



CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Mo-SBA-1 was successfully synthesized via the sol-gel process using silatrane precursor as a silica source, C₁₆TMAB as a simple template, and molybdenum glycolate as a molybdenum source, in a dilute acidic condition at room temperature. The obtained materials still maintained well order mesostructure and high surface area (> 1000 m²/g). Up to 5 mol% of molybdenum species can be introduced into the silica framework without any extra-framework and have tetrahedral coordination. In addition, these Mo-SBA-1 materials show relatively high activity in the epoxidation reaction of styrene monomers due to the presence of molybdenum species in SBA-1 framework. The optimum condition for epoxidation reaction of styrene is at 70°C reaction temperature for 3 h reaction time using 0.1 g catalyst containing 7.2 mol% of the molybdenum content. Products obtained from this reaction are only styrene oxide and benzaldehyde.

5.2 Recommendations

According to this work, it is recommended that the other metal such as Ti, Fe, should be loaded into SBA-1 framework in order to compare the catalytic activity because these two metals has many applications in catalysis. Furthermore, the other reaction should be used for activity testing of Mo-SBA-1 in order to obtain the most appropriate reaction for this catalyst.