

TABLE OF CONTENT

	Page
TITTLE.....	i
PAGE OF REQUIREMENT.....	ii
BERITA ACARA.....	iii
APPROVAL OF ADVISOR.....	iv
APPROVAL OF DEAN.....	v
DEDICATION.....	vi
ASSERTION.....	vii
ACKNOWLEDGEMENT.....	viii
ABSTRACT.....	x
TABLE OF CONTENT.....	xiii
LIST OF TABLES.....	xiv
LIST OF FIGURES.....	xv
APPENDIX.....	xvi
 I. INTRODUCTION.....	 1
A. Background.....	1
B. Formulation of Problem.....	5
C. Research Objective.....	5
D. Research Authenticity.....	6
E. Benefits of Research.....	7
 II. LITERATURE OVERVIEW.....	 8
A. Literature Review.....	8
1. Gingivitis.....	8
2. <i>Cosmos caudatus</i>	14
3. Saliva.....	20

	Page
4. Gluatathione S-transferase.....	22
B. Theoretical Basis.....	25
C. Hypothesis.....	26
III. RESEARCH METHOD.....	27
A. Research Design.....	27
B. Identify Variables.....	28
C. Operational Definition.....	29
D. Research Population.....	29
E. Apparatus and Materials.....	29
F. Procedures.....	31
G. Data Analysis.....	36
H. Research Steps.....	37
IV. RESULT AND DISCUSSION.....	38
A. Result.....	38
B. Discussion.....	41
V. CONCLUSION AND SUGGESTION.....	48
A. Conclusion.....	48
B. Suggestion.....	48
REFERENCES.....	49
APPENDIX.....	53

LIST OF TABLES

Table		Page
Tabel 1.	Metabolites identified in <i>Cosmos caudatus</i>	16
Tabel 2.	Composition of mixture to determine GST level in saliva.....	33
Table 3.	Composition of mixture for construction of standard curvature with Biuret method.....	34
Table 4.	Average and standard deviation of specific activity of GST before and after gargling with 5% concentration of <i>C. caudatus</i> extract and chlorhexidine 0.1%.....	37
Table 5.	Result of independent sample t-test before gargling based on treatment group ($p < 0.05$).....	39
Table 6	Result of independent sample t-test after gargling based on treatment group ($p < 0.05$).....	39

LIST OF FIGURES

Figure		Page
Figure 1.	<i>Cosmos caudatus</i>	14
Figure 2.	The role of glutathione S-transferase in detoxification.....	22
Figure 3.	GST specific activity in saliva before and after gargling based on treatment group.....	38

APPENDIX

Appendix		Page
Appendix I.	Ethical clearance (Surat Keterangan Kelayakan Etik).....	52
Appendix II.	Determination letter of <i>Cosmos caudatus</i>	53
Appendix III.	Information letter for respondents (Lembar informasi).....	54
Appendix IV.	Informed Consent.....	58
Appendix V.	Research's permission letter for Laboratorium Farmakologi FK UGM.....	59
Appendix VI.	Research's permission letter for Laboratorium Riset Terpadu FKG UGM.....	60
Appendix VII.	Certificate of completion from Laboratorium Riset Terpadu FKG UGM.....	61
Appendix VIII	Data on Subjects Gingival Index	62
Appendix IX.	Absorption reading of GST rate before gargling with 5% concentration of <i>Cosmos caudatus</i> extract and control.....	63
Appendix X.	Absorption reading of GST rate after gargling with 5% concentration of <i>Cosmos caudatus</i> extract and control.....	64
Appendix XI.	Non-specific activity of GST before gargling with 5% concentration of <i>Cosmos caudatus</i> extract and control.....	65
Appendix XII.	Non-specific activity of GST after gargling with 5% concentration of <i>Cosmos caudatus</i> extract and control.....	66
Appendix XIII.	Mean and mean deviation of non-specific activity of GST before and after gargling with <i>Cosmos caudatus</i> extracts and control.....	67
Appendix XIV.	Mean, standard deviation and mean deviation of non-specific activity of GST before and after gargling with 5% concentration of <i>Cosmos caudatus</i> extracts and control.....	68
Appendix XV.	Absorption reading of protein rate before and after	

	gargling with 5% concentration of <i>Cosmos caudatus</i> extracts and control.....	69
Appendix XVI.	Standard curve of absorption reading of bovine serum albumin using Biuret method.....	70
Appendix XVII.	Mean deviation of whole saliva protein rate before and after gargling with 5% concentration of <i>Cosmos caudatus</i> extracts and control.....	71
Appendix XVIII.	Mean, standard deviation and mean deviation of whole saliva protein rate before and after gargling with 5% concentration of <i>Cosmos caudatus</i> extracts and control....	72
Appendix XIX.	Mean deviation of protein fractional of saliva before and after gargling with 5% concentration of <i>Cosmos caudatus</i> extracts and control.....	73
Appendix XX.	Specific activity of GST before gargling with 5% concentration of <i>Cosmos caudatus</i> extract and control.....	74
Appendix XXI.	Specific activity of GST after gargling with 5% concentration of <i>Cosmos caudatus</i> extract and control.....	75
Appendix XXII.	Deviation of specific activity of GST before and after gargling with 5% concentration of <i>Cosmos caudatus</i> extracts and control.....	76
Appendix XXIII.	Mean, standard deviation and mean deviation of specific activity of GST before and after gargling with 5% concentration of <i>Cosmos caudatus</i> extracts and control....	77
Appendix XXIV.	Homogeneity Test, Normality Test and Independent T Test	78
Appendix XXV.	Documentation of Materials and Apparatus of Study.....	80