

Impact of Thermal Treatment of Nb₂O₅ on Its Performance in Glucose Dehydration to 5-Hydroxymethylfurfural in Water

Katarzyna Morawa Eblagon ^{1,*}, Anna Malaika ^{2,*}, Karolina Ptaszynska ^{1,2}, Manuel Fernando R. Pereira ¹ and José Luís Figueiredo ¹

¹ Associate Laboratory LSRE-LCM, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias s/n, 4200-465 Porto, Portugal; karolina.ptaszynska@amu.edu.pl (K.P.); fpereira@fe.up.pt (M.F.R.P.); jlfig@fe.up.pt (J.L.F.)

² Faculty of Chemistry, Adam Mickiewicz University in Poznań, Uniwersytetu Poznańskiego 8, 61-614 Poznań, Poland

* Correspondence: keblagon@fe.up.pt (K.M.E.), amalaika@amu.edu.pl (A.M.)

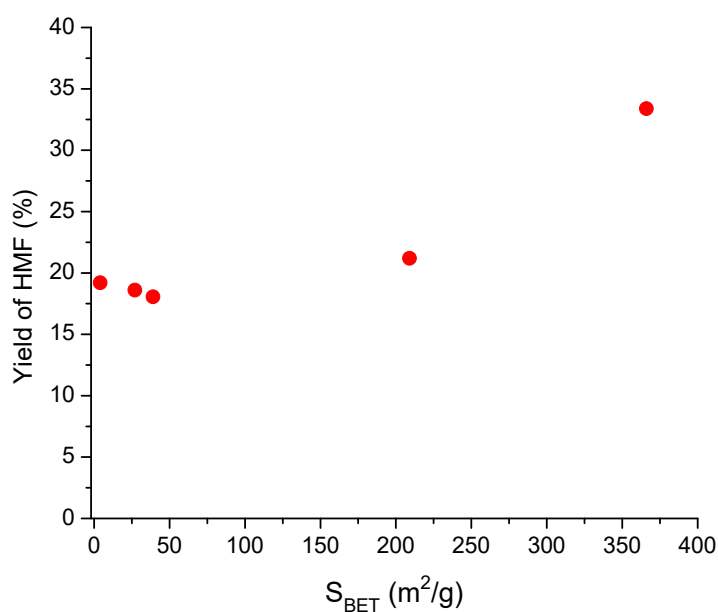


Figure 1. Correlation of the S_{BET} of the catalysts with the obtained yield of HMF in the initial 30 min of the reaction.

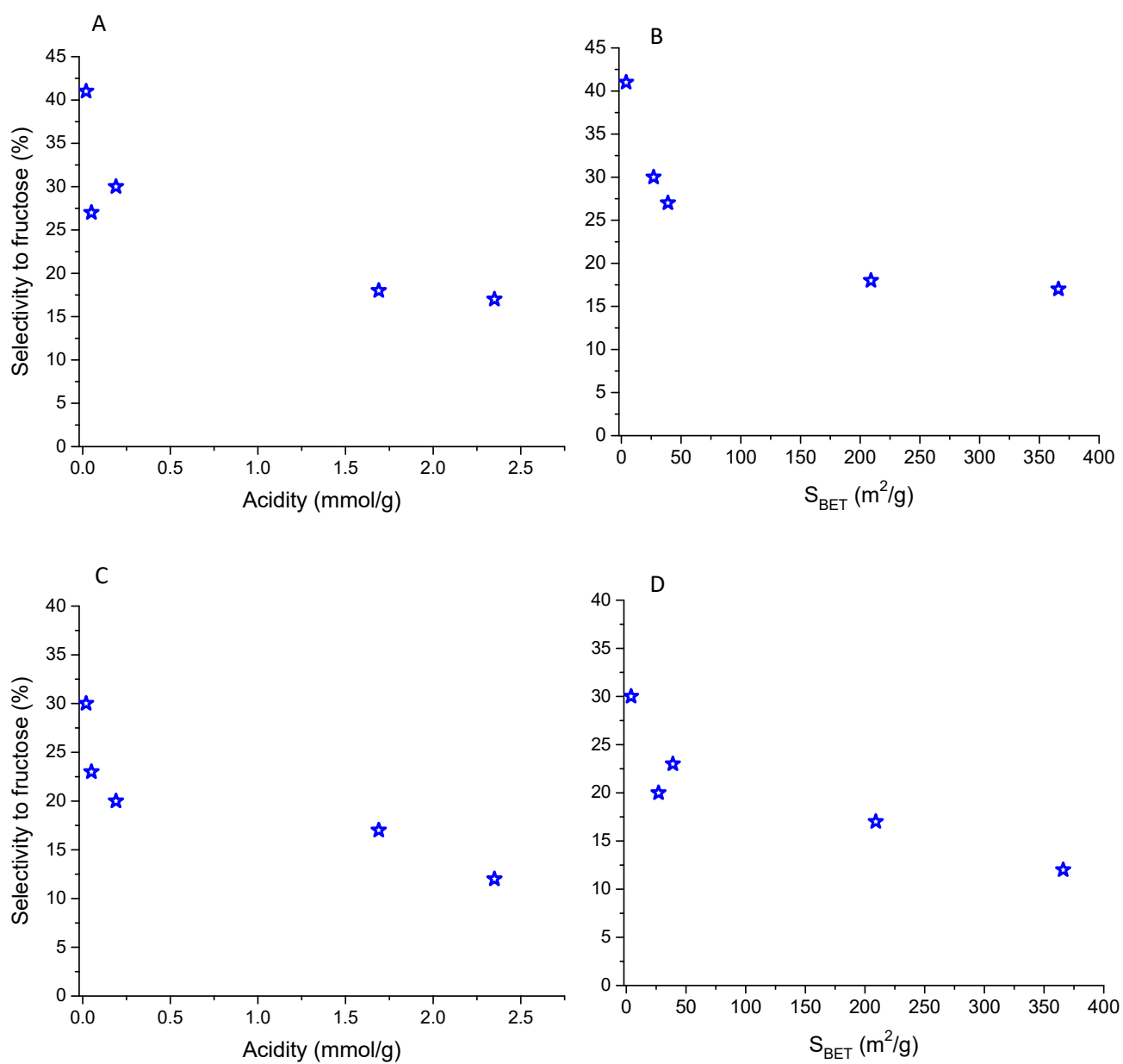


Figure S1. Correlations of selectivity to fructose vs total acidity and vs S_{BET} A) and B) in 30 min reaction C) and D) in 90 min of the reaction (Reaction conditions: 30 mL of 1.5 wt% solution of glucose in UP H₂O, $p = 2.5$ bar of N₂, 0.1 g of a catalyst, $T = 180$ °C, stirring speed = 400 rpm).

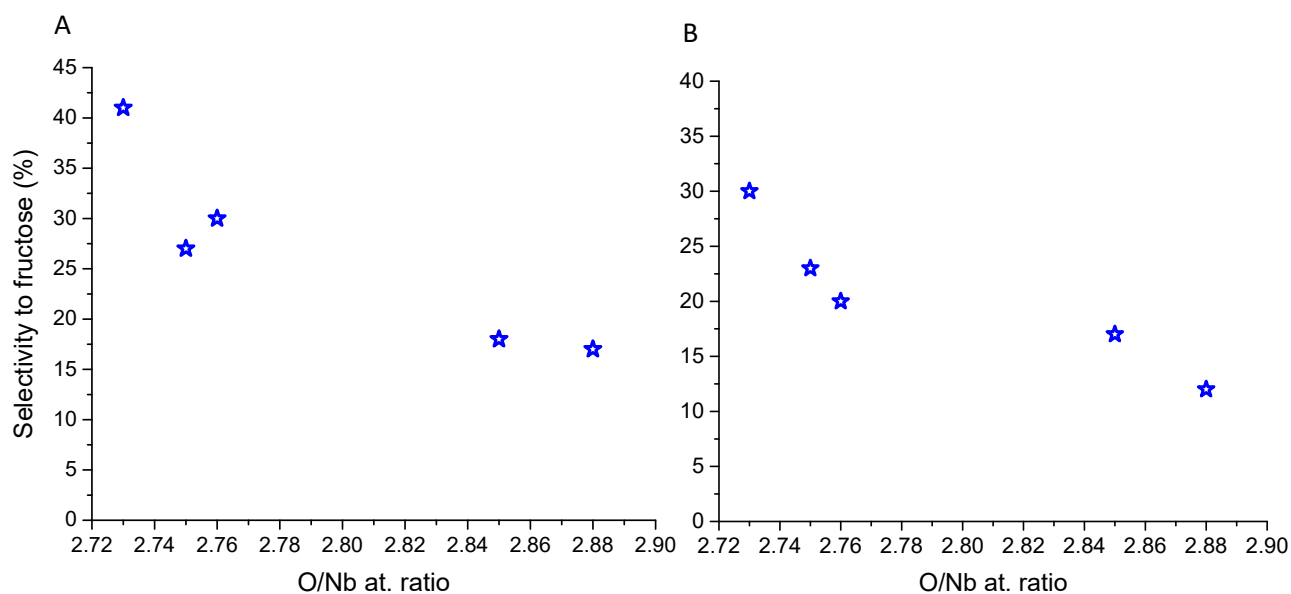


Figure S3. Selectivity to fructose vrs O/Nb atomic ratio in A) 30 min of the reaction and B) 90 min of the reaction (Reaction conditions: 30 mL of 1.5 wt% solution of glucose in UP H₂O, $p = 2.5$ bar of N₂, 0.1 g of a catalyst, $T = 180$ °C, stirring speed = 400 rpm).