Supplementary materials

(a)

(b)

Figure S1. Alignment of the proteins from *Suaeda altissima*, SaCLCa2 (a) and SaCLCc2 (b), with their homologs from closely related species *Suaeda fruticosa*, SfCLCa2 (a) and SfCLCc2 (b), respectively. SaCLCc2, unlike to SaCLCa2, is shortened from N-terminus.
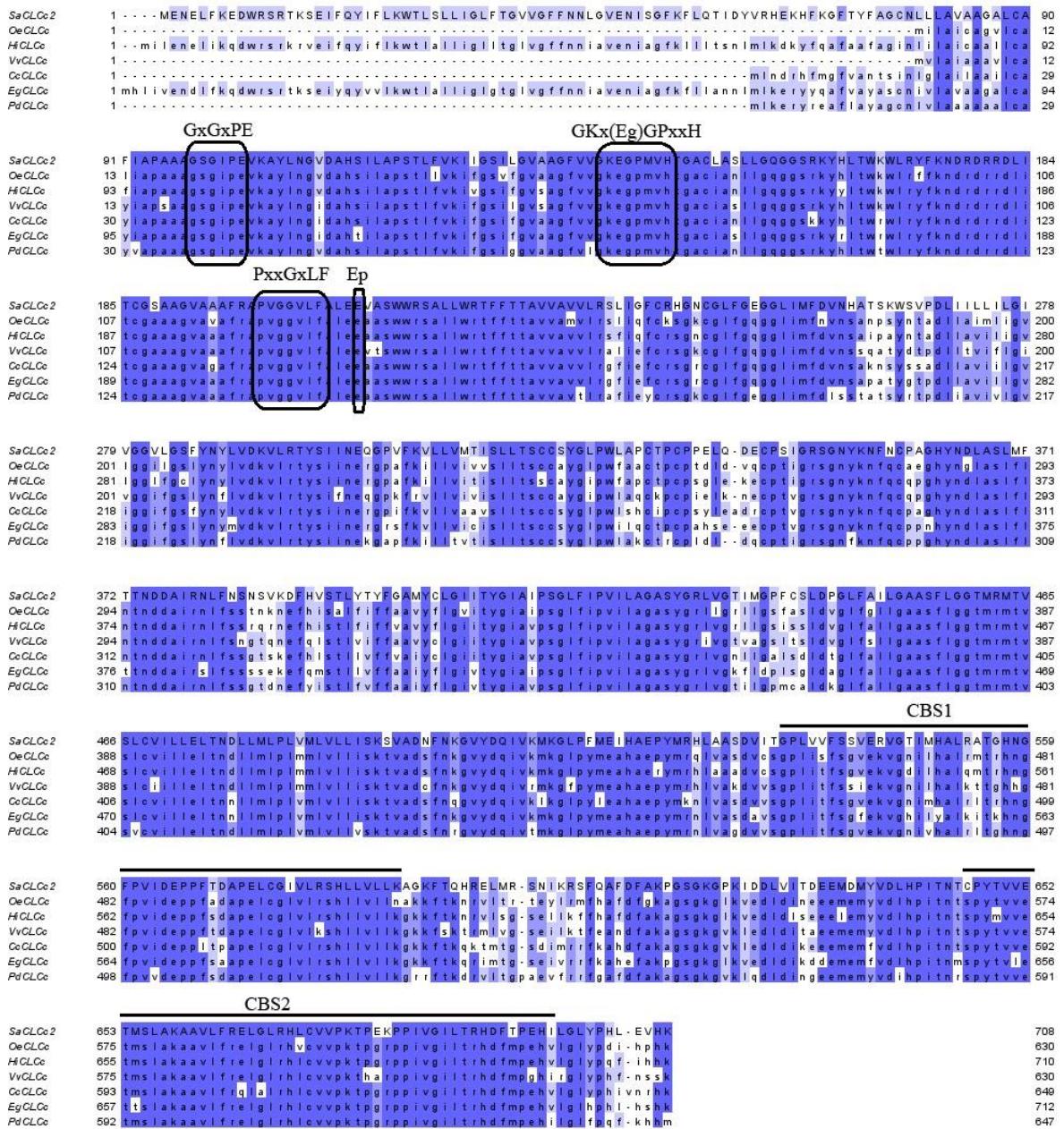
Figure S2. The CLCc proteins found in transcriptomes of different plants: *Suaeda altissima* (L.) Pall (GenBank, acc. no. OM994379), *Olea europaea* subsp. *europaea* (CAA 2963713.1), *Handroanthus impetiginosus* (PIN10391.1), *Vitis vinifera* (XP_010657886.1), *Olea europaea* var. *sylvestris* (XP_022861637.1), *Eucalyptus grandis* (XP 010030224.1), *Phoenix dactylifera* (XP_038975861.1).

(a)

(b)

0 mM NaCl, 15 mM NO_3^-	250 mM NaCl, 15 mM NO_3^-	750 mM NaCl, 15 mM NO_3^-
0 mM NaCl, 0.5 mM NO_3^-	250 mM NaCl, 0.5 mM NO_3^-	750 mM NaCl, 0.5 mM NO_3^-
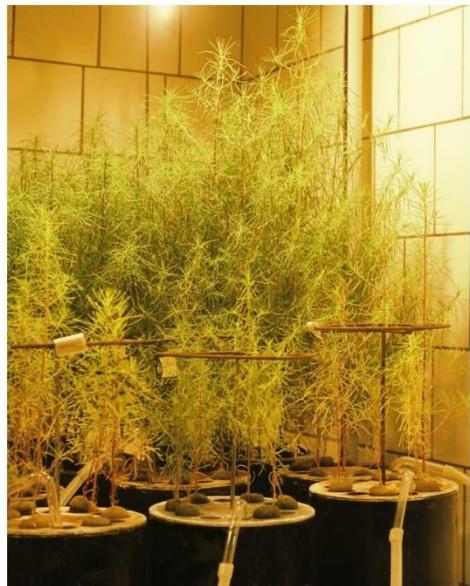
Figure S3. *Suaeda altissima* plants grown under different concentrations of NaCl and nitrate in the aerated nutrient medium. **(a)** General view of the plants in the growth chamber. **(b)** *S. altissima* 45-day-old plants grown under different concentrations of NaCl (0, 250, 750 mM) and nitrate (15 mM or 0.5 mM) in the nutrient medium. Scale bar represents 15 cm.

Table S1. Conserved amino acids motifs and residues and their positions in SaCLCa2 and SaCLCc2 sequences.

Conserved amino acids motifs and residues	SaCLCa2	SaCLCc2
Gating Glu	E 225	E 142
Proton Glu	E 292	E 209
(1) residues in the selectivity filter, a.a.	G**P**GIPE 181–186	G**S**GIPE 98–103
(2) GKxGPxxH, a.a.	GKEGPLVH 223–230	GKEGPMVH 140–147
(3) PxxGxLF, a.a.	PVGGVLF 282–288	PVGGVLF 199–205
CBS1, a.a.	619–677	535–587
CBS2, a.a.	733–786	646–697

Table S2. The composition of the nutrient media used in the research.

№	15 mM NO_3^-		№	0.5 mM NO_3^-	
1.	0 mM NaCl	4 mM $Ca(NO_3)_2$	4.	0 mM NaCl	4 mM $CaCl_2$
		7 mM KNO_3			6.5 mM KCl
		1 mM KH_2PO_4			0.5 mM KNO_3
		2 mM $MgSO_4$			1 mM KH_2PO_4
2.	250 mM NaCl	50 µM $FeSO_4$	5.	250 mM NaCl	2 mM $MgSO_4$
		50 µM Na_2EDTA			50 µM $FeSO_4$
		50 µM H_3BO_3			50 µM Na_2EDTA
		10 µM $MnCl_2$			50 µM H_3BO_3
3.	750 mM NaCl	1 µM $ZnSO_4$	6.	750 mM NaCl	10 µM $MnCl_2$
		0.5 µM $CuSO_4$			1 µM $ZnSO_4$
		0.1 µM Na_2MoO_4			0.5 µM $CuSO_4$
					0.1 µM Na_2MoO_4

Table S3. List of the primers used in the research.

Primer name	Nucleotide sequences (5´-3´)	Primer designation
SaCLCa2R	GCCCTCAAATCTTGCCTT	Amplification of 3´- and 5´-ends *SaCLCa2* transcript sequences
SaCLCa2_5'RACE_R1	GATCTTAACAAGCAATGTTGGTGCT	
SaCLCa2_5'RACE_R2	GCCCCTGTCAACGTAATCAGC	
SaCLCa2_3'RACE_F1	TCTTTGGGAGCATTGGAGC	
SaCLCa2F	TCCCGGAGAATTTCATCCAC	
pVR2_SaCLCa2_F	AAGGATCAAAACCATCATATGGAAGCAAGTGCGGAA TCACCA	Cloning of *SaCLCa2* into pVR2 vector
pVR2_SaCLCa2_R	ACTGACTCGACCCTATCATTTCTGCTTTTTGGATTTTGCT	
pMB1_SaCLCa2_F	ACACACATAAACAAACCATGGAAGCAAGTGCGGAATCACCA	Cloning of *SaCLCa2* into pMB1 vector
pMB1_SaCLCa2_R	ATCGATACCGTCGACCTCGAGTCATTTCTGCTTTTTGGATTTTGCTACA	
SaCLCa2_P182S_F	CCTACTGCTGCTGGGTCTGGTATCCCTG	Site-directed mutagenesis of *SaCLCa1(C544T)*
SaCLCa2_528_R	AGCAAAGAAAACAACCAGCAGCGTAG	
SaCLCc2F	TGTCCTCCTGAACTGCGAGA	Amplification of 3´- and 5´-ends *SaCLCc2* transcript sequences
SaCLCc2R	GCCTAATTCCCGAAACAACACT	
SaCLCc2_5'RACE_R1	GTTGTAAACATGAGTGAGGCAAGATC	
pVR2_SaCLCc2_F	CGAAGGATCAAAACCATCATAGAGACATTTGAATAGCTGTGAGGTGA	Cloning of *SaCLCc2* into pVR2 vector
pVR2_SaCLCc2_R	CAGTACTGACTCGACCCTAAAGGGAAACTGCTCCTCAACATTGTA	
pMB1_SaCLCc2_F	ACACACATAAACAAACCATGGAAAATGAACTTTTTAAAGAGGATTGGA	Cloning of *SaCLCc2* into pMB1 vector
pMB1_SaCLCc2_R	ATCGATACCGTCGACCTCGAGCTACTTGTGGACTTCGAGGTGC	
SaClCa1_F1	GAGACCTTGCTGAAGCCAAGC	RT-qPCR
SaClCa1_R1	TGTCCCTTCACTAGTAAGGATTG	

SaCLCa2_F1	GTCCCAGAAAGACAAGGCACG	
SaClCa2_R1	CCCATGTAAACTTCTCTCGCAC	
SaClCc1_F1	GGCAAAGTATTTCTCTGAGGAG	
SaClCc1_R1	AGATATATCCTCCAATGTGAGCC	
SaClCc2_F1	CGACCAAATTGTTAAGATGAAGG	
SaClCc2_R1	TGATCGTCCCAACTCTTTCAAC	
SaClCd_F1	GGCTTCCCTGTGATAGATC	
SaClCd_R1	CACCTCTTGAATCACTAGGC	
SaClCg_F1	GGCTCCATGAGAATGACT	
SaClCg_R1	TGAAACCATCAGCCACG	
SaClCf_F1	GAAATGCTGCTGTTGCC	
SaClCf_R1	CAGAAGCAGAACAGATGTCA	
SaAct7_F1	AGATTCCGTTGCCCAG	
SaAct7_R1	ATTTCCTTGCTCATACGGTCA	
SaeEF1alfa_F1	TGAGATGTGTGGCAATCC	
SaeEF1alfa_R1	GTTGCTTCTGACTCCAAGAAT	
pMB1_F	CATGGTTTGTTTATGTGTGTTTATTC	Amplification of a linear form of
pMB1_R	CTCGAGGTCGACGGTATCGATAAGC	pMB1 vector