CHAPTER V

CONCLUSION

The concentration of theophylline both in plasma and saliva were determined via the isocratic reversed-phase high performance liquid chromatographic technique. The sample preparation and chromatographic procedure were simple and less time consuming. The result of the method validation confirmed the effectiveness, exactness, and reliability of the analytical method to be used in this study or applied to used in any other theophylline study.

The saliva and plasma theophylline concentrations were determined from mixed saliva and plasma of 36 healthy adults who received single 5 mg./kg. of theophylline. Most of the maximum theophylline concentrations in plasma reached the therapeutic level between 10 and 20 mcg./ml. but not exceeded the maximum therapeutic range. This administered dose produced the average peak plasma and saliva concentration approximately 11.00 and 6.56 mcg./ml. with the average time to reach peak plasma and saliva concentration of 1.8 and 1.9 hours, respectively.

From plasma and saliva theophylline concentration-time data profiles of all subjects, it can be summarized that :

- The thoroughly washing of oral cavity before saliva sample collection is necessary in preventing drug contamination in saliva sample.

- The similarity of theophylline concentration in saliva and plasma during the first hour after drug administration could be explained that the concentration of drug in saliva is in equilibrium with that in arterial blood where the concentration of drug is higher than that in peripheral venous blood from the forearm vein.

- Within the process of determination saliva-plasma theophylline concentration ratio, the statistical result reveals that the variation in saliva-plasma concentration ratio of theophylline was independent upon sex (including smoking habit) and the sampling time excluding the data from half and hour after drug administration.

- The representative saliva-plasma concentration ratio of theophylline in Thais is determined to be 0.57 ± 0.14. This saliva-plasma ratio is within the range which reported from other studies. Therefore, it may be concluded that the saliva-plasma theophylline concentration ratio should not be relied upon race as that of the other pharmacokinetic parameters of theophylline e.g. half life.

- It is realized that the more patient data with restricted condition are needed to accomplish the entire experimentation.

As the overall conclusion for this study, the saliva-plasma concentration ratio for theophylline in Thai people has already been proposed to aid the therapeutic theophylline monitoring in Thai patients. Additionally, gathering of more patient data under theophylline therapy for any particular clinics, wards or hospital departments necessitate the usage of this saliva-plasma ratio in the future.