Supporting Information

for

α-MoO_3 nanobelts as an effective bifunctional catalyst for one-step conversion of fructose to 2,5-diformylfuran under atmospheric air

Zhenzhen Yang *[a,b], *Bangchong Zhu* [a], *Yuhan He* [a], *Genlei Zhang* [a], *Peng Cui* [a], *Jianbo He* [a]

[a] School of Chemistry and Chemical Engineering, Anhui Province Key Laboratory of Advanced Catalytic Materials and Reaction Engineering, Anhui Province Key Laboratory of Controllable Chemistry Reaction and Material Chemical Engineering, Hefei University of Technology, Hefei, 230009, PR China.

[b] School of Materials Science and Technology, Hefei University of Technology, Hefei, 230009, PR China.

Corresponding Author: Zhenzhen Yang, E-mail: zzyang@hfut.edu.cn;

Contents:

1. EDS spectrum of α-MoO_3.

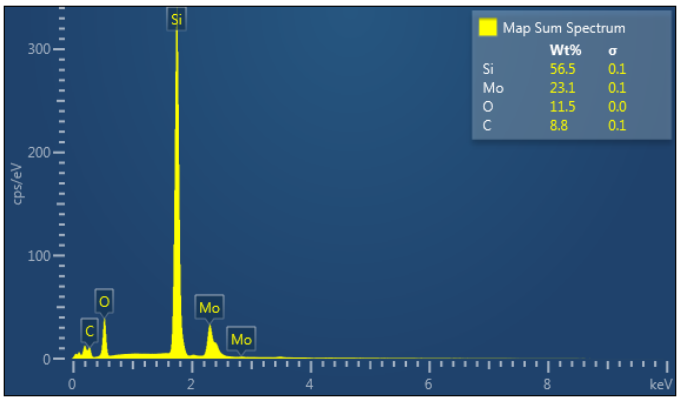

Figure S1. EDS spectrum of α-MoO_3.

2. The ratio of $O_\alpha/(O_\alpha+ O_\beta)$ on the surface of fresh α-MoO_3, α-MoO_3-air and α-MoO_3-N_2.

Table S1. The ratio of $O_\alpha/(O_\alpha+ O_\beta)$ on the surface of fresh α-MoO_3, α-MoO_3-air and α-MoO_3-N_2.

	$O_\alpha/(O_\alpha+O_\beta)$
fresh α-MoO_3	90.5
α-MoO_3-air	88.3%
α-MoO_3-N_2	76%

3. The results of leaching tests of α-MoO_3.

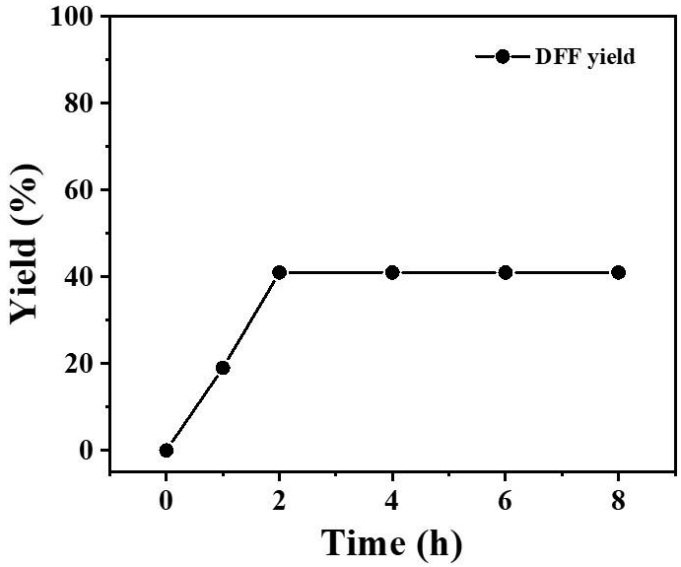

Figure S2. Leaching experiments at the optimum conditions for the oxidation of HMF to DFF catalyzed by α-MoO_3. Reaction conditions: HMF 0.126 g (1 mmol), α-MoO_3 50 mg, DMSO 2 mL, 120 °C.

4. SEM and EDS spectra of the used α-MoO_3.

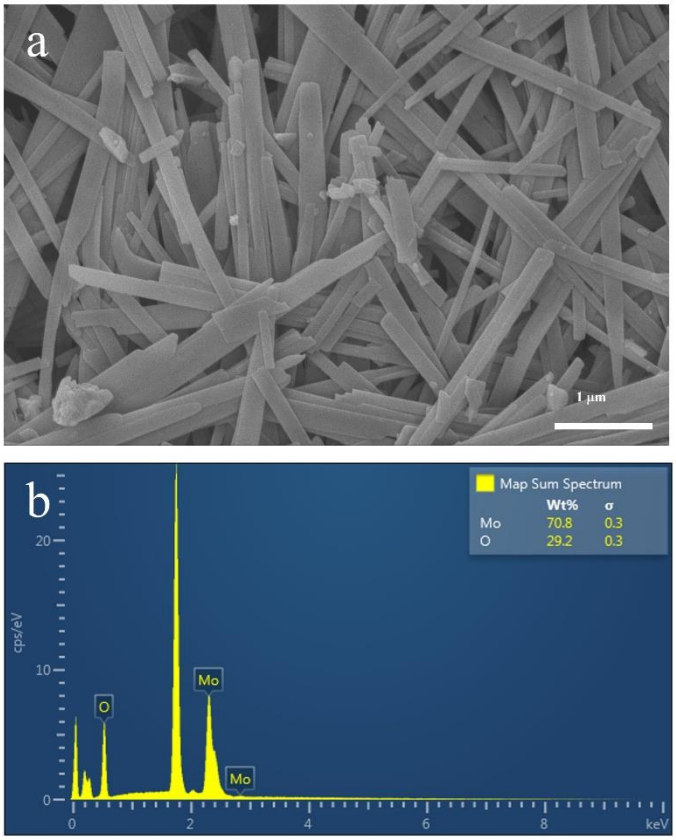

Figure S3. SEM and EDS spectra of the used α-MoO_3.

5. Effects of reaction temperature and time on the carbon balance of fructose conversion to HMF and DFF under atmospheric air.

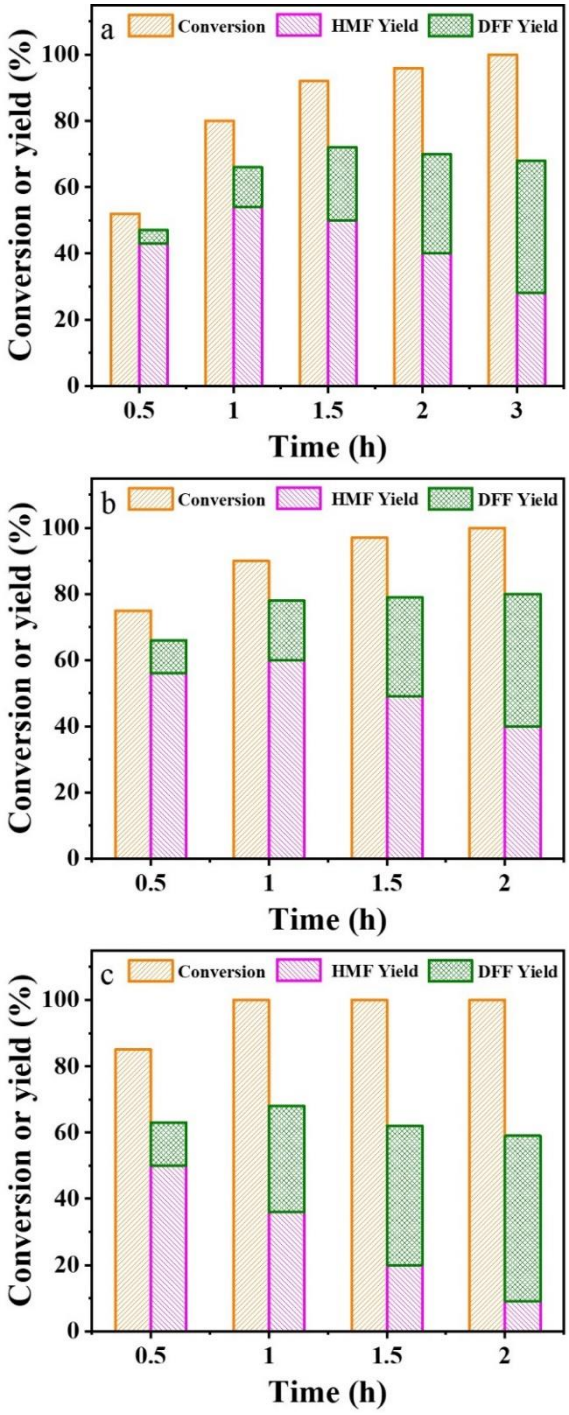

Figure S4. Effects of reaction temperature and time on the carbon balance of fructose conversion to HMF and DFF under atmospheric air (a) 110 °C, (b) 120 °C and (c) 130 °C.