Table 4
Comparison of the entropies of biomass and Gibbs energies of combustion of biomass reported in the literature

Methods[a]	Statistical thermo-dynamics	Statistical mechanics	Thermo-dynamics	Low-temperature calorimetry	Roels' correlation	Battley's empirical method
Microorganisms[b] Composition	Average biomass $CH_{1.8}O_{0.5}N_{0.2}$	$E.\ coli$ $CH_{1.77}O_{0.49}N_{0.24}$	$E.\ coli$ K-12 $CH_{1.59}O_{0.374}N_{0.263}$ $P_{0.023}S_{0.006}$	$S.\ cerevisiae$ $CH_{1.613}O_{0.557}N_{0.158}$ $P_{0.012}S_{0.003}K_{0.022}$ $Mg_{0.003}Ca_{0.001}$	$S.\ cerevisiae$ $CH_{1.613}O_{0.557}N_{0.158}$ $P_{0.012}\ S_{0.003}K_{0.022}$ $Mg_{0.003}Ca_{0.001}$	$S.\ cerevisiae$ $CH_{1.613}O_{0.557}N_{0.158}$ $P_{0.012}\ S_{0.003}K_{0.022}$ $Mg_{0.003}Ca_{0.001}$
γ_X^0	4.8	4.79	4.998	4.58	4.58	4.58
S^0 (J/K/C-mol)	112.8	13–38	94.4	34.17	48.44	34.69
$-\Delta_C G_X^0$ (kJ/C-mol)[c]	541.2	553–563	527.6	515.0	518.9[d]	515.2
References	[34,35]	[36]	[37]	[38]	[33]	[39]

[a]Methods for determinations of entropies of biomass.
[b]Microorganisms studied for estimation of the absolute entropy and the Gibbs energy of combustion.;
[c]$\Delta_C G_X^0$ calculated according to the reported entropies of biomass.
[d]$\Delta_C G_X^0$ calculated based on Roels' correlation.