

List of Supplementary Information

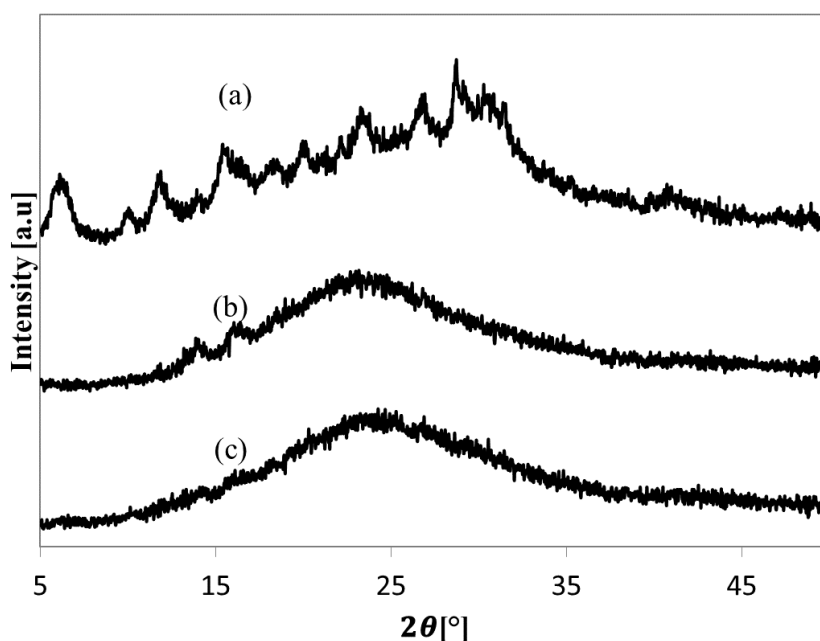
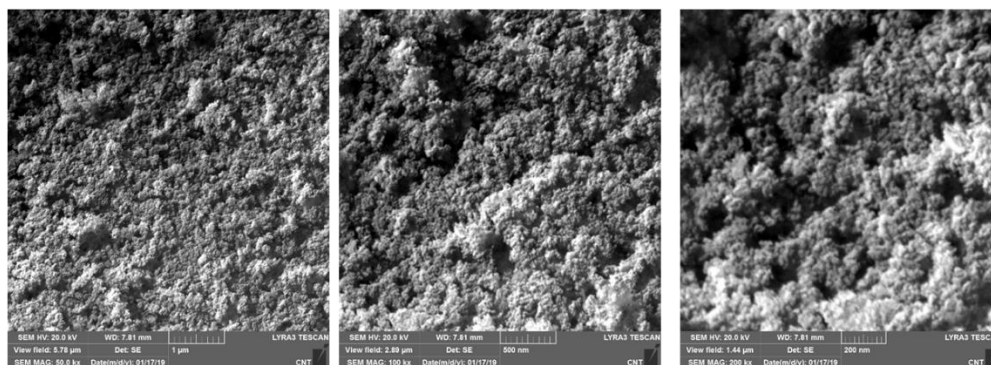


Figure S1. XRD patterns of nanozeolite (a) NH₄-Y10 (b) SY-10 (c) HY-10

(a) H-Y10



(b) SY-10

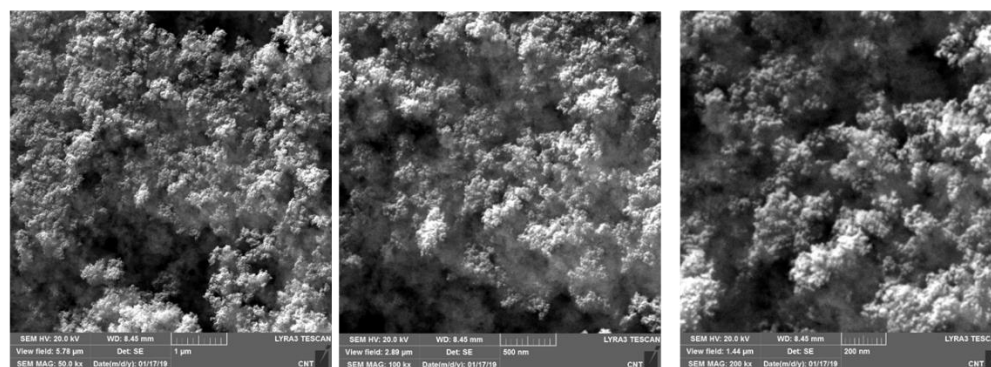


Figure S2. SEM analysis of nanozeolite (a) H-Y10 and (b) SY-10

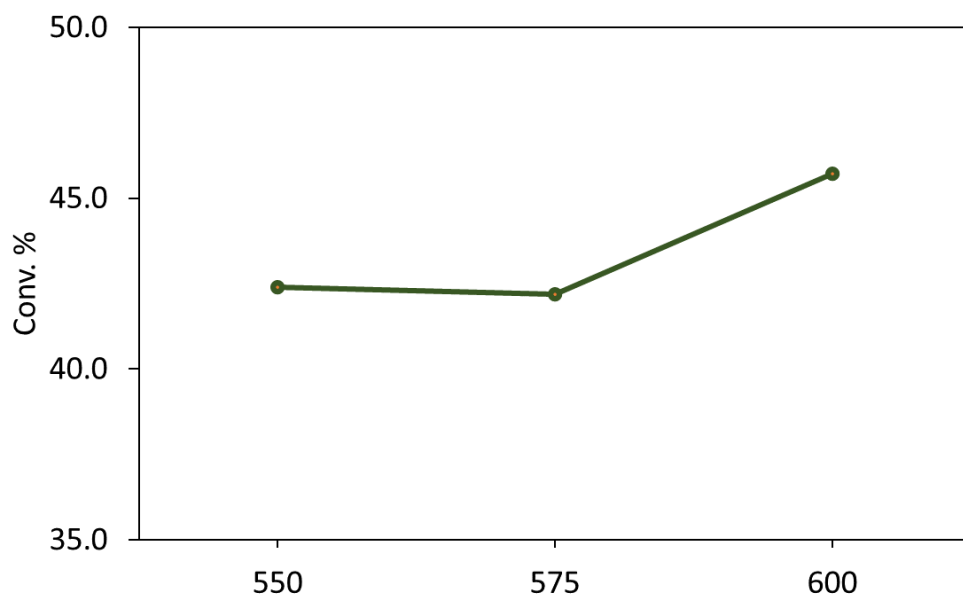


Figure S3. Uncatalyzed reactions of dodecane conversions

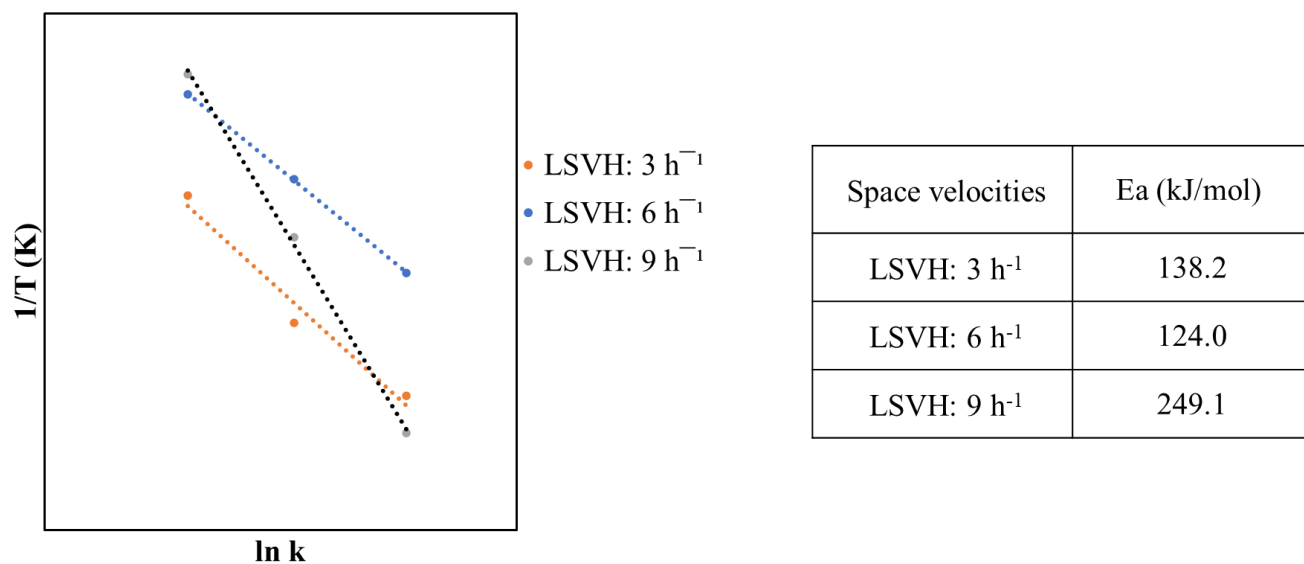


Figure S4. Kinetics and activation energy of the studied reactions

Table S1

Catalyst	Condition	Conversion (%)	Olefin selectivity (%)	Ref
B-MFI (Modifier: NaF)	T: 350 °C, 1 h, 10% water, 90% dodecane	3	43	1
BEA _{deSil}	T: 350 °C, 1 h, 10% water, 90% dodecane	30	7	2
ZSM-Li	T: 550 °C; P: 4 MPa	61	31	3
10%Zr-Ti oxide	T: 625 °C; 10% water, 90% dodecane	80	28	4
DZN-4	T: 550 °C; P: 4 MPa	60	4	5
S-Y10	T: 550 °C, 1 h, 10% water, 90% dodecane	50	50	This study

References

1. M. A. Sanhoob, O. Muraza, E. N. Shafei, T. Yokoi and K.-H. Choi, *Applied Catalysis B: Environmental*, 2017, **210**, 432-443.
2. M. A. Sanhoob, U. Khalil, E. N. Shafei, K.-H. Choi, T. Yokoi and O. Muraza, *Fuel*, 2020, **263**, 116624.
3. Y. Ji, H. Yang and W. Yan, *Fuel*, 2019, **243**, 155-161.
4. E. N. Shafei, M. Z. Albahar, M. F. Aljishi, A. N. Aljishi, A. S. Alnasir, H. H. Al-Badairy and M. A. Sanhoob, *Reaction Chemistry & Engineering*, 2022, **7**, 123-132.
5. Y. Tian, B. Zhang, S. Gong, L. Wang, X. Zhang, C. Qiao and G. Liu, *Microporous and Mesoporous Materials*, 2021, **310**, 110598.