

CHAPTER IV

DISCUSSION

This investigation used diffusion technique (7) to measure the release of drug from an ointment base. It is a simple and convenient way to study. The significance of this method has also been critically examined, in vitro release of drug found to correlated with in vivo method (2)

In all experiments, the amount of hexamidine released to the aqueous phase was plotted versus the time at 15 minutes intervals for two hours.

In studying the effects of different ointment bases upon the release of hexamidine, it appeared from figure 2 that the polyethylene glycol ointment base gave the maximum release of hexamidine, hydrophilic ointment was the second, hydrophilic petrolatum was the third and white ointment was the fourth respectively. Therefor polyethylene glycol ointment base was the best ointment base for hexamidine, thus it was chosen for this study.

For the effect of cationic surfactants upon the release of hexamidine, from the figure 3 to 8, they showed that the rate of hexamidine release was promoted when added these

cationic surfactants into the formula, because the amount of drug released through the cellulose membrane was more than the amount that released from polyethylene glycol ointment alone.

Figure 3 to 8, compared the effect of cationic surfactants upon the release of hexamidine. They indicated that their efficiency for releasing hexamidine was in the following order; benzalkonium chloride 1:1000 > cetrimide 1:1000 > cetylpyridinium chloride 1:1000 at the same time & concentration.

Figure 7, showed the greatest concentrations of each cationic surfactants that could be added to the formula without losing the stability. It was found that 10 % of benzalkonium chloride 1:1000 would facilitate the maximum release of hexamidine, so it was the best cationic surfactant that should be used.

Figure 8, also showed the effects of cationic surfactants upon the release of hexamidine. It was found that at 12 % concentrations of cationic surfactant added, the amount of hexamidine release still increased but the stability was lost. Therefore the most effective concentration of each of them was 10 %.

Comparatively, the amount of hexamidine released from polyethylene glycol ointment base in 2 hour with adding

cationic surfactants at 10 ‰, benzalkonium chloride 1:1000 was approximately 4 times greater than that observed from the base alone. Cetrimide 1:1000 was approximately 2.3 times, and cetylpyridinium chloride 1:1000 was approximately 2 times.