

Model-based optimization and scale-up of multi-feed simultaneous saccharification and co-fermentation of steam-pretreated lignocellulose enables high gravity bioethanol production

Supplementary material

Table S1

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Table S1. Summary of fed-batch enzymatic hydrolysis of steam pre-treated wheat straw.

Fed-batch hydrolysis ^a	No. of solid feeding events	Last feed at (h)	Final WIS (% w/w)	Enzyme feeding ^b	Glucose 96 h (g/L)	Glucose 120 h (g/L)	Yield ^c 96 h (%)	Yield ^c 120 h (%)
Equal solid feeding	6	72	15.1	Y	67.9	-	67.3	-
Equal solid feeding	6	72	15.1	N	81.9	-	82.0	-
Equal solid feeding	6	48	25.0	N	90.3	91.6	46.1	46.9
Exponential solid feeding	6	48	25.0	N	97.1	97.6	50.0	50.2
Model-based solid feeding	4	120	18.7	Y	74.1 ^d	86.6 ^e	61.9 ^d	65.7 ^e
Model-based solid feeding	4	120	18.7	N	85.5 ^d	94.7 ^e	71.7 ^d	72.3 ^e

^aAll fed-batch enzymatic hydrolysis started with 7% (w/w) WIS content.

^bY indicates enzymes were fed along with solid substrates, N indicates all enzymes were loaded at the start of experiments.

^cThe yields represent the % (w/w) of glucose released from added glucan.

^dAt 96h, the overall WIS reached 17.3% (w/w). The last solid feed according to modeling was conducted at 120h.

^eFinal sample was taken at 144 h.