

Table S1. Primers for SSR.

gene name	primer	Tm (°C)
sMg00217-1F	GGTGGAATTAGTTGCTCAGAAG	56.26
sMg00217-1R	CGCAGATGTTTCATAATCGAG	53.90
sMg00191-1F	AGGAGGAGGATTTCGACTAGGT	57.80
sMg00191-1R	ATACCTCATTAGCCCCCACTA	55.85
sEg00193-1F	TGCCGTTGGTTTAAGACTCC	55.40
sEg00193-1R	GCGATGAGGAAGATGGTGAT	55.40
sMg00120-1F	CATCAATGCGAGAAATCAGG	53.35
sMg00120-1R	GATCATGCTTATCCTTTCCAAGT	54.86
sEg00151-1F	ATCACAACAGCAGCAGCATC	55.40
sEg00151-1R	CGCATCAAGAAACATGGAGA	53.35
sPSc00072-1F	GTGCTATCCTCATGCAGCAA	55.40
sPSc00072-1R	CATCACATGCTGCGATCTCT	55.40
sMg00174-1F	GCTATCAAAGACCACCTGCT	55.40
sMg00174-1R	CAAACCTCTCTCCTAACGCCTAC	58.13
sEg00106-1F	ACCAACACCATCTCTCCGAC	57.45
sEg00106-1R	GCTCTCCCCGTGAAACAATA	55.40

Table S2. Primers for qPCR

gene name	primer	Tm (°C)
ABF2-1F	TGAGGGCTGGAGTGGTTAGA	57.45
ABF2-1R	TCTGAGAGAACCCCAGAGCA	57.45
DREB2A-1F	GATGAAGCTGCGAGGGCTAT	57.45
DREB2A-1R	GCTGTGACGTGGTTGTTGTC	57.45
SOD1-1F	AAAGGCTGTTGCCGTTCTTG	55.40
SOD1-1R	CGGTTTGAGGCCAGAGATGT	57.45
CAT2-1F	GCAGAGAGGTTCCCCATTCC	59.50
CAT2-1R	CGGAGTTCATGGCTGACCTT	57.45
PER52-1F	TGCCCCGAACCTTGAGAGAAC	57.45
PER52-1R	TTCTCACCAGTGAACGTCGG	57.45
RBOHB-1F	GGATGCAGATGGCCGGATAA	57.45
RBOHB-1R	GTGTATTCATCGGCGCGTTC	57.45
PA03-1F	CACACTGGGGAACGGATGAA	57.45
PA03-1R	CCCAGTTGAGAAGGCACCAT	57.45
WRKY6-1F	ACGGTGGATGAAGGGTTGTC	57.45
WRKY6-1R	TGGTCACCTGGTTCAGCATC	57.45
MYBS3-1F	GCACGGGTCTCCTCCTAATG	59.50
MYBS3-1R	CCGCTGGCATTGGTGTATTG	57.45

Table S3. Statistics of repeated experiments for cryopreservation of zygotic embryos

Experiments	Number of samples	Number of survival	Number of germination
LN 1	33	32	32
LN 2	27	27	26
LN 3	24	23	22
LN 4	26	24	21
LN 5	12	12	11
LN 6	122	118	115
LN 7	86	83	78
LN 8	168	166	163
Total	498	485	468
Rate	100%	97.39%	93.98%

Table S4. Statistics of repeated experiments for the optimized treatment on embryogenic callus.

Experiments	Number of samples	Number of viable	Viability rate (%)
1	15	10	66.67
2	18	11	61.11
3	22	16	72.73
4	18	12	66.67
5	16	10	62.50
6	26	16	61.54
Total/Average	115	75	65.20±4.44

Note: These repeated experiments were based on the optimized treatment (pre-culture in liquid MS medium with 0.3 M sucrose for 12 h and PVS2 treatment for 5 min) prior to cryopreservation