

TABLE OF CONTENTS

UNDERGRADUATE THESIS PROPOSAL.....	i
UNDERGRADUATE THESIS PROPOSAL.....	ii
UNDERGRADUATE THESIS PROPOSAL.....	iii
VALIDATION PAGE	iv
PLAGIARISM STATEMENT	v
PREFACE.....	vi
LIST OF ABBREVIATIONS AND SYMBOLS	vii
TABLE OF CONTENTS.....	viii
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF APPENDICES	xiii
ABSTRACT.....	xiv
I. INTRODUCTION	1
A. Scientific Background.....	1
B. Research Problems	2
C. Research Objectives	2
D. Research Benefits.....	2
II. LITERATURE REVIEW AND HYPOTHESIS	3
A. Literature Review	3
B. Hypothesis.....	7
III. RESEARCH METHODS	8
A. Time and Place of Research.....	8
B. Tools and Materials of Research.....	8
C. Procedure	9
1. Madagascar Periwinkle Leaves Sampling	8
2. Madagascar Periwinkle Ethanolic Leaves Extract.....	9
3. Anti-cancer Active Compounds Detection	10
4. Breast Cancer MCF-7 Cell Culture	10
5. Cytotoxic Test.....	11
6. Apoptosis Test	13
D. Data Analysis	15
IV. RESULTS AND DISCUSSION.....	16

1. Madagascar Periwinkle Leaves Sampling	16
2. Madagascar Periwinkle Ethanolic Leaves Extract	16
3. Anti-cancer Active Compounds Detection	17
4. Breast Cancer MCF-7 Cell Culture	18
5. Cytotoxic Test.....	20
6. Apoptosis Test	29
V. CONCLUSION AND SUGGESTION.....	32
REFERENCES	33
APPENDICES	36