Supporting Information

Preparation and Investigation of Highly Selective Solid Acid Catalysts with Sodium Lignosulfonate for Hydrolysis of Hemicellulose in Corncob

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Fig. S1 the homemade tube furnace for carbonization of sodium lignosulfonate

Fig. S2 Concentrations of byproduct (after 4% H_2SO_4 treatment) from corncob hydrolysis catalyzed by three catalysts.

Fig. S3 Effect of various oxidation factors on the hydrolyzed corncob. (a) H_2O_2 concentration, (b) reaction time, (c) temperature, (d) solid/liquid ratio.

Fig. S4 X-ray diffraction pattern of corncob and residue

Table captions:

Table S1 Acid-base titration results at different temperatures

Table S2 Elemental analysis and acid-base titration results for the solid acid catalysts after reuse

Fig. S1 the homemade tube furnace for carbonization of sodium lignosulfonate

This tube furnace is made of stainless steel, electric heating, the amount of sodium lignosulfonate was 20g each time.

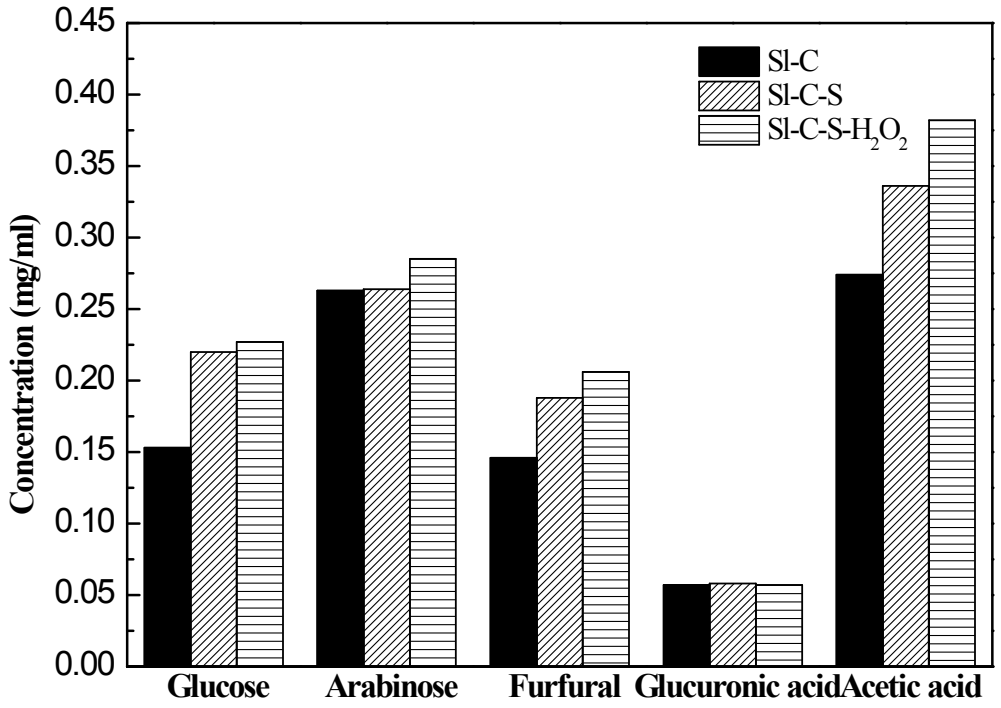
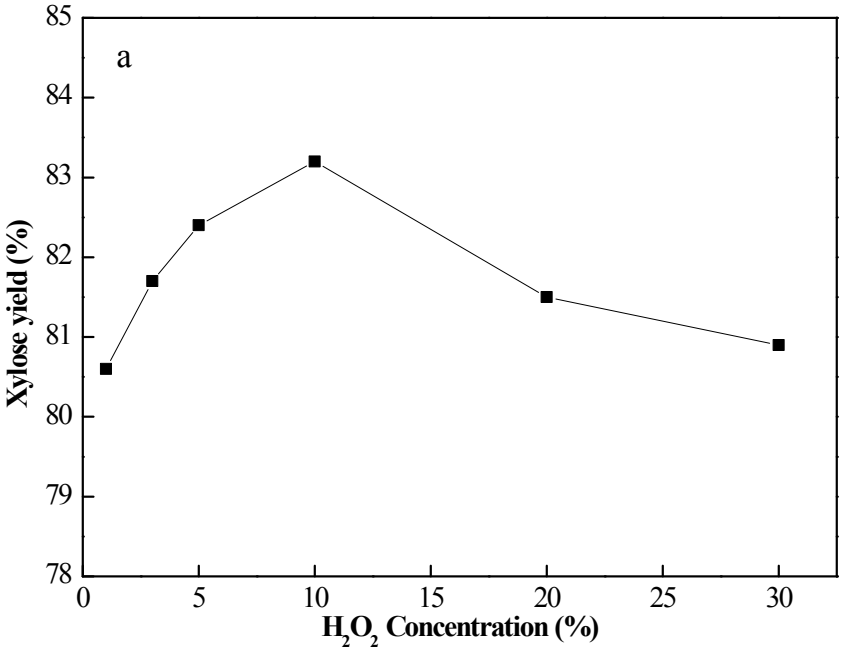
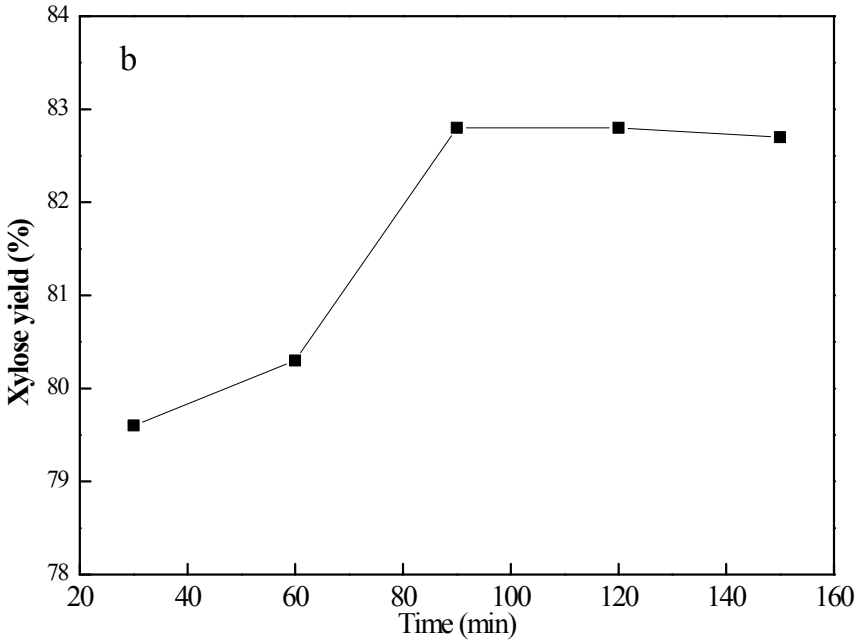
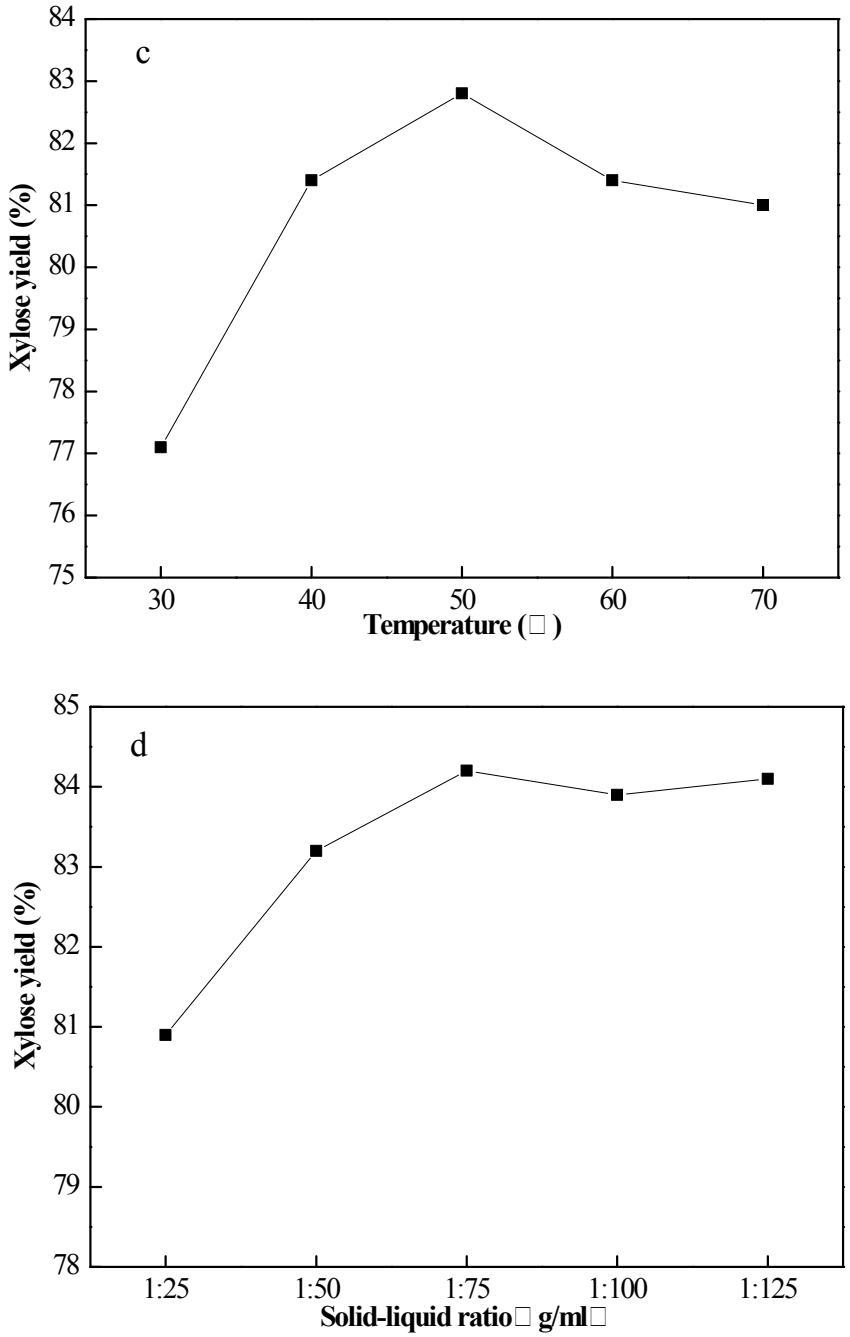


Fig. S2 Concentrations of byproduct (after 4% H_2SO_4 treatment) from corncob hydrolysis catalyzed by three catalysts.


a
Xylose yield (%)
85
84
83
82
81
80
79
78
0
5
10
15
20
25
30
H2O2 Concentration (%)


b
Xylose yield (%)
84
83
82
81
80
79
78
20
40
60
80
100
120
140
160
Time (min)



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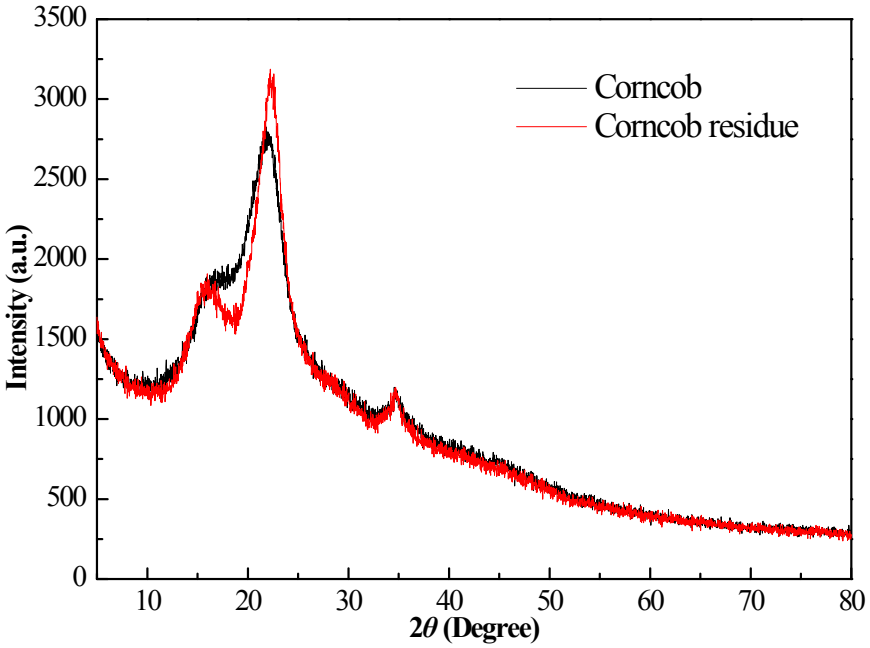

Fig. S4 X-ray diffraction pattern of corncob and residue

Table S1 Acid-base titration results at different temperatures

Temperature(°C)	200	250	300
-SO_3H content (mmol/g)	0.57	0.68	0.53
Total acid content (mmol/g)	4.16	4.78	4.08

Table S2 Elemental analysis and acid-base titration results for the solid acid catalysts after reuse

Reuse times	Sulfur content (%)	-SO_3H content (mmol/g)	Total acid content (mmol/g)
1	2.364	0.68	4.78
2	1.922	0.56	4.51
3	1.769	0.52	4.42
4	1.625	0.46	4.42
5	1.533	0.46	4.34