Supplementary Information

Supplementary Tables

Table S1 Standardisation of NaCl stress imparting concentration in the rice var. KAU Akshaya using Shoot length, Root length, Fresh weight (FW) and Dry Weight (DW). The table presents the mean ± S.E. in var. KAU Akshaya for nine replicates (n=9). Different lowercase superscript letters denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA ($P < 0.05$), where treatments sharing the same letter are not significantly significant.

Rive variety	Concentration (mM)	Shoot Length (cm)	Root Length (cm)	FW (g)	DW (g)
	Control (0)	**9.4±0.3^a**	**13.1±0.34^a**	**7.1±0.8^b**	**0.088±0.43^a**
	100	7.1±0.7^b	11.7±0.3^b	6.1±0.9^a	0.061±0.3^b
KAU Akshaya	125	6.6±0.7^c	10.3±0.5^c	5.7±0.6^{ab}	0.054±0.1^b
	150	5.6±0.3^d	9.8±0.7^d	4.8±0.7^c	0.051±0.3^b
	175	**4.9±0.2^e**	**6.5±0.9^e**	**3.5±0.5^d**	**0.041±0.2^c**
	200	3.8±0.1^f	3.7±0.3^f	2.7±0.1^e	0.028±0.1^d

Table S2 Impact of NaCl stress, AMF, and CaO NPs on GSH, GSSG, total glutathione, reduced ascorbate, dehydroascorbate, and the ascorbate/dehydroascorbate ratio in rice roots. Data represent mean ± S.E. from nine biological replicates (n = 9). Different lowercase superscript letters denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05), where treatments sharing the same letter are not significantly significant.

Treatments	GSH content (mg g^{-1} FW)	GSSG (mg g^{-1} FW)	Total Glutathione (mg g^{-1} FW)	Reduced ascorbate content (mg g^{-1} FW)	Dehydroascorbate (mg g^{-1} FW)	Ascorbate/Dehydroascorbate ratio
C	0.81±0.01^{h}	0.21±0.05^{f}	1.23±0.05^{e}	2.17±0.03^{e}	0.41±0.04^{ef}	5.29±0.15^{c}
CM	1.04±0.06^{g}	0.23±0.04^{e}	1.5±0.03^{f}	2.24±0.11^{f}	0.39±0.06^{e}	5.74±0.28^{c}
CN	1.09±0.09^{f}	0.24±0.09^{ef}	1.57±0.03^{f}	2.25±0.19^{de}	0.38±0.07^{d}	5.92±0.92^{b}
CMN	1.13±0.03^{e}	0.26±0.09^{d}	1.65±0.28^{g}	2.28±0.12^{d}	0.35±0.07^{f}	6.51±0.74^{a}
S	0.89±0.09^{d}	0.79±0.01^{c}	2.83±0.19^{a}	3.11±0.07^{c}	1.75±0.03^{a}	1.77±0.33^{f}
SM	1.17±0.07^{c}	0.71±0.03^{b}	2.59±0.16^{c}	3.41±0.09^{b}	0.96±0.09^{b}	3.55±0.19^{de}
SN	1.21±0.08^{b}	0.69±0.01^{b}	2.6±0.11^{d}	3.54±0.13^{ab}	0.91±0.09^{bc}	3.89±0.23^{e}
SMN	1.37±0.08^{a}	0.67±0.09^{a}	2.71±0.06^{b}	3.71±0.11^{a}	0.82±0.06^{c}	4.52±0.45^{d}

Table S3 Impact of NaCl stress, AMF and CaO NPs on the accumulation of Na^+ and Ca^{2+} in leaf and root Data represent mean ± S.E. from nine biological replicates (n = 9). Different lowercase superscript letters denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05), where treatments sharing the same letter are not significantly significant.
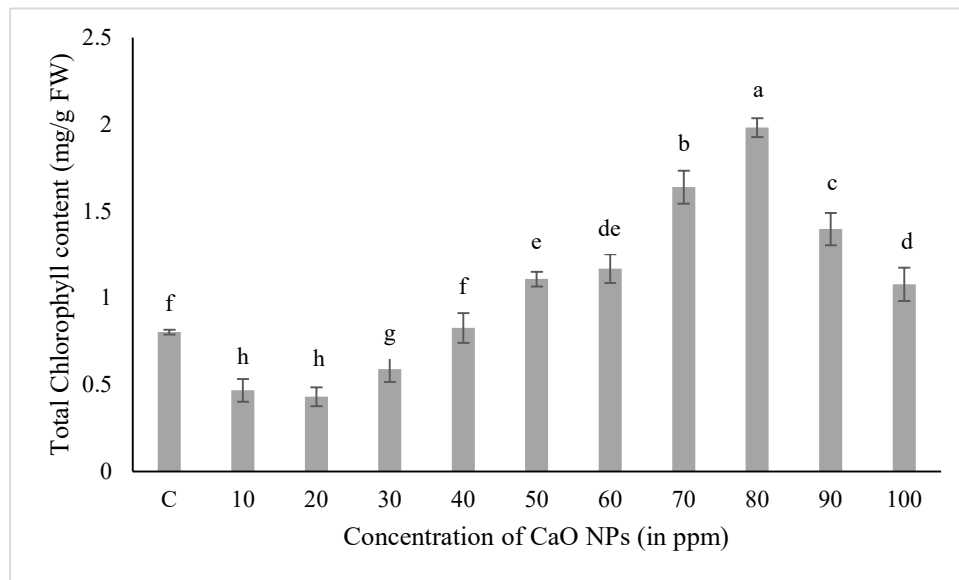
Treatments	Na^+(mg kg^{-1} DW)		Ca^{2+}(mg kg^{-1} DW)	
	Leaf	Root	Leaf	Root
C	99.07±0.17^e	217.17±0.53^d	156.63±0.01^c	52.04±0.70^d
CM	97.22±0.37^{ef}	201.72±0.37^e	171.77±0.12^{ab}	59.77±0.43^{bc}
CN	91.60±0.29^f	164.79±0.24^{de}	169.65±0.31^b	59.08±0.34^c
CMN	83.14±0.29^g	159.74±0.25^f	177.16±0.45^a	63.59±0.17^a
S	699.28±0.13^a	1749.18±0.63^a	99.41±0.08^f	41.37±0.38^g
SM	431.16±0.29^b	1529.74±0.77^{ab}	126.18±0.09^e	44.95±0.61^f
SN	439.74±0.29^c	1317.76±0.52^b	129.69±0.09^{de}	43.74±0.61^f
SMN	291.18±0.31^d	1084.19±0.44^{bc}	134.42±0.22^d	49.68±0.55^e

Supplementary Figures

Fig. S1 Standardisation of Calcium Oxide Nanoparticle (CaO NP) priming concentration for the selection of most effective priming dosage in the rice var. KAU Akshaya using total chlorophyll content (in mg/g FW). Bars represent the mean values from nine biological replicates (n = 9). Error bars indicate the standard error. Different lowercase letters above error bars denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05), where treatments sharing the same letter are not significantly significant.

Fig. S2A Characterization of CaO NPs. (A) FESEM (scale bar = 200 nm)
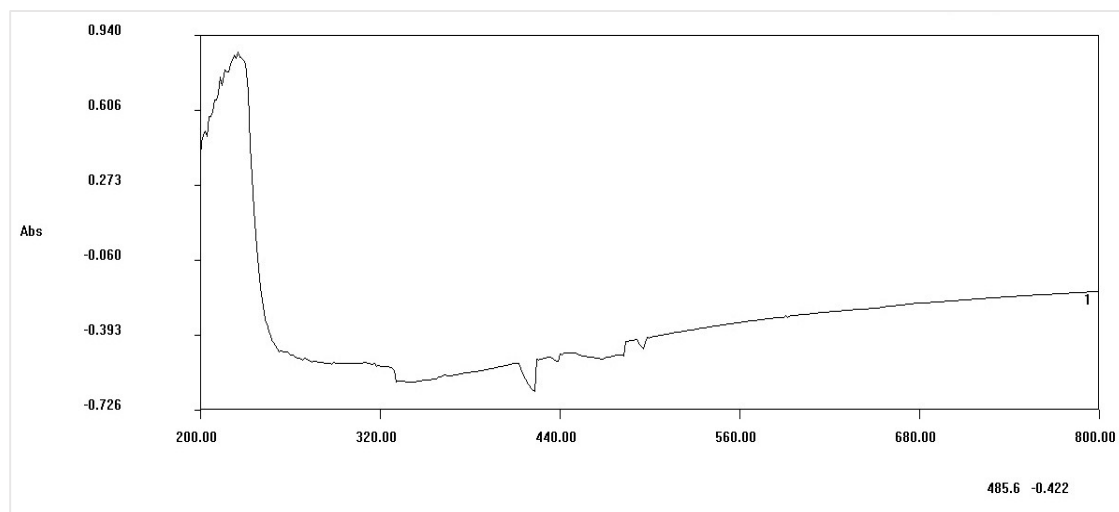

Fig. S2B UV-Vis Spectrum of CaO NPs

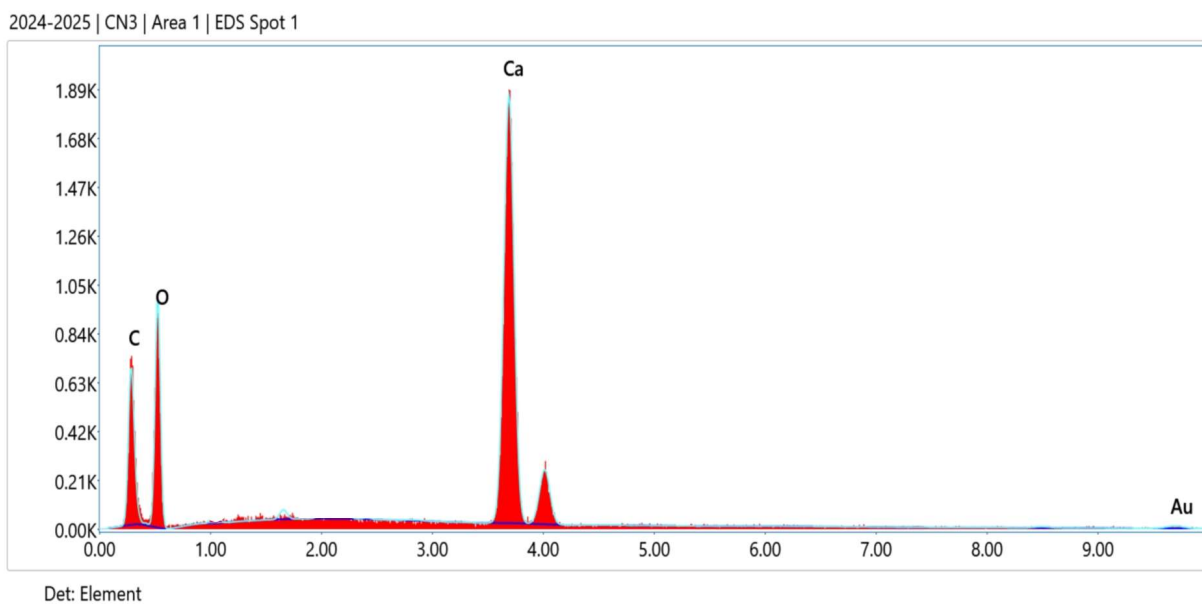**Fig S2C** EDAX spectrum of CaO NPs

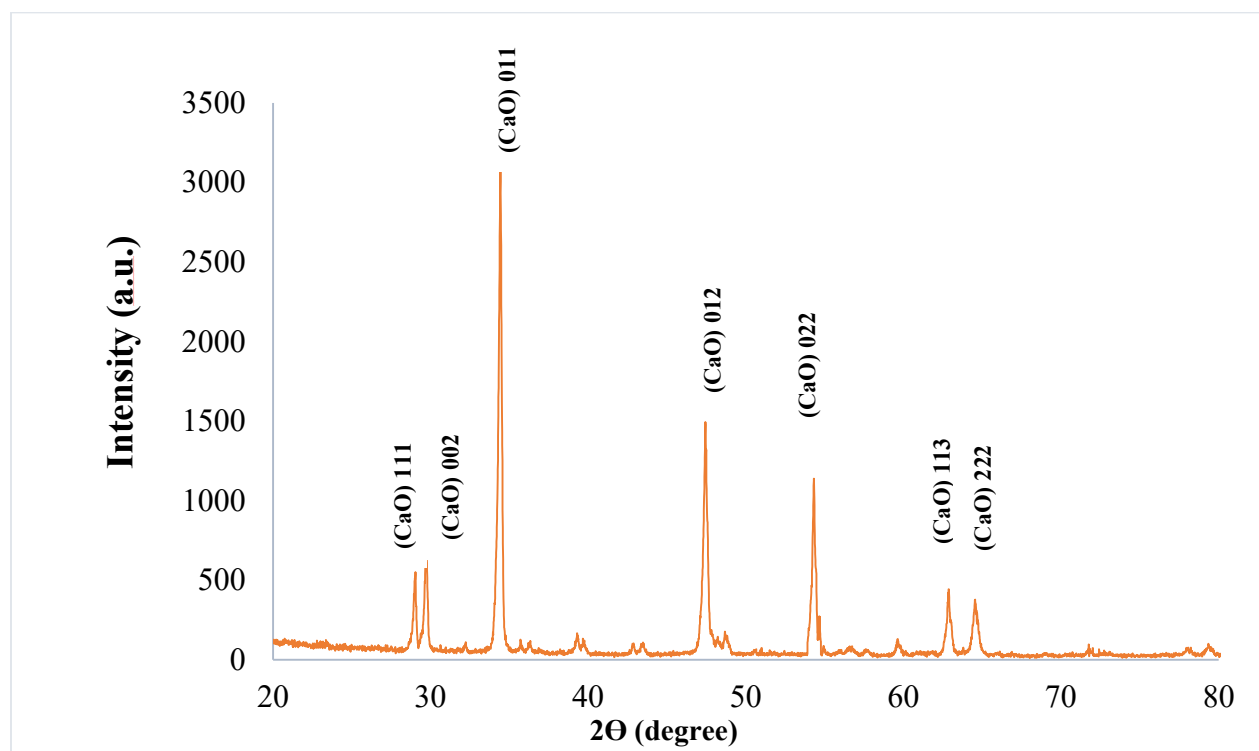**Fig. S2D** XRD spectrum of CaO NPs
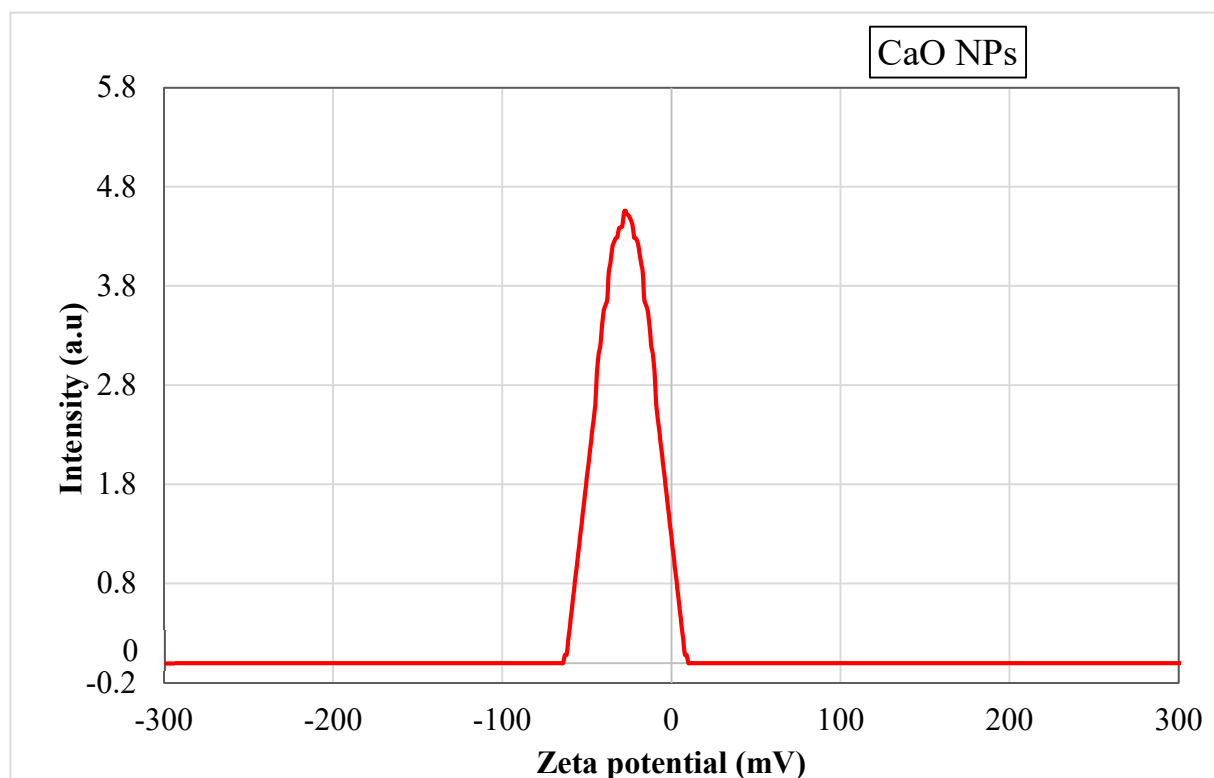
Fig. S2E DLS analysis of CaO NPs

Fig. S3A Impact of NaCl stress, AMF and CaO NPs on superoxide content in leaves. Bars represent the mean values from nine biological replicates (n = 9). Error bars indicate the standard error. Different lowercase letters above error bars denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05), where treatments sharing the same letter are not significantly significant. Treatment abbreviations: C, control; CM, control + AMF; CN, control + CaO NPs; CMN, control + AMF + CaO NPs; S, NaCl stress; SM, NaCl + AMF; SN, NaCl + CaO NPs; SMN, NaCl + AMF + CaO NPs.
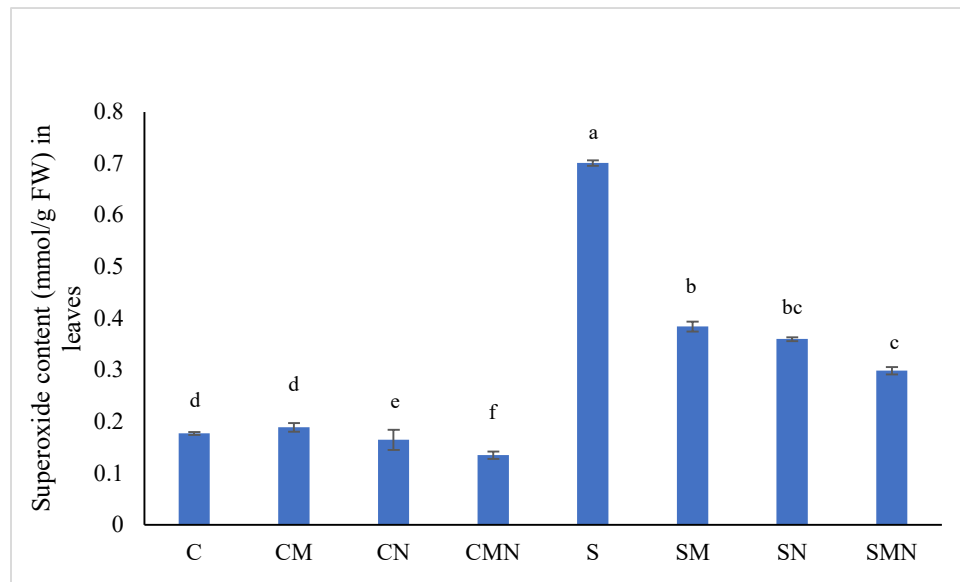
Fig. S3B Impact of NaCl stress, AMF and CaO NPs on superoxide content in roots. Bars represent the mean values from nine biological replicates (n = 9). Error bars indicate the standard error. Different lowercase letters above error bars denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05), where treatments sharing the same letter are not significantly significant. Treatment abbreviations: C, control; CM, control + AMF; CN, control + CaO NPs; CMN, control + AMF + CaO NPs; S, NaCl stress; SM, NaCl + AMF; SN, NaCl + CaO NPs; SMN, NaCl + AMF + CaO NPs.
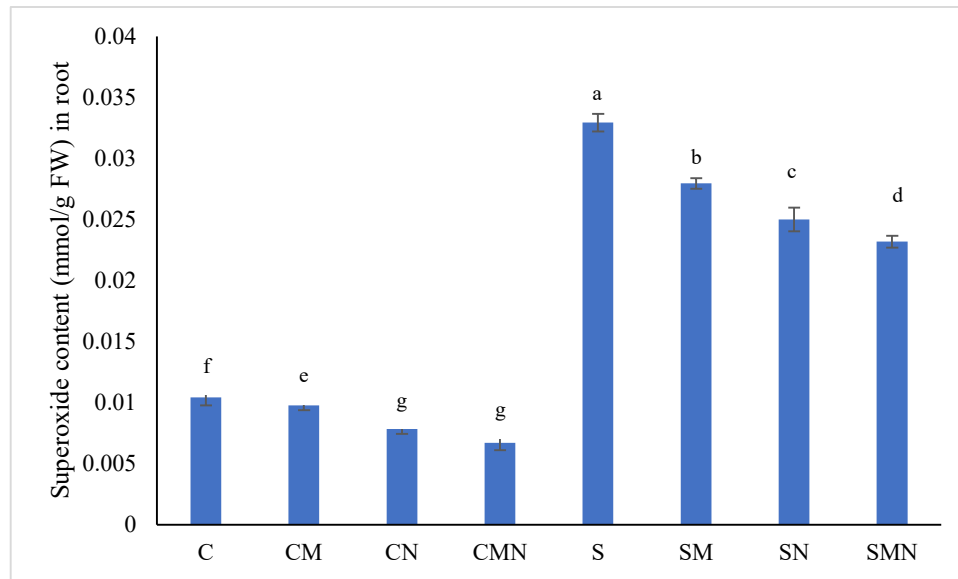
Fig. S4A Impact of NaCl stress, AMF and CaO NPs on H_2O_2 content in leaves. Bars represent the mean values from nine biological replicates (n = 9). Error bars indicate the standard error. Different lowercase letters above error bars denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05), where treatments sharing the same letter are not significantly significant. Treatment abbreviations: C, control; CM, control + AMF; CN, control + CaO NPs; CMN, control + AMF + CaO NPs; S, NaCl stress; SM, NaCl + AMF; SN, NaCl + CaO NPs; SMN, NaCl + AMF + CaO NPs.
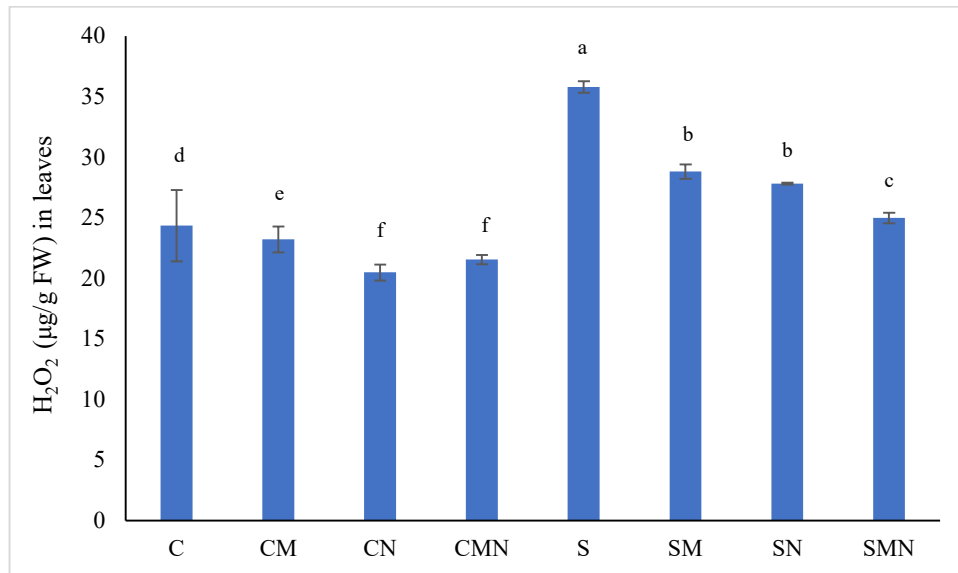
Fig. S4B Impact of NaCl stress, AMF and CaO NPs on H_2O_2 content in roots. Bars represent the mean values from nine biological replicates (n = 9). Error bars indicate the standard error. Different lowercase letters above error bars denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05), where treatments sharing the same letter are not significantly significant. Treatment abbreviations: C, control; CM, control + AMF; CN, control + CaO NPs; CMN, control + AMF + CaO NPs; S, NaCl stress; SM, NaCl + AMF; SN, NaCl + CaO NPs; SMN, NaCl + AMF + CaO NPs.
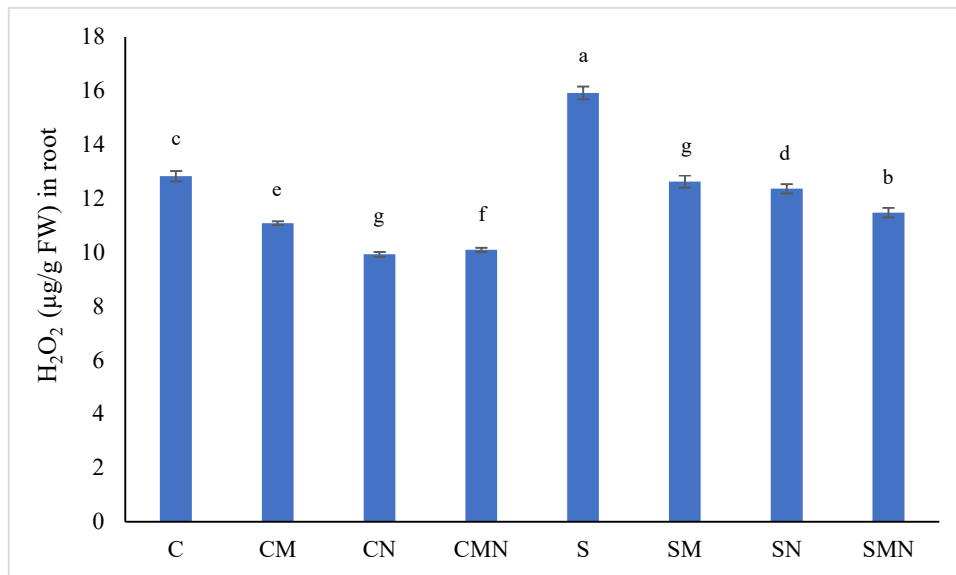
Fig. S5A Impact of NaCl stress, AMF and CaO NPs on MDA content in leaves. Boxplots represent MDA concentration (in µmol/g FW) across nine biological replicates (n = 9) for each treatment. Different lowercase letters above the boxes denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05); treatments sharing the same letter are not significantly different. Treatment abbreviations: C, control; CM, control + AMF; CN, control + CaO NPs; CMN, control + AMF + CaO NPs; S, NaCl stress; SM, NaCl + AMF; SN, NaCl + CaO NPs; SMN, NaCl + AMF + CaO NPs.
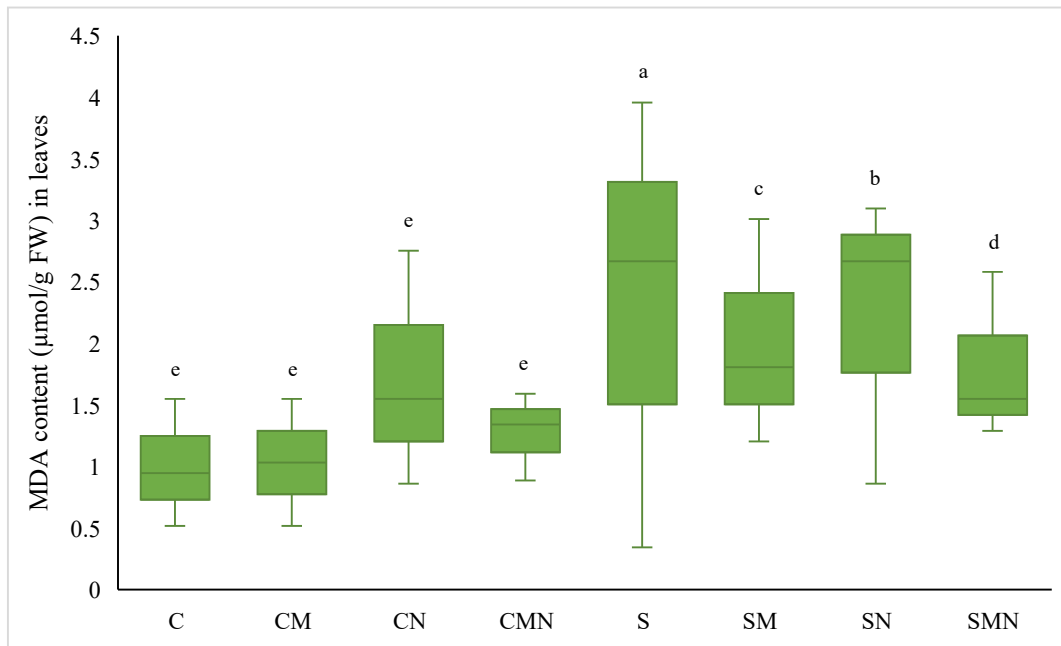
Fig. S5B Impact of NaCl stress, AMF and CaO NPs on MDA content in root. Boxplots represent MDA concentration (in μmol/g FW) across nine biological replicates (n = 9) for each treatment. Different lowercase letters above the boxes denote statistically significant differences among treatments according to Tukey's HSD post hoc test following one-way ANOVA (P < 0.05); treatments sharing the same letter are not significantly different. Treatment abbreviations: C, control; CM, control + AMF; CN, control + CaO NPs; CMN, control + AMF + CaO NPs; S, NaCl stress; SM, NaCl + AMF; SN, NaCl + CaO NPs; SMN, NaCl + AMF + CaO NPs.
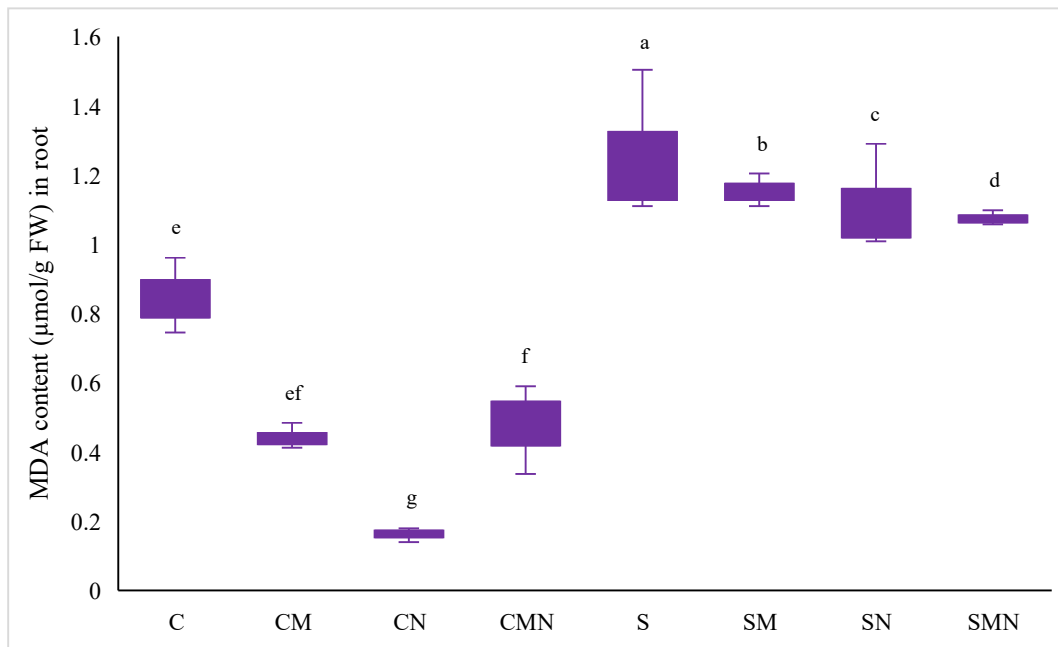
Fig. S6 Principal Component Analysis (PCA) biplot depicting the relationships among measured physiological and biochemical parameters in rice plants subjected to various treatments. The biplot illustrates the treatments: C, control; CM, control + AMF; CN, control + CaO NPs; CMN, control + AMF + CaO NPs; S, NaCl stress; SM, NaCl + AMF; SN, NaCl + CaO NPs; SMN, NaCl + AMF + CaO NPs. Vectors represent the contribution and direction of various parameters, with Dim1 and Dim2 accounting for 86.2% and 6.7% of the total variance, respectively.