

CHAPTER V

CONCLUSION AND FUTURE PROSPECTS

5.1 Conclusion

The synthesis of rhodium polymer-bound catalysts with three different percent crosslinks could be achieved in this research work. The incorporation of rhodium onto the polymeric support was by the chelation with the anchored anthranilic acid. The amount of rhodium in each catalyst was seemingly limited depending on mainly the pore sizes existing in the polymer beads. With 3% crosslink, the size of the pores on the average had to be larger than the ones with 10 and 20% crosslinks, respectively. Rhodium trichloride was thus able to penetrate into the pore and form chelating bonds with the amino and carboxyl groups of anthranilic acid. This explanation was possibly correct since the availability of anchored anthranilic acid in all three types of polymeric beads were nearly the same as revealed by the determination of nitrogen content and equal amount of rhodium trichloride was present in the reaction, but rhodium content in 3% crosslinked polymeric supports were higher than the ones with 10 and 20% crosslink.

Hydrogenation of cyclohexene in the presence of each rhodium polymer-bound catalyst obviously confirmed the activity of the synthesized catalysts. However, the leaching of the rhodium from the polymeric support had occurred after its utilization. This result indicated that the chelating bonds were not strong enough for the sustainment of rhodium incorporation. In other words, anthranilic acid might not be the best choice of the ligands for rhodium.

5.2 Future prospects

The transition metal supported on the polymer beads had a few drawbacks. Firstly, The metal leaching problem which was the important problem and affected on the reaction activity of the catalysts. As well as the polymeric support which must be tolerant to the environment in the system, for example , hydrogen pressure in hydrogenation reaction. So, the soluble polymers were proposed to solve these problem by using of the polymeric support.