

LIST OF CONTENTS

TITLE PAGE	ii
CERTIFICATION PAGE	iii
DECLARATION	iv
PREFACE	v
LIST OF CONTENTS	vii
LIST OF FIGURES	ix
LIST OF TABLES	xi
LIST OF APPENDICES	xii
ABSTRACT	xiii
CHAPTER I INTRODUCTION	1
I.1 Background	1
I.2 Research Objectives	4
I.3 Research Benefits	5
CHAPTER II LITERATURE REVIEW, HYPOTHESIS AND EXPERIMENTAL DESIGN	6
II.1 Literature Review	6
II.1.1 Malaria and plasmodium resistance	6
II.1.2 Xanthone as antimalaria	8
II.1.3 Study of quantitative structure activity relationship (QSAR)	10
II.1.4 Synthesis of xanthone	18
II.2 Hypothesis and Experimental Design	22
II.2.1 Hypothesis	22
II.2.2 Experimental design	23
CHAPTER III RESEARCH METHODS	25
III.1 Materials	25
III.1.1 QSAR analysis	25
III.1.2 Synthesis and HPIA assay of xanthone derivatives	25
III.2 Equipments	25
III.2.1 QSAR analysis	25
III.2.2 Synthesis and HPIA assay of xanthone derivatives	26
III.3 Procedure	26
III.3.1 QSAR analysis	26
III.3.2 Synthesis of xanthone derivatives	30
III.3.3 Heme Polymerization Inhibition Activity (HPIA) Assay	31
CHAPTER IV RESULT AND DISCUSSION	33
IV.1 QSAR Analysis	33

IV.1.1	Determination of electronic and molecular descriptors using AM1 semi empirical method	33
IV.1.2	Results of QSAR analysis	33
IV.1.3	Design of new xanthone derivatives	38
IV.2	Synthesis of xanthone derivatives	40
IV.2.1	Synthesis of 1,3,6-trihydroxy xanthone	40
IV.2.2	Synthesis of 2,3,4-trihydroxy-5-methyl xanthone	51
IV.3	HPIA Assay of xanthone derivatives	56
CHAPTER V	CONCLUSIONS AND SUGGESTIONS	61
V.1	Conclusions	61
V.2	Suggestions	62
REFERENCES		63
APPENDICES		68