CHAPTER V

CONCLUSIONS

PTU is a promising agent to be developed into a topical formulation for psoriatic therapy. Liposome preparation may be an advantageous delivery system for such purpose. This present study showed the possibility of liposomes to be a carrier system for dermal PTU delivery.

PTU liposomes could be prepared by REV methods. Method of preparation affected PTU entrapment in liposomes. In unsaturated PTU systems, encapsulation efficiency depended on the lipid concentration and partly on the equilibrating time. Lipid concentration did not affect encapsulation efficiency if the systems were saturated with PTU. The organic-aqueous PTU method, where both phases were PTU-saturated, gave the highest encapsulation efficiency. Surface charge, pH, and cholesterol content had some interaction effects on PTU entrapment in liposomes. Negatively charged liposomes at pH 7.4 allowed the highest encapsulation efficiency. On the contrary, the lowest was received from the liposomes with cholesterol at pH 5.5, regardless of charge. Cholesterol reduced PTU encapsulation in liposomes.

The release studies showed that all liposomal formulations could sustain the release of PTU. The 48-hour cumulative percent release of PTU was the same for all formulations studied. Water could be retained by all formulations of PTU liposomes for a longer period of time than by PTU-saturated aqueous solution. These characteristics were likely to be useful for dermal delivery to dry and scaly psoriatic skin.

In the assessment of biological activities, PTU showed antiproliferative effect on BALB/c 3T3 mouse fibroblasts. Though PTU liposomes were not better than free PTU in the inhibition of fibroblast proliferation, a sustained release characteristic could be seen with PTU liposomes. The antiproliferative effect of a specific composition of blank liposomes, where both cholesterol and dicetylphosphate were present, was also evident.

The experimental system used in this study seemed to be useful in the screening of drugs and/or antiproliferative formulations prior to animal/clinical evaluation.

All formulations of PTU liposomes were physically stable within 8 weeks of storage in a refrigerator. Hence, the preparation of these PTU liposomes was sufficiently feasible for the clinical trials. However, when the suitable liposomal products are to be developed, the longer period of stability study must be carried out.