Supporting Information

Mesoporous Molecular Sieves K_2O/ Ba(Ca or Mg)-MCM-41 with Base Sites as Heterogeneous Catalysts for the Production of Liquid Hydrocarbon Fuel from Catalytic Cracking of Rubber Seed Oil

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XRD

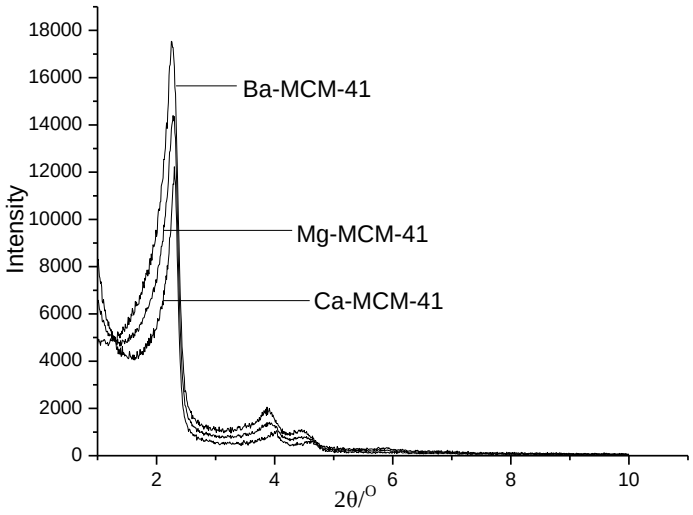

Figure. S1 X-ray diffraction pattern of Ba-MCM-41, Ca-MCM-41 and Mg-MCM-41

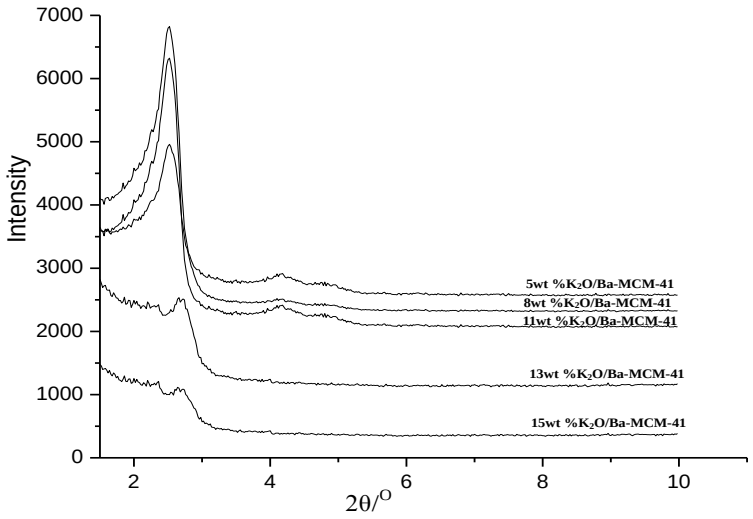

Figure. S2 X-ray diffraction pattern of K_2O/Ba-MCM-41

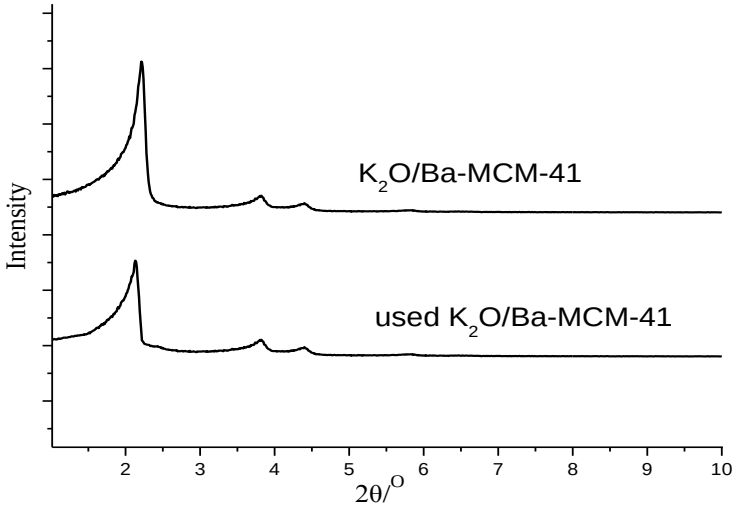

Figure S3 X-ray of K_2O/Ba-MCM-41 and used of K_2O/Ba-MCM-41

N_2 adsorption-desorption

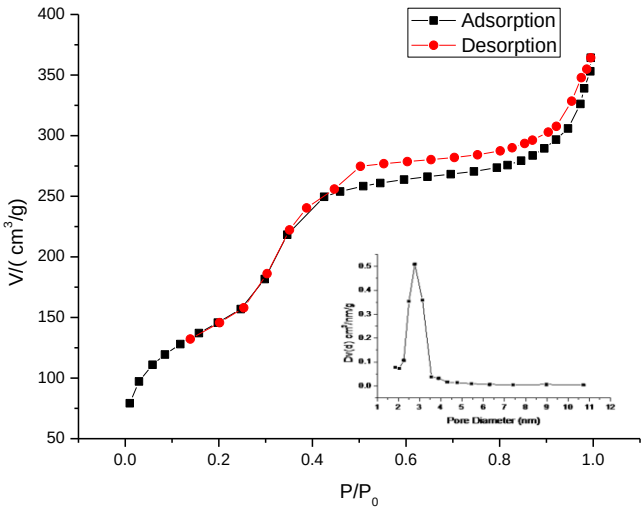

Figure S4 N_2 adsorption-desorption isotherms and BJH pore size distribution of Ba-MCM-41

Table S1 The structural parameters of Ba-MCM-41

Sample	Ba-MCM-41
d_{100}/(nm)	3.74
a_0*/(nm)	4.32
BET Surface Area/($m^2 \cdot g^{-1}$)	530
Average Pore Volume/(nm)	2.77
BJH Pore Volume/($cm^3 \cdot g^{-1}$)	0.14

*a_0(unit cell parameter)=$2d_{100}/3^{1/2}$

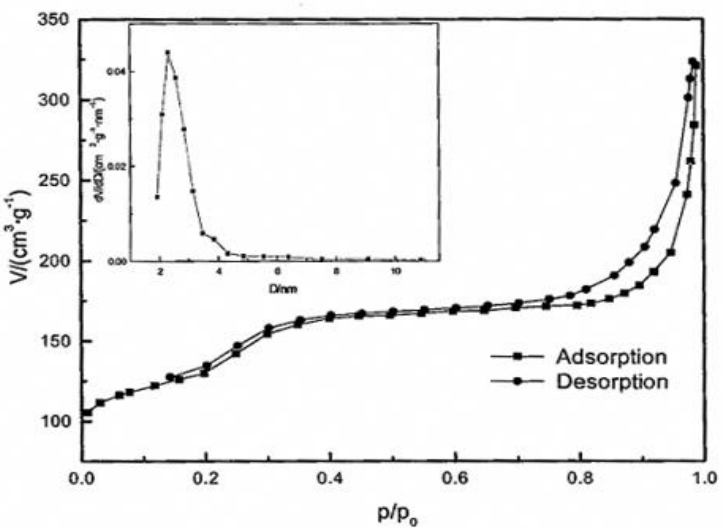

Figure S5 N_2 adsorption-desorption isotherms and BJH pore size distribution of Ca-MCM-41

Table S2 The structural parameters of Ca-MCM-41

Sample	Ca-MCM-41
d_{100}/(nm)	3.29
a_0*/(nm)	3.80
BET Surface Area/($m^2 \cdot g^{-1}$)	403
Average Pore Volume/(nm)	3.06
BJH Pore Volume/($cm^3 \cdot g^{-1}$)	0.29

*a_0(unit cell parameter)=$2d_{100}/3^{1/2}$

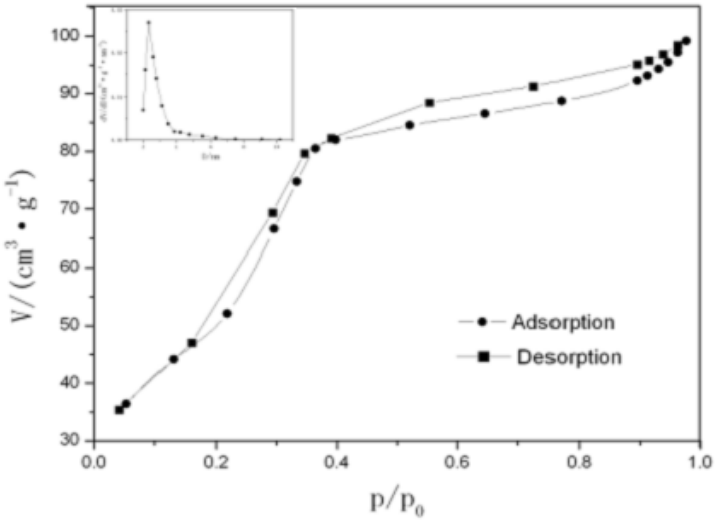

Figure S6 N_2 adsorption-desorption isotherms and BJH pore size distribution of Mg-MCM-41

Table S3 The structural parameters of Mg-MCM-41

Sample	Mg-MCM-41
d_{100}/(nm)	2.38
a_0*/(nm)	2.75
BET Surface Area/($m^2 \cdot g^{-1}$)	211
Average Pore Volume/(nm)	2.02
BJH Pore Volume/($cm^3 \cdot g^{-1}$)	0.21

*a_0(unit cell parameter)=$2d_{100}/3^{1/2}$

TEM

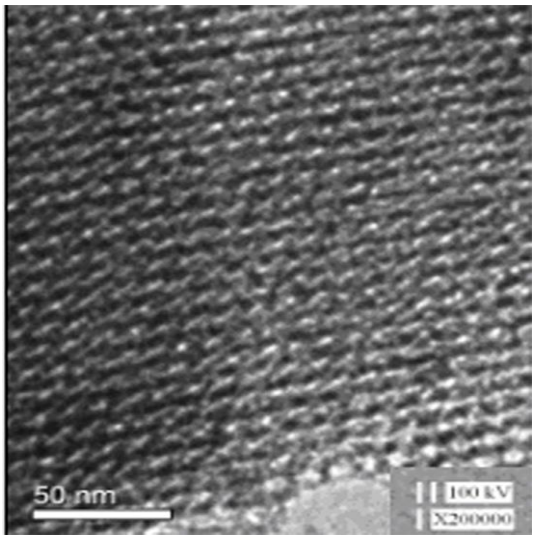

Figure S6 TEM of Ba-MCM-41

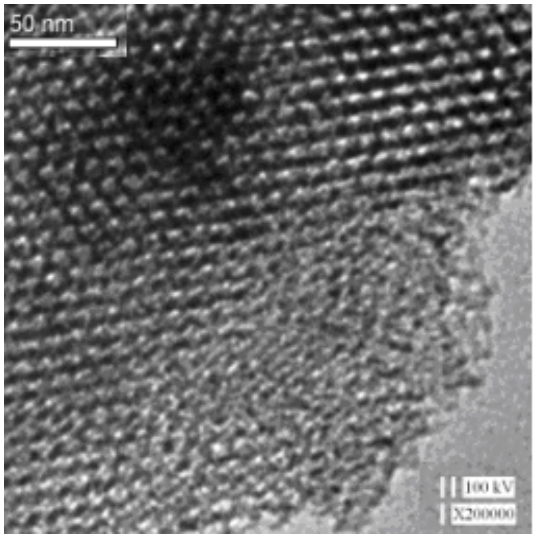

Figure S7 TEM of Ca-MCM-41

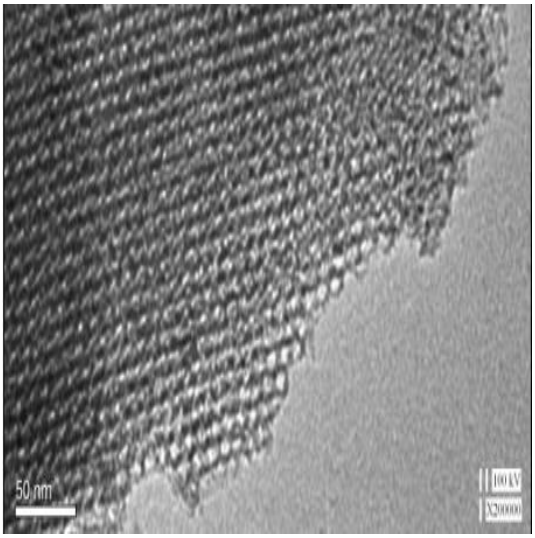

Figure S8 TEM of Mg-MCM-41