

Biodiesel Production from Microwave-assisted Transesterification of Triolein in Methanol Using Zeolite MCM-22 as Catalyst

Yu-Yuan Wang, Bing-Hung Chen*

Department of Chemical Engineering, National Cheng Kung University, 1 University Road, Tainan 70101, Taiwan

*Email: bkchen@mail.ncku.edu.tw

NSC Project No. : 102-2221-E-006-286-MY2

In the relentless search of an alternative fuel to substitute diesel fuel, biodiesel appears as one of the most applicable green energy because of its environmental advantages and evolution of the petroleum market. Zeolite MCM-22 exhibited much higher catalytic activities than the amorphous aluminum silicate by cation-exchange modification. In this work, fatty acid methyl esters (FAMES) were produced with cation-modified zeolite MCM-22 from microwave-assisted transesterification reaction of triolein. For comparison, the conventional reflux reaction method was utilized in selected catalyzed transesterification of triolein. The as-obtained zeolite MCM-22 catalysts show not only satisfactory catalysis but also good durability. For example, after six cycles of microwave-assisted transesterification, the *in-house* prepared zeolite MCM-22 can still convert over 80% of triolein to biodiesel in 5 hours.

Keywords: Biodiesel, Transesterification, Zeolite, MCM-22, Microwave

報告型式：☐口頭 ☒海報 ☐皆可

是否參加學生壁報論文競賽：☒是 ☐否

(註：參加口頭報告者亦可參加學生壁報論文競賽，但須準備海報、全文及簡報等相關資料，依學生壁報論文競賽獎評選辦法中所規定之方式辦理。)