CHAPTER V

CONCLUSIONS

1. In vitro studies, all brands of 150 mg roxithromycin tablets met the general requirements of the United States Pharmacopoeia XXIII for content uniformity (range from 101.41 to 114.81%). The content of active ingredient ranged from 105.85 to 109.93%.

2. Dissolution profile for each brand was performed in phosphate buffer (pH7.4±0.1). The rank order of the dissolution rate constant was A >B > C. The dissolution rate constant of brand C was statistically significant ($p < 0.05$) lower than that of brand A while that of brand B was not ($p > 0.05$).

3. The comparative bioavailability of brands B and C relative to brand A were studied in twelve healthy Thai male volunteers. A single dose of 150 mg roxithromycin tablets was administered to each subject in a crossover manner. Plasma roxithromycin concentrations were determined by microbiological agar diffusion assay. Individual plasma concentration-time profile was analyzed using graphical method. The observed values of relevant pharmacokinetic parameters (C_{max}, t_{max} and AUC) were used for bioavailability comparison.

The mean peak plasma concentration of each treatment ranged from 6.26 to 6.40 μg/mL.

The average times to peak plasma concentrations ranged from 1.42 to 1.46 hr for the three different brands.

The area under the plasma concentration-time curves of all brands ranged from 52.89 to 53.39 μg hr/mL.

There were no statistically significant difference of the corresponding pharmacokinetic parameters between the values of all three brands studied . ($p > 0.05$) and 90% confidence interval of individual parameter of brands B and C relatively to that of brand A were contained within 80-125%. These demonstrated that all of the products studied were bioequivalent with equal rates and amounts of drug absorption.

4. The pharmacokinetics of roxithromycin following oral administration of 150 mg tablets were described by a mean of two compartment open model with first order absorption and elimination.

The average absorption rate constants obtained for brands A, B and C were 0.58, 0.66 and 0.54 hr^{-1}, respectively. The drug absorption appeared to be independent of drug dissolution.

The average elimination rate constants obtained were 0.10 hr^{-1} for brands A and C and was 0.11 hr^{-1} for brand B.

The mean elimination half-life of roxithromycin ranged from 6.60 to 7.01 hr.

5. The values of C_{max}, AUC and elimination half-life from this study were lower than those previously reported. The reasons might be due to roxithromycin was metabolized in Thais rapidly than foreigner.