Supplementary table 1. Rate constants (k (s^{-1})) and amplitudes (B (pH/mM)) of acid influx (i) and recovery (r) for sorbic and acetic acid with standard deviations based on at least three replicates.

K-sorbate

	k_i	B_i	k_r	B_r
Starved	1.29 ± 0.09	0.87 ± 0.07		
Glucose	1.87 ± 0.34	0.78 ± 0.33	0.08 ± 0.04	0.30 ± 0.06

K-acetate

	k_i	B_i	k_r	B_r
Starved	1.27 ± 0.33	0.66 ± 0.11		
Glucose	2.2 ± 0.19	0.59 ± 0.16	0.05 ± 0.01	0.39 ± 0.06

Supplementary table 2. The effect of weak organic acids on ΔpH , ΔΨ and proton motive force.

	Z*ΔpH (mV)	ΔΨ (mV)	PMF (mV)
M3G, pH=6.4	84.4± 3.2	103.9± 9.1	188.3± 9.6
3 mM K-S	66.5± 0.3	37.8± 2.7	104.3± 2.7
11 mM K-S	58.9± 0.6	24.8± 5.4	83.7± 5.4
25 mM K-Ac	61.1± 0.4	87.2± 4.4	148.3± 4.4
80 mM K-Ac	50.6± 0.5	58.2± 6.5	108.8± 6.5

Supplementary table 3. The effects of weak organic acid stress on glucose metabolism and respiration. All fluxes are in mmol h^{-1} (mg protein)$^{-1}$. The carbon balance was calculated with the assumptions stated in the materials and methods.

	qGlucose	qAcetate	qButanediol	qO2	C-balance (%)
M3G, pH=6.4	7.80	5.27	0.73	27.87	90.7
3 mM K-S	3.56	2.43	0.00	14.13	88.9
11 mM K-S	2.58	1.97	0.00	5.52	61.2
25 mM K-Ac	2.08	0.54	0.95	22.66	231.9
80 mM K-Ac	1.45	0.09	0.70	3.92	91.5

Supplementary figure 1.

Actual data (open figures) and modelled acidification (closed symbols) and recovery upon weak organic acid injection in *B. subtilis* PB2 P_{ptsG}-IpHluorin. Sorbic acid is injected at t = 1s. Medium pH = 6.4