

Appendix A Primers for fine mapping of mutant gene *GraS*

Gene name	Forward primer	Reverse primer
abl16	TTGGAATTTGGAACAGCA	AGTTGGGGAGAAAAGAGC
abl38	TAGCGAAGGTCCCTCCCA	GCAACCGCAAGGTGATTAA
abl43	AAGGGGTTGCGTACTTGTGT	CGGTCCATTTGAGGATCTA
ID8	TTGTGTCGTGCAAGTAGCCGAGTAG	TTTTAGGATGAGATGTAAACAGTGC
ID4	GCGATGGGTAATTAATAATAAGA	CTTTATGTCATTTAAGTTGTTCTTA
abl239	TAGACTTGGACACCACCTAACAT	GTTATTCTTTGGGGGTGATAGTTC
abl242	CGCAACGTGGACGATGGAGTAGGT	GGATTAGACGGGCTTATGTCGGAAC
abl245	GAATCGGAGGAGGAAGGGTTGGGGA	GCAGTAGGAAGAACGGAGACGGGCT
RM3285	AGAGATGACAGCCGCGTC	GCTCCACACCTCTCGTTTTTC

Table S2 The sequence of primers associated with genes related of Semi-quantitative RT-PCR

Gene name	Forward primer	Reverse primer
<i>Actin</i>	AGGAAGGCTGGAAGAGGACC	CGGAAATTGTGAGGGACAT
<i>LOC-Os01g55940</i>	ACATCATCTCCTCCACCCCATCAC	GTAGTAGCTGGTCAGCACCGGCCTC
<i>LOC-Os01g55950</i>	CAAAAAGTCCCTCTCCATAACCGCT	GGCAGTATATCCCCATTCGTCACCG
<i>LOC-Os01g55960</i>	ACGAGTACGTGCAGAAGCAGGGATG	TCATCTGGCTGGACACCATCATTCT
<i>GraS</i>	TAATCTTGTTATCTTCTTTGC	ACGGATTACAAGTTTACAACAAGAC

Table S3 The sequence of primers associated with chlorophyll biosynthesis , chloroplast development, photosynthesis, transcription/translation in chloroplast and *GraS* gene

Gene name	Forward primer	Reverse primer
<i>GraS</i>	TAATCTTGTTATCTTCTTTGC	ACGGATTACAAGTTTACAACAAGAC
<i>Ubiquitin</i>	GCTCCGTGGCGGTATCAT	CGGCAGTTGACAGCCCTAG
HEMA1	CGCTATTTCTGATGCTATGGGT	TCTTGGGTGATGATTGTTTGG
PORA	TGTACTGGAGCTGGAACAACAA	GAGCACAGCAAAATCCTAGACG
CAO1	GATCCATACCCGATCGACAT	CGAGAGACATCCGGTAGAGC
cab1	AGATGGGTTTAGTGCACGAG	TTTGGGATCGAGGGAGTATTT
cab2	TGTTCTCCATGTTGCGCTTCT	GCTACGGTCCCCACTTCACT
psaA	GCGAGCAAATAAACACCTTTTC	GTACCAGCTTAACGTGGGGAG
psbA	CCCTCATTAGCAGATTCGTTTT	ATGATTGTATTCCAGGCAGAGC

rbcL	CTTGGCAGCATTCCGAGTAA	ACAACGGGCTCGATGTGATA
rbcS	TCCGCTGAGTTTTGGCTATTT	GGACTTGAGCCCTGGAAGG
YGL1	AACCTTACCGTCCTATTCCTT	CCATACATCTAACAGAGCACCC
rpoA	GTGGAAGTGTGTTGAATCAA	TCTCTTTGATCCGTA ACTC
rpoB	TTTGGTTTCGATGTGCA	TATGGTCTAATTCCGAGCGGT
rpoTP	AAGCAGACAGTGATGACATC	ATCACATGCATGCACCCAAA
rps12	AGCCGTTTGCTACCAATGG	TGATCGGTACCAATGAATAGG
OsPOLP	ACCGGTGCTTTCAGGCTTGG	GCTGACTGATAATCACACG
V2	TGTCTATGGGGAGTATAAGGGGA	AATCTCTCTCAAGGTTGCTGCTC
RNRS	GCCAAAATCCATTCCAATTC	GGAGATGTACACGAGGAGATTG
V1	TGGAGGTCGGGACAGAGGA	CGAGGAGCACCACCATCAC
SPP	CGGAGAGGAAACATAATGAC	ATAGGCATTTGTCTTTGTCTC
OsPPR	CTAAGACCGAATGACAAATGC	GCACTGCCAACAAGAATACC
