

1 Table S1. The experimental correlation between the osmolality of the BG11 medium
 2 and the concentrations of NaCl, KCl, MgCl₂, NaNO₃, sorbitol, mannitol and PEG6000
 3 in the medium.

Osmolality (mmol/kg)	NaCl (mM)	Sorbitol (mM)	Mannitol (mM)	PEG6000 (%)	KCl (mM)	NaNO ₃ (mM)
131	0	0	0	0	0	0
211	75	185	151	15	76	63
342	150	294	266	21.1	155	149
602	300	509	494	27.5	312	320
862	450	725	723	31.7	468	491

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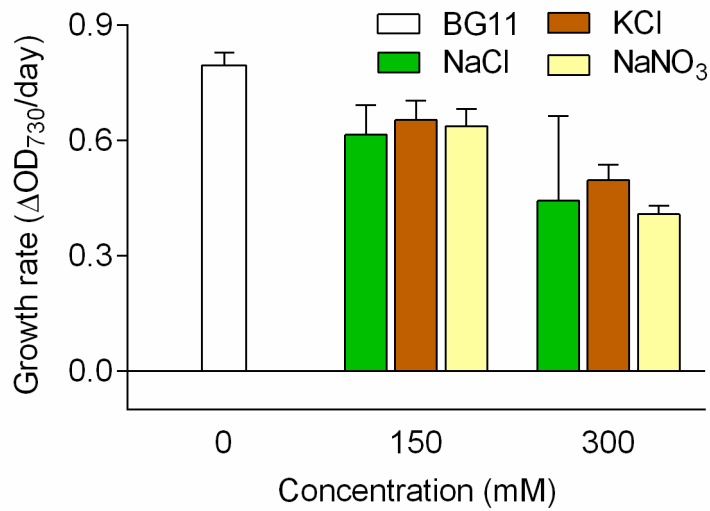
5 Table S2. Primers used in this study.

Primer	Sequence ^a (5'-3')
0808-F	CGGGATCCGATGGCAGCTCAAATCTCTAC
0808-R	AGCGGCCGCACTGAAAAGGTTAAGCGATCG
0397-F	ATTGGATCCGATGCCCGATTCTGTTGTGCTG
0397-R	AAAGCGGCCGCTTAGGGTAAGCCCCGCAGA
E356A-F	ATCCGGCGCTGACCGCACCTTTTGGTTTG
E356A-R	GCGGTCAGCGCCGATTGACGAATACC
E364A-F	TTGGTTTGACAATTTTGGCGGCAGGAAGCTG
E364A-R	GCCAAAATTGTCAAACCAAAGGTTCCGGTC
D473A-F	AACGCCTTGTCGTTAGTGCCATCGACAAC
D473A-R	GCACTAACGACAAGGCGTTTGGCATCAATC
RT-sps-F	CCTGTTGGAGAACAACACCGCGA
RT-sps-R	GGATTGTCGCCAGCACTCAGCAG
RT-rnpB-F	CAACATCGAGAGGTGTTGGC
RT-rnpB-R	CCACCTCTAGCGGTCCATAA

6 ^aUnderlines represent restriction endonuclease sites used for DNA cloning.

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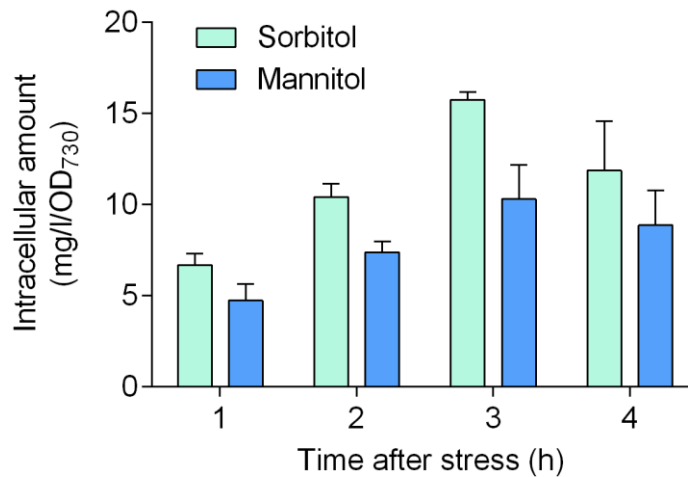


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10 Figure S1. Growth rate of the wild type Syn7942 cultivated in the BG11 medium
11 containing different concentrations of NaCl, KCl, and NaNO₃. The OD₇₃₀ of
12 cyanobacterial cells was monitored for 5 days. The data are presented as means from
13 three independent replicates with standard deviations.

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17 Figure S2. The amounts of sorbitol and mannitol in Syn7942 cells after applying
18 sorbitol or mannitol stress of 602 mmol/kg. The data are presented as means from
19 three independent replicates with standard deviations.