

## TABLE OF CONTENTS

	<b>Page</b>
ACKNOWLEDGEMENT	iii
ENGLISH ABSTRACT	iv
THAI ABSTRACT	vi
LIST OF TABLES	ix
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS	xii
CHAPTER 1 INTRODUCTION	1
CHAPTER 2 LITERATURE REVIEW	4
CHAPTER 3 OBJECTIVES	11
CHAPTER 4 MATERIALS AND METHODS	12
CHAPTER 5 RESULTS	24
CHAPTER 6 DISCUSSION	81
CONCLUSION	84
REFERENCES	85
APPENDIX	90
VITA	93

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved

## LIST OF TABLES

<b>Table</b>	<b>Page</b>
1	15
2A	25
2B	26
3	29
4	30
5	30
6	31
7	32
8	32
9	33
10	33
11	34
12	35
13A	38
13B	40
14A	42
14B	43

15A	Pharmacokinetic parameters of metformin after a single oral dose of 850 mg metformin HCl (test product)	44
15B	Pharmacokinetic parameters of metformin after a single oral dose of 850 mg metformin HCl (reference product)	45
16	Comparison of metformin pharmacokinetic parameters ( $C_{\max}$ and AUC) in individual volunteers after single oral dose of 850 mg metformin HCl the test (T) and the reference products (R)	76
17	ANOVA table (logarithmically transformed) and 90% CI of the pharmacokinetic parameter $AUC_{0-t}$	77
18	ANOVA table (logarithmically transformed) and 90% CI of the pharmacokinetic parameter $AUC_{0-\infty}$	78
19	ANOVA table (logarithmically transformed) and 90% CI of the pharmacokinetic parameter $C_{\max}$	79
20	ANOVA table and 90% CI of the pharmacokinetic parameter $T_{\max}$	80

### LIST OF FIGURES

<b>Figure</b>		<b>Page</b>
1A	Chromatogram of blank plasma	28
1B	Chromatogram of metformin 4000.0 ng/mL and IS (phenytoin) from human plasma sample	28
2	Calibration curve of metformin in human plasma	29
3	Pairwise plasma concentration-time profiles after single oral dose of 850 mg metformin HCl of the test and the reference products	46
4A	Plasma concentration-time profiles after single oral administration of 850 mg metformin HCl (test product)	72
4B	Plasma concentration-time profiles after single oral administration of 850 mg metformin HCl (reference product)	73
5	Mean ( $\pm$ SD) of plasma concentration-time profiles after single oral administration of 850 mg metformin HCl of the test and the reference products	74

### LIST OF ABBREVIATIONS

ALP	=	Alkaline phosphatase
ALT	=	Alanine aminotransferase
AST	=	Aspartate aminotranferase
$AUC_{0-\infty}$	=	Area under the serum concentration-time curve from time zero to infinity
$AUC_{0-t}$	=	Area under the serum concentration-time curve from time zero to the last quantifiable point
BLLQ	=	Below lower limit of quantification
BMI	=	Body Mass Index
BUN	=	Blood urea nitrogen
$^{\circ}C$	=	Degree Celsius
CBC	=	Complete blood count
CI	=	Confidence interval
$C_{max}$	=	Maximal serum concentration
$C_r$	=	Serum creatinine
CV	=	Coefficient of variation
dL	=	Desiliter
DM	=	Diabetes mellitus
ECG	=	Electrocardiogram
FPG	=	Fasting plasma glucose
g	=	Gram
h	=	Hour
HBs-Ag	=	Hepatitis B surface antigen
HPLC	=	High Performance Liquid Chromatography
Ht	=	Height
IS	=	Internal standard
$K_e$	=	Elimination rate constant

kg	=	Kilogram
L	=	Liter
LFT	=	Liver function test
LLQ	=	Lower limit of quantification
mg	=	Miligram
min	=	Minute
mmHg	=	Millimeter of mercury
ng	=	Nanogram
nm	=	Nanometer
No.	=	Number
mL	=	Milliliter
PC	=	Personal computer
QC	=	Quality control
$r^2$	=	Coefficients of determination
rpm	=	Round per minute
SD	=	Standard deviation
$t_{1/2}$	=	Half-life
$T_{max}$	=	Time to reach maximal serum concentration
UV	=	Ultraviolet
$\mu\text{L}$	=	Microliter
$V_d$	=	Volume of distribution
WHO	=	World Health Organization

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่  
 Copyright© by Chiang Mai University  
 All rights reserved