Table VII. Simulation parameters: Constraints on fluxes and criteria for maximization and minimization.

Growth condition	Lower bound (mmol/g DW h)	Upper bound (mmol/g DW h)	Objective function criterion	Note
Aerobic, glucose + acetate				
Glucose uptake	0	7	Maximize	Measured[a]
Acetate uptake	0	11.94	Maximize	Measured[b]
Carbon dioxide secretion	14	∞	Minimize	
Acetate secretion	0	11.14	Maximize	Measured[b]
Precursor production rate	μ dependent		Maximize	Calculated[c]
Aerobic, acetate				
Acetate uptake	0	33.42	Maximize	Uptake[d]
Carbon dioxide secretion	45	∞	Minimize	Measured[b]
Precursor production rate	μ dependent		Maximize	Calculated[c]
Anaerobic, glucose				
Glucose uptake	0	21	Maximize	Measured[e]
Oxygen uptake	0	0		
Carbon dioxide secretion	18.48	∞	Minimize	Measured[f]
Acetate secretion	0	7.67	Maximize	Measured[e]
Lactate secretion	0	16.69	Maximize	Measured[e]
Formate secretion	0	0.50	Maximize	Measured[e]
Succinate secretion	0	2.25	Maximize	Measured[e]
Ethanol secretion	0	10.46	Maximize	Measured[e]
Precursor production rate	μ dependent		Maximize	Calculated[c]

[a]The values present in the literature are in the same range as the value used as a lower bound for the simulation (Herbert and Kornberg, 1976; Schulze and Lipe, 1964; Tempest and Neijssel, 1987).

[b]Data from Walsh and Koshland (1985b).

[c]Calculated from correlations in Table VI and information presented in Tables I–V.

[d]The acetate uptake rate from Walsh and Koshland (1985b) was 41.4 mmol/g DW h but the model predicted an acetate uptake rate of 33.42 mmol/g DW h. Any amount of acetate provided in surplus resulted in acetate secretion.

[e]Data from Smith and Neidhardt (1983).

[f]Data from Bock and Sawers, (1996).