TABLE OF CONTENTS

SHEET OF LEGITIMATION

DECLARATION

ABSTRACT i

PREFACE ii

ACKNOWLEDGEMENT iii

TABLE OF CONTENTS v

LIST OF TABLES vii

LIST OF FIGURES viii

LIST OF APPENDICES ix

CHAPTER I INTRODUCTION

A. Background 1

B. Research Problem 3

C. Research Question 3

D. Limitation of Problem 4

E. Research Objective 4

F. Organization Structure of Research Paper 5

CHAPTER II STUDENTS' MISCONCEPTION ABOUT PLANT STRUCTURE IN RELATION TO PHOTOSYNTHESIS

A. Misconception

1. Conceptualizing Misconception 6
2. Sources of Misconception 7

B. The Use of Drawing Method for Diagnosing Misconception 9

C. Identification of Misconception Using CRI 11

D. An Overview of Plant Structure and Photosynthesis Concept

1. Plant Structure Concept 13
2. Photosynthesis Concept 17

E. Relevant Research 22

CHAPTER III RESEARCH METHODOLOGY

A. Research Design 24
B. Population and Sample 24
C. Operational Definition 25
D. Research Instrument 26
E. Research Procedure 43
F. Research Plot 44

CHAPTER IV RESULT AND DISCUSSION

A. Research Result
1. Result of Students' Drawings..... 45
2. Result of CRI..... 50
3. Result of Students' Interview..... 51
4. Result of Questionnaire 52
B. Research Discussion
1. Analysis of Students' Misconception Through Drawings 54
2. Analysis of Students' Misconception Using CRI 59
3. Analysis of Questionnaire 67

CHAPTER IV CONCLUSION AND RECOMMENDATION

A. Conclusion..... 69
B. Recommendation..... 70

REFERENCES. 71
APPENDICES. 76

LIST OF TABLES

Table 3.1 Rubric for Students' Drawing 26
Table 3.2 Questionnaire Item Specification..... 27
Table 3.3 Specification of Multiple Choice with Open Reason Item 28
Table 3.4 Classification Validity Coefficient..... 30
Table 3.5 Classification of Reliability Coefficient 31
Table 3.6 Discriminating Power Classification 32
Table 3.7 Coefficient Classification Of Difficulty Index 33
Table 3.8 Recapitulation of Multiple Choice Item Test..... 34
Table 3.9 Interview Guideline 36
Table 3.10 Rubric of Level of Drawing 38
Table 3.11 Modified Certainty of Response Test 41
Table 4.1 The most frequent elements for function of plants' organs 46
Table 4.2 The most frequent elements for photosynthesis 48
Table 4.3 The most frequent organs and organelles 48
Table 4.4 Students' misconception obtained from drawings 49
Table 4.5 Percentage of Students' Misconception Using CRI 50
Table 4.6 Misconception obtained in the interviews 52

LIST OF FIGURES

Figure 2.1 A typical body plant of angiosperm..... 13
Figure 2.2 Monocots and eudicots leaf venation 16
Figure 2.3 Variation of leaf shape 17
Figure 2.4 Energy from the sun drives the process of photosynthesis 18
Figure 2.5 Zooming in on the location of photosynthesis in a plant 20
Figure 3.12 Research Plot 44
Figure 4.1 Percentage of Students' Drawing Level 45
Figure 4.2 Drawings with Misconception (Level 3) about Plant Structure 54
Figure 4.3 Drawings with Misconception (Level 3) about Photosynthesis 58

LIST OF APPENDICES

A. INSTRUMENT JUDGEMENT FORM

Appendix A1. Result of Instruments Judgment 77

Appendix A2. Instrument Judgment Forms 92

B. RESEARCH INSTRUMENTS

Appendix B1. Drawing Instruction Form of Plant Structure 98

Appendix B2. Drawing Instruction Form of Photosynthesis 99

Appendix B3. Questionnaire Form 100

Appendix B4. Interview Guideline Form 102

Appendix B5. Multiple Choice Item Test (PROPOSED) 104

Appendix B6. Multiple Choice Item Test (USED) 112

C. RESEARCH RESULTS

Appendix C1. Drawings Result for Plant Structure 126

Appendix C2. Drawings Result for Photosynthesis 128

Appendix C3. Recapitulation of Misconception 130

Appendix C4. Interview Transcription 134

Appendix C5. Questionnaire Result 137

Appendix C6. Recapitulation of Level of Drawings 140

D. DOCUMENTATION 142

E. ADMINISTRATION 144

F. AUTHOR BIOGRAPHY 146