Electronic Supplementary Material (ESI) for RSC Advances.

A green approach for enhancing hydrophobicity of UiO-66(Zr) catalysts for biodiesel production at 298 K

Ahmed S. Abou- Elyazed[a,b], Yinyong Sun[a], Ahmed M. El-Nahas[b]* , Ahmed M. Yousif[b,c]*

[a]MIIT Key Laboratory of Critical Materials Technology for New Energy Conversion and Storage, School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin, 150001, China.

[b]Chemistry Department, Faculty of Science, Menoufia University, Shebin El-Kom, Egypt.

[c]Chemistry Department, College of Science and Arts, Jouf University, Alqurayyat, KSA.

*Corresponding author**:** yysun@hit.edu.cn, Tel: (+86)-45186413708
amelnahas@hotmail.com, Tel: (+2)-01064607974

Table S1. Texture and crystallinity features of UiO-66(Zr)-green, 10SA/ UiO-66(Zr).

Samples	Crystallinity degree (%)	Crystallite size (D_{nm})	[A]Total acidity (sites/g)	[B]Acid site density (sites/m^2)
UiO-66(Zr)-green	86.47	536.586	3.80	5.42
10SA/ UiO-66(Zr)	84.43	133.72	4.26	3.70

[A]Total acidity x10^21, [B] acid sites density x10^18.

Table S2. Textural and physicochemical properties of various samples.

Samples	Content of stearic acid (%)[a]	BET surface area (m^2 g^{-1})	Langmuir surface area (m^2 g^{-1})	Pore volume (cm^3 g^{-1})
UiO-66(Zr)-green	--	701	945	0.68
10SA/ UiO-66(Zr)	10	1150	1489	0.92
10SA/ UiO-66(Zr)-solvent	10	649	933	0.49

[a]Addition amount of stearic acid.

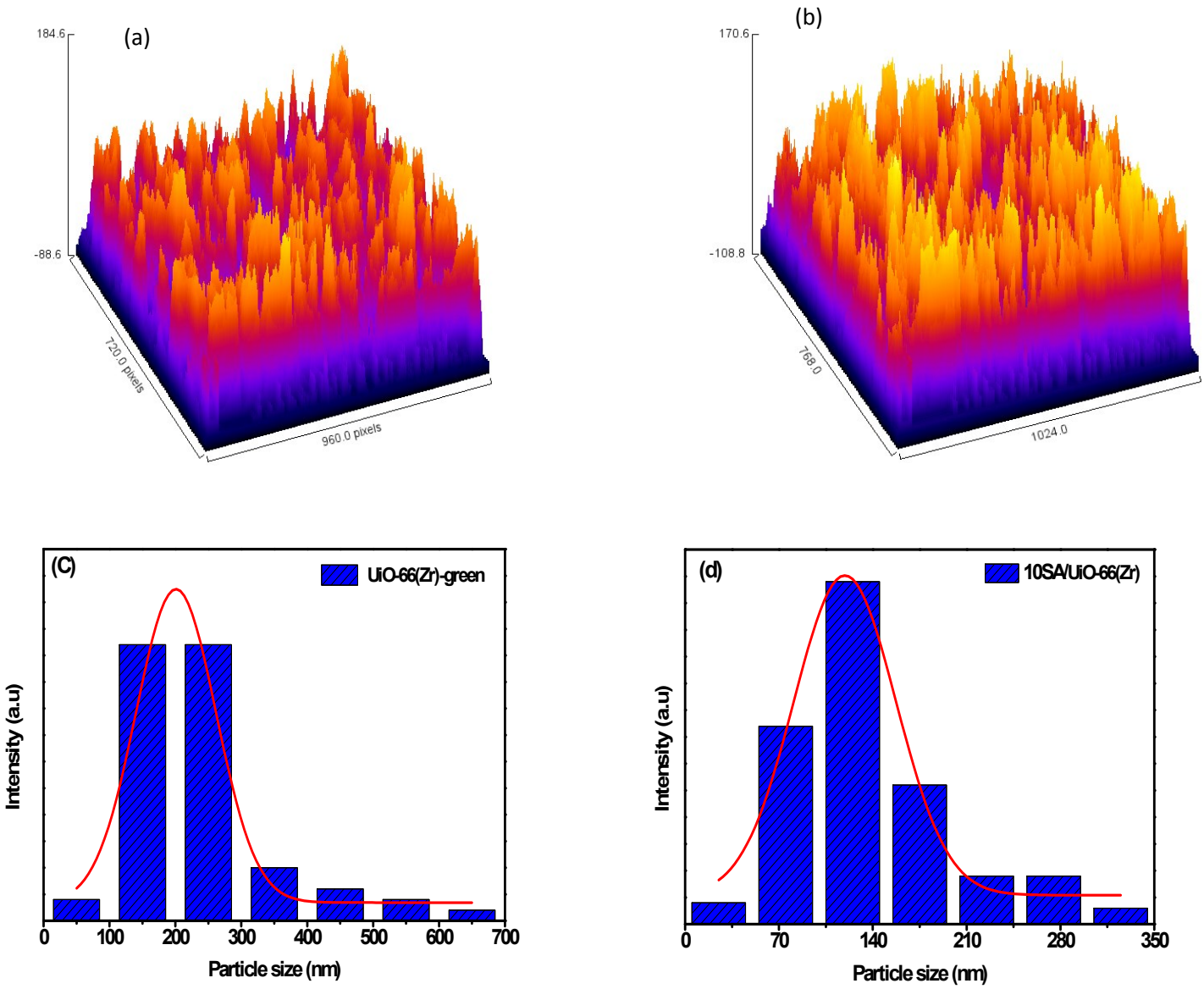

Fig. S1. The plot of surface roughness for UiO-66(Zr)-green (a), 10SA/UiO-66(Zr) (b) and the particle size distribution for UiO-66(Zr)-green (c) and 10SA/UiO-66(Zr) (d).

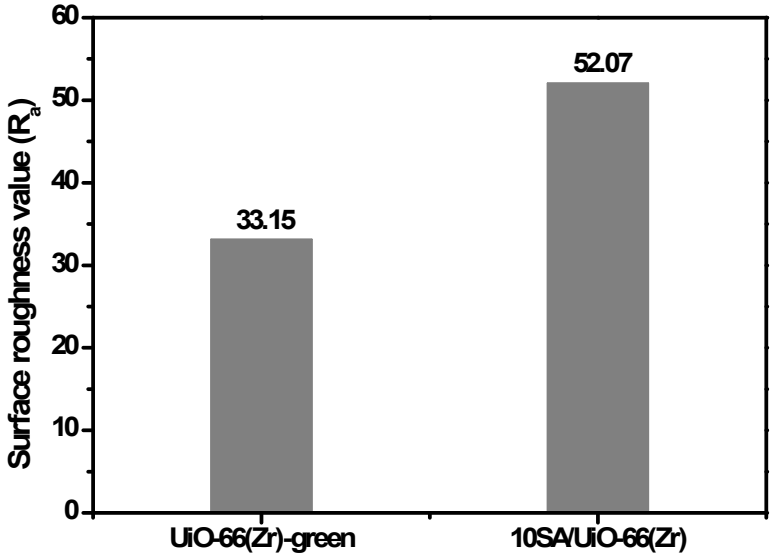

Fig. S2. Surface roughness value (R_a) for UiO-66(Zr)-green and 10SA/ UiO-66(Zr).

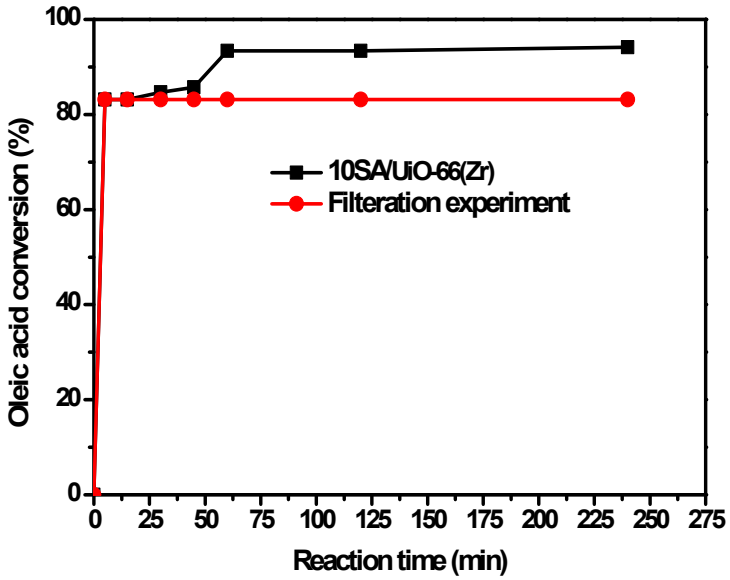

Fig. S3. Leaching test about 10SA/UiO-66(Zr) in the reaction of oleic acid with methanol.

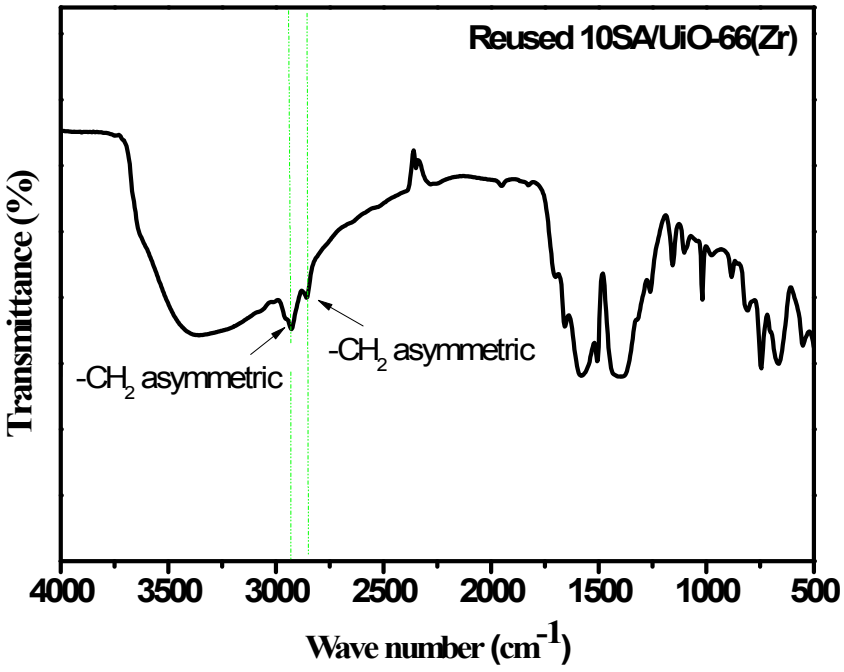

Fig. S4. FT-IR spectroscopy of the reused 10SA/UiO-66(Zr) catalyst.