Table S1. Net water and ion flux measured across the rectal wall of cold-acclimated *Locusta migratoria* after acute exposure to high temperature (i.e. 2 h at 30℃) prior to incubation at 10℃.

Acclimation	J_V		J_{Na}		J_K		J_{Cl}	
group	30℃	10℃	30℃	10℃	30℃	10℃	30℃	10℃
Warm acclimated	14,68 ± 0,66***a***	4,73 ± 0,44***b***	0,49 ± 0,03***a***	0,16 ± 0,01***b***	0,83 ± 0,03***a***	0,24 ± 0,02***b***	0,65 ± 0,04***a***	0,31 ± 0,02***b***
Cold acclimated	14,64 ± 0,65***a***	4,36 ± 0,22***b***	0,49 ± 0,04***a***	0,16 ± 0,01***b***	0,70 ± 0,04***a***	0,21 ± 0,01***b***	0,68 ± 0,12***a***	0,32 ± 0,08***b***
RM-2-way ANOVA	Acclimation: P=0.5244 Temperature: **P<0.0001** Interaction: P=0.8949		Acclimation: P=0.8101 Temperature: **P=0.0001** Interaction: P=0.9119		Acclimation: P=0.1271 Temperature: **P<0.0001** Interaction: P=0.7296		Acclimation: P=0.8548 Temperature: **P=0.0231** Interaction: P=0.9100	

In this set of acclimated-locusts, the order of the incubation periods was reversed to test the plasticity and reversibility of the acclimation response. Hence, everted sacs from cold-acclimated locusts were first incubated at 30 ℃ prior to incubation at 10 ℃ (the temperature at which cold-acclimation enhanced J_v and J_{ion}; cf. Fig.2). Net water flux (J_v,) is expressed as µl rectum^{-1} h^{-1} and net ion flux (J_{ion}) as µmol h^{-1} per rectum, where rectum size was standardized to 0.631 cm^2. Positive values for J_v and J_{ion} indicate net reabsorption from the rectal lumen towards the haemolymph. *N*=5 per group and the statistical significance of each factors are presented in the table following repeated-measures two-way ANOVA.