SUPPLEMENTARY MATERIALS

Sl no.	Germplasm	Parentage	Specification
1	Sahabhagidhan	IR 55419-4*2/WAY RAREM [www.rkbodisha.in]	Drought tolerant
2	DRR44	IR 71700-247-1-1-2/IR 03 L120 [www.rkbodisha.in 39]	Drought tolerant
3	DRR42	Aday Sel/*3 IR 64 [www.rkbodisha.in 39]	Drought tolerant
4	Vandana	C22/Kalakeri	Drought tolerant
5	Nagina 22	Selection from landrace Rajbhog [Stephen et al., 2022]	Drought tolerant
6	Swarna	Vasista/Mahsuri [http://riceportal.in]	Drought susceptible
7	Lalat	Obs 677/IR2071//Bikram/W 1263 [Panda et al., 1987]	High Yielding Variety
8	Kerala Sundari	Unknown	Landrace
9	Bhuri	Unknown	Landrace
10	Maniksal	Unknown	Landrace
11	Chhotodidi	Unknown	Landrace
12	Lohasal	Unknown	Landrace
13	Aswinsal	Unknown	Landrace
14	Morogjhota	Unknown	Landrace
15	Sonagori	Unknown	Landrace
16	Tulsikamal	Unknown	Landrace
17	Bhundi	Unknown	Landrace
18	Bhadoi	Unknown	Landrace
19	Kelesh	Unknown	Landrace
20	Vasamanik-i	Unknown	Landrace
21	Velchi-i	Unknown	Landrace
22	Langalmathi	Unknown	Landrace
23	Bhramarmali	Unknown	Landrace
24	Chandrakanti	Unknown	Landrace
25	Kalpana	Unknown	Landrace
26	Neta	Unknown	Landrace
27	Lakkansal	Unknown	Landrace
28	Vutmuri	Unknown	Landrace
29	Kashiphool	Unknown	Landrace

Supplementary Table 1 List of germplasms

SOIL MOISTURE %	5 cm depth (%)	30 cm depth (%)
Control	48.92	58.11
Treated	2.31	13.29

Supplementary Table 2 Soil Moisture Content in control and treated plot at 5 and 30 cm depth.

Source	df	SL (cm)	RL (cm)	SVI	RFW (g)	RDW (g)	LR	LD	SP (%)	DF (days)	DM (days)	100 SW (g)	PRO	RWC	CHL	TCC	SY/P (g)
Germplasm	29	3.40*	5.47**	5.41**	43.73**	171.4**	3.71**	15.77**	103.32**	728.09**	2114.91**	1071.37**	1663.87**	74.56**	10.12*	25.76**	67.45**
Replication	2	0.09 NS	1.87 NS	0.95 NS	1.44 NS	2.00 NS	0.36 NS	0.23 NS	0.03 NS	1.74 NS	2.73 NS	0.38 NS	2.06 NS	1.38 NS	0.92 NS	1.43 NS	1.27 NS

Supplementary Table 3 Analysis of Variance (ANOVA) for agro-morphological characters under drought condition

		SL (cm)	RL (cm)	SVI	RFW (g)	RDW (g)	LR	LD	SP (%)	DF (days)	DM (days)	100 SW (g)	PRO	RWC	CHL	TCC	SY/P (g)
Mean		44.33	29.72	7064.71	0.432	0.117	6.16	4.72	65.01	79.70	104.05	2.05	165.38	95.60	80.48	82.96	16.38
SD		12.13	9.74	1624.04	0.276	0.122	1.86	2.56	32.42	40.34	50.35	1.03	61.58	32.53	3.69	2.09	8.23
Range	Max	60.45	51.50	9277.80	1.03	0.46	9.00	8.33	89.47	142	168	3.76	258.53	84.69	5.28	8.89	24.58
	Min	15.17	16.00	3660.00	0.03	0.00	3.00	1.00	0.00	0.00	0.00	0.00	54.87	69.43	1.31	4.06	0.00
CD (5%)		14.87	10.06	1692.85	0.12	0.03	1.62	1.66	8.54	4.25	3.12	0.09	12.09	9.54	2.12	1.64	2.81
CV		20.75	20.94	14.82	16.66	13.99	13.91	22.13	8.14	3.30	1.85	2.71	11.26	8.39	1.04	14.63	10.62

Note: *significant at 5% level, ** significant at 1% level, NS Not significant

Supplementary Table 4 Mean, SD, Range, CD and CV value of all the parameters

Rank 1	Morogjhota (24.58 g) DRR 44 (24.56 g) [Check] Vandana (24.00 g) [Check] DRR 42 (22.81 g) [Check] Sahabhagidhan (22.21 g) [Check] Lakkansal (21.916 g)
Rank 2	Tulsikamal (21.72 g) Kelesh (21.56 g) Bhundi (21.51 g) Velchi (21.00 g) Vutmuri (21.00 g) Nagina 22 (20.55 g) [Check] Chhotodidi (20.08 g) Maniksal (20.02 g) Sonagori (19.99 g) Aswinsal (19.92 g)

Supplementary Table 5 Rank of germplasms based on the CD value of Seed yield/plant under drought stress

Sl no.	Germplasm	Seed yield/plant in treated plot		Seed yield/plant in control plot		P-value	Actual difference b/w treated and control plots (g)
		Mean (g)	SD	Mean(g)	SD		
1	Sahabhagidhan	22.211	2.31	25.9116	2.0002	0.1039^{NS}	3.7006
2	DRR 44	24.561	2.87	27.6111	1.991	0.2050 ^{NS}	3.0501
3	Lalat	18.051	0.45	22.0454	0.911	0.0024**	3.9944
4	DRR 42	22.8101	1.99	26.676	1.007	0.0399*	3.8659
5	Nagina 22	20.555	2.91	22.256	2.01	0.4517 ^{NS}	1.701
6	Kerala Sundari	14.118	1.01	20.395	1	0.0016***	6.277
7	Vandana	24.0014	2.66	26.433	2.822	0.3385 ^{NS}	2.4316
8	Bhuri	0	0	19.541	0.671	0.0001***	19.541
9	Maniksal	20.017	2	21.016	2.55	0.6217 ^{NS}	0.999
10	Chhotodidi	20.0811	2.501	20.836	0.87	0.6473 ^{NS}	0.7549
11	Lohasal	15.0289	1.22	19.076	1.67	0.0275*	4.0471
12	Aswinsal	19.922	2.03	20.0455	1.87	0.9419 ^{NS}	0.1235
13	Morogjhota	24.58	2.002	25.1212	2.09	0.7622 ^{NS}	0.5412
14	Sonagori	19.992	2.09	20.287	2.23	0.8753 ^{NS}	0.295
15	Tulsikamal	21.724	2.012	22.4091	2.11	0.7048 ^{NS}	0.6851
16	Bhundi	21.51	2.41	23.3201	2.3	0.3999 ^{NS}	1.8101
17	Bhadoi	14.0023	1.001	18.0049	0.71	0.0048**	4.0026
18	Kelesh	21.5611	1.66	22.812	0.14	0.2633 ^{NS}	1.2509
19	Vasamanik	0	0	28.0018	0.76	0.0001***	28.0018
20	Velchi	21.002	1.088	21.9934	2.099	0.5079 ^{NS}	0.9914
21	Langalmathi	0	0	26.0033	0.87	0.0001***	26.0033
22	Bhramarmali	18.9223	0.05	23.813	0.99	0.0010***	4.8907
23	Chandrakanti	18.343	0.91	24.705	0.34	0.0003***	6.362
24	Kalpana	0	0	26.5502	1.12	0.0001***	26.5502
25	Neta	18.996	2.088	19.9925	2	0.5827 ^{NS}	0.9965
26	Lakkansal	21.916	2.021	22.0002	2.01	0.9616 ^{NS}	0.0842
27	Vutmuri	21.0011	2.234	21.2187	0.56	0.8779 ^{NS}	0.2176
28	Kashiphool	0	0	20.0818	0.78	0.0001***	20.0818
29	Swarna	10.12	1.00	20.93	2.99	0.0040**	10.81

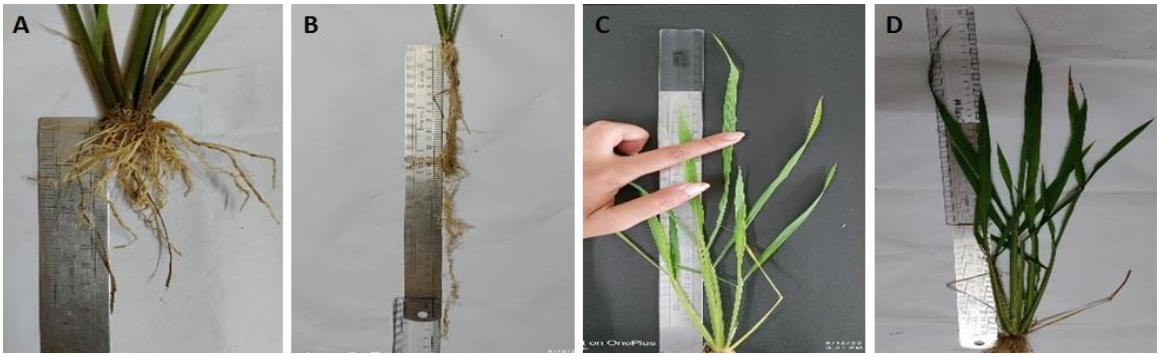
Note: *significant at 5% level, ** significant at 1% level, ***significant at 0.1% level of significance, NS Not significant

Supplementary Table 6 T test between the means of seed yield/plant in stressed and control condition along with the actual difference in seed yield/plant in both the condition

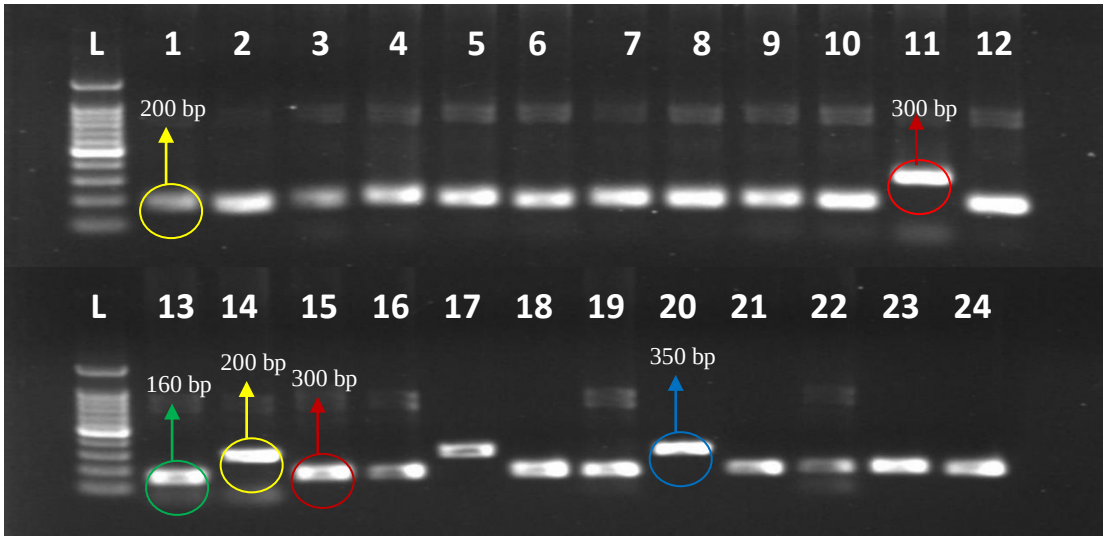
Sl no.	Primer	QTL/Chr no	Forward sequence	Reverse sequence	References
1	RM279	*qDTY*$_{2.2}$	GCGGGAGAGGGATCTCCT	GGCTAGGAGTTAACCTCGCG	Mishra et al., 2018; Roy et al., 2021
2	RM555	*qDTY*$_{2.2}$	TTGGATCAGCCAAAGGAGAC	CAGCATTGTGGCATGGATAC	Mishra et al., 2018; Roy et al., 2021
3	RM263	*qDTY*$_{2.2}$ *qDTY*$_{2.3}$	CCCAGGCTAGCTCATGAACC	GCTACGTTTGAGCTACCACG	Panda et al., 2019; Roy et al., 2021
4	RM431	*qDTY*$_{1.1}$	TCCTGCGAACTGAAGAGTTG	AGAGCAAAACCCTGGTTCAC	Mishra et al., 2018; Roy et al., 2021
5	RM324	*qDTY*$_{2.1}$	CTGATTCCACACACTTGTGC	GATTCCACGTCAGGATCTTC	Mishra et al., 2018
6	RM3549	*qDTY*$_{2.1}$	GATCCTCCACACCCAACAAC	GATTCCACGTCAGGATCTTC	Mishra et al., 2018
7	RM250	*qDTY*$_{2.3}$	GGTTCAAACCAAGCTGATCA	GATGAAGGCCTTCCACGCAG	Roy et al., 2021
8	RM3212	*qDTY*$_{2.3}$	AGACGACAAACACCTGCCTC	CAAACACAAACGCAGCCTC	Roy et al., 2021
9	RM416	*qDTY*$_{3.1}$	GGGAGTTAGGGTTTTGGAGC	TCCAGTTTCACACTGCTTCG	Mishra et al., 2018; Roy et al., 2021
10	RM16030	*qDTY*$_{3.1}$	GCGAACTATGAGCATGCCAACC	GGATTACCTGGTGTGTGCAGTGTCC	Mishra et al., 2018
11	RM19367	*qDTY*$_{6.1}$	CGTCATGTCGCGGAGGTAAGC	AGGCGTACGTGGAGCAGAGTGC	Mishra et al., 2018
12	RM3805	*qDTY*$_{6.1}$	AGAGGAAGAAGCCAAGGAGG	CATCAACGTACCAACCATGG	Mishra et al., 2018
13	RM589	*qDTY*$_{6.1}$	ATCATGGTCGGTGGCTTAAC	CAGGTTCCAACCAGACACTG	Roy et al., 2021
14	RM204	*qDTY*$_{6.1}$	GTGACTGACTTGGTCATAGGG	GCTAGCCATGCTCTCGTACC	Roy et al., 2021
15	RM28166	*qDTY*$_{12.1}$	TGCTTGCAAACATTGCTTCTGG	ACTGATGTACTGAACACGGGAAGG	Mishra et al., 2018; Roy et al., 2021
16	RM28052	*12*	ACTAAAGATCTTCGAGCTGACC	GCTACATGGAGTATGGGTTCC	Panda et al., 2019
17	RM28048	*qDTY*$_{12.1}$	TTCAGCCGATCCATTCAATTCC	GCTATTGGCCGGAAAGTAGTTAGC	Panda et al., 2019; Roy et al., 2021
18	RM28199	*qDTY*$_{12.1}$	CGGCTTAGGGAGCGTCTGTAGG	GCATGCTAGTATGGCCACCATATTCC	Panda et al., 2019; Roy et al., 2021
19	RM28076	*12*	GGGACTTGGGACCAGTTTATGG	TCAGGTCTGTTGGATTCCATGC	Panda et al., 2019
20	RM1261	*12*	GTCCATGCCCAAGACACAAC	GTTACATCATGGGTGACCCC	Panda et al., 2019

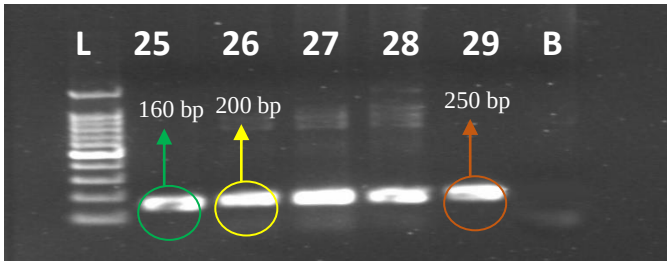
Supplementary Table 7 List of Primers

Supplementary Fig. 1 Collection of roots: A. The whole plastic pot was dipped into water, B. Carefully the soil adhered to the roots was loosened, C. Roots were immediately dried with tissue paper and collected

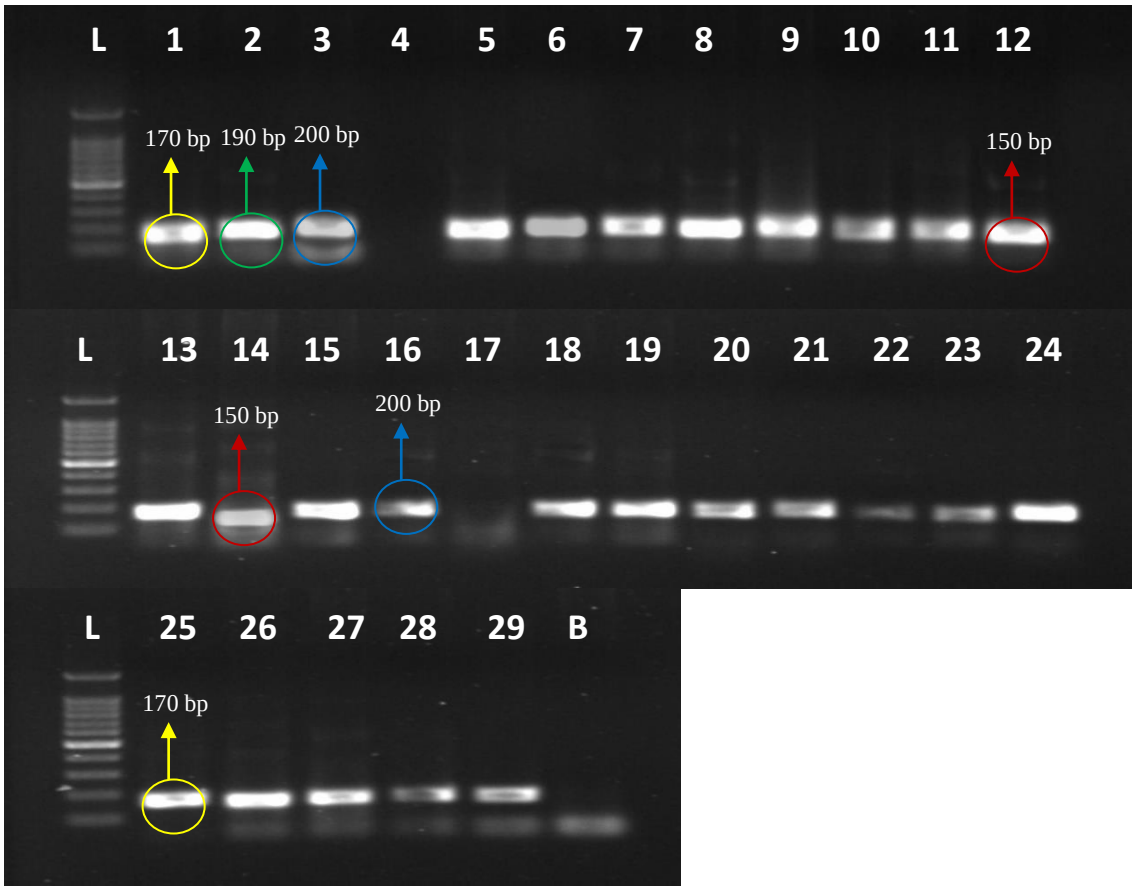


Supplementary Fig. 2 RL and SL: Root Length of Maniksal A. under control and B. under stress. Shoot Length of Vutmuri C.under stress and D. under control

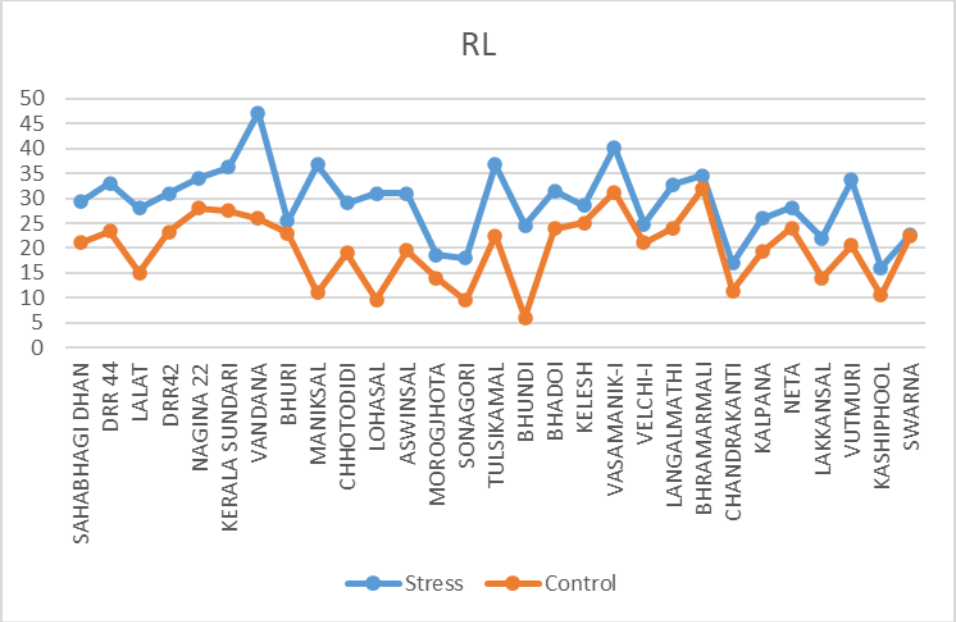




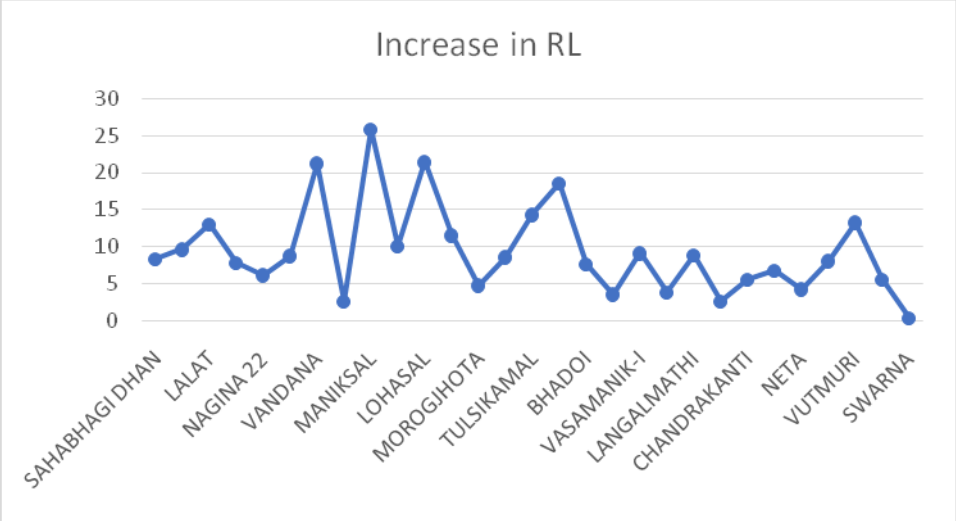
Supplementary Fig. 3 Gel electrophoresis study of PCR amplified fragments of SSR marker RM 1261: Polymorphism between 29 genotypes (PIC 0.844) where L= 100 bp ladder, B= Blank and 1-29= germplasms. The positive check varieties showed alleles of 200-250 bp. Whereas the susceptible checks showed an amplicon length of 300-350 bp. Other allelic variations from 150-190 bp and 250-300 bp were also observed.



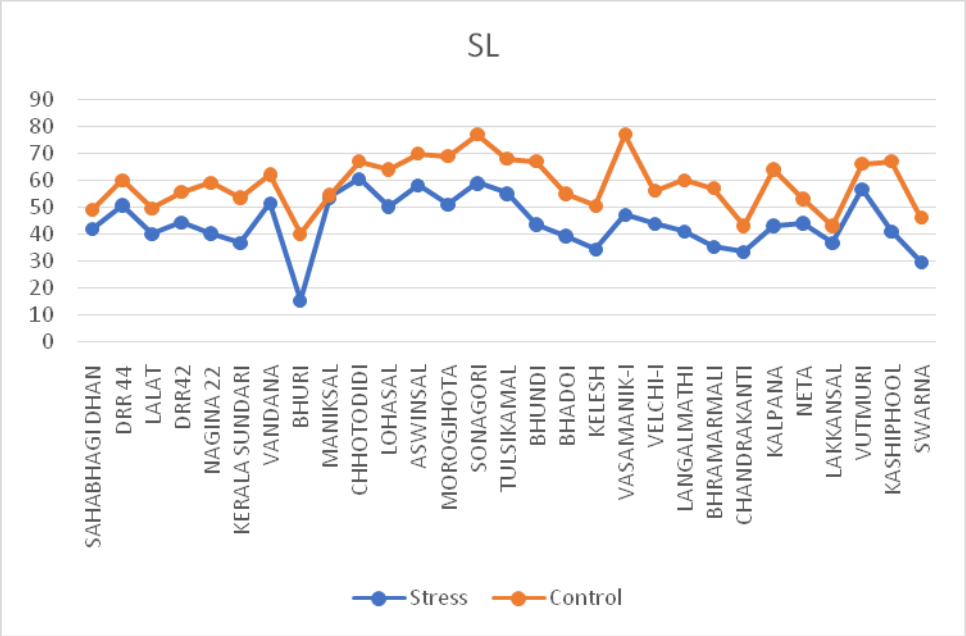
Supplementary Fig. 4 Gel electrophoresis study of PCR amplified fragments of SSR marker RM 28199: Polymorphism between 29 genotypes (PIC 0.823) where L= 100 bp ladder, B= Blank and 1-29= germplasms. The positive check varieties showed alleles of 170-200 bp. Whereas the susceptible checks showed an amplicon length of 150 or 200 bp.



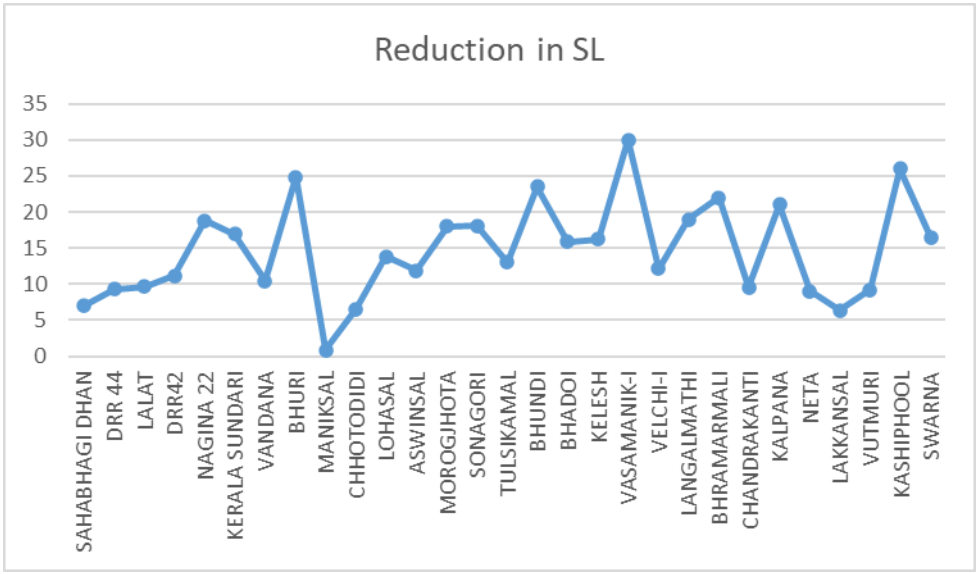
Supplementary Fig. 5 Root length (RL) under stress and control for 29 germplasms



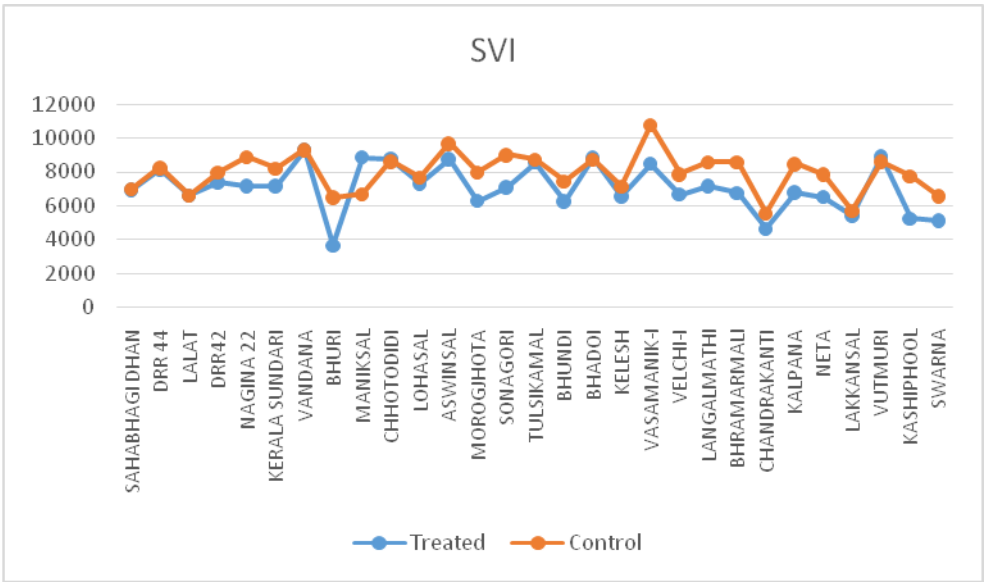
Supplementary Fig. 6 Increase in root length under stress for 29 germplasms



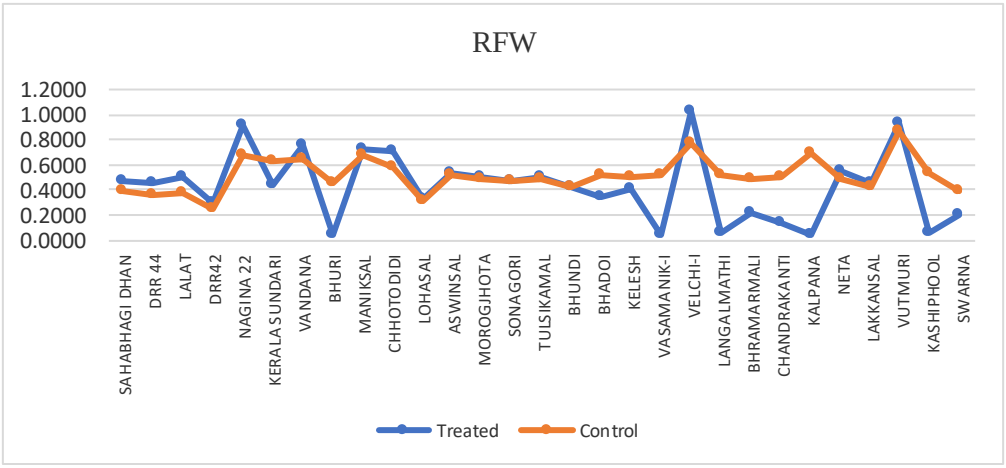
Supplementary Fig. 7 Shoot length (SL) under stress and control for 29 germplasms



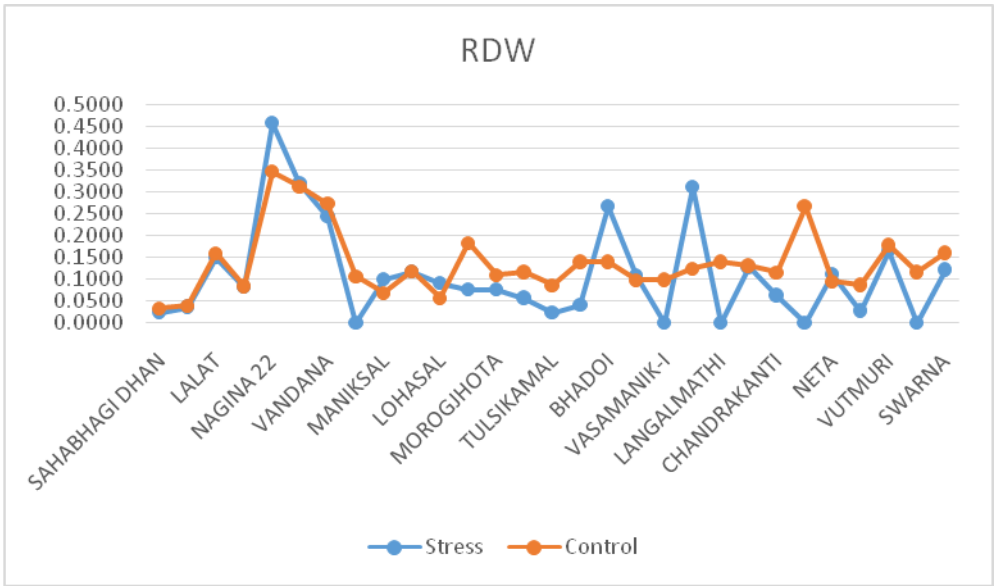
Supplementary Fig. 8 Decrease in shoot length under stress for 29 germplasms



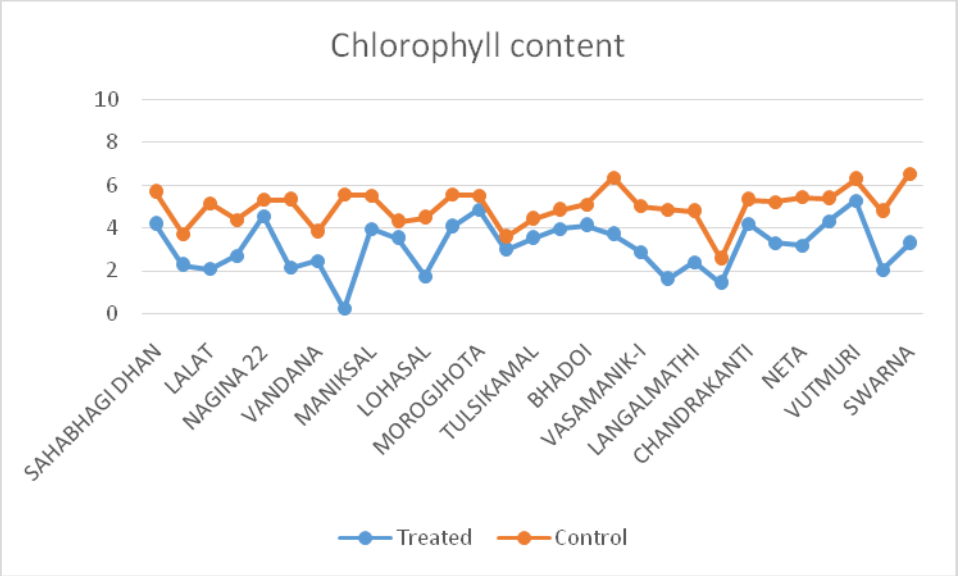
Supplementary Fig. 9 Seedling Vigour Index under stress and control for 29 germplasms



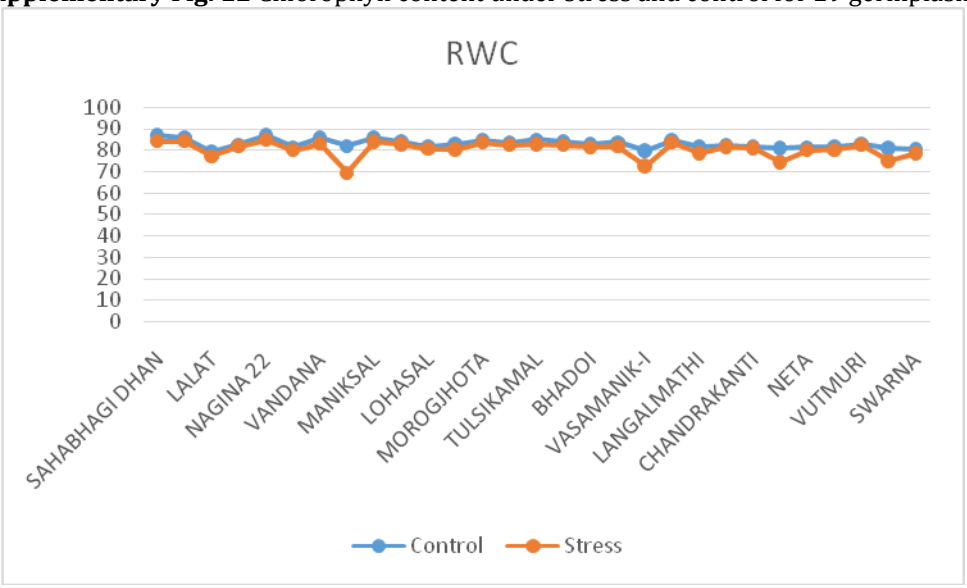
Supplementary Fig. 10 Root fresh weight under stress and control for 29 germplasms



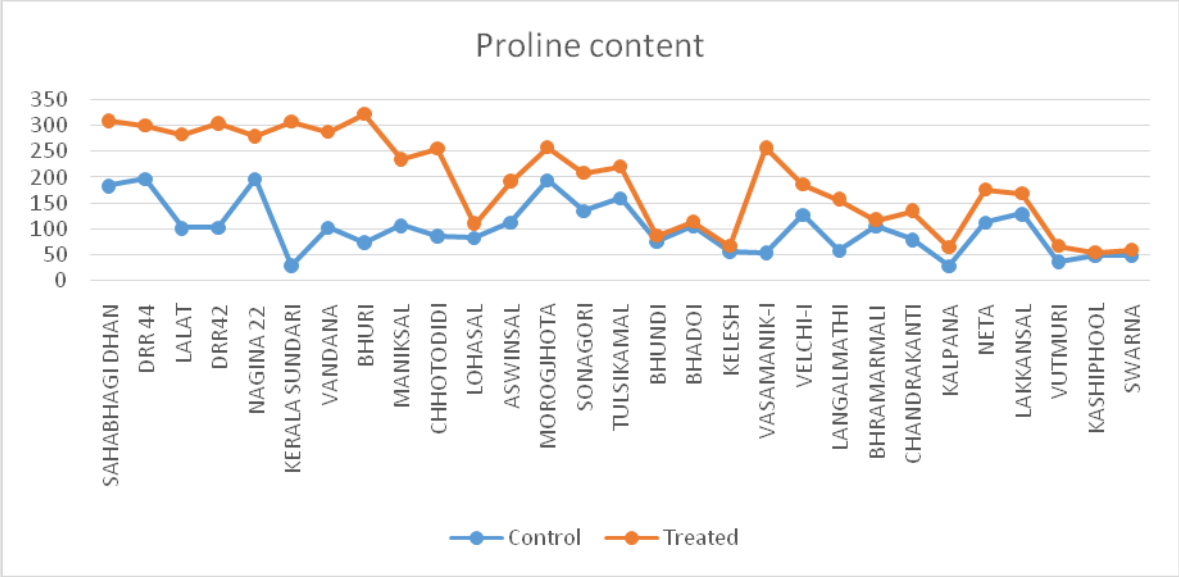
Supplementary Fig. 11 Root dry weight under stress and control for 29 germplasms



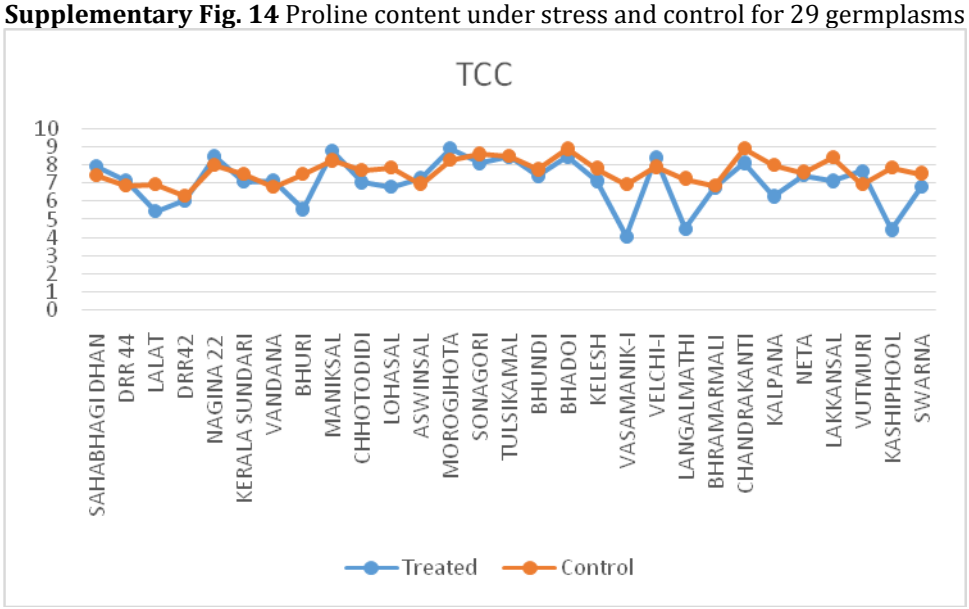
Supplementary Fig. 12 Chlorophyll content under stress and control for 29 germplasms



Supplementary Fig. 13 Relative Water Content (RWC) under stress and control for 29 germplasms



Supplementary Fig. 14 Proline content under stress and control for 29 germplasms



Supplementary Fig. 15 Total carbohydrate content under stress and control for 29 germplasms