

## Electronic Supplementary Information (ESI)

### Metal nanoparticles supported on WO<sub>3</sub> nanosheets for the highly selective cellulose hydrogenolysis to ethylene glycol†

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This section includes:

Fig. S1 to S8

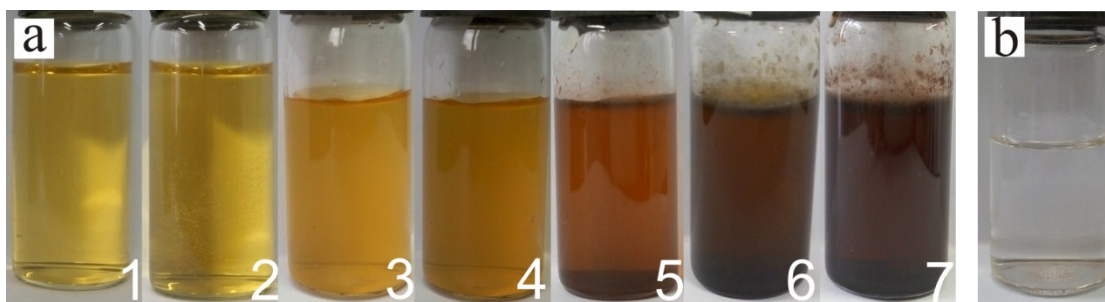


Fig. S1 The color of the liquid product after hydrogenolysis of cellulose: (a) Effect of storage time (1-7 days) on the color of reaction product, (b) The reaction product by 1% Ru/WO<sub>3</sub> catalyst under 4 MPa H<sub>2</sub>.

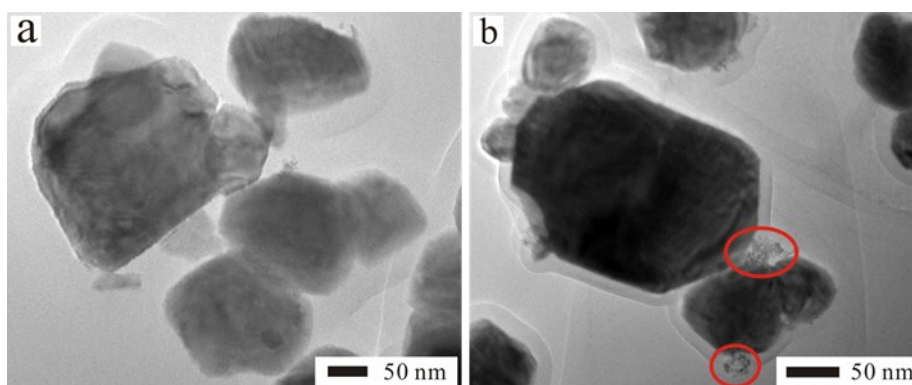


Fig. S2 (a) SEM image of WO<sub>3</sub> nanoparticles purchased from Aladdin Chemistry Co., Ltd in analytical grade, (b) SEM image of 1% Ru/WO<sub>3</sub> (Red circle of the tag is the agglomeration of ruthenium nanoparticles)

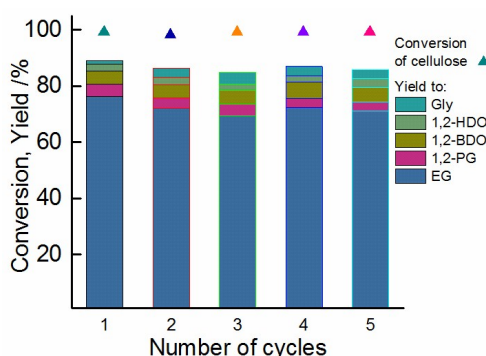


Fig. S3 cellulose conversion and selectivity for polyols for five reaction cycles on 1% Ru/WO<sub>3</sub>. ( reaction conditions: 0.25 g cat.; 1 g cellulose, 40 mL water, 4 MPa H<sub>2</sub>, 240 °C, 2 h, 1000 rpm).

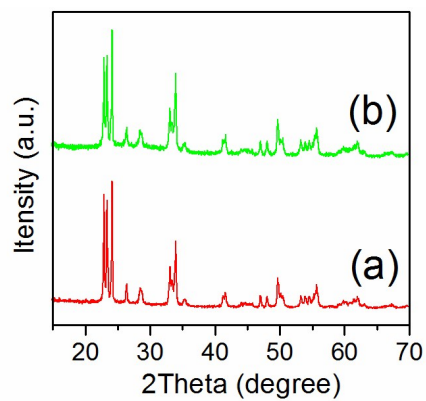


Fig. S4 XRD profile of 1% Ru/WO<sub>3</sub> before (a) and after (b) reaction (5<sup>th</sup> cycle).

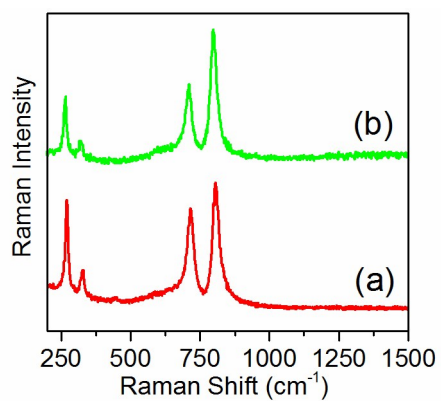


Fig. S5 Raman spectra of 1% Ru/WO<sub>3</sub> before (a) and after (b) reaction (5<sup>th</sup> cycle).

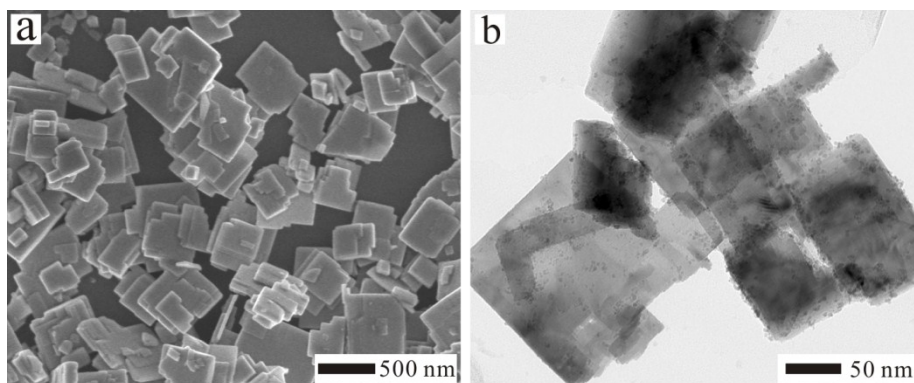


Fig. S6 (a) SEM images of 1% Ru/WO<sub>3</sub> after reaction (5<sup>th</sup> cycle); (b) TEM images of 1% Ru/WO<sub>3</sub> after reaction (5<sup>th</sup> cycle).



Fig. S7 (a) Photograph of  $\text{WO}_3$  powder, (b) 1 wt.% Ru supported on  $\text{WO}_3$  nanosheets powder.

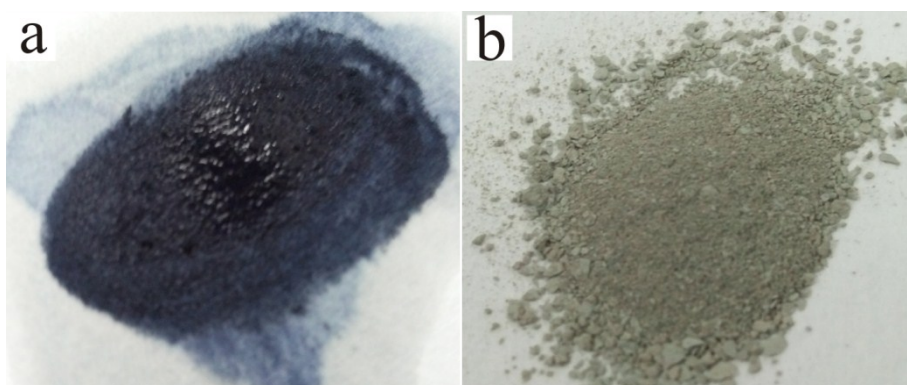


Fig. S8 Photograph of 1% Ru/ $\text{WO}_3$  after hydrothermal treatment (a) and oxidized by exposure to the air (b).