

Electronic Supplementary Information (ESI):

A one-pot method for the enhanced production of xylitol directly from hemicellulose (corn cob xylan)

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Characterization results:

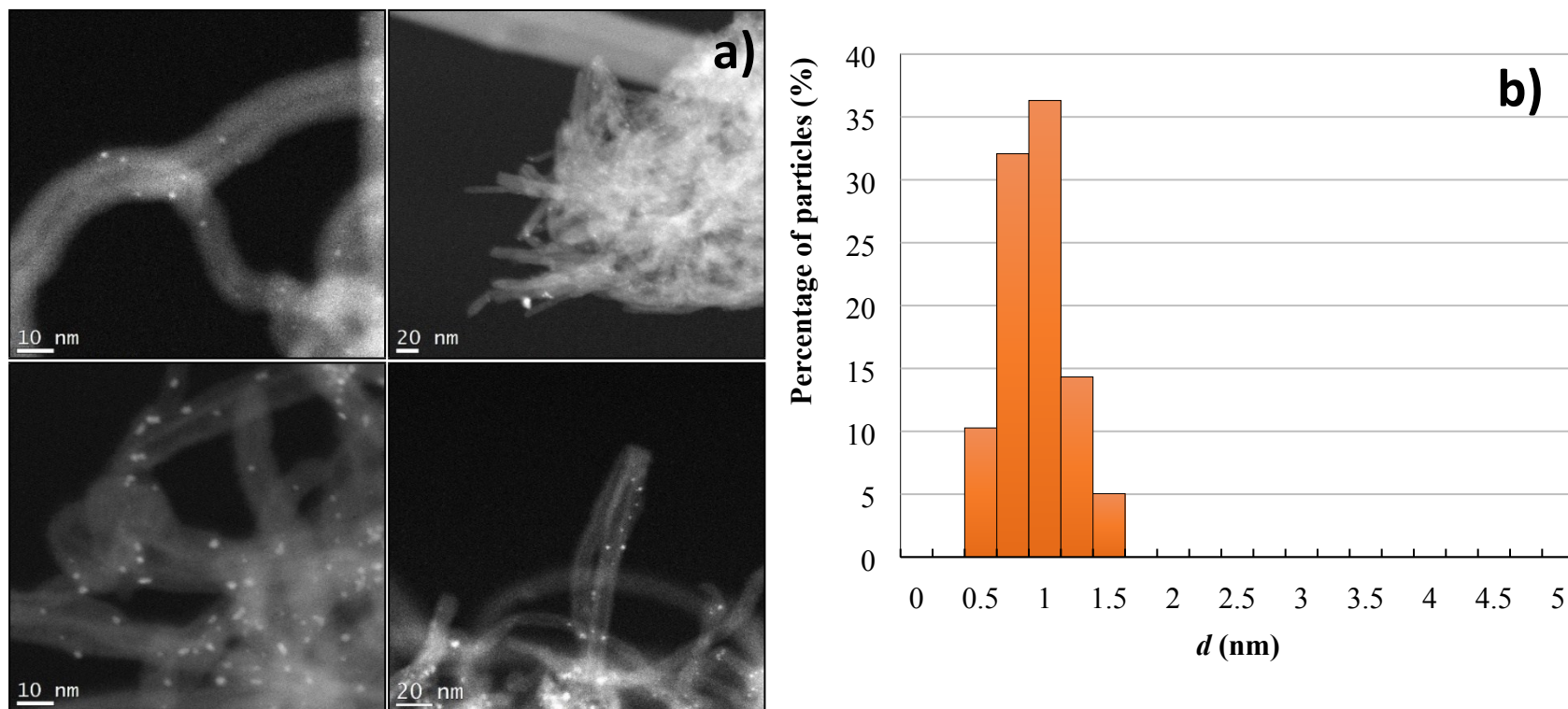


Figure S1 – TEM images (a) and ruthenium particle size distribution on 0.4%Ru/CNT (b).

Transmission electron microscopy (TEM) micrographs were obtained using a JEOL2010F instrument, with 0.19 nm spatial resolution at Scherzer defocus conditions. High Angel Annular Dark Field-Scanning Transmission Electron Microscopy (HAADF-STEM) images were obtained with the

same microscope. From the images, around 250 ruthenium nanoparticles were measured and the average diameter was calculated by

$$d_M = \frac{\sum d_i n_i}{\sum n_i}, \text{ where } n_i \text{ is the number of particles with diameter } d_i.$$

Reaction results:

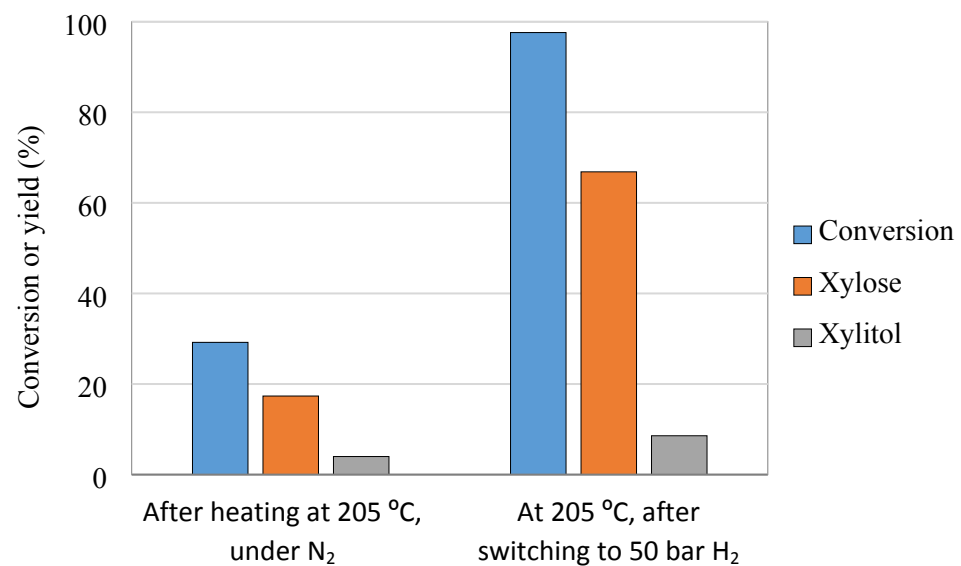


Figure S2 – Conversion of xylan and yields of xylose and xylitol after heating to 205 °C before and after introduction of H₂. Reaction conditions: xylan (0.75 g), water (300 mL), 0.4%Ru/CNT (0.3 g), 205 °C, 150 rpm.