Table S1 Sn contents in Sn-Y zeolites.

No.	Sample name	Sn contents[a] (mmol g^{-1})	Sn contents[b] (mmol g^{-1})
1	Sn-Y-12-150	0.061	0.065
2	Sn-Y-12-75	0.121	0.118
3	Sn-Y-12-50	0.184	0.179

[a] Determined by ICP analysis.

[b] Obtained from XPS analysis in Fig. 3C.

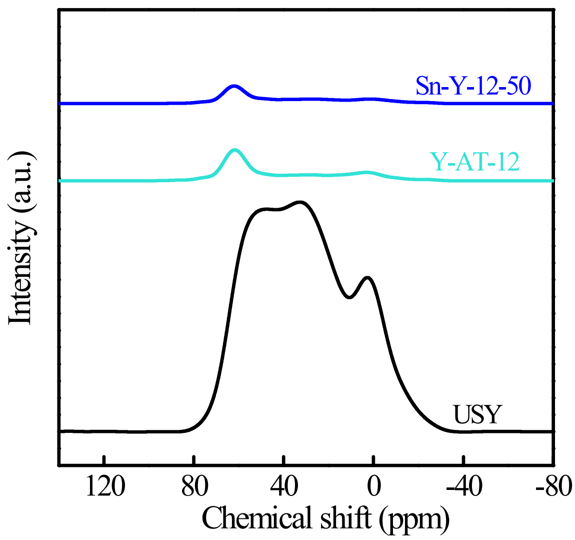


Fig. S1 ^{27}Al NMR MAS spectra of parent USY, Y-AT-12, and Sn-Y-12-50 samples.

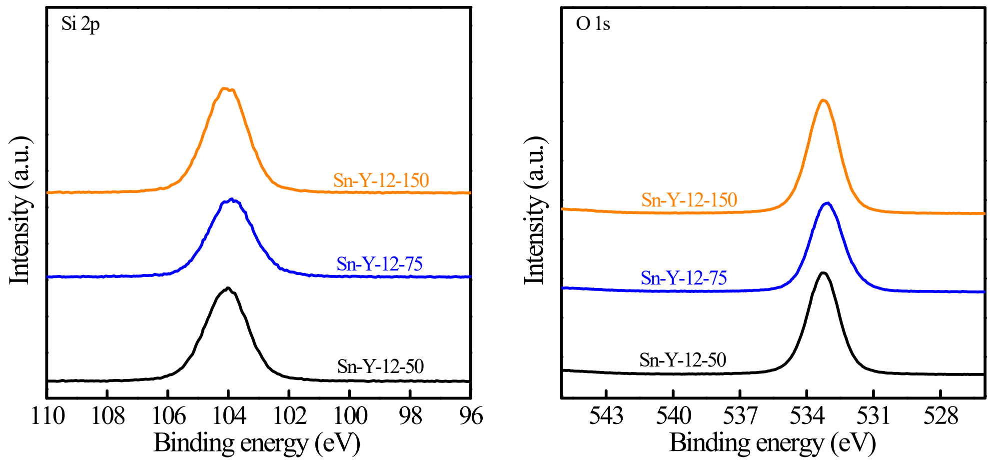


Fig. S2 Si 2p and O 1s XPS spectra of Sn-Y-12-50, Sn-Y-12-75, and Sn-Y-12-150 samples with different Sn contents.

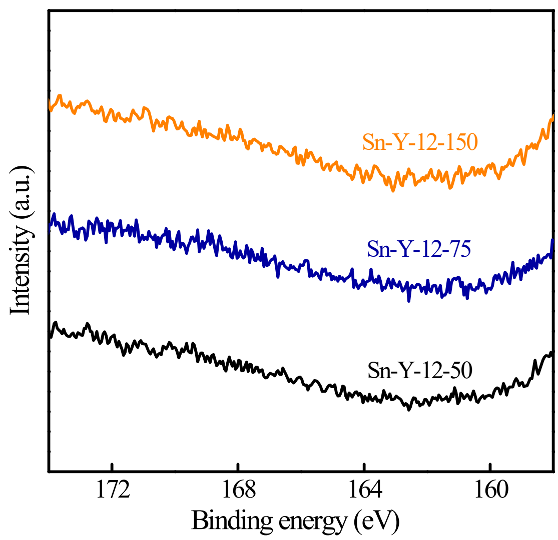


Fig. S3 S 2p XPS spectra of Sn-Y-12-*n* with different Sn contents.

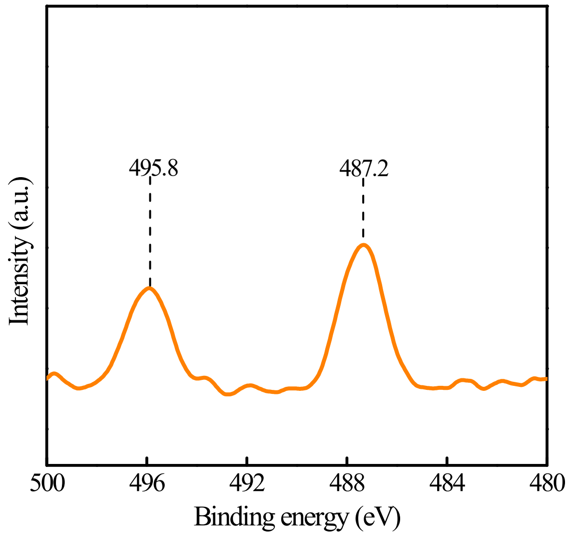


Fig. S4 Sn 3d XPS spectra of Sn-Y-12-30 sample.

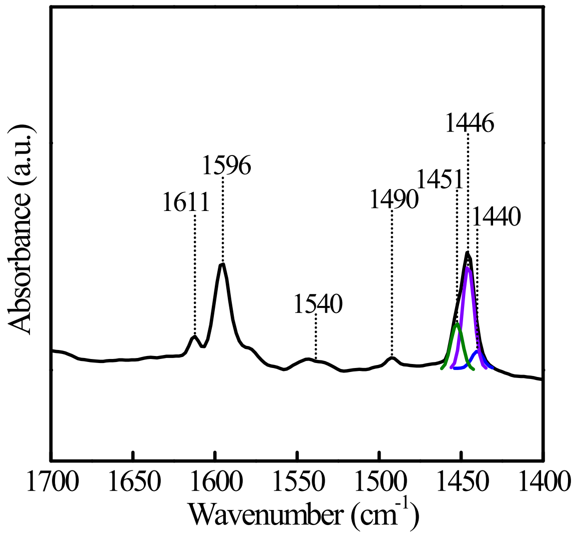


Fig. S5 FT-IR spectra of Sn-Y-12-50 samples after desorbing pyridine at 200 °C for 1 h.

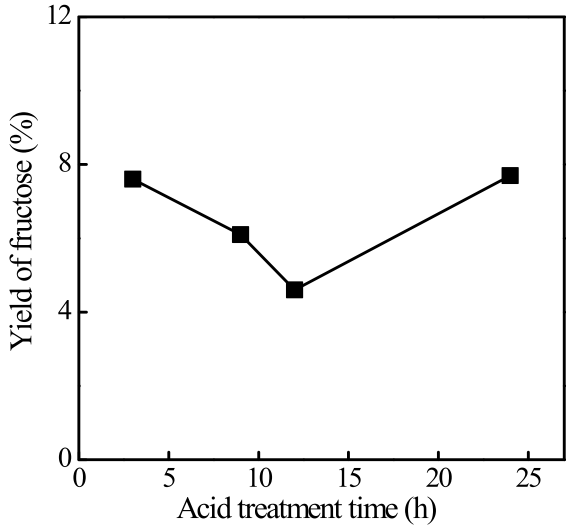


Fig. S6 The dependence of fructose yield on the acid treatment time. Reaction conditions: catalyst, 50 mg; glucose, 0.5 mmol; water, 1 mL; DMSO, 3 mL; temperature, 160 °C; time, 2 h.

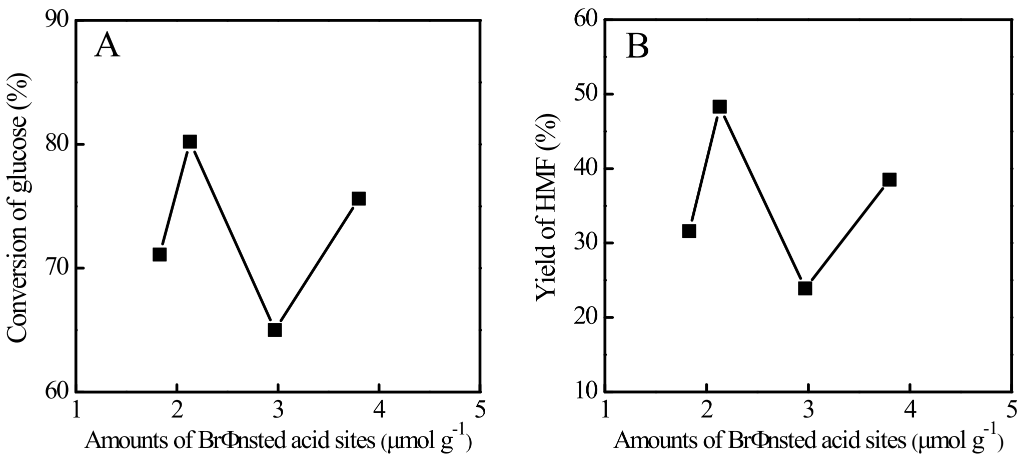
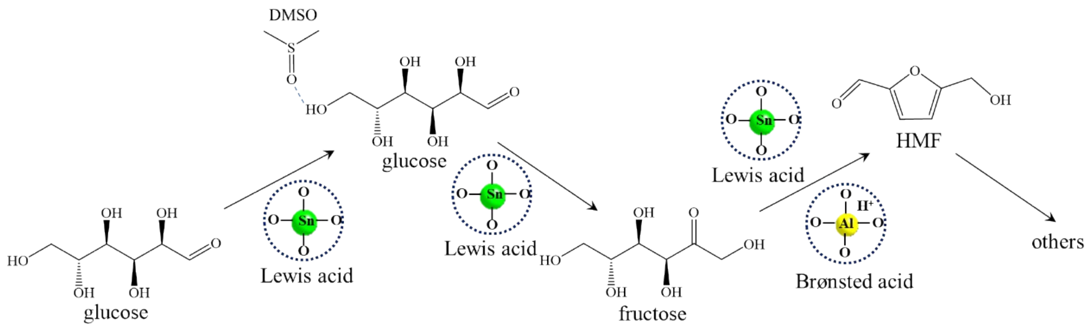


Fig. S7 (A) The dependence of glucose conversion on the Brønsted acid sites amounts. (B) The dependence of HMF yield on the Brønsted acid sites amounts.



Scheme S1 Reaction pathway of glucose conversion over Sn-Y zeolite in DMSO/H_2O cosolvent.

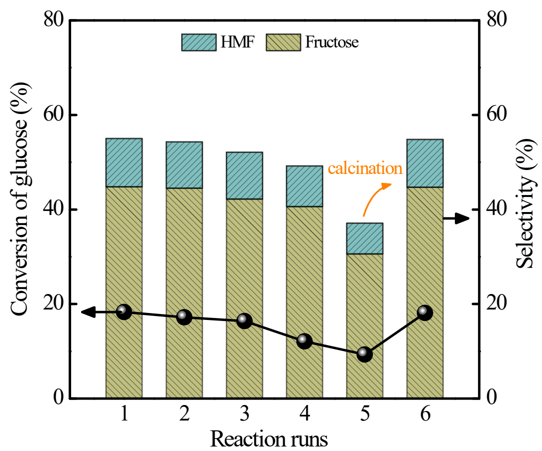


Fig. S8 The reusability of Sn-Y-12-50 catalyst in the transformation of glucose to HMF. Reaction condition: catalyst, 70 mg; glucose, 0.5 mmol; water, 1 mL; DMSO, 3 mL; temperature, 160 °C; time, 15 min.