

TABLE OF CONTENT

APPROVAL PAGE.....	ii
PLAGIARISM FREE DECLARATION	iv
FOREWORD.....	v
TABLE OF CONTENT	vii
LIST OF TABLES	ix
LIST OF FIGURES	x
ABSTRACT	xi
INTISARI.....	xii
CHAPTER I.....	1
INTRODUCTION.....	1
1.1 Background.....	1
1.1 Problem statements	3
1.3 Research objectives.....	4
1.4 Benefits	4
CHAPTER II	5
LITERATURE REVIEW	5
2.1 Chamomile as edible flower	5
2.2 Tryptophan as neurohormone precursor	6
2.3 Ultrasound-assisted extraction.....	7
2.4 Method validation	9
2.5 Design of experimental	11
2.2 Response surface methodology	12
2.7 Research hypothesis.....	12
CHAPTER III.....	14
MATERIALS AND METHOD	14
3.1 Time and place of research	14
3.2 Research material and instruments	14
3.3 Determination of <i>L</i> -tryptophan using HPLC-DAD	16
3.4 Experimental design and statistical analysis.....	17
3.5 Method validation	18
3.6 Real sample application	19
3.7 Data analysis	19
CHAPTER IV.....	20
RESULT AND DISCUSSION.....	20

4.1	Solvent screening	20
4.2	Effect of UAE variables	20
4.3	Response optimization	24
4.4	Method validation	24
CONCLUSION		28
SUGGESTION		28
REFERENCES		29
APPENDIX		35

LIST OF TABLES

Table 1. Gradient of tryptophan analysis using HPLC	17
Table 2. Independent variable coding levels and real values for Box-Behnken design	17
Table 3. Matrix of Box-Behnken design with normalized observed response and the prediction error	17
Table 4. <i>L</i> -tryptophan level in chamomile flowers	27

LIST OF FIGURES

Figure 1. Enzymatic process involved in the metabolism of tryptophan and key metabolites.....	6
Figure 2. German (a) and Roman (b) chamomile capitulum, disc florets (c), and ray florets (d).	14
Figure 3. Tryptophan extraction using UAE	16
Figure 4. Pareto chart for standardized effects.	21
Figure 5. Response surfaced plots displaying the effects of UAE factors on the level of L-tryptophan in the extract from chamomile flowers.....	24
Figure 6. Chromatograms of <i>L</i> -tryptophan in standard solution (a), and sample (b)	26