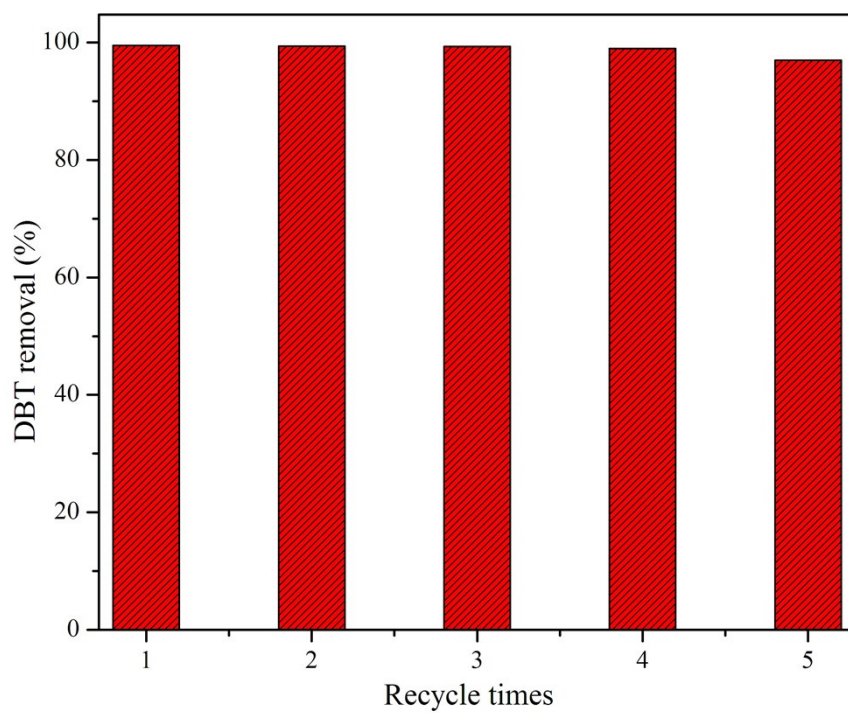
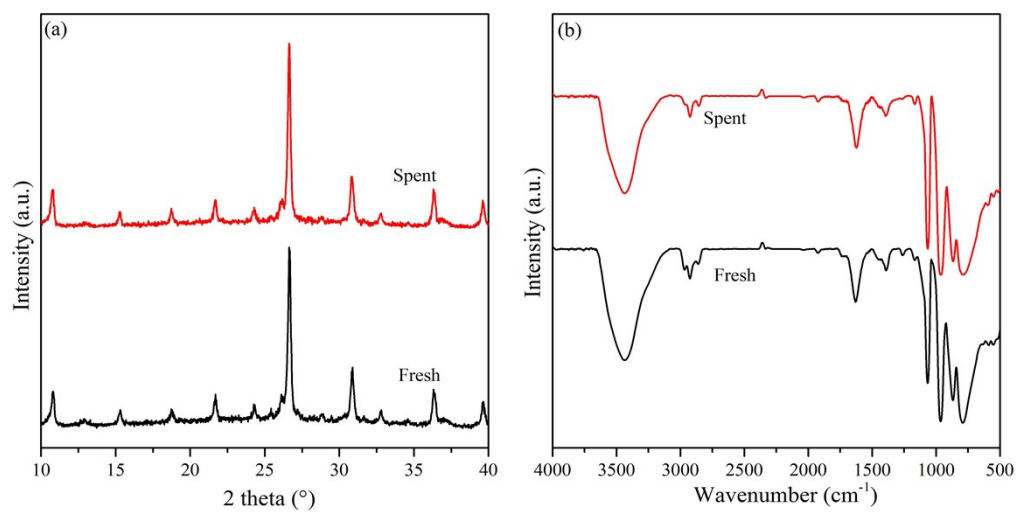


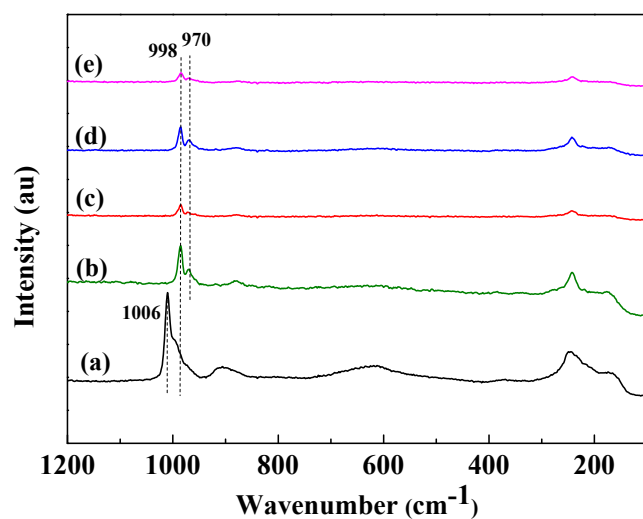
**Fig. S1** Thermogravimetric analysis of (a)  $K_{1.0}PMo$  (b)  $K_{2.0}PMo$  (c)  $K_{3.0}PMo$  (d)  $K_{4.0}PMo$ .



**Fig. S2** Effect of recycling times on DBT conversion.  
Experimental conditions: catalysts dosage=0.2g, T=60°C,  
 $n(\text{H}_2\text{O}_2)/n(\text{DBT})=4$ ,  $t=60\text{min}$ ,  $C_0=320\text{ppmw}$ ,  $V(\text{oil})/V(\text{methanol})=1.5:1$ .



**Fig. S3** (a) Powder XRD patterns (b) FT-IR spectra of  $K_{4.0}PMo$  before and after catalytic reaction.



**Fig. S4.** Raman spectra of different samples. (a) HPMo (b)  $k_{1.0}PMo$  (c)  $k_{2.0}PMo$  (d)  $k_{3.0}PMo$  (e)  $k_{4.0}PMo$ .

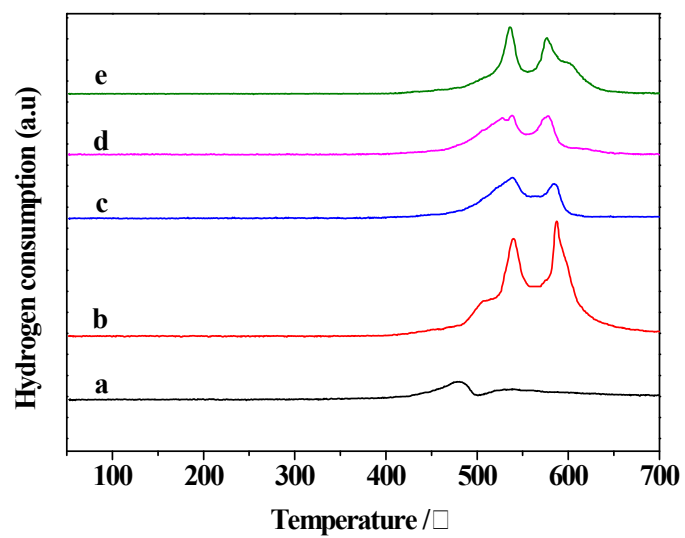


Fig. S5. TPR profiles of (a) HPMo (b)  $K_{1.0}PMo$  (c)  $K_{2.0}PMo$  (d)  $K_{3.0}PMo$  (e)  $K_{4.0}PMo$ .