**Supplemental data**

**Figure S1** Plotting of $\ln(1-L_S)$ versus reaction time $t$ at different temperatures and formic acid concentration (A: 60 %; B: 70 %; C: 80 %; D: 88 %). The plotting showed an apparent deviation from linear relationship, which indicates that the kinetic model of $\frac{dL_s}{dt}=k_i(1-L_s)$ (Saeman’s model) cannot be employed to accurately describe the kinetic of lignin delignification by aqueous formic acid.
Figure S2 Comparison of experiment-determined data and model-predicted data by multivariate linear regression for rate constant ($k_L$, $k_X$ and $k_G$) and degree of reaction ($d_D$, $d_{SX}$ and $d_{SG}$)