

Electronic Supplementary Information (ESI)

Hemicellulose hydrolysis catalysed by solid acids

Piera Demma Carà,^{a, b, c} Mario Pagliaro,^b Ahmed Elmekawy,^d David. R. Brown,^d Peter Verschuren,^a N. Raveendran Shiju*^a and Gadi Rothenberg^a

^a Van 't Hoff Institute for Molecular Sciences, University of Amsterdam, P.O. Box 94157, 1090GD Amsterdam, The Netherlands. <http://hims.uva.nl/hcsc>

^b Istituto per lo Studio dei Materiali Nanostrutturati, CNR, via U. La Malfa 153, 90146 Palermo, Italy.

^c Dipartimento Sistemi Agro-Ambientali, Università degli Studi di Palermo, viale delle Scienze, 90128 Palermo, Italy.

^d Materials and Catalysis Research Centre, Dept. of Chemical and Biological Sciences, University of Huddersfield, Queensgate HD1 3DH, UK

* n.r.shiju@uva.nl

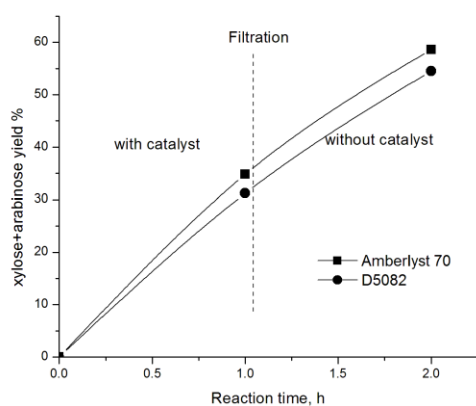


Fig. S1 Results for the *hot filtration test* with Amberlyst 70 and purolite D5082. Reaction conditions: xylan (0.1 g); catalyst (0.1 g); water (10 ml); 120 °C, 10 bar (Ar).

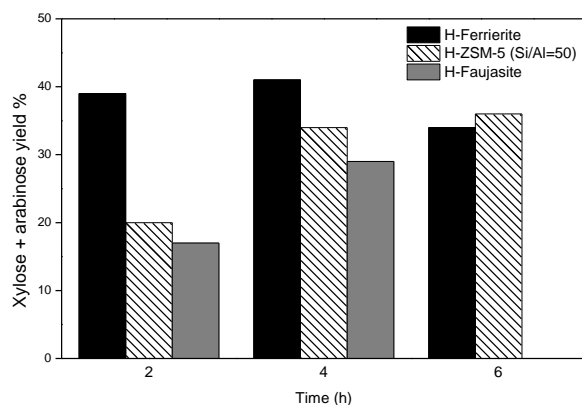


Fig. S2 Yield of xylose and arabinose using H-Ferrierite, H-ZSM-5 (Si/Al = 50) and H-Y at different reaction times. Reaction conditions: xylan (0.1 g); catalyst (0.1 g); water (10 ml); 140 °C, 10 bar (Ar).

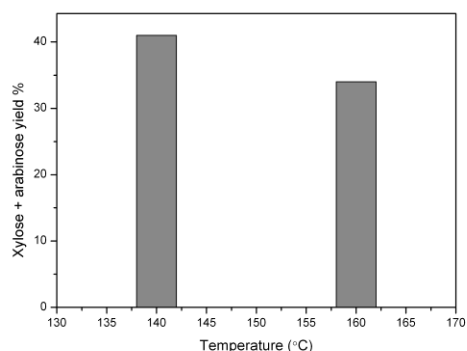


Fig. S3 Yield of xylose and arabinose using H-Ferrierite at different temperatures. Reaction conditions: xylan (0.1 g); catalyst (0.1 g); water (10 ml); 10 bar (Ar), 4h.

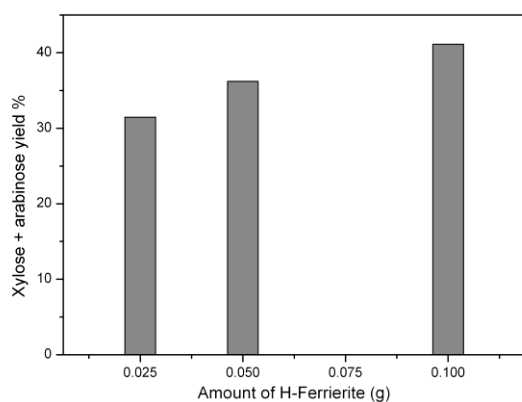


Fig. S4 Yield of xylose and arabinose using lower amount of H-Ferrierite. Reaction conditions: xylan (0.1 g); catalyst (0.1 g); water (10 ml); 140 °C, 10 bar (Ar), 4h.

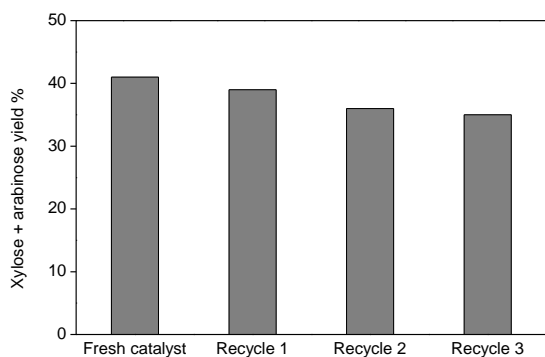


Fig. S5 Yield of xylose and arabinose after the recycling test with H-Ferrierite. Reaction conditions: xylan (0.1 g); catalyst (0.1 g); water (10 ml); 140 °C, 10 bar (Ar), 4h. The catalyst was filtered, dried and calcined for 4h in air at 500 °C between runs.

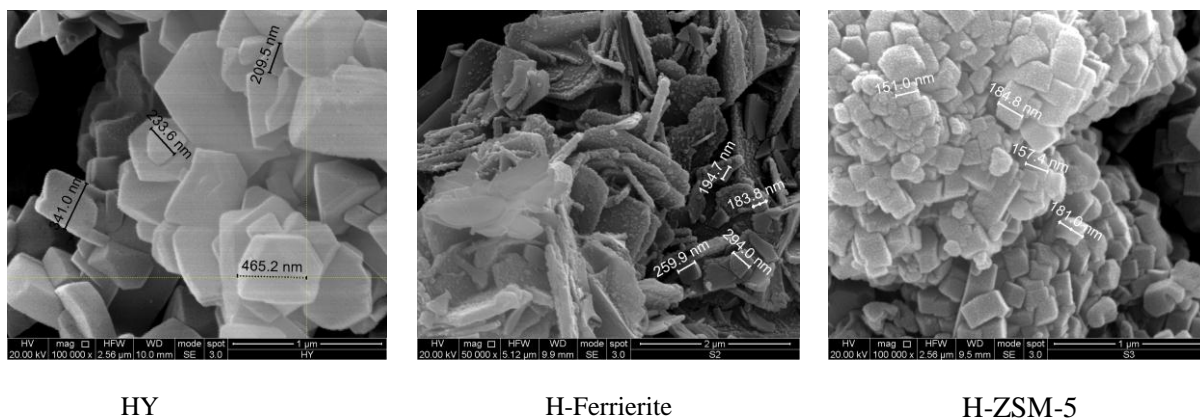


Fig. S6 SEM images of zeolite samples. The samples consist of aggregates of particles with sizes of few hundred nanometers.