

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	viii
LIST OF TABLES	xi
LIST OF APPENDICES	xii
ABBREVIATIONS	xiv
ABSTRACT	xvi
INTISARI	xvii
CHAPTER I INTRODUCTION	1
I.1 Background	1
I.2 Research Objective	2
I.3 Research Benefits	3
CHAPTER II LITERATURES REVIEW AND HYPOTHESIS	4
II.1 Literatures Review	4
II.1.1 Natural product as potential source of novel compound	4
II.1.2 Endophytic fungi as source of novel compound.....	5
II.1.3 Bioactive compounds from Thai endophytic fungi	7
II.1.4 Endophytic fungi isolation and fermentation method.....	10
II.1.5 Metabolite screening and isolation methods.....	12
II.1.6 HPLC and structure determination methods.....	13
II.2 Hypothesis	14
II.2.1 Rationale	14
II.2.2 Hypothesis	15
II.3 Experimental Design	15
CHAPTER III RESEARCH METHODS	16
III.1 Materials	16
III.1.1 Plant material	16
III.1.2 Plant's surface sterilization agents.....	16
III.1.3 Arginine glycerin salt agar (AGS) media	16
III.1.4 Potato dextrose agar (PDA) media	16
III.1.5 Peptone yeast glucose (PYG) media.....	16

III.1.6	Meat peptone agar (MPA) media.....	17
III.1.7	Fermentation media	17
III.1.8	Bioactivity assay	17
III.1.9	Thin layer chromatography.....	17
III.1.10	Chromatography	17
III.1.11	Organic solvents	18
III.1.12	NMR solvents	18
III.2	Equipment and instruments	18
III.3	Experiments.....	19
III.3.1	Preparation of agar media	19
III.3.2	Isolation of endophytic fungi	20
III.3.3	First fermentation and extraction.....	20
III.3.4	Fungi screening.....	20
III.3.5	Criteria for Screening.....	21
III.3.6	Second Fermentation and Extraction.....	21
III.3.7	Ethyl Acetate Partition.....	22
III.3.8	General method for column chromatography.....	22
III.3.9	General method for flash chromatography	22
III.3.10	General method for HPLC.....	23
III.3.11	Preparation for spectroscopy analysis.....	23
III.3.12	Structure determination techniques	24
CHAPTER IV	RESULTS AND DISCUSSION	25
IV.1	Isolation of Endophytic Fungi.....	25
IV.2	First Fermentation and Extraction	26
IV.3	Fungi Screening.....	26
IV.4	Metabolite from Fungi T5	33
IV.5	Metabolite from Fungi T13 (First Fermentation).....	37
IV.5.1	Extraction, isolation, and purification.....	37
IV.5.2	Structure elucidation of novel compound.....	39
IV.6	Metabolite from Fungi T13 (Second Fermentation).....	64
IV.6.1	Isolation and purification	64
IV.6.2	Structure elucidation	66



CHAPTER V CONCLUSIONS	78
V.1 Conclusions	78
V.2 Suggestions	79
REFERENCES	80
APPENDICES	84