88E-04	3.725	LOC_Os09g17080	Os09g0340800		OsFBX318 - F-box domain containing protein, expressed		
				Dj09_10426324R	10426324	10401324	10451324	3.66E-05	4.436						
				Dj09_10449018R	10449018	10424018	10474018	7.20E-05	4.143	LOC_Os09g17080	Os09g0340800		OsFBX318 - F-box domain containing protein, expressed		
				Dj09_10457183F	10457183	10432183	10482183	1.90E-04	3.721	LOC_Os09g17080	Os09g0340800		OsFBX318 - F-box domain containing protein, expressed		
					21135126	21110126	21160126	1.32E-05	4.880	LOC_Os10g39520.1	Os10g0541000	AT5G65970	MLO domain containing protein, putative, expressed		

17	<i>qREP10.17</i>	10	REP	Dj10_21135126R						LOC_Os10g39540.1	Os10g0541200	AT2G33700	protein phosphatase 2C, putative, expressed		
											LOC_Os10g39550.1	Os10g0541500	AT2G02060	MYB family transcription factor, putative, expressed	G2-like
											LOC_Os10g39560.1	Os10g0541600	AT5G08260	OsSCP47 - Putative Serine Carboxypeptidase homologue, expressed	
18	<i>qRPPUE12.18</i>	12	RPPUE	Sj12_17416280R	17416280	17391280	17441280	6.657E-05	4.177	LOC_Os12g29330.1	Os12g0477400	AT3G04070	no apical meristem protein, putative, expressed		
											LOC_Os12g29350.1	Os12g0477700	AT3G48770	ATP binding protein, putative, expressed	