

## CHAPTER VI

### CONCLUSION AND RECOMMENDATION

The conclusions of the study are the following:

1. The proper conditions found in this for the preparation of Raney nickel catalysts are; digestion time = 2 hours, digestion temperature =  $110^{\circ}\text{C}$ , concentration of NaOH solution = 25% and the ratio of Ni-Al alloy to NaOH (anhydrous) = 1:3.
2. The optimum conditions for the hydrogenation reaction using the best Raney nickel catalyst are; a reaction temperature of  $150^{\circ}\text{C}$ , a hydrogen pressure of  $125^{\circ}\text{C}$  and a catalyst concentration as Ni/oil of 0.3%.
3. It was found that the activity of Raney nickel catalysts was improved by the presence of palladium for an amount up to 1.0% Pd/Ni. Over this percentage the Raney nickel catalyst was deactivated.
4. It was apparent that, though in the presence of up to 1% palladium, the selectivity of the catalyst is still the same, that is, it is selective to the hydrogenation of the double bond. However, if the palladium is introduced in excess of this percentage, the selectivity changes towards a dehydroxylation reaction.

From this study, it can be clearly seen that the presence of palladium does affect the activity and selectivity of the Raney

nickel catalyst. However, more studies should be carried on. Here are the recommendations.

1. Attempts should be made to produce catalysts of different preparations.

2. Inasmuch as palladium can form many compounds and complexes, this may influence the promotion effects of palladium. Therefore another aspect of study is to determine the effect of anions or coordinated species on the promotion of nickel catalysts with palladium.

3. The interaction between palladium and nickel that leads to the changes in activity and selectivity of the catalyst is another aspect to be studied.