TABLE OF CONTENTS

	Page
ACKNOWLEDEMENT	iii
ENGLISH ABSTRACT	iv
THAI ABSTRACT	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
ABBREVIATIONS	xii
CHAPTER 1 INTRODUCTION	
1.1 Pain	1
1.2 Inflammation	4
1.3 Anti-inflammatory drugs	14
1.4 Historical background of *Alpinia purpurata*	16
1.5 Hypothesis	19
1.6 Purposes of the study	19
CHAPTER 2 MATERIALS AND METHODS	
2.1 Plant material and preparation of extract	20
2.2 Experimental animals	20
2.3 Preparation of test drugs	21
2.4 Drug administration	21
2.5 Experimental protocols	21
2.5.1 Analgesic study	21
2.5.2 Anti-inflammatory study	26
2.5.3 Acute toxicity	35
2.6 Drugs, chemicals and equipments	35
2.7 Statistical analysis	36

CHAPTER 3 RESULTS

3.1 Analgesic activity of AP extract 37

3.2 Anti-inflammatory study of AP extract 37

3.3 Acute toxicity test 45

CHAPTER 4 DISCUSSION AND CONCLUSION

4.1 Discussion 49

4.2 Conclusion 55

REFERENCES 56

VITA 66

LIST OF TABLES

Table		Page
1	The sources of the cell-derived mediators and their roles in the inflammatory reaction	8
2	Comparison of the properties of COX-1 and COX-2	11
3	Chemical mediators of the inflammatory response	13
4	Effects of AP extract and diclofenac on acetic acid-induced writhing response in mice	38
5	Effects of AP extract, diclofenac and codeine on the tail-flick test in rats	39
6	Effects of AP extract and diclofenac on EPP-induced ear edema in rats	40
7	Effects of AP extract and diclofenac on carrageenin-induced hind paw edema in rats	42
8	Effects of AP extract, diclofenac and prednisolone on AA-induced hind paw edema in rats	43
9	Effects of AP extract, diclofenac and prednisolone on granuloma formation and transudation in cotton pellet-induced granuloma formation in rats	44
10	Effects of AP extract, diclofenac and prednisolone on body weight and thymus weight in cotton pellet-induced granuloma formation in rats	46
11	Effects of AP extract, diclofenac and prednisolone on serum ALP activity in cotton pellet-induced granuloma formation in rats	47
12	Effects of AP extract, diclofenac and prednisolone on gastric mucosa	48

LIST OF FIGURES

Figure		Page
1	Events leading to activation, sensitization, and spread of sensitization of primary afferent nociceptor terminals	3
2	The major local manifestations of acute inflammation, compared to normal	6
3	Arachidonic acid metabolites and their roles in inflammation	10
4	*Alpinia purpurata* (Vieill.) K. Schum) or King Daeng	17
5	Diagram illustrating the procedure of the acetic acid-induced writhing response in mice	23
6	Diagram illustrating the procedure of the tail-flick test in rats	25
7	Diagram illustrating the procedure of the EPP-induced ear edema in rats	28
8	Diagram illustrating the procedure of the carrageenin-induced hind paw edema in rats	30
9	Diagram illustrating the procedure of the cotton pellet-induced granuloma formation in rats	34

ABBREVIATIONS

°C	=	degree Celsius
AA	=	arachidonic acid
ACh	=	acetylcholine
ANOVA	=	one-way analysis of variance
BKs	=	bradykinins
BW	=	body weight
cm	=	centimeter
COX	=	cyclooxygenase
EPP	=	ethyl phenylpropiolate
ER	=	endoplasmic reticulum
g	=	gram
h	=	hour
hCG	=	human chorionic gonadotropin
i.p.	=	intraperitoneal
IFN	=	interferon
IL	=	interleukin
kg	=	kilogram
L	=	liter
LOX	=	lipoxygenase
LPS	=	lipopolysaccharide
LSD	=	least-significant difference
LTs	=	leukotrienes
LX	=	lipoxin
M	=	molarity
mg	=	milligram
min	=	minute
mL	=	milliliter
mm	=	millimeter

mRNA	=	messenger ribonucleic acid
NaCl	=	sodium chloride
NO	=	nitric oxide
NSAIDs	=	non-steroidal anti-inflammatory drugs
NSS	=	normal saline solution
PAF	=	platelet-activating factor
PGI_2	=	prostacyclin
PGs	=	prostaglandins
ROS	=	reactive oxygen species
sec	=	second
TNF	=	tumor necrosis factor
TXA_2	=	thromboxane A_2
U/L	=	unit per liter
W	=	watt
µL	=	microliter
µm	=	micrometer