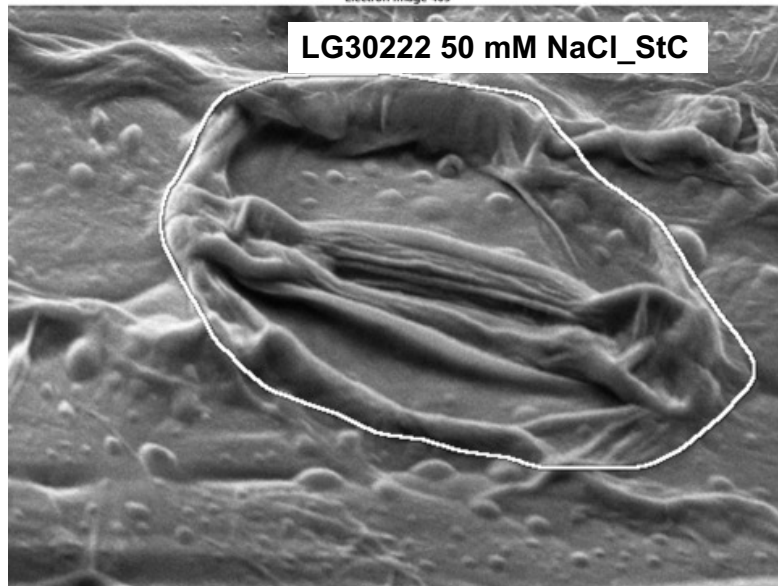
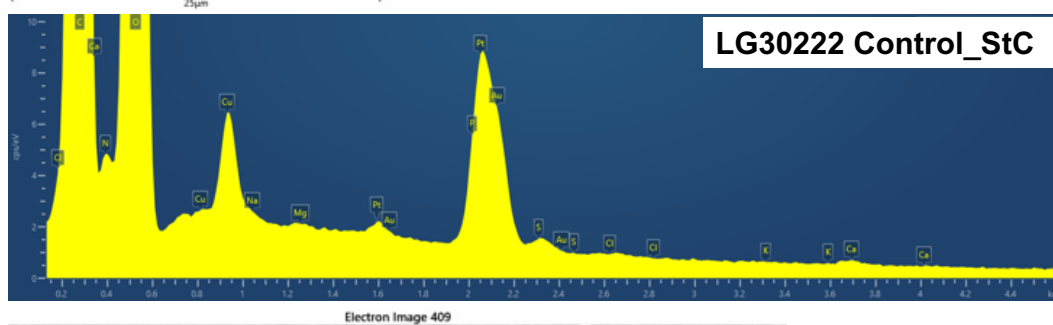
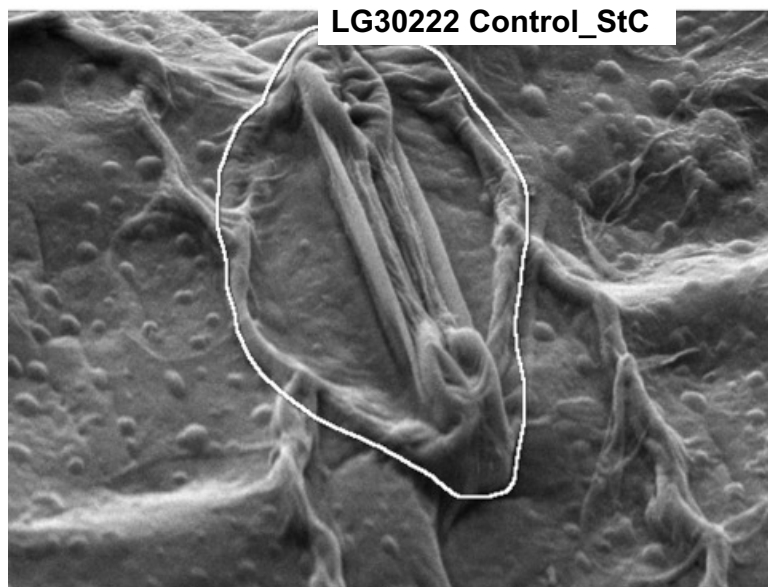


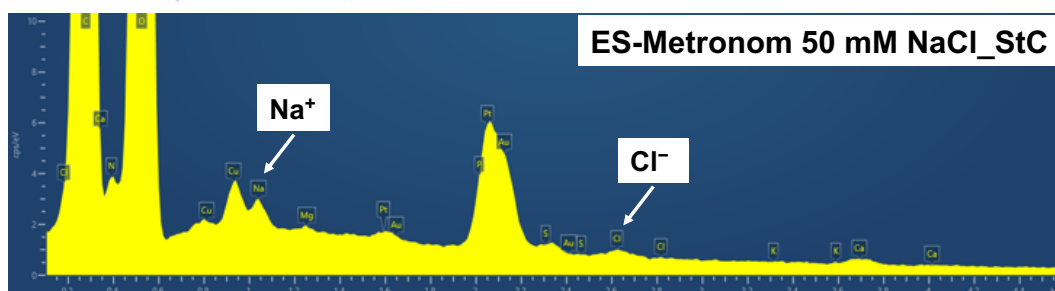
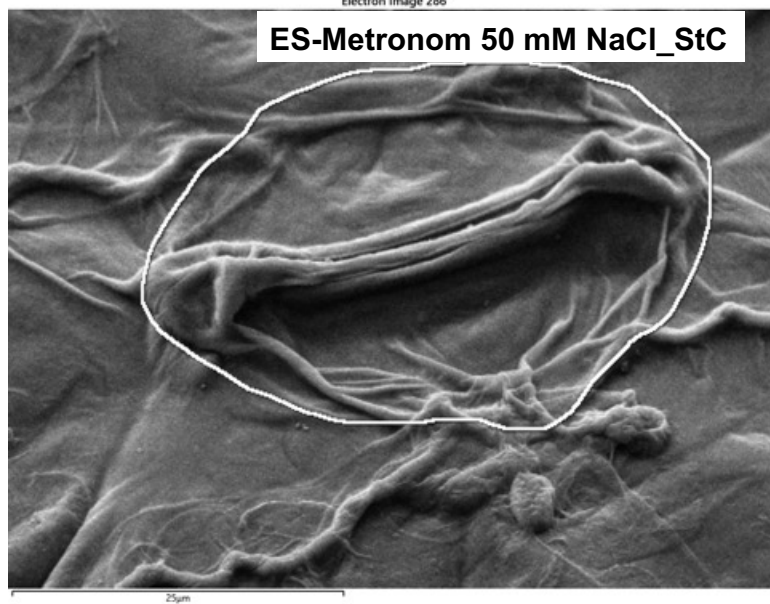
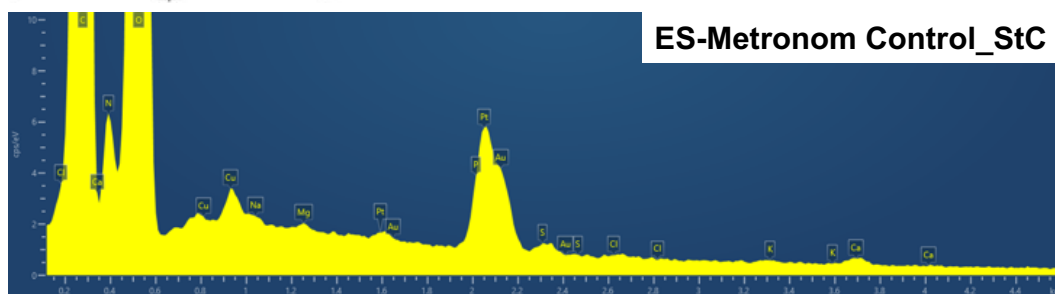
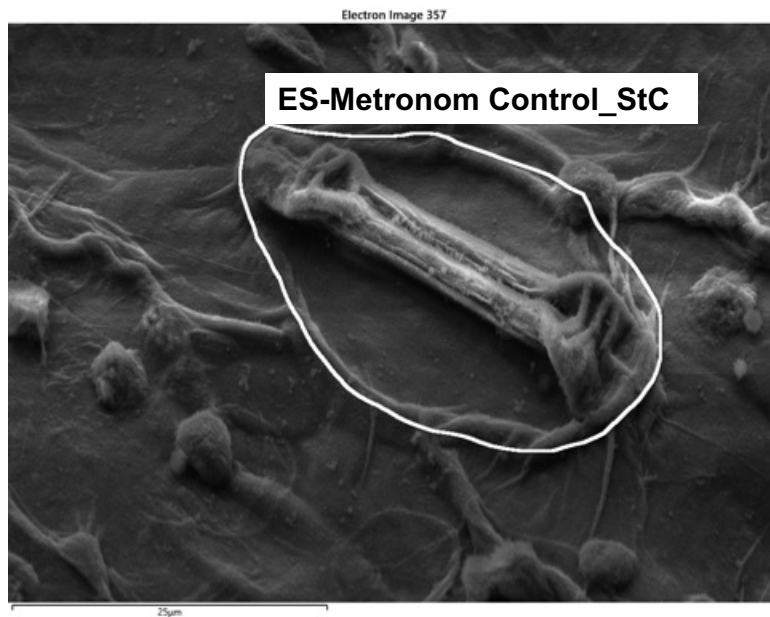
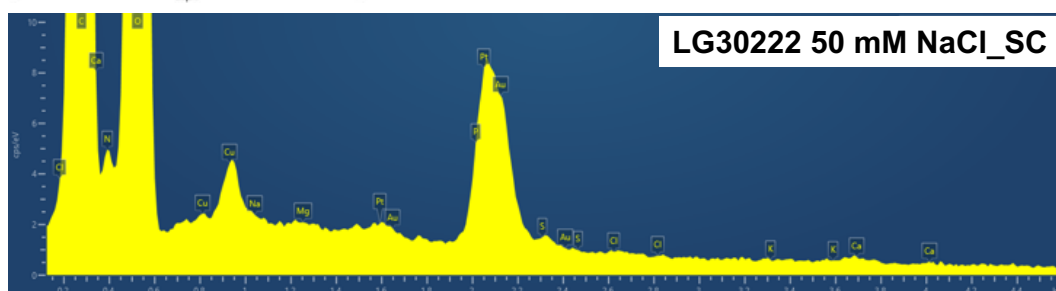
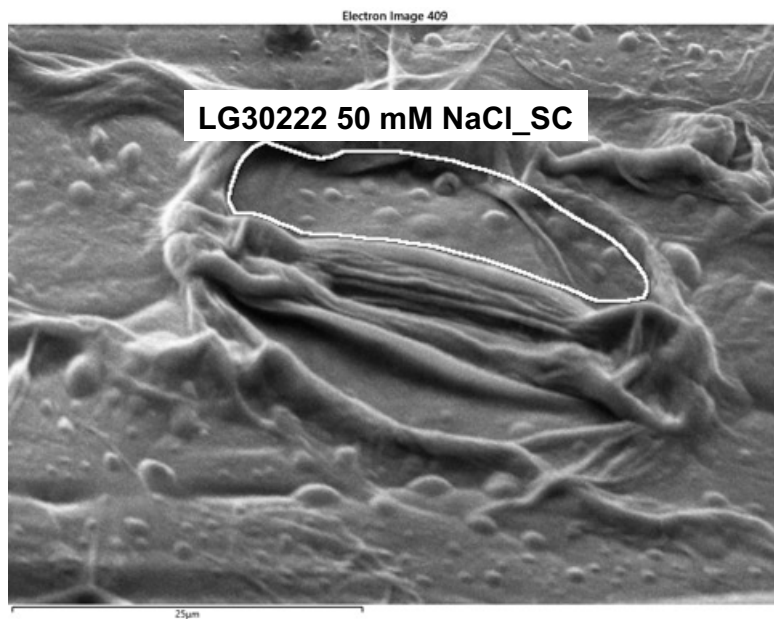
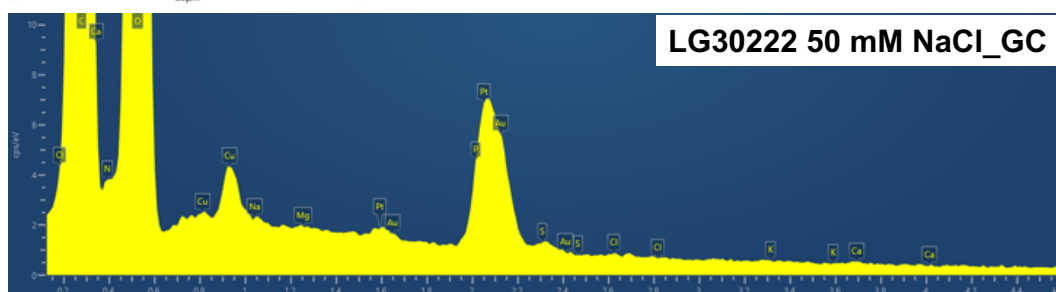
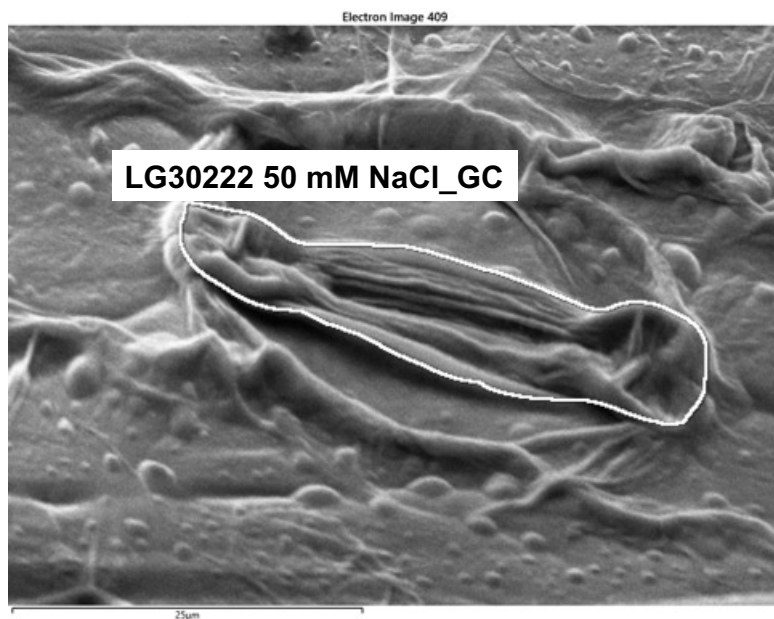
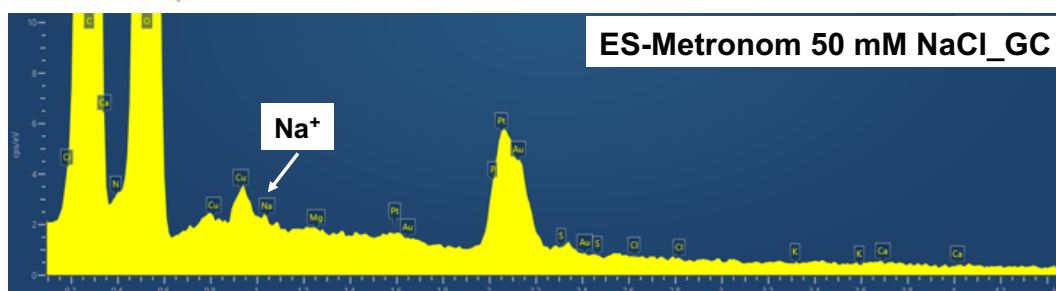
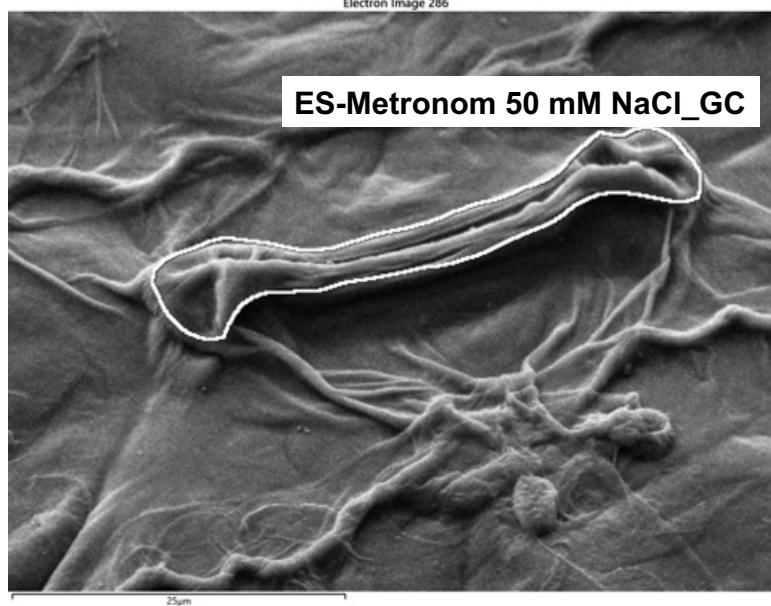
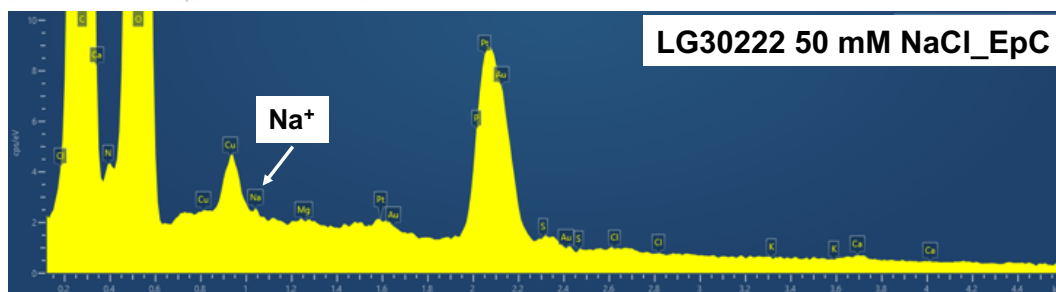
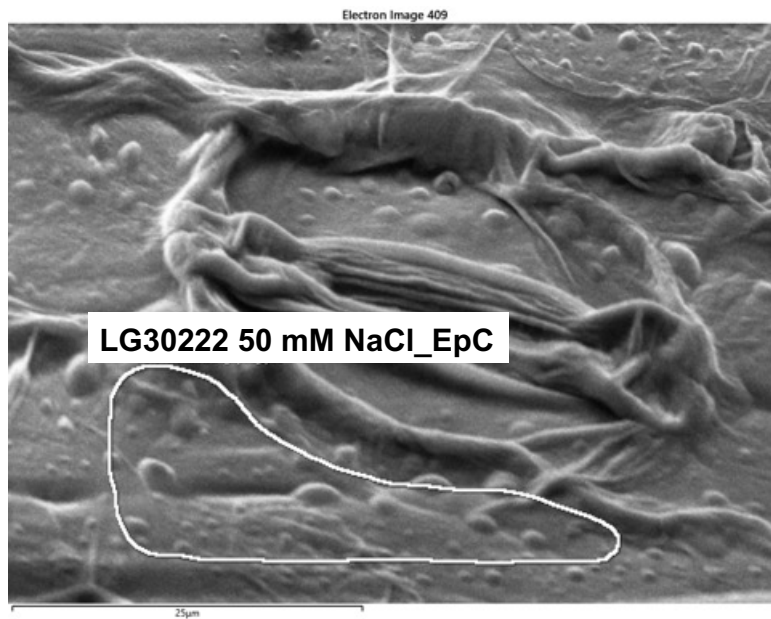


Figure S1 Representative SEM-EDX spectra and elemental mapping of stomatal complex cell walls in two contrasting maize genotypes

The maps illustrate the spatial distribution of Na⁺ and Cl⁻, while corresponding spectra provide semi-quantitative verification of elemental composition. Discernible Na K α (1.04 keV) and Cl K α (2.62 keV) peaks were observed exclusively in salt-treated ES-Metronom, while signals in all other groups lacked characteristic peaks above background noise and were therefore assigned zero for statistical analysis and graphical representation. No discernible K K α peak (3.31 keV) was detected in any sample, precluding reliable semi-quantitative analysis of K distribution.





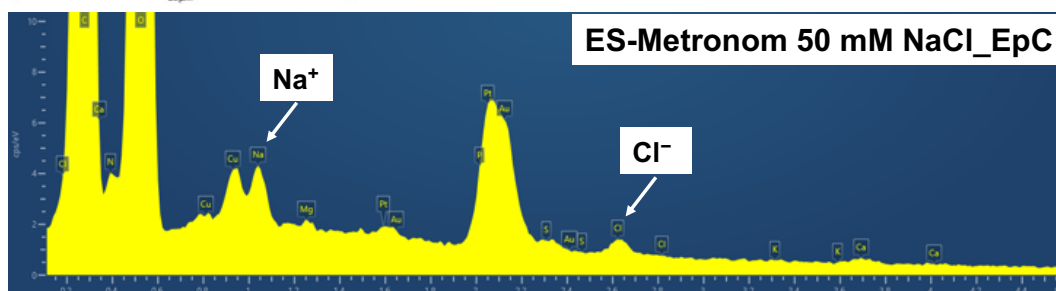
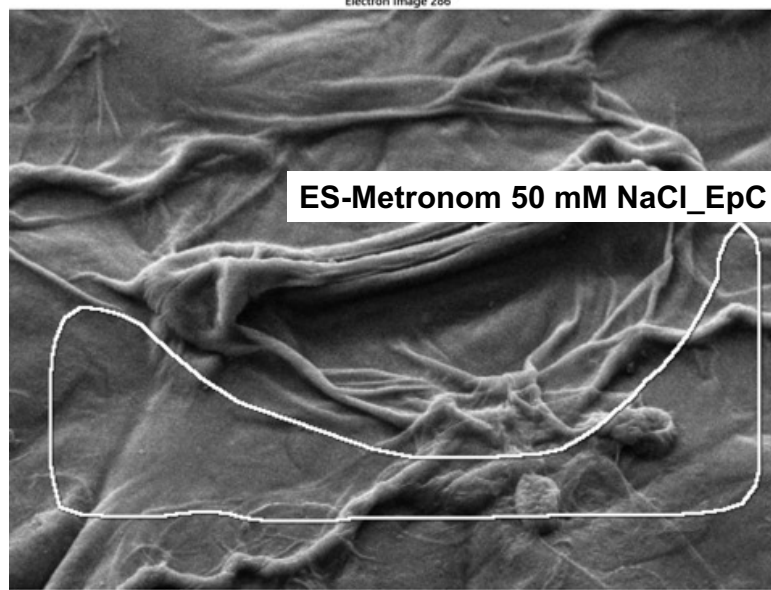
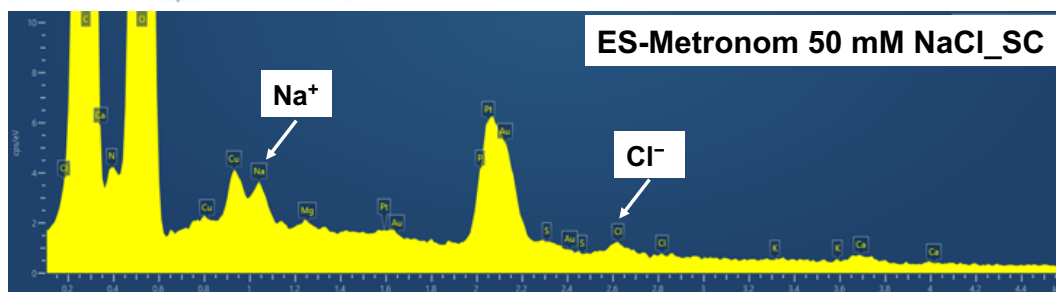
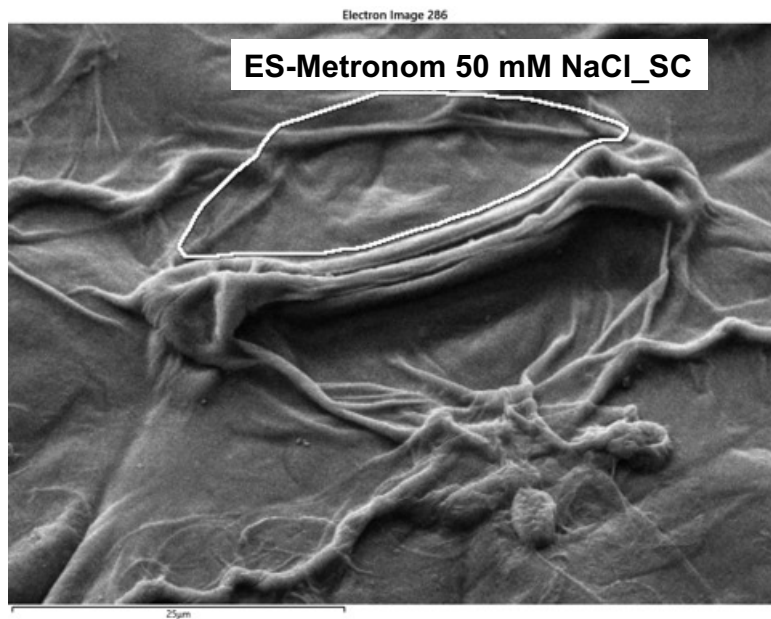


Figure S2 Representative SEM-EDX spectra and elemental mapping of cell walls across diverse epidermal cell types in two contrasting maize genotypes

The maps display the spatial distribution of Na⁺ and Cl⁻ within the cell walls of guard cells (GC), subsidiary cells (SC), and epidermal pavement cells (EpC). Corresponding spectra provide semi-quantitative verification of elemental composition under 50 mM NaCl treatment. For samples where Na K α (1.04 keV) and Cl K α (2.62 keV) peaks were not discernible above background noise, signals were considered below the detection limit and assigned zero for statistical analysis and graphical representation. No discernible K K α peak (3.31 keV) was detected in any sample, precluding reliable semi-quantitative analysis of K distribution.

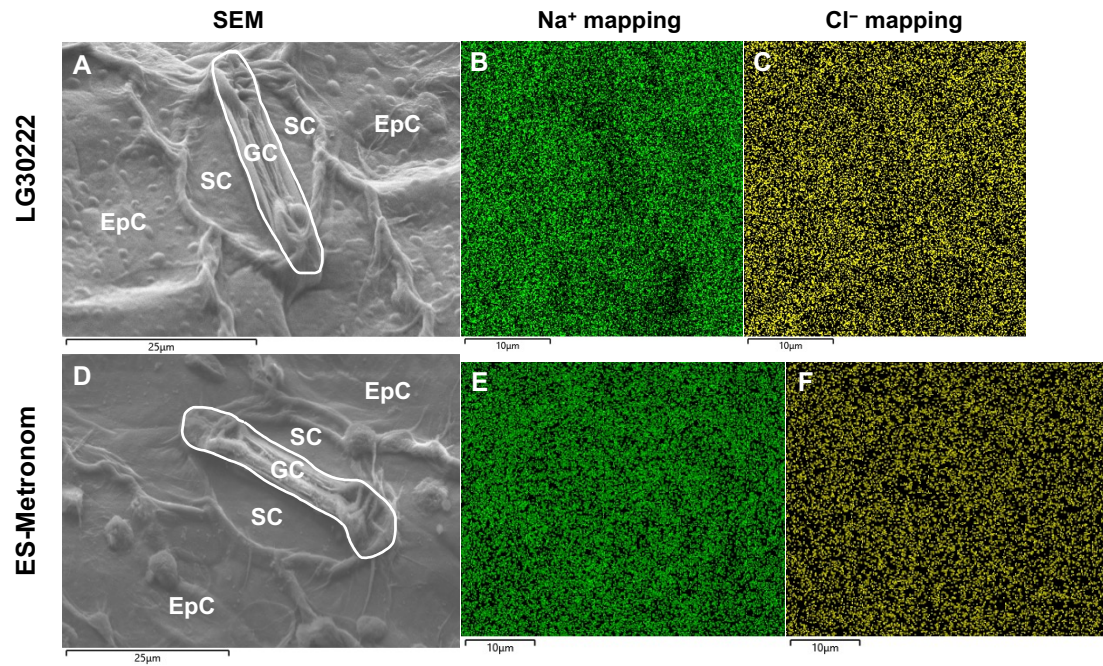


Figure S3 Cell wall-associated elemental mapping of Na^+ and Cl^- under control conditions in contrasting maize genotypes

(A, D) SEM images of LG30222 (A) and ES-Metronom (D) showing cellular morphology of guard cells (GC), subsidiary cells (SC), and epidermal pavement cells (EpC). (B, C) In LG30222, Na^+ and Cl^- signals showed a diffuse and non-preferential distribution across all cell types under control conditions. (E, F) In ES-Metronom, Na^+ and Cl^- signals also showed a diffuse and non-preferential distribution across all cell types under control conditions. Representative images were obtained from epidermal peels of the 5th fully expanded leaf, the same leaf position used for gas exchange measurements.

Variable	Effect	Df	F_value	P_value	Significance
Assimilation rate (A)	Genotype	1	7.18	8.17E-03	**
	Treatment	1	0.22	0.639	ns
	Genotype x Treatment	1	1.97	0.163	ns
Transpiration rate (E)	Genotype	1	90.04	4.02E-17	***
	Treatment	1	0.04	0.839	ns
	Genotype x Treatment	1	6.23	0.0136	*
Stomatal conductance (gs)	Genotype	1	90.76	3.19E-17	***
	Treatment	1	0.07	0.787	ns
	Genotype x Treatment	1	6.54	0.0115	*

Table S1 Two-way ANOVA results for gas exchange parameters in two contrasting maize genotypes under control and 50 mM NaCl treatment

Element	Effect	Df	F_value	P_value	Significance
Na ⁺	Genotype	1	284.4	1.01E-09	***
Na ⁺	Treatment	1	652.1	7.91E-12	***
Na ⁺	Genotype x Treatment	1	284.4	1.01E-09	***
K ⁺	Genotype	1	19.02	9.27E-04	***
K ⁺	Treatment	1	30.45	1.32E-04	***
K ⁺	Genotype x Treatment	1	27.14	2.19E-04	***
K ⁺ /Na ⁺	Genotype	1	26.51	2.42E-04	***
K ⁺ /Na ⁺	Treatment	1	2618	2.04E-15	***
K ⁺ /Na ⁺	Genotype x Treatment	1	106.7	2.52E-07	***
Cl ⁻	Genotype	1	12.82	3.78E-03	**
Cl ⁻	Treatment	1	11.53	5.31E-03	**
Cl ⁻	Genotype x Treatment	1	0.08	0.788	ns

Table S2 Two-way ANOVA results for leaf ionic parameters (Na⁺, K⁺, K⁺/Na⁺ ratio, and Cl⁻) in two contrasting maize genotypes under control and 50 mM NaCl treatment

Element	Effect	Df	F_value	P_value	Significance
Na ⁺ _norm	Genotype	1	216.78	8.25E-17	***
Na ⁺ _norm	Treatment	1	216.78	8.25E-17	***
Na ⁺ _norm	Genotype x Treatment	1	216.78	8.25E-17	***
Cl ⁻ _norm	Genotype	1	223.77	5.04E-17	***
Cl ⁻ _norm	Treatment	1	223.77	5.04E-17	***
Cl ⁻ _norm	Genotype x Treatment	1	223.77	5.04E-17	***

Table S3 Two-way ANOVA results for relative ion enrichment (atom%) of Na⁺, Cl⁻, and K⁺ in the stomatal complex (StC) of two contrasting maize genotypes under control and 50 mM NaCl treatment

Na⁺ and Cl⁻ signals for the sensitive genotype LG30222 under both control and salt treatment, as well as ES-Metronom under control, were assigned zero for statistical analysis and graphical representation, as no characteristic K α peaks were discernible above background noise (Figure S1).

Element	Effect	Df	F_value	P_value	Significance
Na ⁺ _norm	Genotype	1	149	4.31E-21	***
Na ⁺ _norm	CellType	2	44.45	2.59E-14	***
Na ⁺ _norm	Genotype x CellType	2	27.47	4.03E-10	***
Cl ⁻ _norm	Genotype	1	177.1	2.41E-23	***
Cl ⁻ _norm	CellType	2	40.88	1.68E-13	***
Cl ⁻ _norm	Genotype x CellType	2	40.88	1.68E-13	***

Table S4 Two-way ANOVA results for relative ion enrichment (atom%) of Na⁺, Cl⁻, and K⁺ in the cell walls of epidermal cell types in two contrasting maize genotypes under 50 mM NaCl treatment

The analysis compares guard cells (GC), subsidiary cells (SC), and epidermal pavement cells (EpC) across the two genotypes. Na⁺ and Cl⁻ signals for the sensitive genotype LG30222, as well as Cl⁻ in the guard cells (GC) of ES-Metronom, were assigned zero for statistical analysis and graphical representation, as no characteristic K α peaks were discernible above background noise (Figure S2).