

CHAPTER III

RESULTS



In Selection of Ointment Bases.

The evaluation of ointment base was investigated by measuring the release of dexamethasone from various ointment bases. White ointment, hydrophilic petrolatum, hydrophilic ointment, and polyethylene glycol ointment were used in this investigation. The one which gave the maximum amount of drug release was the base of choice.

Figure 4. Illustrated the variation in drug release from different ointment bases containing the same concentration (0.05% W/W) of dexamethasone in $1\frac{1}{2}$ hours. The base that gave the maximum release was polyethylene glycol ointment, the second was hydrophilic ointment while white ointment and hydrophilic petrolatum did not have any effect on the release of dexamethasone.

Figure 5. Illustrated the variation in drug release from polyethylene glycol ointment containing the same concentration (0.05% W/W) of dexamethasone and the same concentration of different additives. The additive which gave the maximum release of dexamethasone was benzalkonium chloride 1 : 10,000 solution

Figure 6. Illustrated the effect of alcohol on the releasing rate of dexamethasone. The maximum amount of alcohol that could be added to the base without losing viscosity and stability was 13 %

Figure 7. Illustrated the effect of water on the releasing rate of dexamethasone from polyethylene glycol ointment. The maximum amount of water was 13% V/W added to the base without losing viscosity and stability. The amount of drug release increased as the concentration of water increased.

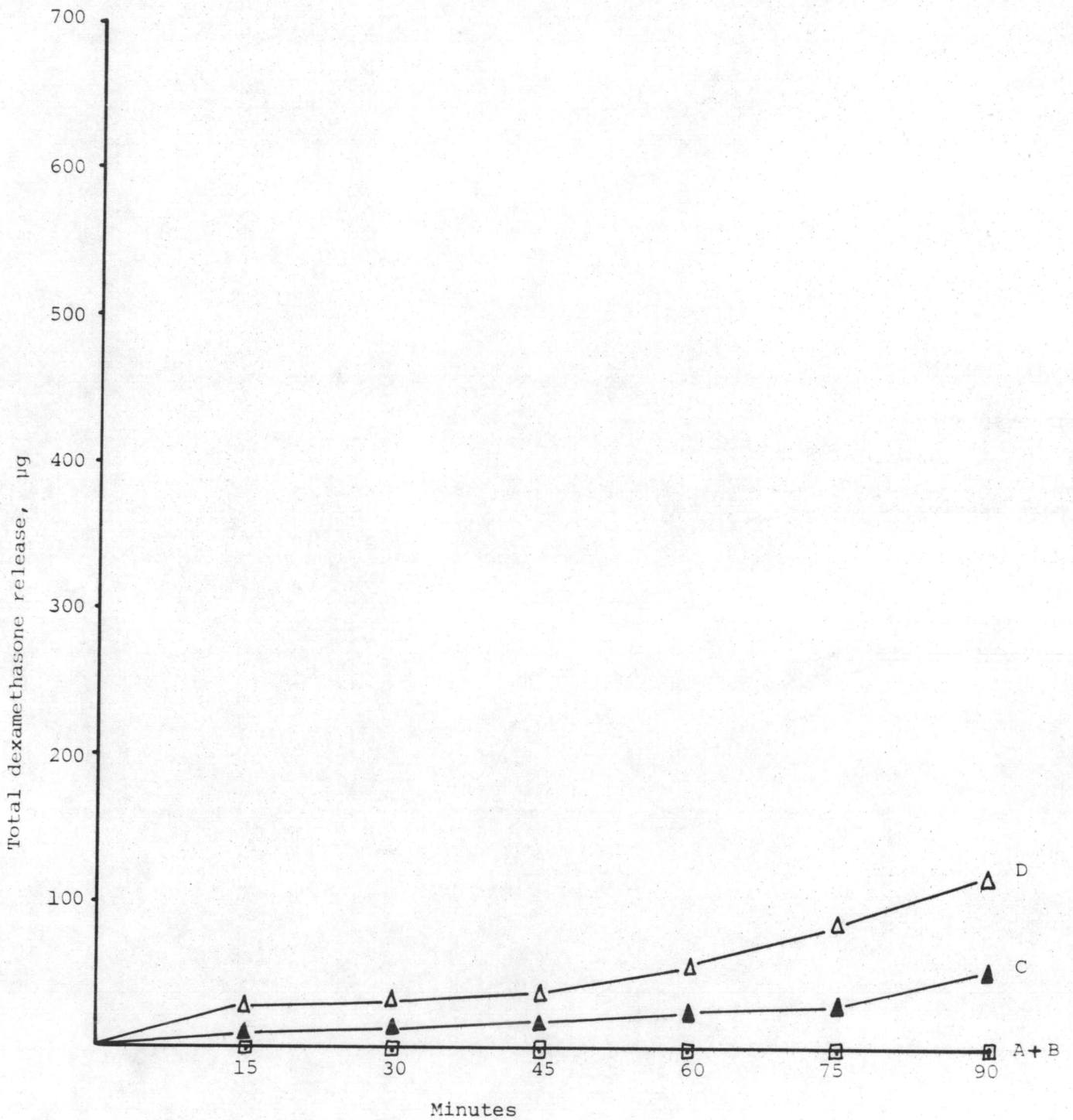


Figure 4 : Concentration V.S. time curves of dexamethasone releasing from 0.05% W/W ointments at 37° C

- Key :
- , A, White Ointment
 - , B, Hydrophilic Petrolatum
 - ▲, C, Hydrophilic Ointment
 - △, D, Polyethylene Glycol Ointment

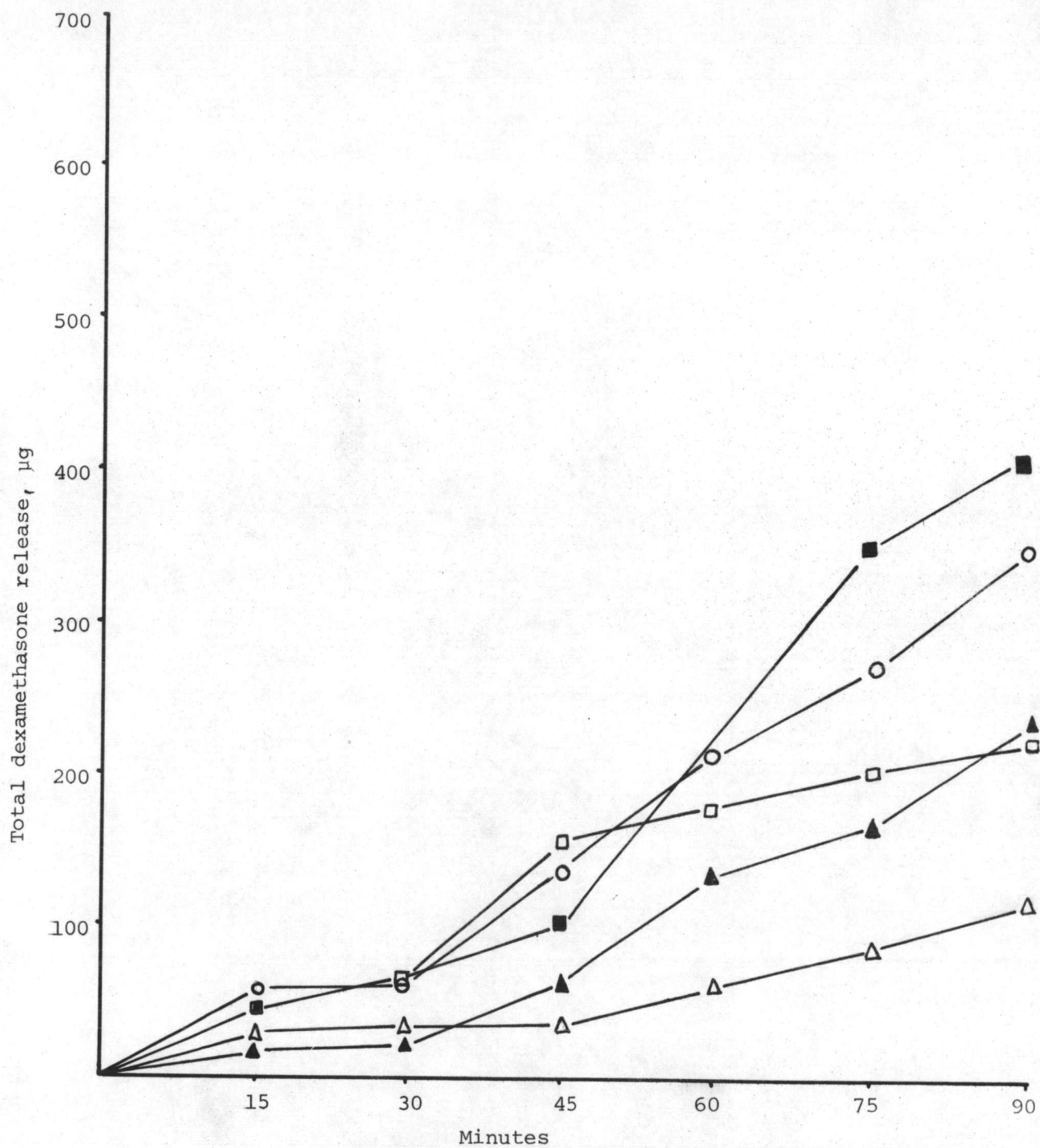


Figure 5. Concentration V.S. time curves of dexamethasone releasing from 0.05% W/W PEG ointment with various additives

- Key :
- △, PEG base without additives.
 - ▲, PEG base containing 5% Cetylpyridinium chloride 1:1000 solution
 - , PEG base containing 5% alcohol
 - , PEG base containing 5% water
 - , PEG base containing 5% benzalkonium chloride 1:10,000 solution

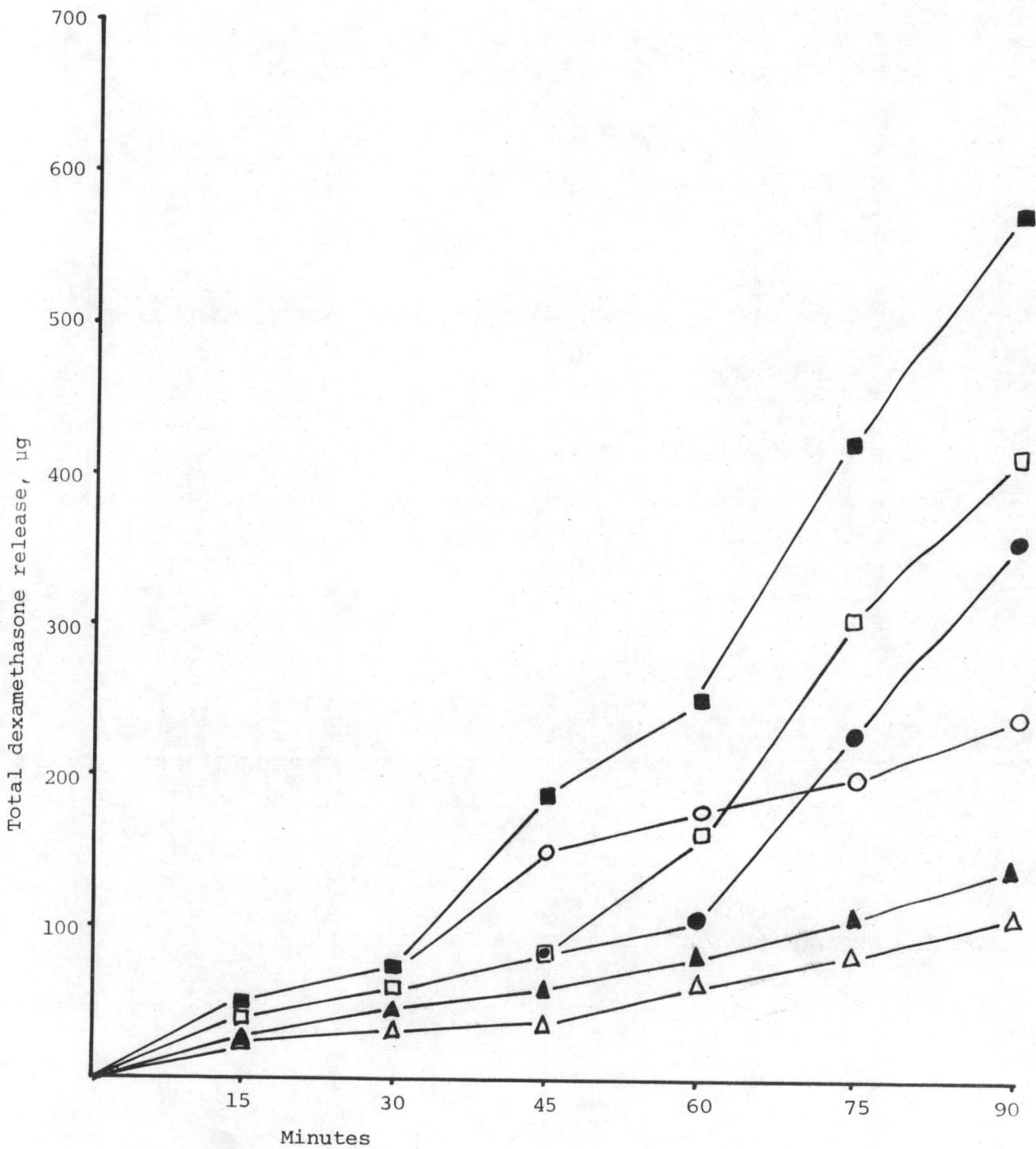


Figure 6. Concentration V.S. time curves of dexamethasone releasing from 0.05% W/W PEG ointment with various concentration of alcohol

Key : Δ, 0% ; ▲, 2% , ○, 5% ; ●, 8% ; ◻, 11% ; ■, 13% ;

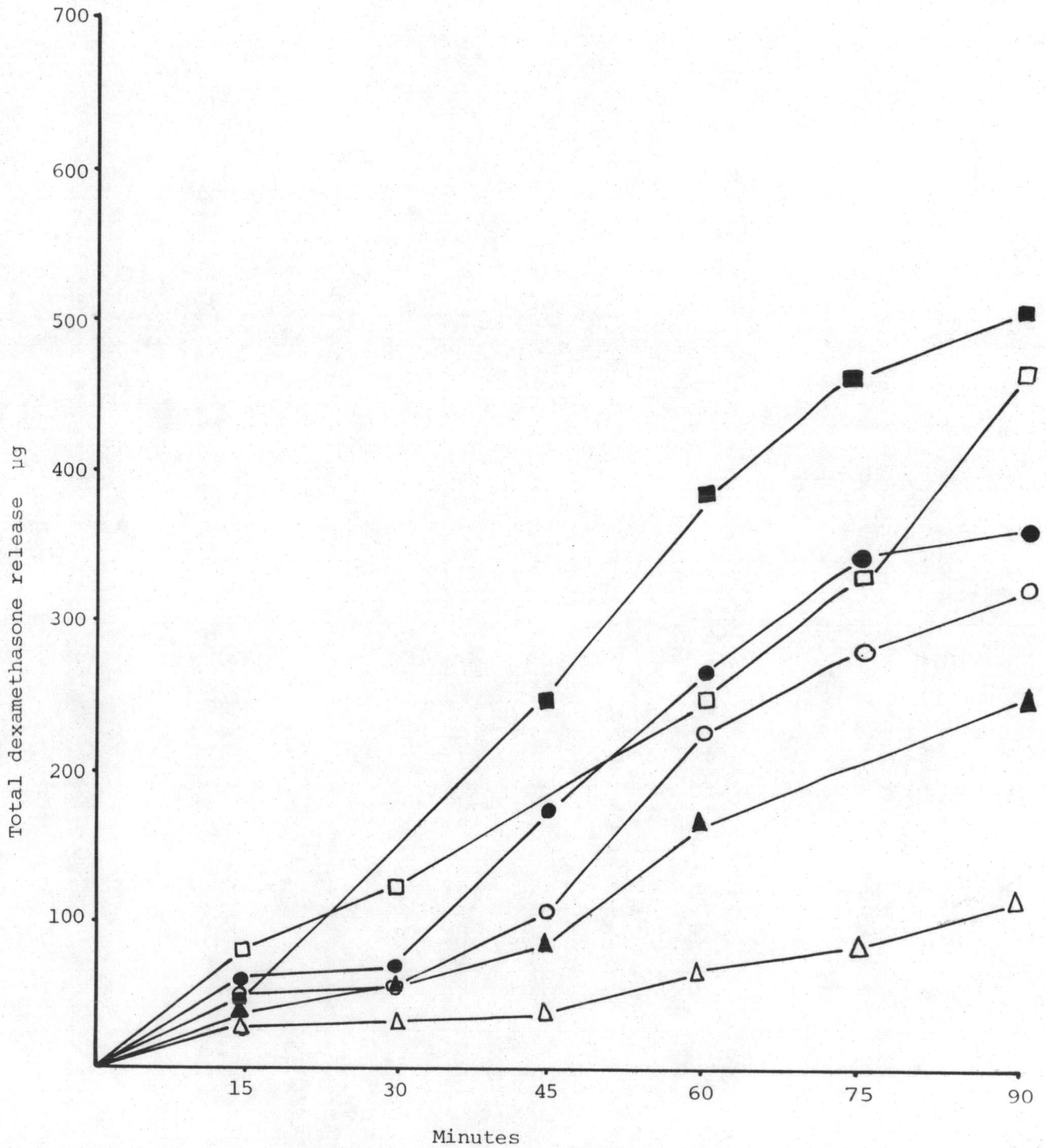


Figure 7. Concentration V.S. time curves of dexamethasone releasing from 0.05% W/W PEG ointment with various concentration of water.

Key : Δ, 0% ; ▲, 2% ; ○, 5% ; ●, 8% ; ◻, 11% ; ■, 13%

Figure 8. Illustrated the effect of various concentration of cetylpyridinium chloride 1 : 1000 solution. The amount of dexamethasone increased as the concentration of the cetylpyridinium chloride solution increased. The **maximum** amount added to the base without loosing viscosity and stability was 13%

Figure 9. Illustrated the effect of various concentration of benzalkonium chloride 1 : 10,000 solution. The amount of dexamethasone increased as the concentration of benzalkonium chloride increased. The maximum concentration added without loosing viscosity and stability was 13% V/W

Figure 10. Illustrated the total amount of dexamethasone released from PEG base containing 13% of various additives in 90 minutes. The result showed that benzalkonium chloride 1 : 10,000, was the best additive for dexamethasone.

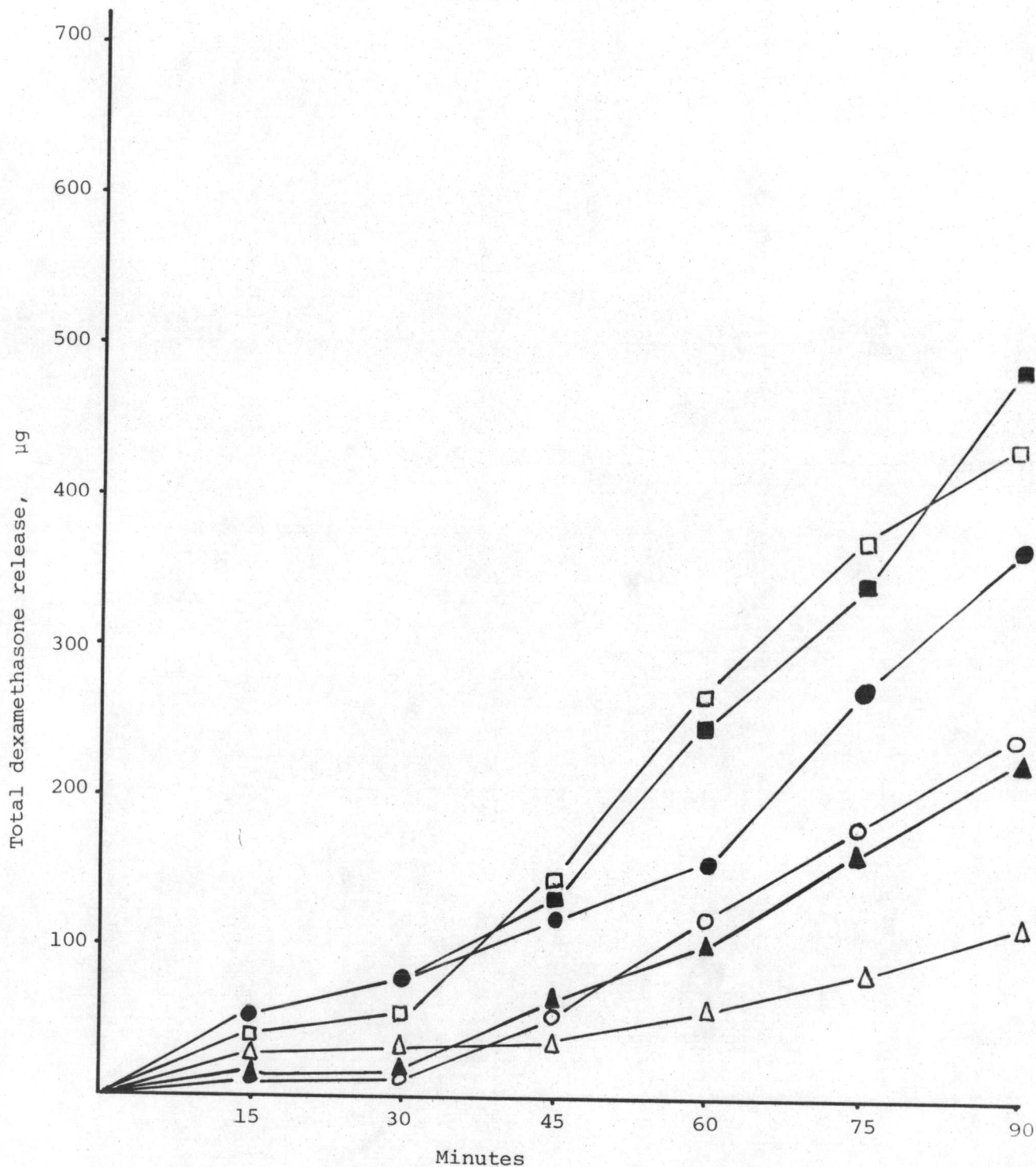


Figure 8. Concentration V.S. time curves of dexamethason releasing from 0.05% W/W PEG ointment with various concentration of cetylpridinium chloride 1:1000 solution.

Key : Δ, 0% ; ▲, 2% ; ○, 5% ; ●, 8% ; ◻, 11% ; ■, 13% ;

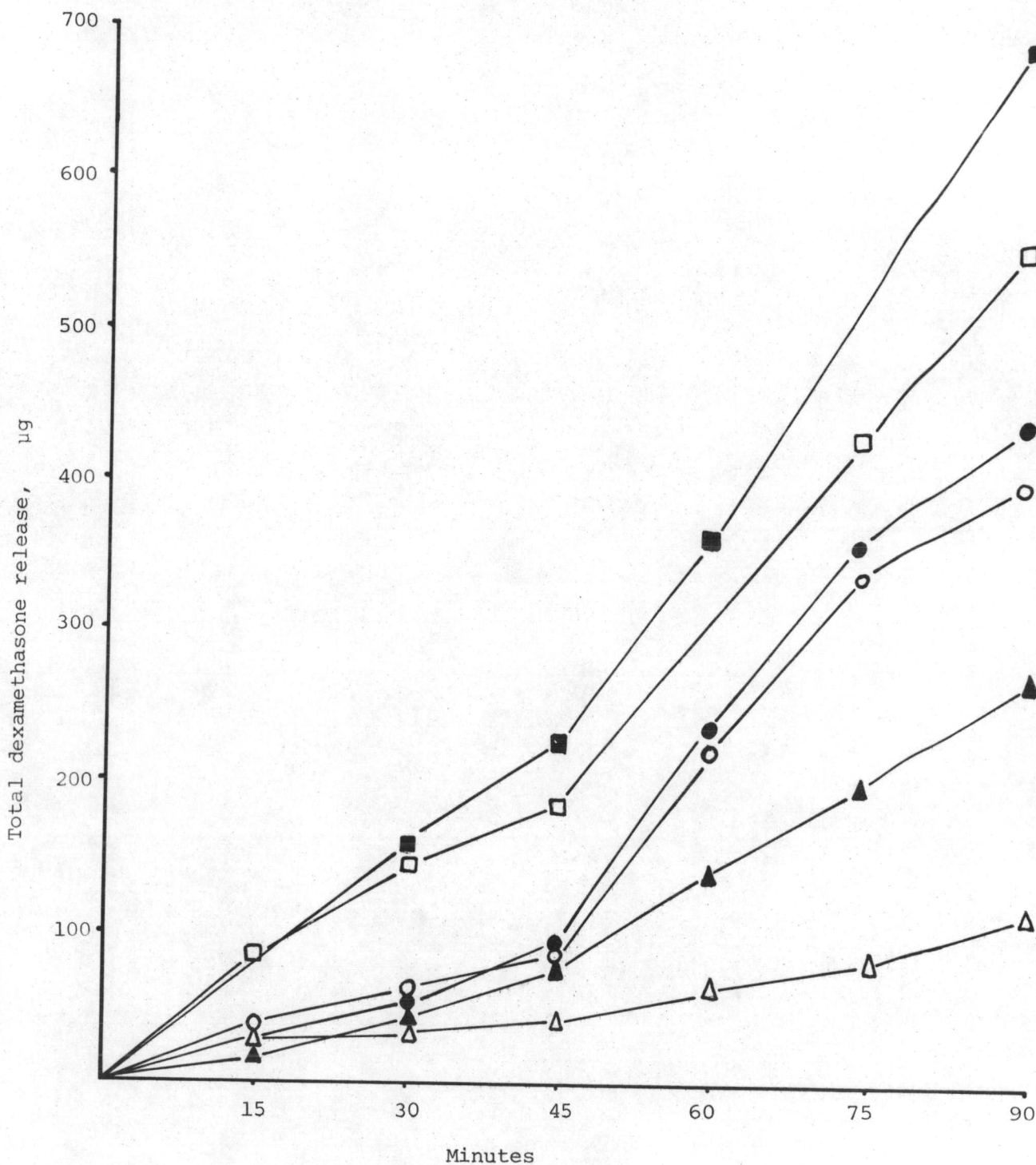


Figure 9. Concentration V.S. time curves of dexamethasone releasing from 0.05% W/W PEG ointment with various concentration of benzalkonium chloride 1:10,000 solution.

Key : Δ, 0% ; ▲, 2% , ○, 5% ●, 8% , ◻, 11% , ■, 13% ;

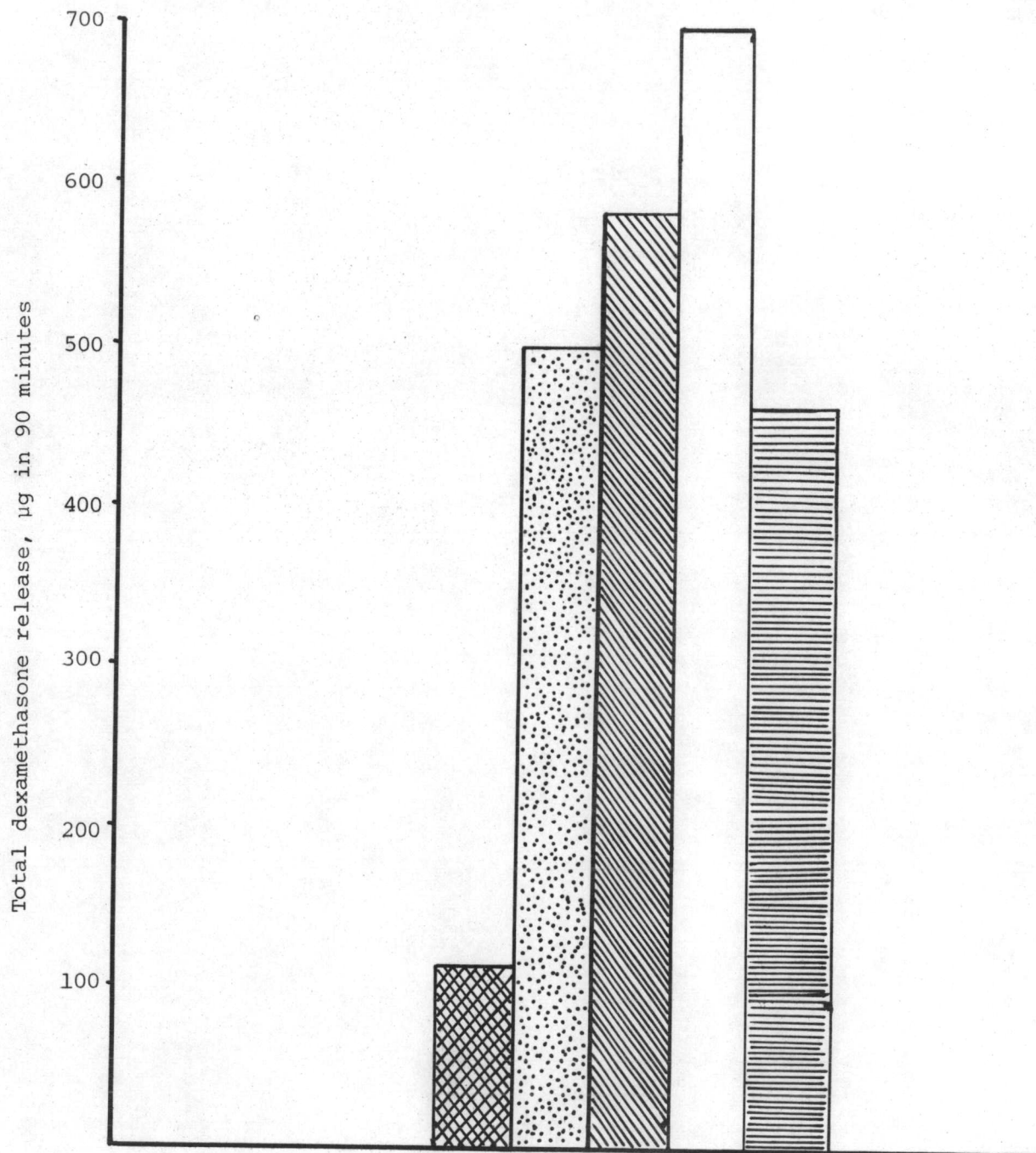







Figure 10 Total amount of dexamethasone released from PEG base containing 13% of various additives in 90 minutes

Key :  control,  water,  alcohol,  benzalkonium chloride
 cetylryridinium chloride