

Electronic Supplementary Information

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Bifunctional ZSM-5/hydrotalcite composite for enhanced production of 5-hydroxymethylfurfural from glucose

Maliwan Subsadsana,^{*,a} Koji Miyake,^b Kaito Ono,^b Misaki Ota,^b Yuichiro Hirota,^b Norikazu Nishiyama,^b and Sira Sansuk^{*,c}

^a Program of Chemistry, Faculty of Science and Technology, Nakhon Ratchasima Rajabhat University, Nakhon Ratchasima 30000, Thailand. E-mail: Suebsadsana@gmail.com

^b Division of Chemical Engineering, Graduate School of Engineering Science, Osaka University, 1-3 Machikaneyama, Toyonaka, Osaka 560-8531, Japan

^c Materials Chemistry Research Center, Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand. E-mail: sirisan@kku.ac.th

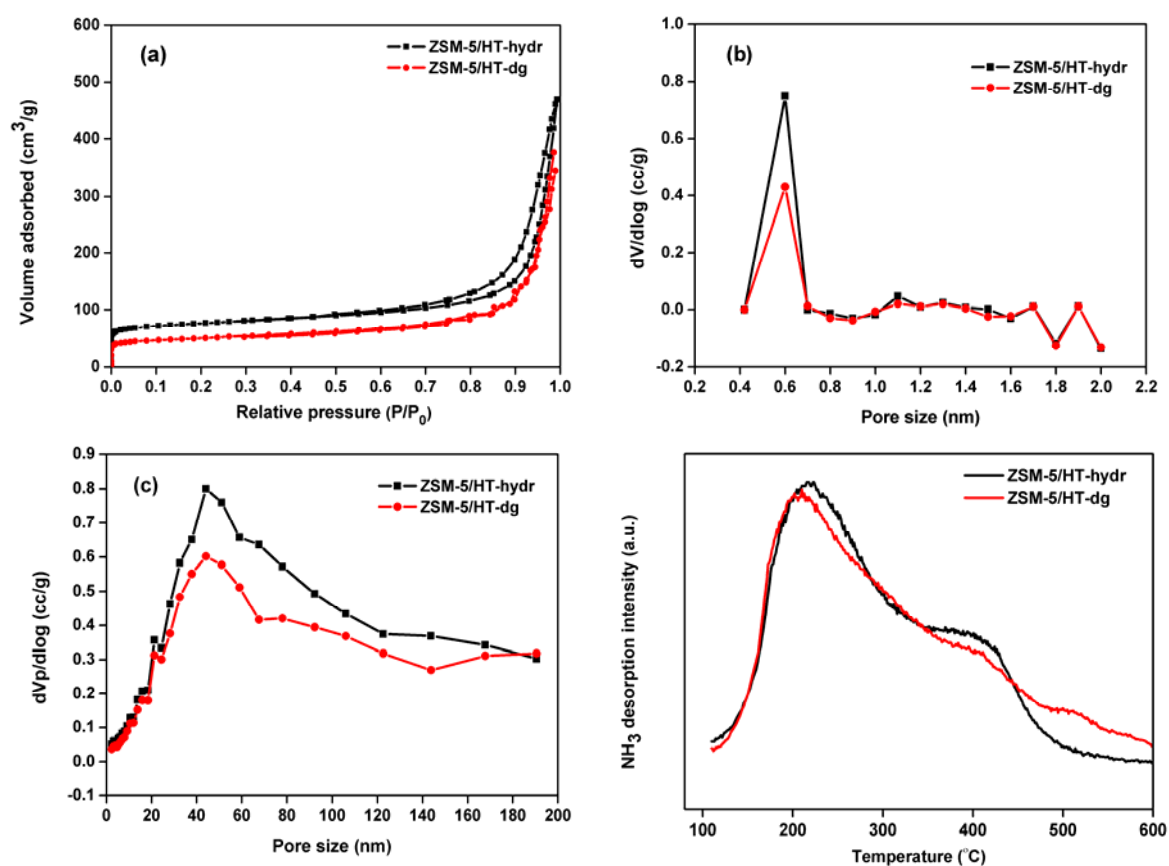


Fig. S1 (a) N_2 adsorption-desorption isotherms, (b) micropore size distribution, (c) mesopore size distribution, and (d) NH_3 -TPD profiles of ZSM-5/HT-hydr and ZSM-5/HT-dg.

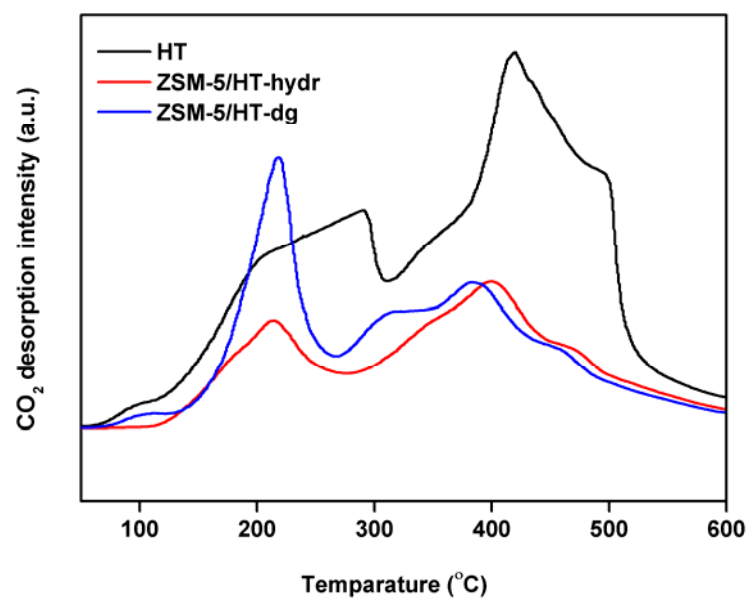


Fig. S2 CO₂-TPD profiles of catalysts

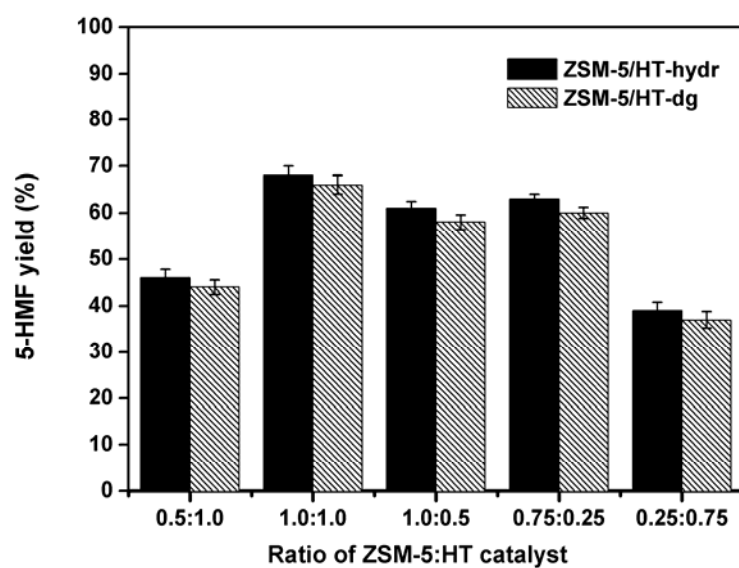


Fig. S3 Effect of ratio of ZSM-5 and HT catalyst at the reaction condition of 1 g of glucose, 10 mL of H₂O/THF/NaCl solvent, 150 °C, and 120 min.

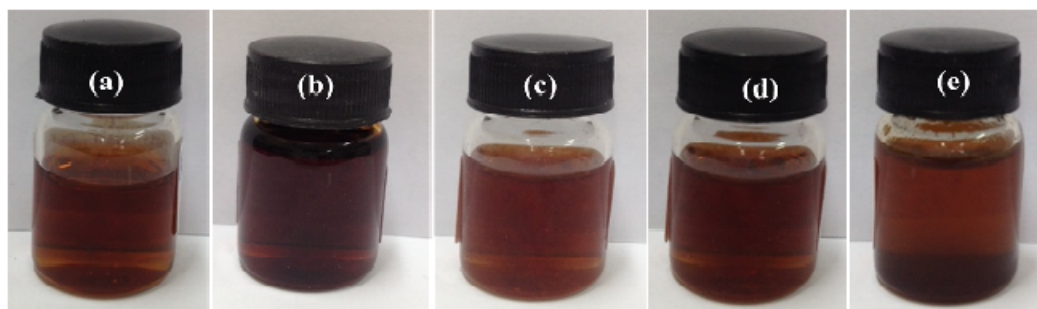


Fig. S4 Photographic images of unfiltered 5-HMF solution produced by using various catalysts; (a) blank, (b) HT, (c) ZSM-5, (d) ZSM-5/HT-hydr, and (e) ZSM-5/HT-dg.

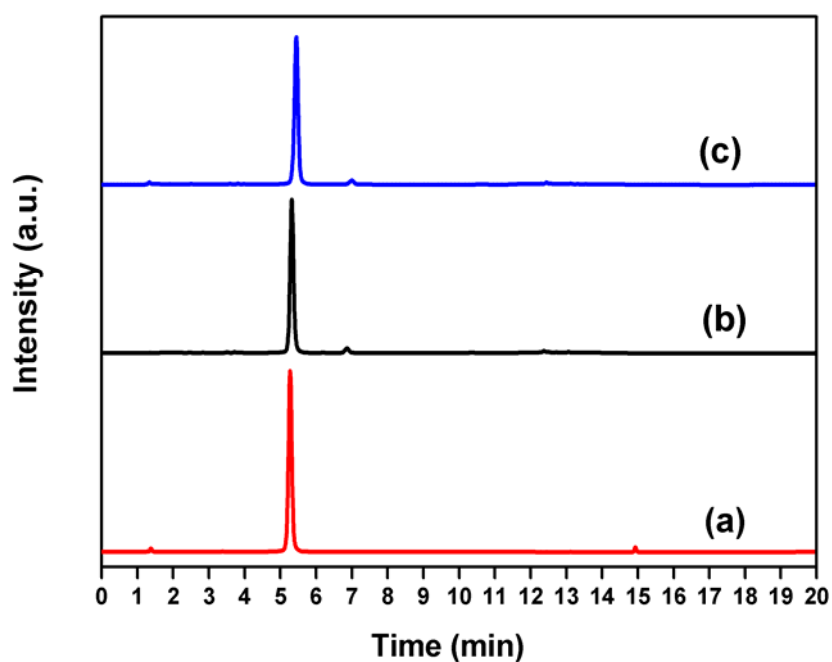


Fig. S5 Chromatograms of 5-HMF produced by using different catalysts; (a) standard 5-HMF, (b) ZSM-5/HT-hydr, and (c) ZSM-5/HT-dg.

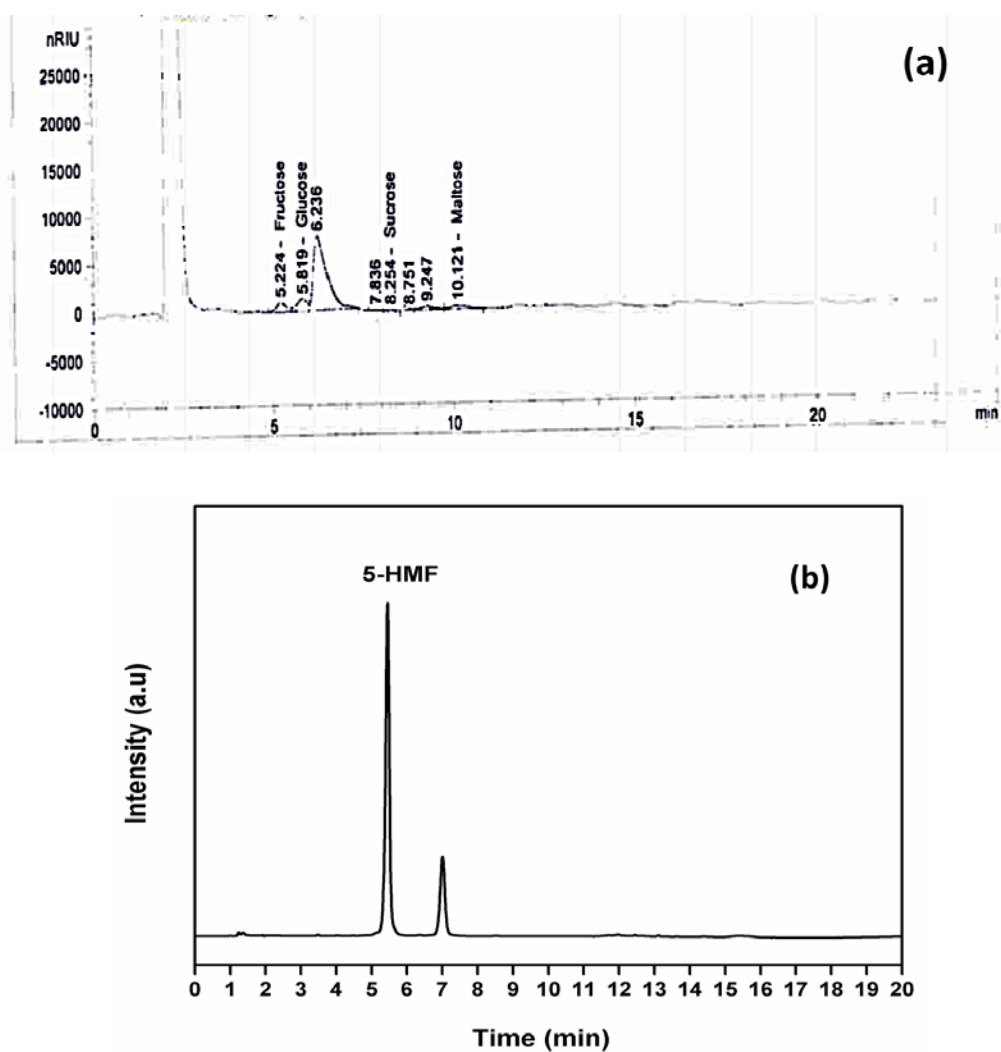


Fig. S6 Analysis result of the product solution at reaction time 150 min; (a) chromatogram obtained by HPLC with refractive index detector and (b) chromatogram of 5-HMF and other products by HPLC with UV-Visible detector.