



## Supporting Information

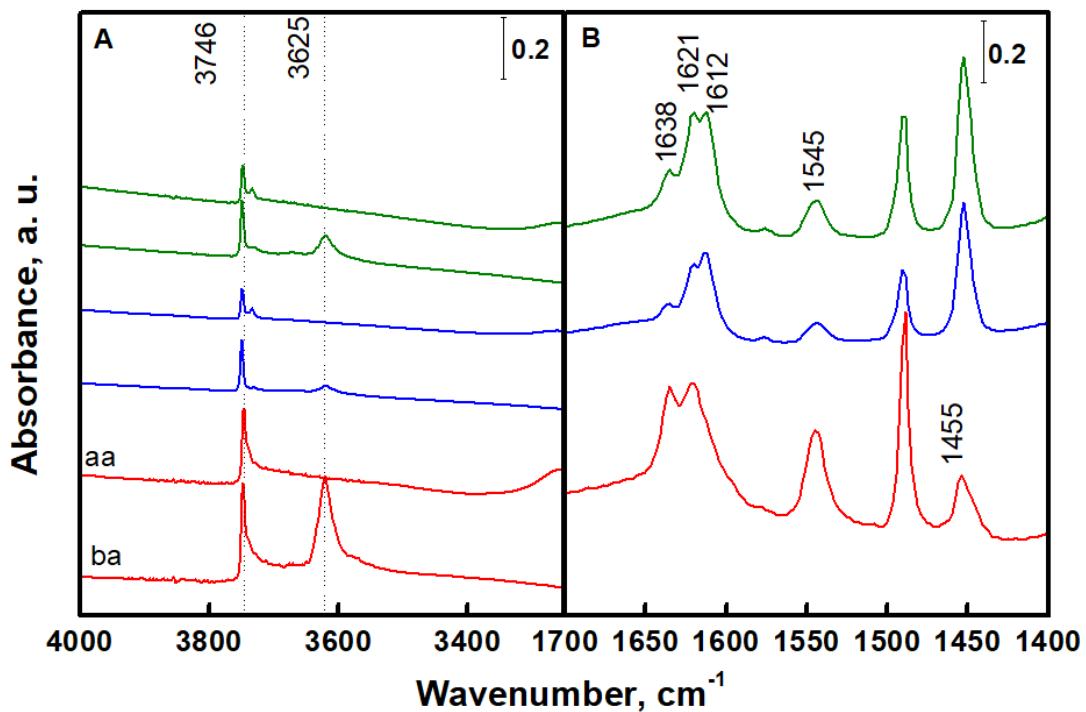
for

### **MoO<sub>3</sub> on zeolites MCM-22, MCM-56 and 2D-MFI as catalysts for 1-octene metathesis**

Hynek Balcar, Martin Kubů, Naděžda Žilková and Mariya Shamzhy

*Beilstein J. Org. Chem.* **2018**, *14*, 2931–2939. doi:10.3762/bjoc.14.272

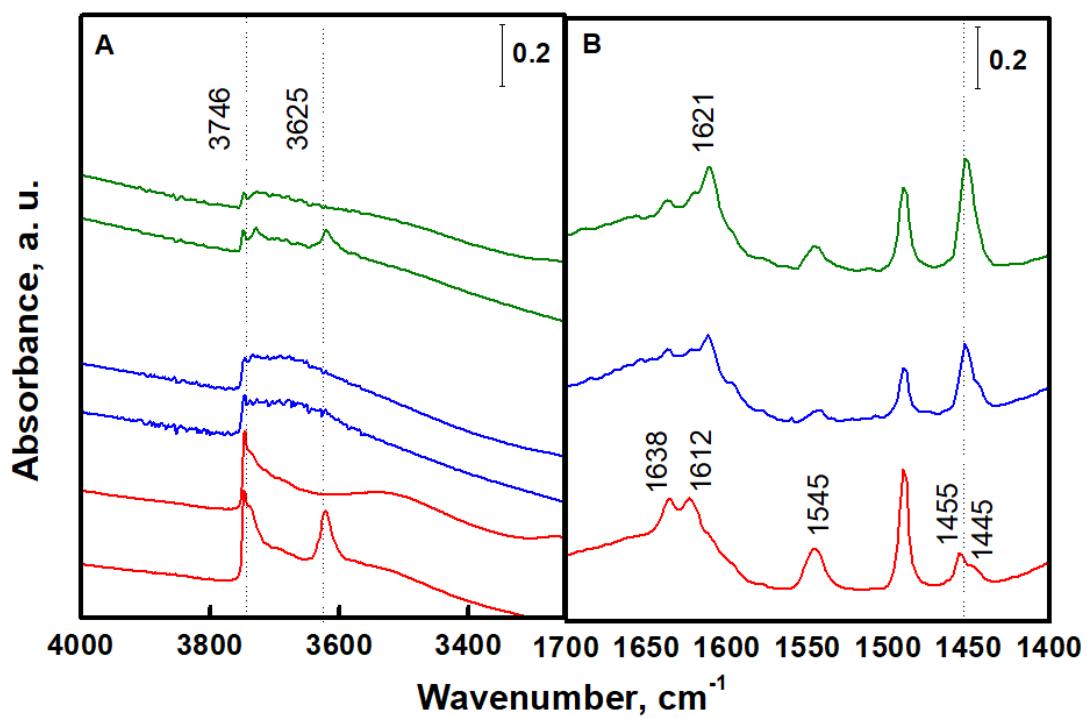
### **IR spectra of catalysts, GC of reaction products, and SEM images of catalysts**



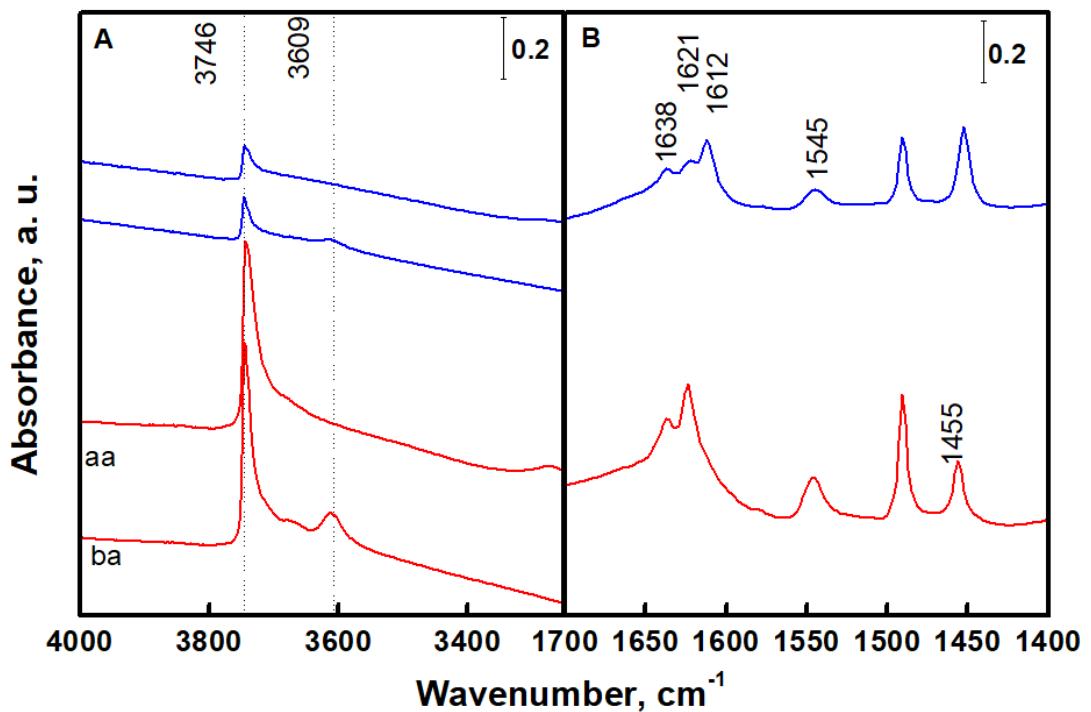
**Figure S1:** IR spectra of **MCM-22(28)**, **6Mo<sub>3</sub>/MCM-22(28)** and **6Mo<sub>2</sub>(acac)<sub>2</sub>/MCM-22(28)**.

A- region of hydroxy vibrations, B- region of pyridine vibrations. Bottom spectra – before pyridine adsorption, top spectra – after pyridine absorption.

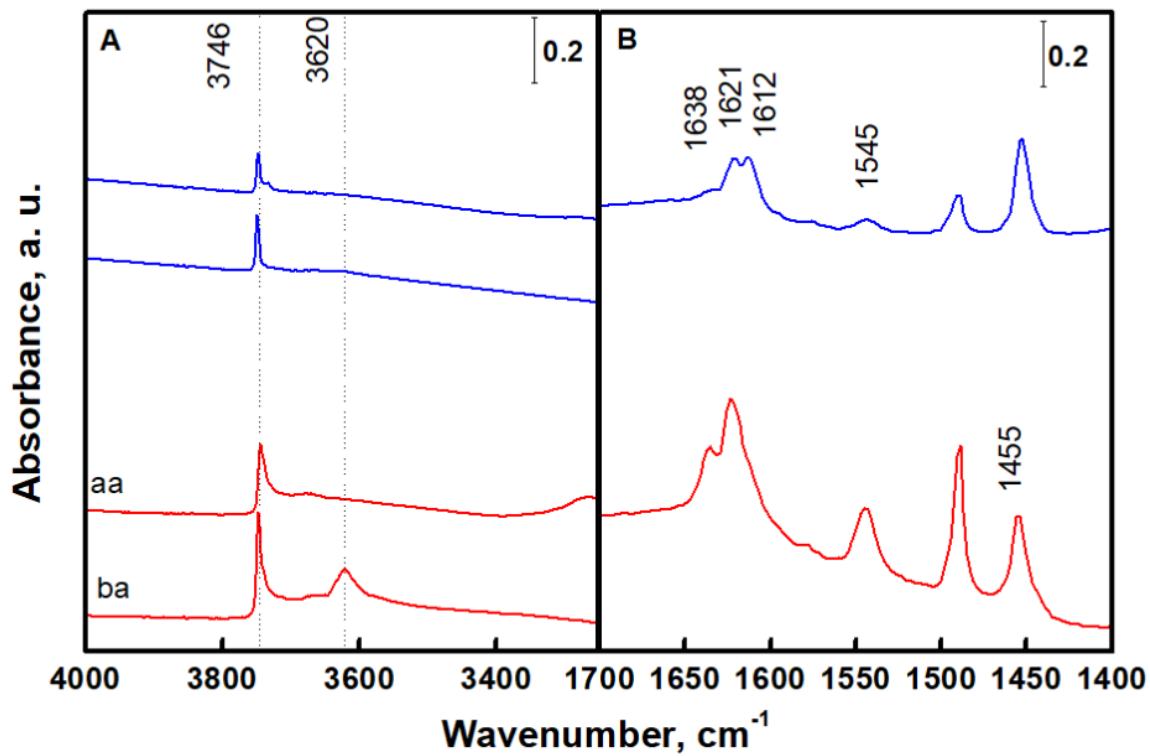
Bands in the region 1445–1455 cm<sup>-1</sup> correspond to Lewis acid sites, band at 1545 cm<sup>-1</sup> to Brønsted acid sites.



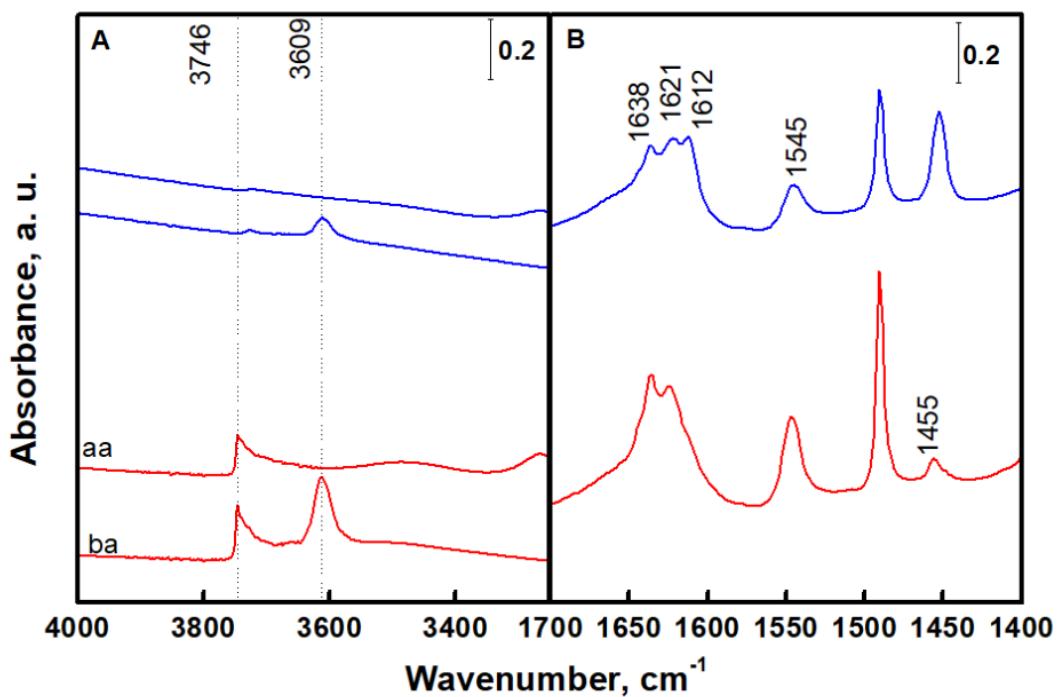
**Figure S2:** IR spectra of MCM-22(70), 6MoO<sub>3</sub>/MCM-22(70) and 6MoO<sub>2</sub>(acac)<sub>2</sub>/MCM-22(70). A- region of hydroxy vibrations, B- region of pyridine vibrations. Bottom spectra – before pyridine adsorption, top spectra – after pyridine absorption.



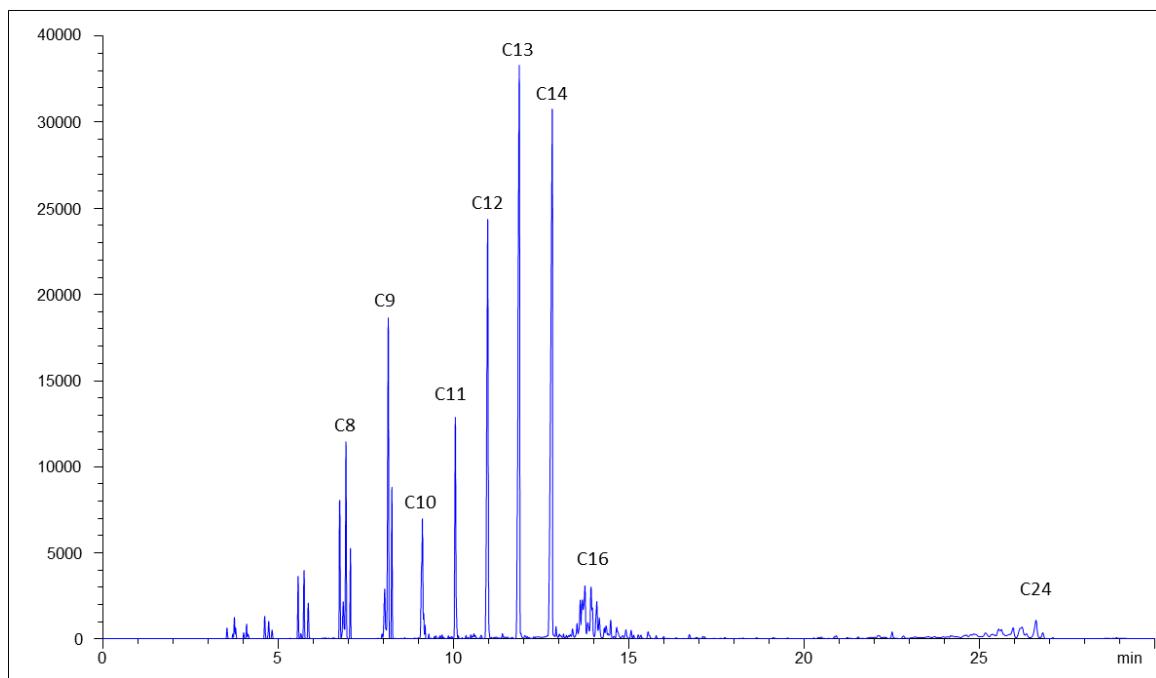
**Figure S3:** IR spectra of 2D-MFI(26) and 6MoO<sub>3</sub>/2D-MFI (26). A- region of hydroxy vibrations, B- region of pyridine vibrations. Bottom spectra – before pyridine adsorption, top spectra – after pyridine absorption.



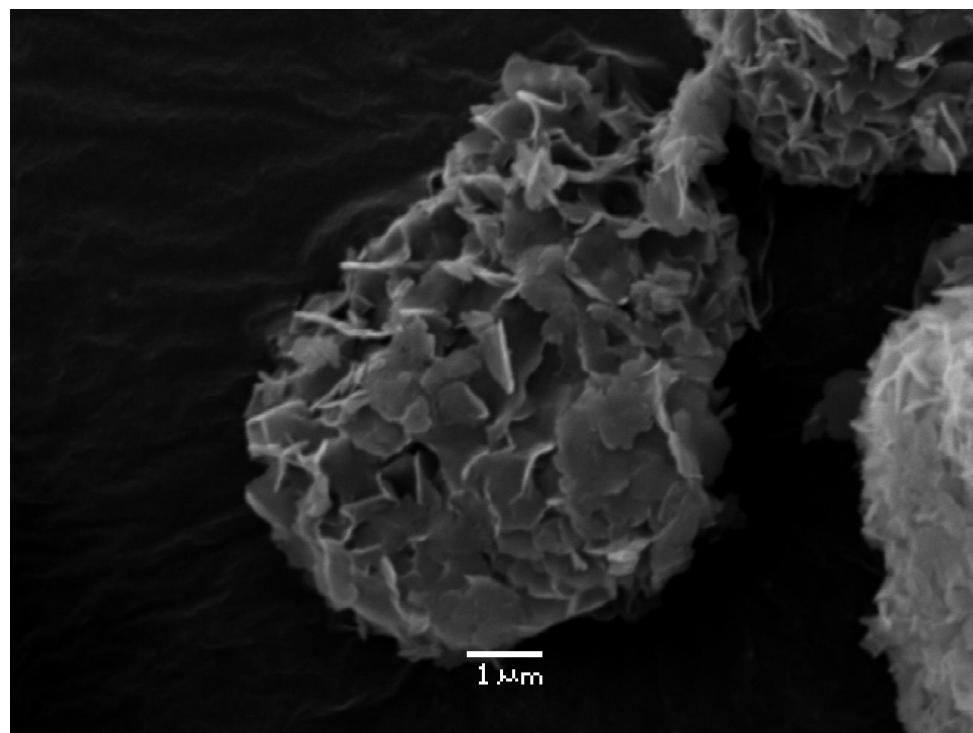
**Figure S4:** IR spectra of MCM-56(13) and 6MoO<sub>3</sub>/MCM-56(13). A- region of hydroxy vibrations, B- region of pyridine vibrations. Bottom spectra – before pyridine adsorption, top spectra – after pyridine absorption.



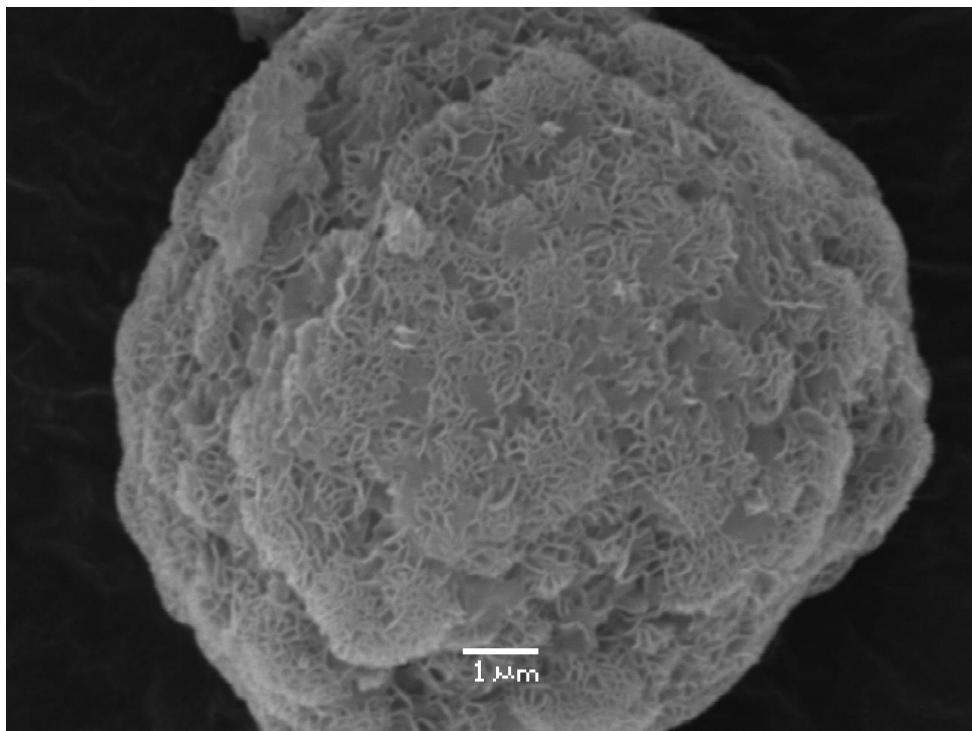
**Figure S5:** IR spectra of **ZSM-5(25)** and **6MoO<sub>3</sub>/ZSM-5(25)**. A- region of hydroxy vibrations, B- region of pyridine vibrations. Bottom spectra – before pyridine adsorption, top spectra – after pyridine absorption.



**Figure. S6:** Metathesis of neat 1-octene over 6MoO<sub>3</sub>/MCM-22(28) – GC of final products.



**Figure S7:** SEM image of MCM-22(28).



**Figure S8:** SEM image of MCM-58(13).