

TABLE OF CONTENTS

PREFACE	iii
TABLE OF CONTENTS	1
LIST OF FIGURES	vii
LIST OF TABLES	viii
LIST OF EQUATIONS	ix
ABSTRACT	1
INTISARI	2
CHAPTER I INTRODUCTION	3
I.1 Background	3
I.2 Research Objectives	5
I.3 Research Benefits	5
CHAPTER II LITERATURE REVIEW AND HYPHOTHESES	6
II. 1 Literature Review	6
II.1.1 Benzaldehyde	6
II.1.2 Quartz Crystal Microbalance	7
II.1.3 Polyaniline	9
II.1.4 Spin Coating Method	10
II. 2 Hypotheses and Research Design	11
II.2.1 Hypothesis 1	11
II.2.2 Hypothesis 2	11
II.2.3 Research Design	11
CHAPTER III RESEARCH METHODS	13
III.1 Materials	13
III.2 Tools	13
III.3 Methods	13
III.3.1 Preparation of polyaniline solution	13
III.3.2 QCM washing process	14
III.3.3 QCM coating	15
III.3.4 Polyaniline coating	15
CHAPTER IV RESULT AND DISCUSSION	16
IV.1 Polyaniline Coating and Parameters Result	16
IV.1.1 Polyaniline coating frequency (f_1)	16
IV.1.2 Polyaniline characterization	17
IV.1.3 Polyaniline surface morphology analysis	18
IV.2 Sensor Parameters Result	20
IV.2.1 Response time	20
IV.2.2 Sensitivity, LoD and LoQ	21
IV.2.3 Other analytes responses	23
IV.2.4 Inter-day response	24
IV.2.5 Reproducibility and repeatability	25
IV.2.6 Recovery	26
CHAPTER V CONCLUSIONS	28
REFERENCES	29
APPENDICES	32