Comparative Assessment the Ability of Microwave Absorber Nanocatalyst in Microwave-Assisted Biodiesel Production Process

Hamed Nayebzadeh1,3,[[1]](#footnote-1), Naser Saghatoleslami1,[[2]](#footnote-2) ,, Mohammad Haghighi2,3, Mohammad Tabasizadeh4, Ehsan Binaeian5

1. Department of Chemical Engineering, Faculty of Engineering, Ferdowsi University of Mashhad, Mashhad, Iran.

2. Chemical Engineering Faculty, Sahand University of Technology, P.O.Box 51335-1996, Sahand New Town, Tabriz, Iran.

3. Reactor and Catalysis Research Center (RCRC), Sahand University of Technology, P.O.Box 51335-1996, Sahand New Town, Tabriz, Iran.

4. Department of Biosystems Engineering, Faculty of Agriculture, Ferdowsi University of Mashhad, Mashhad, Iran.

5. Department of Chemical Engineering, Qaemshahr Branch, Islamic Azad University, Qaemshahr, Iran



Fig. S. KOH/Ca12Al14O33 nanocatalyst and its carbonated preparation rout using microwave combustion-impregnation method.



Fig. S. N2 adsorption-desorption isotherms of KOH/Ca12Al14O33 and carbonated KOH/Ca12Al14O33 nanocatalysts.



Fig. S. Effect of amount of carbonated KOH/Ca12Al14O33 nanocatalysts on the conversion of canola oil to biodiesel under microwave irradiation. Reaction conditions: microwave power of 270 W, 18 molar ratios of methanol/Oil and 45 min reaction time.



Fig. S. Effect of methanol/oil molar ratio on the conversion of canola oil to biodiesel under microwave irradiation. Reaction conditions: microwave power of 270 W, 4 wt.% of carbonated KOH/Ca12Al14O33 nanocatalysts and 45 min reaction time.



Fig. S. Effect of reaction time on the conversion of canola oil to biodiesel under microwave irradiation. Reaction conditions: microwave power of 270 W, 15 molar ratios of methanol/Oil and 4 wt.% of carbonated KOH/Ca12Al14O33 nanocatalysts.

1. Corresponding author, Email: [hamed.nayebzadeh@mail.um.ac.ir](mailto:hamed.nayenbzadeh@mail.um.ac.ir). [H.nayebzadeh@yahoo.com](mailto:H.nayebzadeh@yahoo.com). Tel/Fax: +98 5138806000. [↑](#footnote-ref-1)
2. Corresponding author, Email: [slami@um.ac.ir](mailto:slami@um.ac.ir). Tel/Fax: +98 5138816840. [↑](#footnote-ref-2)