UNIVERSITAS
GADJAH MADA
**Effects of Selected Parameters on Physical and Mechanical Properties of Biodegradable Films Based on Mung Bean Starch**
PUTRI AGITHASARI, Prof. Dr. Yudi Pranoto, S.T.P., M.P.; Assoc. Prof. Dr. Thawien Wittaya
**Universitas Gadjah Mada, 2018 | Diunduh dari http://etd.repository.ugm.ac.id/**

# CONTENTS

Page

COVER ..... i

APPROVAL SHEET ..... iii

DECLARATION OF AUTHENTICITY ..... iv

ACKNOWLEDGEMENTS ..... v

ABSTRACT ..... vii

ABSTRAK ..... viii

CONTENTS ..... ix

LIST OF TABLES ..... xi

LIST OF FIGURES ..... xii

LIST OF APPENDICES ..... xiii

CHAPTER 1. INTRODUCTION ..... 1

1.1. Background ..... 1

1.2. Research problems ..... 3

1.3. Objectives ..... 3

CHAPTER 2. LITERATURE REVIEW ..... 4

2.1. Food plastic films ..... 4

2.2. Biodegradable films ..... 5

2.3. Polysaccharide films ..... 6

2.4. Mung bean starch-based films (MBSF) ..... 7

2.4.1. Description of starch ..... 7

2.4.2. Starch molecular structure ..... 8

UNIVERSITAS
GADJAH MADA
**Effects of Selected Parameters on Physical and Mechanical Properties of Biodegradable Films Based on Mung Bean Starch**
PUTRI AGITHASARI, Prof. Dr. Yudi Pranoto, S.T.P., M.P.; Assoc. Prof. Dr. Thawien Wittaya
**Universitas Gadjah Mada, 2018 | Diunduh dari http://etd.repository.ugm.ac.id/**

2.4.3. Mung bean starch ..... 8
2.4.4. Film preparation ..... 10
2.5. Parameters influencing mung bean starch-based films properties ..... 11
2.5.1. Plasticizers ..... 12
2.5.2. Lipids ..... 13
CHAPTER 3. MATERIALS AND METHODS ..... 14
3.1. Materials ..... 14
3.2. Instruments ..... 15
3.3. Methods ..... 16
3.3.1. Films preparation ..... 16
3.3.2. Analysis ..... 18
3.3.3. Comparison of lipid-added mung bean starch-based films to commercial plastic films ..... 22
CHAPTER 4. RESULTS AND DISCUSSIONS ..... 23
4.1. Effect of plasticizers on mung bean starch-based films properties ..... 23
4.2. Effect of lipids on mung bean starch-based films properties ..... 30
4.3. Comparison of lipid-added mung bean starch-based films to commercial plastic films ..... 38
CHAPTER 5. CONCLUSIONS AND SUGGESTIONS ..... 40
5.1. Conclusions ..... 40
5.2. Suggestions ..... 40
REFERENCES ..... 41
APPENDICES ..... 49