

Table S1: List of oligonucleotides used for the expression analysis of target genes

S.No	Locus	Forward primer (5'-3')	Reverse primer (5'-3')
1	Os06g4627 0	GAGCCATGGGACCTTCCT	TTGGGCGATCTTTTCCTG
2	Os01g6572 0	CCGTTGGATTACAGTTTTGGA	GCCATTTCTGTGCCAATA
3	Os03g0994 0	AGGGTGCAATCTGTTGTCCT	GCAATGGCCATCTGTATGC
4	Os05g4839 0	GGAGCACACTACTGATGATTT GG	GTCTCCAGCAGATTCTTCCA G
5	Os09g2152 0	GAGGCCTTCGCTTGTTCA	CCATGTGTTTTGCCACTCC
6	Os07g3829 0	TACGAGGTGGGCGACAAG	CCGAGTTTAGTTCCCAAACG
7	Os12g0876 0	GTCTCCGGCTCCTTCCTC	AGCATTGCCACCACCAGT
8	Os03g0201 0	TCCCAATGGAATGAATGTCTT	CCCCAGTCTGTGGAGAGCTA
9	Os05g0721 0	TGGGGATGTCTCAGGATGTC	CGTTGCAATCCCAAACCT
10	Os11g0895 0	GCCAACAAAGTGGAGAGGAT	TTGAGGTGTTGGTCTGATGC
11	Os02g1887 0	ATCCCCGTCGACTACATCG	TTCAAGGTATGGAGGCACAA
12	Os05g1866	AGCTACCCATGGTTGTCAGC	TATTTTCATTGCCAGTGAGC

0

AG

Table S2: List of differentially expressed miRNAs in HARG and LARG rice cultivars in AsIII and AsV stress

As III 25 μM treatment			
miRNA	HARG	LARG	
miR156	Down	-	
miR156k	-	Down	
miR159c,d,e	Up	Down	
miR159f	-	Down	
miR160e	Down	Down	
miR160b,f	-	Down	
miR162a	Up	-	
miR162b	Down	Down	
miR164	Up	-	
miR164a,b,c,d,e,f	Down	Down	
miR166i	Up	-	
miR166a,b,c,d,e,f,g,h,k,l,n	Down	Down	
miR167a	Down	-	
miR167g,h	-	Down	
miR168a	-	Down	
miR168b	Down	Down	
miR169a,b,f,p	-	Down	
miR169d	Down	Down	
miR171a,b,d	Down	-	
miR171c,e,f,g,h	-	Down	
miR172a	Down	-	
miR172d	-	Down	
miR319a,b	Down	Down	
miR390	Down	Down	
miR393, b-3p	Down	Down	
miR395a,e,g,k,l,m,n,q,r,s	-	Down	
miR395b,d,h,I,j,p	Down	-	
miR396d,e	Up	Down	
miR396e-3p,g,h,i	Down	-	

miR397a	Up	Down
miR397b	-	Down
miR408	Up	-
miR414	Up	Down
miR444b.1,b.2,c.1,c.2,d.3,f	Down	Down
miR528	Up	Down
miR529a	Up	-
miR529b	Down	Down
miR535	-	-
miR806a,b,c,d,e,f,g,h	Down	Down
miR810	-	Down
miR812a,e,g	Down	-
miR812b,c,d,f,h,I,j	-	Down
miR815a,b,c	-	Down
miR820a,b,c	Down	Down
miR1318	Down	Down
miR1320	Up	Down
miR1423-5p.2, b	Down	Down
miR1427	-	Down
miR1432	Down	Down
miR1433	Up	Down
miR1436	Down	Down
miR1440	Up	Down
miR1846a-5p	Up	Up
miR1846e	Down	Down
miR1850	-	Down
miR1857-3p	Down	Down
miR1858a	Up	-
miR1858b	-	Down
miR1860	-	Down
miR1861a,b,d,e,f,h,I,j,k,l,m	-	Down
miR1862d	Up	-
miR1862a,b,c	Down	Down

miR1862d,e	-	Down
miR1863	Down	-
miR1863c	-	Down
miR1867	Down	Down
miR1868	Down	Down
miR1870	Down	Down
miR1871	Down	Down
miR1873	Up	Down
miR1874	-	Down
miR1876	Down	Down
miR1879	-	Down
miR2055	-	Down
miR2091-5p	Up	Down
miR2096	-	Down
miR2097a,d	-	Down
miR2102-5p	Up	Down
miR2104	-	Down
miR2121a,b	Down	Down
miR2123a,b,c	Down	Down
miR2862	-	Down
miR2870	Down	-
miR2877	-	Down
miR2906	-	Down
miR2907a,d	Up	Up
miR2907b,c	-	Down

As(V) 50 μ M treatment

miRNA	HARG	LARG
miR166a,b,e,k,l	Down	Down
miR168b	-	Up
miR169d	-	Up
miR169n,o	Up	-
miR169p	-	Down
miR171a	-	Up

miR171g	Down	Up
miR171h	-	Down
miR172a,b,d	Up	Up
miR390	Down	-
miR393	Up	Down
miR395a,e,h,m,p,q,s	-	Down
miR395b,d,g,I,j,k,n	Down	Down
miR396a,d,e,g	Up	Up
miR396h,i	-	Up
miR397a,b	Up	Up
miR408	Up	Up
miR414	-	Down
miR444a.2,d.2,d.3,e,f	Up	Up
miR528	Up	Down
miR529b	Down	Down
miR531a,b	-	Up
miR810b.1	Up	Down
miR812a,b,c,d,e	Up	-
miR820a,b,c	Down	-
miR1318	-	-
miR1320	Up	Up
miR1423	Up	-
miR1425	Up	-
miR1427	Up	Up
miR1432	Down	-
miR1433	-	Down
miR1440	-	Down
miR1846a-5p,b-5p,c-5p,d-3p,d-5p	Up	Up
miR1857-3p	Up	-
miR1861a,b,f,h,I,j,l	Down	Down
miR1862c,e	Up	-
miR1863	-	Up
miR1863c	Up	Down

miR1870	-	-
miR1873	-	Down
miR1875	-	Up
miR1879	-	Up
miR1883a	Up	Up
miR1884b	Up	-
miR2091	-	Down
miR2096-3p	Up	-
miR2102-3p	Up	Up
miR2102-5p	Down	Up
miR2106	-	-
miR2121a,b	-	Down
miR2870	Up	-
miR2906a,b	Up	-
miR2907a,b,c,d	Up	Up

miRNAs with fold change over ± 1 and P-value < 0.05 .

Table S3: Identified common motifs in the upstream regions of As-stress induced miRNAs

Common motifs	Description	Number of motifs
Skn-1_motif	Required for endosperm expression	85
MBS	MYB binding site involved in drought-inducibility	74
CGTCA-motif	MeJA-responsiveness	71
TGACG-motif	MeJA-responsiveness	71
ARE	Anaerobic induction	63
ABRE	Abscisic acid responsiveness	54
TCA-element	Salicylic acid responsiveness	49
GARE-motif	Gibberellin-responsive	48
CCAAT-box	MYB binding site	36
TC-rich repeat	Defense and stress responsiveness	39
HSE	Heat stress responsiveness	37
GC-motif	Anoxic specific inducibility	32
P-box	Gibberellin-responsive	32
TATC	Gibberellin-responsive	32
Box-W1	Fungal elicitor responsive	24
LTR	Low-temperature responsive	24
ERE	Ethylene-responsive	15
EIRE	Elicitor-responsive	11
motif IIb	Abscisic acid responsiveness	9
CE3	ABA and VP1 responsiveness	7

Table S4: Metal-responsive elements in As-responsive miRNAs promoters

MRE in osa-miRNA	site
osa-miR164a (-)	-189, -1880
osa-miR171c (-)	-761
osa-miR171d (+)	-1932
osa-miR395t (-)	-620
osa-miR396a (+)	-1262
osa-miR399b (-)	-1359
osa-miR399f (-)	-1505
osa-miR399h (+)	-714
osa-miR528 (+)	-951, -1644
osa-miR1846c (+)	-1129, -1172
osa-miR1846d (+)	-579, -1411
osa-miR1861i (+)	-1046, -1666
osa-miR1861j (-)	-865
osa-miR1861k (-)	-649, -1986
osa-miR1861n (-)	-324
osa-miR2102 (+)	-1904