CHAPTER 7

CONCLUSIONS AND PROPOSED STUDY

Conclusions

From the experimental results of this study, the following conclusions can be obtained :

1. From the extraction equilibrium experiment, the distribution coefficient (D^+) of L-lysine increased as the pH of the external solution increased.

2. From the extraction equilibrium, the results of the log-log between $[(HR)]_{eq}$ and $[D^+][H^+]^m_{eq}$ is a straight line with a slope of 0.12, and shows that 12 moles of Lys^+ under these conditions can be combined with one mole of the carrier D2EHPA.

3. From the extraction equilibrium study, it was found that the average Kex for L-lysine is 0.2047 dm^3/mol.

4. From the experimental results on the emulsion liquid membrane extraction of L-lysine in aqueous solution, it was found that the optimum condition for extraction of L-lysine from aqueous solution is as shown in Table 7-1.

Table 7-1 Optimum conditions for extraction of L-lysine from aqueous solution by

emulsion liquid membrane process.

Parameters	Optimum Condition
Initial pH in external phase	pH 5.0
Initial concentration in the external phase	1 mM
Surfactant (Span 80) concentration	5% (v/v)
Carrier (D2EHPA) concentration	10% (v/v)
Agitation Speed	420 rpm
Internal phase concentration (HCl)	1.0 N

It was demonstrated that about 60% of L-lysine could be separated from the external phase to the internal phase with one batch operation and thus the final L-lysine concentration of the internal phase was two times as high as the initial concentration of the external phase. This represents a significant advantage for the liquid emulsion membrane process.

5. The simple uniform flat sheet model can be used to predict the influence of pH in the feed phase on the permeation rate.

Proposed Study

1. From the emulsion liquid membrane on batch extraction study, this primary conditions could be used for the continuous extraction of L-lysine in the future.

2. If the process used multi-stages of extraction by used of the initial rate that the extraction significantly extracted(at first 10 minutes), it would be more advantage.