

Electronic Supplementary material (ESI) for New Journal of Chemistry, RSC.

Electronic Supplementary Information (ESI)

Designing an industrially viable bimetallic catalyst for the polyol synthesis

Jyoti R. Kadam,^{#ab} Tufeil Sartaj Khan^{#ab} and Paresh L. Dhepe^{*ab}

^a Catalysis and Inorganic chemistry division, CSIR-National Chemical Laboratory, Dr. Homi Bhabha Road, Pune 411008, India.

^b Academy of Scientific and Innovative Research (AcSIR), CSIR-HRDC Campus, Sector 19, Kamlā Nehru Nagar, Ghaziabad, UP, 201002

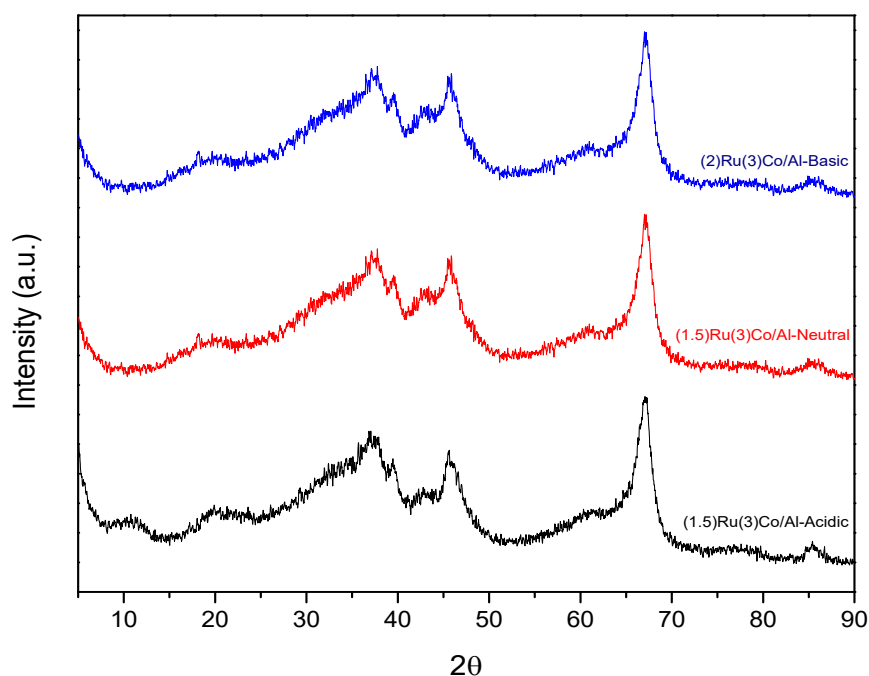


Fig. S1. XRD pattern bimetallic (1.5)Ru(3)Co/Al catalyst with acidic, basic and neutral support.

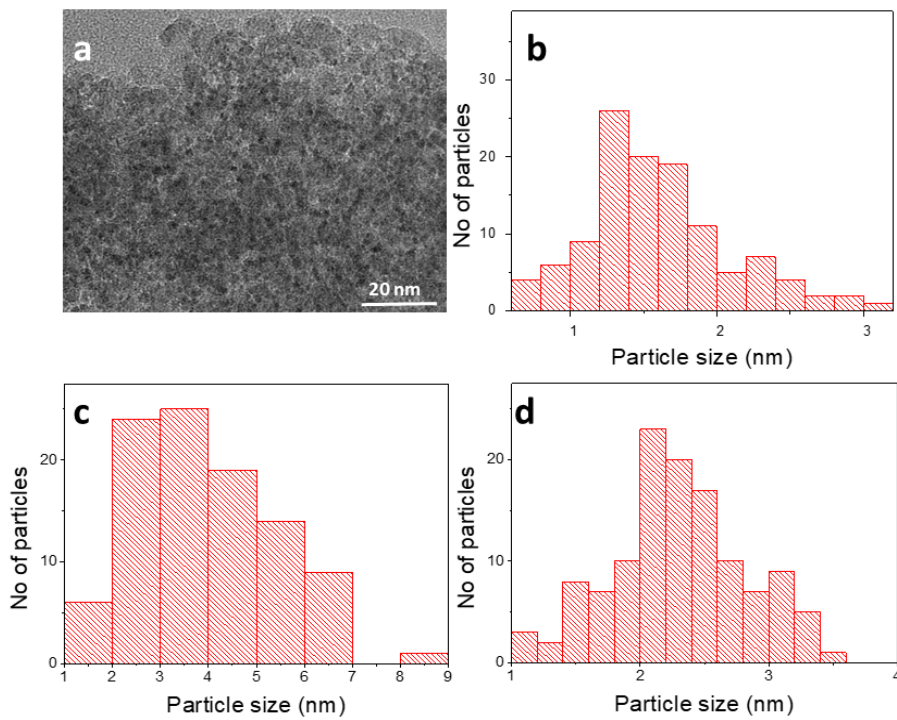


Fig. S2. TEM images (a) (1.5)Ru(3)Co/Al-Basic catalyst Spent, (b) Metal particle size distribution (1.5)Ru(3)Co/Al-Basic catalyst spent, (c & d) Metal particle size distribution (3)Co/Al-Basic catalyst & (1.5)Ru/Al-Basic catalyst.

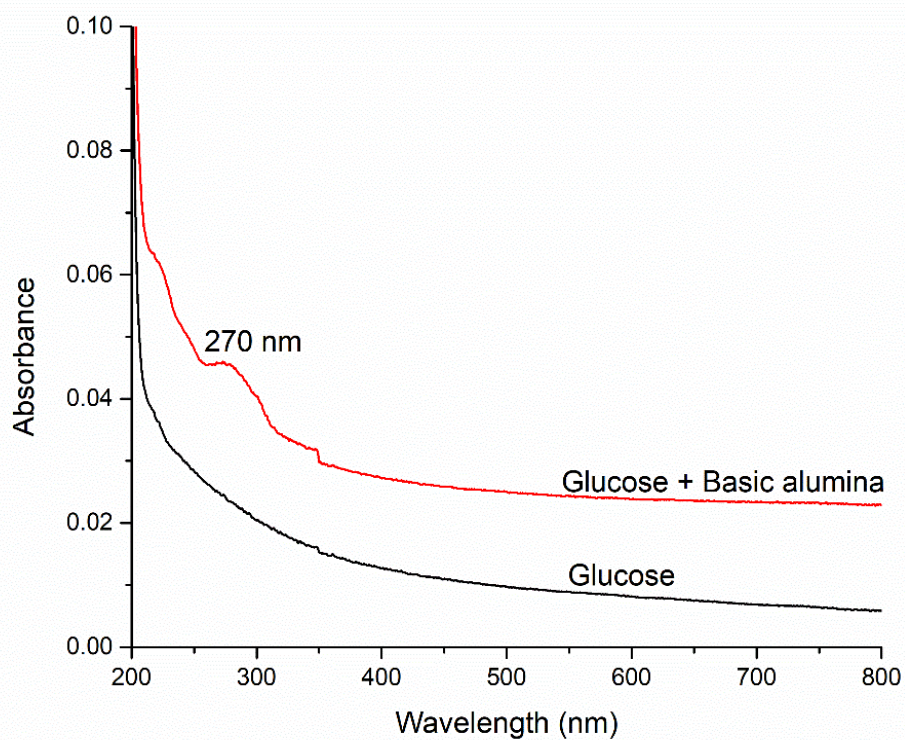


Fig. S3. UV-Vis spectra.

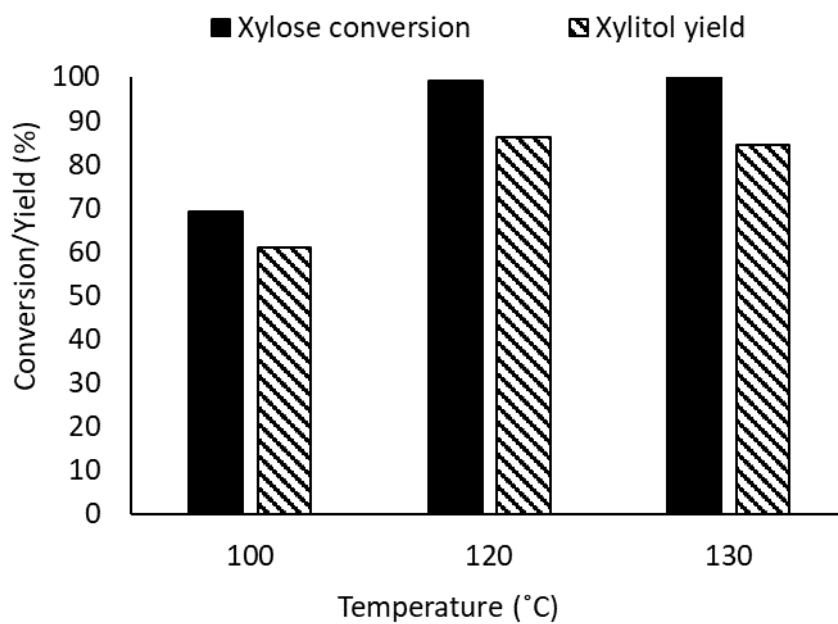


Fig. S4. Effect of temperature for hydrogenation of xylose to xylitol. Reaction conditions: Xylose, (1.5)Ru(3)Co/Al-Basic, S/C (169 mol/mol), Water 35mL, 15 bar H₂ at R.T., 3h.

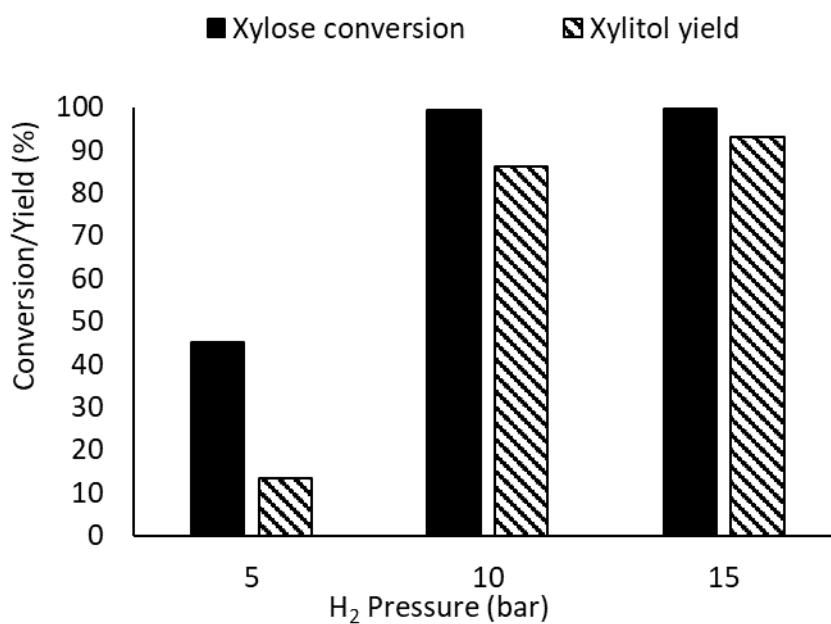


Fig. S5. Effect of time for hydrogenation of xylose to xylitol. Reaction conditions: Xylose, (1.5)Ru(3)Co/Al-Basic, S/C (169 mol/mol), Water 35mL, 120°C, 3h.

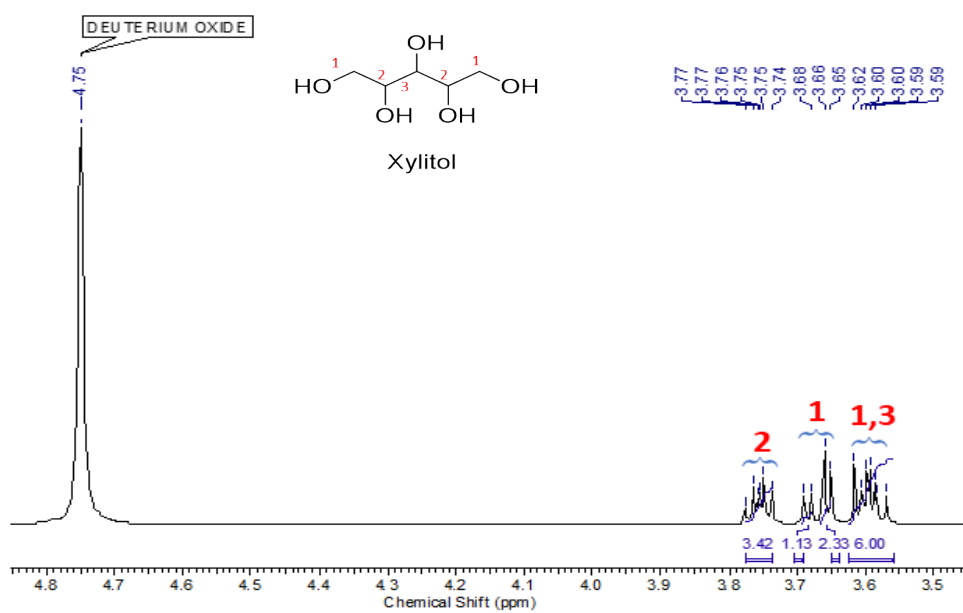


Fig. S6. ¹H NMR of xylitol.

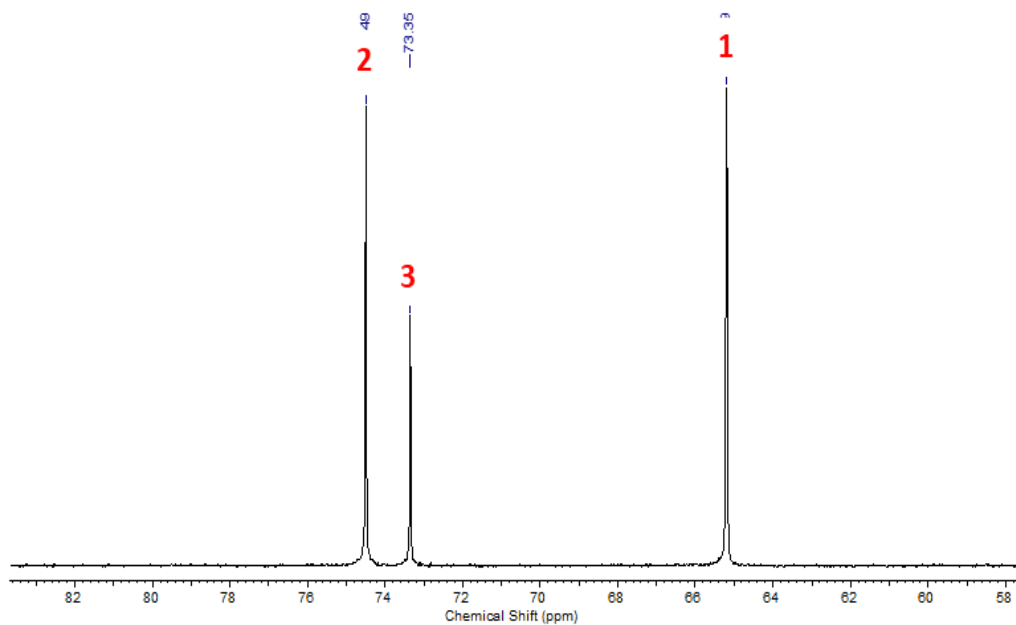


Fig. S7. ¹³C NMR of xylitol.

Xy1b #217 RT: 1.26 AV: 1 NL: 1.59E7
T: FTMS + p ESI Full ms [100.0000-1500.0000]

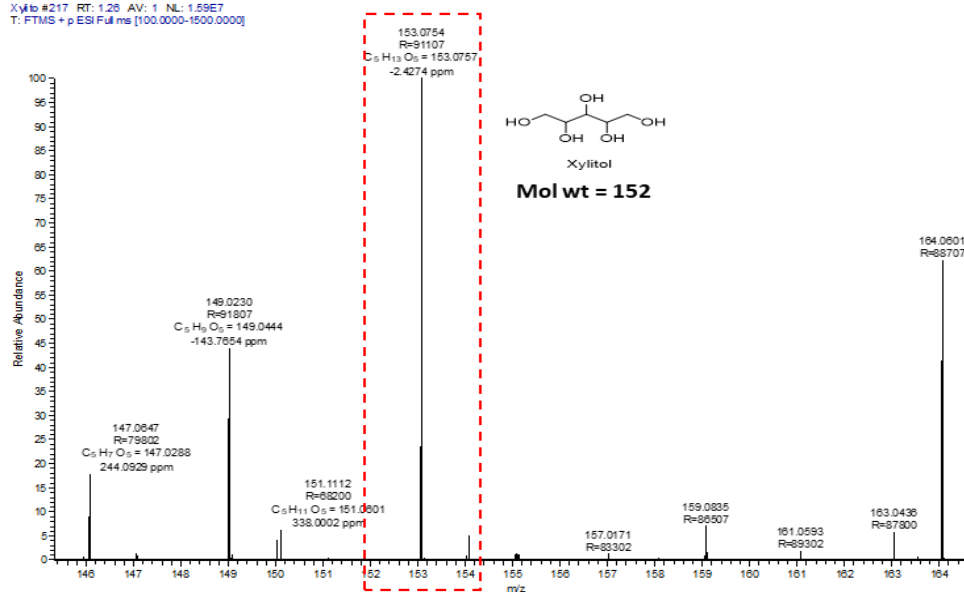


Fig. S8. HRMS analysis of xylitol.