CHAPTER V
CONCLUSIONS AND RECOMMENDATION

V.1 Conclusions

In conslusion, we found out that the activity of SBA-15 silica is affected by the amount of VTMS added to the mesoporous material and also particle size also affect the activity value. Ratio for TEOS to VTMS of 5:1 has the highest activity among the modified silica, and by comparing the particle size we can see that micron-sized SBA-15 has converted higher amount of glucose compared to nano-sized SBA-15. The stability of SBA-15 that is modified with VTMS had a higher value compared to unmodified SBA-15, this showed that VTMS had a significance effect on the strength of the bond. However the reusability of modified SBA-15 is lower than pure SBA-15 this is presumably because some enzymes on unmodified SBA-15 fall off and act as free-enzymes which has higher activity value. We believe if there are further research focusing on this, it is plausible for SBA-15 to be used in industrial scale.

V.2 Recommendation

The mesoporous silica materials which have been studied in this research were pure and vinyl functionalized SBA-15 in two variant sizes, micron and nano-sized. The mesoporous silica materials can be tested by cellulase immobilization to improve the activity of enzyme and showed the stability and reusability of enzyme.

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