WRITING MANUAL

FINAL PROJECT/THESIS/DISSERTATION

BIOLOGY DEPARTMENT

BIOLOGY DEPARTMENT

FACULTY OF MATHEMATICS AND SCIENCES

UNIVERSITY OF BRAWIJAYA MALANG

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INTRODUCTION

Let's give thank to Allah SWT for the mercy and guidance. Biology Department University of Brawijaya has written writing manual of final project, thesis and dissertation. This book was written for reaching the uniformity and consistency of writing manual of final project, thesis and dissertation. According to the different manual at some universities, this book was written to give guidance for lecturers and students at Biology Department in order they have similar manual. The writing of this manual was referred to several books:

1. Day, R.A. 1998. How to write & publish a scientific paper. Oryx Press. Arizona.
2. Buku Pedoman Penulisan Skripsi. 1995. FMIPA. Universitas Brawijaya. Malang.
3. Pedoman Penulisan Tesis dan Disertasi. 1999. Program Pascasarjana. Universitas Brawijaya. Malang.
4. Thomas, L.E. 2001. Guide for Citing Bibliographic References. Rocky Mountain Research Station. Ogden.

The writers realize that this book still has weakness therefore they hope for readers' suggestion and critics for better edition. Finally, writers hope this book will be beneficial for civitas academica at Biology Department.

The Writers

Malang, 2012

TABLE OF CONTENT

TABLE LIST

PART I

UNDERGRADUATE THESIS WRITING

CHAPTER I
INTRODUCTION

1.1 Definition

Final project is a scientific work written based on the research finding (experiment/survey) with 6 credits. It is written by students to get the degree of Biology bachelor (S.Si).

1.2 Objectives

This writing manual is written to:

1. Give easiness for students in writing final project
2. Make the same final project written by all students

1.3 Stages of thesis writing

1. Writing proposal research
2. Conduct proposal seminar of thesis
3. Conducting research
4. Holding research finding seminar
5. Submitting final project that is approved by supervisor to be examined
6. Sending the revised-legalized final project by supervisor to the Head of study program at department and faculty.

CHAPTER II
PARTS OF FINAL PROJECT

Generally, there are three parts in the final project writing, beginning, main and last (table 1). Parts of final project and the content.

Table 1. Parts and content

Parts	Content
Beginning	Cover Page of Title Legitimation sheet Certificate of Authorship Thesis usage manual Abstract Acknowledgement Table of content Table list Figure list Symbol and acronym
Main	CHAPTER I Introduction CHAPTER II review of related literature CHAPTER III research method CHAPTER IV finding and discussion CHAPTER V conclusion and suggestion

Last	Reference

No blank paper among chapters. Every part or content is started in the new page.

CHAPTER II
BEGINNING PART OF FINAL PROJECT

1.1 Cover

The cover of final proect uses blue soft cover. All letters are in capital except word by, name/symbol in small letter according to the order below;

1. Title of final project
2. Word ‘FINAL PROJECT’
3. Student name,
4. Student number
5. Symbol of UB

6. Department, faculty and university
7. Year
8. On the back of cover, please write thesis

1.2 Title Sheet

Page of title is as same as the cover. Write some sentences below:

As the requirement of getting degree title of Biology undergraduate

1.3 Legitimation Sheet

Legitimation sheet consists of thesis title, writer name, student number, information of exam, the sentence is ‘after presenting to examiner on date and accepted to get title degree of bachelor. Supervisor ID number and his signature are placed on the left side and supervisor II on the right.

For dissertation, promoter ID number and his signature are placed on the center, co-promoter I on the left and co-promoter II on the right. Then, write the name of head

of study program on the center. Title of final project and writer are written as on the cover. Example is on the 3 a.

1.4 Certificate of Authorship

Students must write their statement telling about the final project authorship. Example is on the 5 a.

1.5 Final project usage

This page informs the procedure of making quotation of reference. Example is on page 6 a.

1.6 Abstract

Abstract is short but complete review of final project. Abstract consists of research identity and content. Research identities are title, writer, supervisor, and year. Research contents are research objectives, research finding, and conclusion and keywords.

Title is typed in bold and capital letter for initial word. Species name, chemical compound, genetic and other words do not exist on Indonesian Dictionary typed oblique line/ writer and supervisor are typed separately with instance, year. Abstract is writer thought that cannot be added by reference quotation. Background and objective of research is taken from chapter of introduction, research method from chapter research method, research finding from chapter research finding, conclusion from chapter conclusion and suggestion. Abstract is written in Indonesia and English in different paper, 1 space 250-300 words. Key words are five maximum in alphabet order. Example is on page 7 and 8.

1.7 Acknowledgement

Acknowledgement is a short review of research purpose and gratitude. It is written in one space, one page and no scientific writing. Month and year of writing is based on the time of final project submit. Name of person is written formally and complete (no nick name) and academic title if any. Example can be seen on page 9.

1.8 Table of Content

This page contains of list of title (from page of title to s) and title of sub chapter are based on the page order, no point and one space except among each chapter and other information is typed in two spaces. Word ‘page’ is written on the right, capital only for initial letter, no bold and four spaces from word ‘table of content’, word ‘abstract’, ‘acknowledgement’, ‘list of table’, ‘list of figure’, ‘’, ‘acronym and technical term’, ‘reference’, ‘’ and title of chapter is written in bold.

Title of sub chapter is written in small letter except the initial letter of every word which is not conjunction. Title which needs more one line, the second line begins below of first letter of sub chapter title. Number of page before CHAPTER I is written in Roman letter (iii,iv,v, etc). Page number is written align text right below word ‘page’. Type ‘…..’ between title of chapter and sub chapter. Example can be seen on page 10. Dissertation: summary or abstract.

3.10 Table list

The list of table consists of three columns; table number, table title, and page. On the column ‘table number’, write page number without word ‘table’. Table number and page number (typed on the right) are written in Arabic numeral. Title of table is placed between table number and page number. Write ‘page’ on the top of page column, not bold. Space between table title is two spaces. If table title is more than one line, so between first line and second line is two spaces. Table title and page number is connected by ‘……’. Example is on the 11.

3.11 Figure list

The writing manual for figure is as similar as table. Example in 12.

3.12 Appendix List

This page presents the table and figure. The writing manual is as similar as page of table and figure. Example is on appendix 14.

3.13 List of Symbol and Acronym

Page of symbol and acronym which is written after page of presents the symbol and acronym used in the research. The acronym which can be used is the general ones. This list is formed in two columns; first column contains with symbol/acronym and

second column contains of the information of them. Acronym writing is based on the alphabet order. If the symbol is written in Romaic, it is also ordered in Romaic (exp: alpha, beta, delta, gamma). Information on second column is written in small letters. Example is on appendix 15.

CHAPTER IV
MAIN PART OF FINAL PROJECT

4.1 Introduction

This chapter presents the research background, research questions, research objectives, and significance.

4.2 Research Background

Background presents the explanation of reasons why the prombles are interesting, important and reaserchable. The problems researched are presented in larger scope. The authenticity of research must prove that the prombles have not been solved by previous researchers or the researcher must definitely write the difference between theirs and previous researches.

4.3 Research Problems

Research problems are the problems that will be researched and stated in question statement. Problem sentence presents the parameters and variables used in the research.

4.4 Research Objectives

It specifically mentions the objectives that will be reached according to research problems. It is in the form of statement.

4.5 Research Significance

It presents the contribution of research finding for the development of science and technology, civilization and welfare for human.

4.6 Review of Related Literature

It presents the subjects related to the research theme and hypothesis (if any). It is needed in drawing the ideas based on the theories to write a hypothesis. It also gives theories that become the foundation of research, research finding of previous research and showing that the problems researched have not been solved well. The literature is the newest and taken from the original source (textbook, handbook, journal, internet). Practice guide and article that does not have ISBN cannot be used as the reference.

Hypothesis (if any) presents the brief explanation summarized from review of literature and temporary answer of problems. The truth of hypothesis is proved through research conducted. Hypothesis is written in the end of review of literature.

4.7 Research Method

This chapter presents the explanation of time and place of research, research design, research steps, variable, data collection and data analysis. Objects and equipments are not written in the sub chapter but written in the research steps that written in order:

1. Time and place of research, explains the time and location of research conducted. Field research must explain the research area including geography, landscape, height, rainfall, land, time and season when research conducted.
2. Research steps are the explanation of steps taken in conducting research, kind of data and how to collect it. The researcher can write diagram/flow chart. Sub chapter of research steps is adjusted with the work ways without writing sub chapter “work ways” (exp: sub chapter “DNA isolation”). It can be seen on appendix 9 where the sub chapter 3.2. Not the “work ways” but research steps that will be done, it is “SDS PAGE and Western Blotting”.
3. Research design explains the approach strategy that will be taken to get the answer from problems and objectives of research.
4. Data analysis is the complete explanation of data process in drawing the conclusion. If there is a statistic analysis, so there must be the degree of carefulness and software are written down.

4.8 Finding and Discussion

This chapter presents the research finding and discussion which are not written in another sub chapter. Research finding can be explained in some models; table, figure, graphic, map or photo. The researchers can choose the informative model. Every data that is shown must be stated in a statement. The discussion of finding can be theoretical explanation in qualitative, quantitative or statistic. The literature used in the research can be a fact that is similar or contrast from the finding and must be given the theoretical explanation.

4.9 Conclusion and suggestion

Conclusion and suggestion must be stated in different sub chapter.

1. Conclusion is a brief and complete preview from the research finding and discussion that prove the truth of hypothesis (if any) and related to research problems.
2. Suggestion writing starts from the sentence giving basic or reason of why the suggestion is needed. The suggestion written must be referred to fact on the chapter of finding and discussion. It can be normative but must be based on three things; a) method revision b) further research c) utilization of research finding.

CHAPTER V
FINAL PART OF FINAL PROJECT

5.1 Reference

Every title of book, article, journal and other literature that have been published and quoted in the research must be written down o reference. For thesis, dissertation and research report, which are not published, must be written too. Literature of reference and private communication are not listed in the reference. Practice guide, study note and information source that do not have ISBN cannot be used as reference. Example on appendix 16. Some literatures that can be listed in the reference:

1. Text book is scientific book that is published in indefinite time, written by one or more writers or editor team. For example: Animal Physiology, Plant Cell Development, Ecology, Molecular Biology of the cell, and spectrometric identification of organic compound.
2. Journal is scientific magazine containing of scientific text published by professional publisher such as Journal of Fertility and Sterility, Plant Cell Physiology Phytopalogy, Carcinogenesis, Science and Cancer Research.
3. Journal review is an article written from some research articles of a science; botanical review, biological review, and FEMS microbiology review.
4. Periodical is scientific magazine of research finding published periodically by an institution.
5. Yearbook is a book presenting facts and statistic data for a year published by an institution.
6. Bulletin is a brief scientific text published periodically, scientific note or guide of operational agenda such Bulletin HPT.
7. Annual review is explanation of published literature. For example: annual review of microbiology, annual review of biochemistry and annual review of plant physiology.
8. Proceeding is compilation of article published in seminar or cymphosium. Prosiding forum komunikasi ilmiah pemanfaatan pestisida nabati, proceeding of the 198 annual meeting of the international research grown on wood preservation
9. Bibliography that contains of articles

Example: PubMed

10. Thesis, dissertation and research report. The feasibility of using the scientific work is decided by supervisor.
11. Website and CD-ROM. Example: eBook, Tutorial. Wikipedia, private blog, text on website that does not write the name of researcher and institution cannot be used as the guide.

5.2 Appendix

In this section, it is presented the information or things that are needed in helping final project. The appendix given such as table, figure, and calculation. If, there is one table/figure, so the title of table is or figure can be put as the title of . If there are some tables, there must be order number. Table number on the starts with LT (exp LT1., LT2, etc). figure number starts with (exp LG1, LG2 etc).

CHAPTER VI
WRITING MANUAL

6.1 Paper Format

Final project for undergraduate is typed on the paper A5 (14,8 cm x 21 cm), HVS 80 gram front-bact. Letter is times new roman font 11 with 1 space. Page is in mirror margin, top and right margins is 1,5 cm and bottom and left is 2,5 cm. text is set on justify but new alinea, mathematics equation, list, table, figure or specific things.

6.3 Typing of Text/review

6.3.1 type and font of letter

Final project is typed in times ew roman 11. On the cover, page of research titleans ‘thesis’ is typed in 20 font. Species names is initalic. It must be typed in times new roman 12.

6.3.2 Line spacing

Typing of chapter and chapter title is typed in the center in 1 space. Title of table, figure, table content, abstact, table list, figure, , figure information is typed in 1 space. Between chapter title and review or chapter title and sub chapter are 2 space. Between review and the next sub chapter is 1,5 space. Between line in review, between cub chapter title and another sub chapter title and between sub chapter title and review are 1,5 space. Exp on 14.

6.3.3 Layout

Layout must be full. Typing must start from left margin to right margin and there is no empty space. It has been explained in 6.3.5.

6.3.4 Paragraph

One paragraph must have minimal 2 sentences. New paragraph starts with fifth type from left typing. The last line may not be typed on the next page. The writing of new paragraph must be there min two first lines of the paragraph.

6.3.5 title of chapter, sub chapter, and next sub chapter.

The procedures are below:

1. Before Chapter title, researcher must write rome number (CHAPTER I, II etc). on the next line ‘chapter title’ is written in capital letter-bold-symetric in the center. Between the chapter order pointing and the chapter title is one space. Example in 14.
2. The writing of sub chapter title starts from left margin, numbering as the chapter number order before it, it is in bold without dot. Sub chapter title is written in small letters but first letter of the word which is not conjunction. The first sentence after sub chapter title is the beginning of new alinea. Example in 14.
3. Sub-sub chapter title is typed starts from left margin, numbering as the chapter number order, sub chapter title, sub-sub chapter title is typed bold-capitel letter in initial letter without dot. Example on 14.

6.3.6 Number, Symbol, Chemical Formula, and Unit

1. Integer less than 10 must be written in letter, 10 or more is written in number but table number, figure and in the review such as two bullion, 10 repetition, and 14 sample. Serial number used before 10 and after 10 is used number, for example treatment using dosis 0,4,8 and 10 mg/BB mouse. All numbers in the beginning sentence must be written in letter, for example,”one hundred milimeter is added to….”.
2. Number and unit are stated in number and acronym of unit is separated one tap (for example: 3,5 mg), except if the unit is not preceded by a sum (for example: “weight of leave is in gram”).
3. Tthe writing of number in long line is shortened by changing the unit (for example: 2.500.000 to be 2,5 juta; 5x10-6m to be 5 µm).
4. Decimal symbol in decimal fraction is comma, not a dot, except in English abstract, for example: 13,5 cm not 13.5 cm.
5. Measurement unit uses international unit system with general acronym used.
6. Number, symbol or chemical formula which are in the beginning sentence must be spelled,for example: twenty milimeter aquades is added to……etc. chloride clacium that has been dissolved… etc.

6.3.7 Page Numbering, table list and figure

1. Page number in the beginning part of final project uses smal rome number (I, ii, iii, etc.) and written on bottom page, symetric left and right margin. Page number is 1,5 cm from bottom margin. Page numbering starts from legitimation sheet to table of content.
2. Page number in the main part of final project uses arabic number and written out of bottom including sub chapter page.
3. Table numbering, figure and must be given arabic order number and started from chapter number from figure or table where they are, then followed by figure/table order number, for example table 2.3 means that the table is written in the chapter 2 in the third table order

6.3.8 Equation

Equation that is in the form of mathematical formula, chemical reaction and others that will be used for following review must be given arabic order number. Order number consists of only one number, for example:

$CaSO_4 + K_2CO_3 \longrightarrow CaCO_3 + K_2SO_4$ (3)

6.3.9 Below Detail

Detail is ordered in below line by using number placed in the beginning. For example: thesis guide book is written for:

1. To give easiness……. Etc
2. To provide uniformity…… etc

CHAPTER VII
WRITING LITERATURE AND REFERENCE

7.1 Writing literature inside the explanation

Scientific information that is written in the explanation can be taken from published-unpublished scientific work and private communication. The writer's name is only the last name. if there are two writer, their last name are written and conjuncted by '&'. If there are more than two, only the first writer's last name is written followed by 'et al'. in consistent, for literature that is written in Indonesia and English. The procedure is as follow:

1. Writer name is in the beginning sentence
   "According to Untung et al. (1993) mechanism of natural contro……" or "Untung (1993) stated that……."
2. Writer name is in the last sentence
   "This thing assumes that natural enemy likes certain plant composition (Albertcht, 1998)."
3. Two writers
   "This structure causes the detergent has emulsion character (Fessenden at al., 1982)." Or "Sawyer & Carty (1978) use general supprting material……."
4. More than two writers. For example: "Altieri at al. (1981) found that the things can increase……' or "It assumes that certain natural enemy likes certain plant composition (Altiery at al., 1981)."
5. Literature of an instance that does not mention the writer name , so the instance name becomes the reference that is written in the last sentence, not in the beginning. For example: "……is founded in 2008 (Balitkabi, 2010)." It is not written like "According to Balitkabi (2010)……found in 2008."
6. Refered to two or more literatures (it is ordered chronologically as the year). For example: "According to Heywood (1976) and Shuka & Mirsa (1979) family study is the part of systematic study." Or "……..caused by compound reaction of polyfenol becoming brown quinon (Haru=isuseno, 1974;Bidwell, 1976; Wareing & Philips, 1976)."

7. Statement or information that is referred from text referred another literature. For example: "……continued to appropriate organs as the active respond, for example behavior (Atkins, 1978 in Wahyuni, 1998)". This matter must be avoided because the writer does not read the original text. If the researcher cannot avoid it, it must be Wahyuni, not Atkins.
8. Literature that is obtained from unpublished texts that is unpublished. This reference is not mentioned in the reference. For example: "the biggest component of coconut oil is……. (Suwarno, unpublished)."
9. Private comunication. For example: "According to Sumarmi…… (private communication, 2010)." This literature is not mentioned in the reference. It is better avoided because of the responsibility.

7.2 Reference writing

Between literature is one space. If the reference writing is more than one line, so the first line is on the left margin and the next line started on the sixth tap from left side (14).

1. Reference is ordered in alphabetic based on the family name of first writer.
2. The order of reference writing is:
   a. Journal: writer name. published year. Article title (upright position). Journal name (using official acronym, 15) in italic. Vol: page. Example:

      Corey, E.J. & A.K. Long, 1978. Computer assisted synthetic analysis performance of long-range for stereoselective olefin synthesis. *J. Org. Chem.* 43:2208-2216.

      Sieg, C.H. 1997. The mysteries of a praire orchid. *Endangered Spec. Bull*. 22(4):12-13.

   b. Book. Writer name. published year. Book title (bold). Volume. Edition (if any). publisher name. publisher city. Textbook title and unpublished literature (thesis, dissertation, manuscript and research report) is written in small letter except initial letter of the first word/person name/species/place. They are written in bold. For example:

      Bruce. A. 2010. Biology molecular of the cell. Second edition. Prentice Hall, Baltimore.

      Reynolds, C.S. 2006. **Ecology of phytoplankton**. Cambridge Univ. Press. Seiten.

c. Literature contained of some articles and collected by an editor: article writer. Published year. Article title (it is written like the article title on the reference of journals).word 'in' editor name of word '(Ed.). Book title (first letter of all the words is written in capital except conjunction). Publisher name. city. Page. article page. example:

Wink, M. & O. Schimmer. 2010. Molecular modes of action of devensive secondary metabolite. dalam M. Wink (Ed.). **Annual plant reviews, functions and biotechnology of plant secondary metabolites**. Blackwell Publ. Ltd. Singapore. hal. 21-161.

d. Translated literature: original writer, published year, translation title, vol, edition, word 'translation', translation name, translation year, published translation and year. Translator name is not back return. If the published year is not mentioned, it is written 'no year'. Example:

Kimball, J.W. 1983. **Biology**. Vol 2. Fifth edition. Translation E. Nugroho, Z.S. Bystami & I. Darmansjah. 1995. UI Press. Jakarta.

e. Literature without writer name before published year is written the instance name not anynomous. Example:

CSIRO. 1983. Soybean respond to controlled waterlogging. dalam R. Lehane (Ed.) **Rural research**. Dickson: The Science Communication of CSIRO's Bureau of Scientific Services.

Universitas Negeri Malang. 2000. **Pedoman penulian karya ilmiah: skripsi, tesis, disertasi, artikel, makalah, laporan Penelitian**. Edisi Keempat. Universitas Negeri Malang. Malang.

f. Literature of proceeding, thesis, dissertation and abstract compilation. For example:

Read, E.L., Tovo-Dwyer A.A., Chakraborty A.K. 2012. Stochastic effects are important in intrahost HIV evolution even when viral loads are high. *PNAS 109 (48) 19727-19732*

Nurlaila, 1998. **Prevalensi *Salmonella* yang terbawa oleh lalat di Tempat Pembuangan Sampah Akhir (TPA) Supit Urang Kodya Malang dan Junrejo Kotatif Batu**. Jurusan Biologi Fakultas

Matematika dan Ilmu Pengetahuan Alam Universitas Brawijaya. Malang. Skripsi.

Sulistyo, E. 1998. **Adaptasi padi gogo terhadap naungan: pendekatan morfologi dan fisiologi**. Pascasarjana Institut Pertanian Bogor. Bogor. Tesis.

Butcher, E. 1983. **Studies of interference between weeds and peas**. PhD Dissertation. Univ. of East Angila.

g. Literature of online journal. For example:

Hansen, L. 1999. Non-target effects of Bt corn pollen on the monarch butterfly (Lepidoptera: Danaidae). http://www.ent.iastate.edu/entsocl,ncb99/prog/abs/D81.html. Diakses 12 Pebruari 2001.

7.3 Procedure of writer's writing

if the writer name consists of two or more syllables, the last name followed by comma, first-middle name acronym, separated by dot. The name followed by acronym is assumed that the acronym becomes one with syllable in front of it. For example: William D. Ross Jr. ditulis Ross Jr.,W.D. degree title is not mentioned. First name is shotened.

Full name	Back returned
H. van Den-Brink	Van Den-Brink, H.
P. van Vliet	Van Vliet, P.
Ali Abdel-Aziz	Abdel-Azis, A.
Ali Ibn-Saud	Ibn-Saud, A.
Kees de Vries	De Vries, K.
A, van der Haar	Haar, A. Van der
H. zur Horst-Meyer	Horst-Meyer, H. Zur
Carl von Schmidt	Schmitd, Carl von
Mario dos Santos	Santos, Mario dos
B.C. Sen Gupta	Sen Gupta, B.C.
A.D. Das Gupta	Das Gupta, A.D.
J. Le Beau	Le Beau, J.
V. du Bary	Du Bary, V.

Derek Keith Thomas Thomas, D.K.

First name is back returned, another writer name is not. If there are two writers, all are written and conjuncted by '&'. If there are more than two, all are writtten and conjuncted by comma and symbol & before the last writer. For example:

Keller, B. 1993. Structural cell.....etc.

Su, N.Y. & M. Tamashiro. 1987. An overview of the formosan .....etc

Weiser, R.L., S.J. Wallner & J.W. Weddel. 1990. Cell wall and .....etc

The same writer name that is more than one in a literature but the published year is different. For example

Nishitani, K. & R. Tominaga. 1992. Endo-xyloglucan transferase, a novel class of glycosiltransferase..... *J. Biol. Chem.* 268:25364-25368.

Nishitani, K. & R. Tominaga. 1997. The role of endo-xyloglucan transferase in the organization of plant cell walls. *Int. Rev. Cytol*. 173:157-206.

1. The same writer in more than one literature in the same year, so after published year there is notation (a, b, c, d etc) that is written in year order. For example:

   Dodeman, V.L. & G. Ducreux, 1996a. Isozyme patterns in zygotic and somatic embryogenesis of carrot. *Plant Cell Rep*. 16:101-105.

   Dodeman, V.L. & G. Ducreux, 1996b. Total protein expression during induction and development of carrot somatic embryos. *Plant Sci*. 120:57-69.

2. Writing of Journal volume and page number is separated by colon without space. Example:

   Brewin, N.J. & L.V. Kardailsky. 1997. Legume lectins and nodulation by Rhizobium. *Trends Plant Sci. Rev.* 63:322-326.

CHAPTER VIII
TABLE WRITING AND FIGURE LAYOUT

6.1 Table writing

1. Table title is written on the table
2. Table order on the table title is pointed with word ”table” followed by table number and given dot written befre table title.
3. Table title is written in small letter except the initial letter of the first word and name of something. Table title is not ended by dot. Table title consisting of one line on the center while table title consisting of one line is wrtitten alisgn text left, second line and next in one space. The first word of second line and next are written below the initial letter of table title.
4. Table is placed in the ‘center’ of line. Table title, table and information must be set in one page.
5. Space between table title and and thesis review before or after the table title is three spaces. Space between table title and table is one a half space.
6. Table information is written below the table, in one space, one space from space and three space from thesis review below it.
7. Colomn and line of table is given a right title and among colomn or line are separated by definite space without underline. ’border’ horizontal in the table is only in ’heading’ and below table side. ’border’ vertical does not need to be appeared.
8. If table wide is over the paper size, table is placed in line with paper length in the position top of table, left align. Page number is written in the right-below page in landscape.
9. If table is entered in to review, it must be written ’(table 1)’ not ’(tab 1)’.
10. Table inside , the numbering is based on the table of main part of thesis.
11. Table refered from a literature, the writer and published year are written on the right-below of table, font size 10.

8.2 Figure Layout

Chart, diagram, graph, map and figure are not mentioned chart 1, diagram 1, graph1, map 1 and figure1.

1. Figure caption is placed under the figure.

2. Figure order on the figure title is showed by word ’figure’ followed by figure number and dot mark before figure title.
3. Figure title is written in small letter except first letter of the first word and name of specific thing. Figure title is not ended by dot. Figure title consisting of one line is written in the center while more than one line is written in left align, second line and next is one space. The first word on the second line and next are written below the initial letter of figure title. Figure title may not reveal figure information (figure caption/title is the written figure list). Figure title does not need to be began with word ’figure’, ’hystogram’, ’graph’ or ’photo’. The example of writing figure title: ’figure 1. Growth graph.....’.
4. Figure is placed ’center’ in the line. Figure, figure title, and information must be written in one page.
5. Space between figure title and thesis review after title is three space. Space between figure title and figure is one a half space. Space of figure from thesis review before the figure and space of figure title and thesis review is three space.
6. If a figure has information so main title of figure is figure title that is written in the figure list may not contain of figure information. Figure information is written after figure title but not started in the new line.
7. Figure size (width and height) must be proportional (not too big or small). If one figure title is more than one figure so some figures are set well so out side figure is symetrical. Example: 16. If the figure is over the paper, figure can be set in line with the position of top of figure in the left margin.
8. Page number is written on the right-below of page in landscape.
9. Scale must be made for making easy of interpolation or extrapolation. Objective/ocular zoom lense in the microscope must be conversed according to photo zoom.
10. Information and unit on ’y’ axleof a graphic should be written in ’rotated title’ (MS Excel). Example on 16.
11. If it is entered into review, it is written ’figure 1’, not ’pict. 1’ or ’pc. 1’.
12. Figure in the appendix , the numbering follows order number based on the appendix.

CHAPTER IX
SUBMITTING FINAL PROJECT

After exam conducted and students are announced pass the exam, they still have to revise. Revision time is:

1. Deadline of revision is due to two weeks since dissertation exam.
2. If the bound revision is not submitted in two weeks since exam, the score is dicreased.
3. If the revision is not submitted for one month, students must retake the exam.
4. If the revision is not submitted for two months, students must reconduct research with new topic and title.

REFERENCE

O'Connor, M. & F.P. Woodford. 1976. **Writing scientific papers in English.** An ELSE-Ciba Foundation Guide for Authors, Elsevier: New York

Rumawas, F. & J. Koswara. 1985. **Teknik penulisan dan presentasi ilmiah.** Fakultas Pertanian, Institut Pertanian Bogor: Bogor

PART II
MASTER THESIS WRITING

CHAPTER I
INTRODUCTION

1.1 Definition

Final project written by Master program named thesis, it is a scientific work written based on the research finding (experiment/survey) with 12 credits. It is written by master students to get master degree (M.Si).

1.2 Objectives

This writing manual is written to:

1.9 Give easiness for students in writing final project

1.10 Make the same final project written by all students

1.3 Stages of Thesis writing

Stages of thesis writing

1. Writing proposal research
2. Holding proposal seminar
3. Conducting research
4. Holding research finding seminar
5. Submitting thesis that is agreed by supervisor to be examined
6. Sending the revised-legalized final project to supervisor and the Head of study program at department and faculty.

CHAPTER II
THESIS PARTS

There are three parts of thesis; beginning part, main part and last part. (Table 1).

Table 1. Parts and content

Parts	Content
Beginning	Cover Page of Title Legitimation sheet Structure of Supervisor and examiner Certificate of authorship Guide of thesis usage Curriculum vitae Summary Acknowledgement Table of content Table list Figure list Symbol and acronym
Main	CHAPTER I Introduction CHAPTER II review of related literature

	CHAPTER III research method CHAPTER IV finding and discussion CHAPTER V conclusion and suggestion
Last	References

No blank paper among chapters. Every part or content is started in the new page.

CHAPTER III
BEGINNING PART OF THESIS

3.1 Cover

It is hard cover in green, all letters are in capital except word by, name/symbol in small letter according to the order below;

1. Title of final project
2. Word ‘THESIS’
3. Student name,
4. Student number
5. Symbol of UB

6. Department, faculty and university
7. Year
8. On the back of cover, write thesis and year

   Example is on the appendix 1b.

3.2 Title sheet

Page of title is as same as the cover. Write some sentence ‘As the requirement of getting degree title of Biology Master’. It is written below the word THESIS and example is on the appendix 2b.

3.3 Legitimation Sheet

Legitimation sheet consists of thesis title, writer name, student number, information of exam, the sentence is ‘after presenting to examiner on date and accepted to get title degree of master of Biology. For master thesis, supervisor ID number and his signature are placed on the left side and supervisor II on the right. Then, write the name of head of study program on the center. There is

word ‘known by’ and name, lecturer number and signature of Head of Master Biology Study Program under it. Title of final project and writer are written as on the cover. Example is on the appendix 3b.

3.4 **Structure of supervisor commission and examiner**

Example is on the appendix 4a.

3.5 **Certificate of authorship**

Students must write their statement telling about the thesis authorship. Example is on the appendix 5b.

3.6 **Page of thesis usage**

This page informs the procedure of making quotation of reference. Example is on appendix 6b.

3.7 Summary

Summary is a short but complete review of whole thesis in two pages maximal and typed in one space. It consists of research identity and content. Research identities are title, researcher, supervisor and year. The content is reserach problems, research objectives, research method, research finding and conclusion.

Title is typed in bold and initial letter is capital except conjunction. Species name, chemical compound, gene and other names that are not stated in Indonesia Dictionary are typed in italic. Summary is researcher’s thought that cannot be added by reference quotation. Background and objective of research is taken from chapter of introduction, research method from chapter research method, research finding from chapter research finding, conclusion from chapter conclusion and suggestion. Summary is written in Indonesia and English in different page, 1 space. Example is on the appendix 7b.

3.8 Acknowledgement

Acknowledgement is a short review of research purpose and gratitude. It is written in one space, one page and no scientific writing. Month and year of when it was written is based on the time of final project submit. Name of person

is written formally and complete (no nick name) and academic title if any. Example can be seen on appendix 9.

3.9 Table of Content

This page contains of list of title (from page of title to reference) and title of sub chapter are based on the page order, no point and one space except among each chapter and other information is typed in two spaces. Word ‘page’ is written on the right, capital only for initial letter, no bold and four spaces from word ‘table of content’, word ‘summary’, ‘acknowledgement’, ‘list of table’, ‘list of figure’, ‘apppendix’, ‘acronym and technical term’, ‘reference’, ‘’ and title of chapter is written in bold.

Title of sub chapter is written in small letter except the initial letter of every word which is not conjunction. Title which needs more one line, the second line begins below of first letter of sub chapter title. Number of page before CHAPTER I is written in Roman letter (iii, iv, v, etc). Page number is written align text right below word ‘page’. Type ‘…..’ between title of chapter and sub chapter. Example can be seen on appendix 10.

3.10 Table List

The list of table consists of three columns; table number, table title, and page. On the column ‘table number’, write page number without word ‘table’. Table number and page number (typed on the right) are written in Arabic numeral. Title of table is placed between table number and page number. Write ‘page’ on the top of page column, not bold. Space between table title is two spaces. If table title is more than one line, so between first line and second line is two spaces. Table title and page number is connected by ‘……’. Example is on the appendix 11.

3.11 Figure List

The writing manual for figure is as similar as table. Example is on the appendix 12.

3.12 Appendix list

It presents the table and figure. The writing manual is as similar as page of table and figure. Example is on appendix 13.

3.13 List of Symbol and Acronym

Page of symbol and acronym which is written after page of presents the symbol and acronym used in the research. The acronym which can be used is the general ones. This list is formed in two columns; first column contains with symbol/acronym and second column contains of the information of them. Acronym writing is based on the alphabet order. If the symbol is written in Romaic, it is also ordered in Romaic (exp: alpha, beta, delta, gamma). Information on second column is written in small letters. Example is on appendix 14.

CHAPTER IV
MAIN PART OF THESIS

4.1Introduction

This chapter presents the research background, research, research objectives, and research significance.

4.2 Research Background

Background presents the explanation of reasons of the prombles are interesting, important and reaserchable. The problems researched are presented in larger scope. The authenticity of research must prove that the prombles have not been solved by previous researchers or the researcher must definitely write the difference between theirs and previous researches.

4.2 Research Problems

Research problems are the problems that will be researched and stated in question statement. Problem sentence presents the parameters and variables used in the research.

4.3 Research Objectives

It specifically mentions the objectives that will be reached according to research problems. It is in the form of statement.

4.4 Research Significance

It presents the contribution of research finding for the development of science and technology, civilization and welfare for human.

4.5 Review of Related Literature

It presents the subjects related to the research theme and hypothesis (if any). It is needed in drawing the ideas based on the theories to write a hypothesis. It also gives theories that become the foundation of research, research finding of previous research and showing that the problems researched have not been solved well. The literature is the newest and taken from the original source (textbook, handbook,

journal, internet). Practice guide and article that does not have ISBN cannot be used as the reference.

Hypothesis (if any) presents the brief explanation summarized from review of literature and temporary answer of problems. The truth of hypothesis is proved through research conducted. Hypothesis is written in the end of review of literature.

4.4 Research Method

This chapter presents the explanation of time and place of research, research design, research steps, variable, data collection and data analysis. Objects and equipments are not written in the sub chapter but written in the research steps that written in order:

4.5 Concept Framework

It could be research concep or theory concept. Basically, concept is a phenomena which is a fundamental element of thinking process including thinking framework, hypothesis. It could be literature review that supports or refuses the theory around research problems. Writer also writes the difference from previous researches so his research is researchable. Description written in concept frequently those which lead to hypothesis and written in naration or diagram.

Concept could also be a theoretical review about factors related to analyzed parameter. Besides, concept is used to show the research position to the whole mechanism that happens.

4.6 Hypothesis

Hypothesis (if any) presents the brief explanation summarized from review of literature and temporary answer of problems. The truth of hypothesis is proved through research conducted. Hypothesis is written in the end of review of literature.

Hypothesis (if any) presents the brief explanation summarized from review of literature and temporary answer of problems. The truth of hypothesis is proved through research conducted. Hypothesis is written in the end of review of literature.

4.7 Research Method

This chapter presents the explanation of time and place of research, research design, research steps, variable, data collection and data analysis. Objects and equipments are not written in the sub chapter but written in the research steps that written in order:

1. Time and place of research, explains the time and location of research conducted. Field research must explain the research area including geography, landscape, height, rainfall, land, time and season when research conducted.
2. Research steps are the explanation of steps taken in conducting research, kind of data and how to collect it. The researcher can write diagram/flow chart. Sub chapter of research steps is adjusted with the work ways without writing sub chapter “work ways” (exp: sub chapter “DNA isolation”). It can be seen on the 9 where the sub chapter 3.2. Not the “work ways” but research steps that will be done, it is “SDS PAGE and Western Blotting”.
3. Research design explains the approach strategy that will be taken to get the answer from problems and objectives of research.
4. Data analysis is the complete explanation of data process in drawing the conclusion. If there is a statistic analysis, so there must be the degree of carefulness and software are written down.

4.7 Finding and discussion

This chapter presents the research finding and discussion which are not written in another sub chapter. Research finding can be explained in some models; table, figure, graphic, map or photo. The researchers can choose the informative model. Every data that is shown must be stated in a statement. The discussion of finding can be theoretical explanation in qualitative, quantitative or statistic. The literature used in the research can be a fact that is similar or contrast from the finding and must be given the theoretical explanation.

4.8 Conclusion and suggestion

Conclusion and suggestion must be stated in different sub chapter.

1. Conclusion is a brief and complete preview from the research finding and discussion that prove the truth of hypothesis (if any) and related to research problems.

2. Suggestion writing starts from the sentence giving basic or reason of why the suggestion is needed. The suggestion written must be referred to fact on the chapter of finding and discussion. It can be normative but must be based on three things; a) method revision b) further research c) utilization of research finding.

CHAPTER V
FINAL PART OF THESIS

5.1 Reference

Every title of book, article, journal and other literature that have been published and quoted in the research must be written down o reference. For thesis, dissertation and research report, which are not published must be written too. Literature of reference and private communication are not listed in the reference. Practice guide, study note and information source that do not have ISBN cannot be used as reference. Example on 15. Some literatures that can be listed in the reference:

1. Text book is scientific book that is published in indefinite time, written by one or more writers or editor team. For example: Animal Physiology, Plant Cell Development, Ecology, Molecular Biology of the cell, and spectrometric identification of organic compound.
2. Journal is scientific magazine containing of scientific text published by professional publisher such as Journal of Fertility and Sterility, Plant Cell Physiology Phytopalogy, Carcinogenesis, Science and Cancer Research.
3. Journal review is an article written from some research articles of a science; botanical review, biological review, and FEMS microbiology review.
4. Periodical is scientific magazine of research finding published periodically by an institution.
5. Yearbook is a book presenting facts and statistic data for a year published by an institution.
6. Bulletin is a brief scientific text published periodically, scientific note or guide of operational agenda such Bulletin HPT.
7. Annual review is explanation of published literature. For example: annual review of microbiology, annual review of biochemistry and annual review of plant physiology.
8. Proceeding is compilation of article published in seminar or cymphosium. Prosiding forum komunikasi ilmiah pemanfaatan pestisida nabati, proceeding of the 198 annual meeting of the international research grown on wood preservation
9. Bibliography that contains of articles. Example: PubMed

10. Thesis, dissertation and research report. The feasibility of using the scientific work is decided by supervisor.
11. Website and CD-ROM. Example: eBook, Tutorial. Wikipedia, private blog, text on website that does not write the name of researcher and institution cannot be used as the guide.

5.2 Appendix list

In this section, it is presented the information or things that are needed in helping final project. The es given such as table, figure, and calculation. If, there is one table/figure, so the title of table is or figure can be put as the title of . If there are some tables, there must be order number. Table number on the starts with LT (exp LT1., LT2, etc). figure number starts with (exp LG1, LG2 etc).

CHAPTER VI
WRITING MANUAL

6.1 Paper Format

Final project for undergraduate is typed on the paper A4 (29,6 cm x 22 cm), HVS 80 gram front-bact. Letter is times new roman font 12 with 1,5 space. Page is in mirror margin, top and bottom, right margins is 2,5 cm and bottom and left is 3 cm. Text is set on justify but new alinea, mathematics equation, list, table, figure or specific things.

6.3 Typing of Text/review

6.3.1 type and font of letter

Final project is typed in times new roman 12. On the cover, page of research titleans ‘thesis’ is typed in 20 font. Species names and specific name are in italic.

6.3.2 line spacing

Typing of chapter and chapter title is typed in the center in 1 space. Title of table, figure, table content, abstact, table list, figure, , figure information is typed in 1 space. Between chapter title and review or chapter title and sub chapter are 2 space. Between review and the next sub chapter is 1, 5 space. Between line in review, between cub chapter title and another sub chapter title and between sub chapter title and review are 1, 5 space. Exp on appendix 14.

6.3.3 Layout

Layout must be full. Typing must start from left margin to right margin and there is no empty space. It has been explained in 6.3.5.

6.3.4 Paragraph

One paragraph must have minimal 2 sentences. New paragraph starts with fifth type from left typing. The last line may not be typed on the next page. The writing of new paragraph must be there min two first lines of the paragraph.

6.3.5 title of chapter, sub chapter, and next sub chapter.

The procedures are below:

1. Before Chapter title, researcher must write rome number (CHAPTER I, II etc). on the next line ‘chapter title’ is written in capital letter-bold-symetric in the center. Between the chapter order pointing and the chapter title is one space. Example in 14.
2. The writing of sub chapter title starts from left margin, numbering as the chapter number order before it, it is in bold without dot. Sub chapter title is written in small letters but first letter of the word which is not conjunction. The first sentence after sub chapter title is the beginning of new alinea. Example in 14.
3. Sub-sub chapter title is typed starts from left margin, numbering as the chapter number order, sub chapter title, sub-sub chapter title is typed bold-capitel letter in initial letter without dot. Example on appendix 14.

6.3.6 Number, Symbol, Chemical Formula, and Unit

1. Integer less than 10 must be written in letter, 10 or more is written in number but table number, figure and in the review such as two bullion, 10 repetition, and 14 sample. Serial number used before 10 and after 10 is used number, for example treatment using dosis 0,4,8 and 10 mg/BB mouse. All numbers in the beginning sentence must be written in letter, for example,”one hundred milimeter is added to….”.
2. number and unit are stated in number and acronym of unit is separated one tap (for example: 3,5 mg), except if the unit is not preceded by a sum (for example: “weight of leave is in gram”).
3. the writing of number in long line is shortened by changing the unit (for example: 2.500.000 to be 2,5 juta; 5x10-6m to be 5 µm).
4. decimal symbol in decimal fraction is comma, not a dot, except in English abstract, for example: 13,5 cm not 13.5 cm.
5. measurement unit uses international unit system with general acronym used.
6. number, symbol or chemical formula which are in the beginning sentence must be spelled, for example: twenty milimeter aquades is added to……etc. chloride clacium that has been dissolved… etc.

6.3.7 Page Numbering, table list and figure

1. Page number in the beginning part of final project uses smal rome number (I, ii, iii, etc.) and written on bottom page, symetric left and right margin. Page number is 1,5 cm from bottom margin. Page numbering starts from legitimation sheet to table of content.
2. Page number in the main part of final project uses arabic number and written out of bottom including sub chapter page. It is written in Arabic, mirror margin space 1,5 cm from margin to bottom.
3. Table numbering, figure and must be given arabic order number and started from chapter number from figure or table where they are, then followed by figure/table order number, for example table 2.3 means that the table is written in the chapter 2 in the third table.

6.3.8 Equation

Equation that is in the form of mathematical formula, chemical reaction and others that will be used for following review must be given arabic order number. Order number consists of only one number, for example:

$$CaSO4 + K2CO3 \longrightarrow CaCO3 + K2SO4 \quad (3)$$

6.3.9 Below Detail

Detail is ordered in below line is set to be below by using nuber placed in the beginning. For example: thesis guide book is written for:

1. To give easiness……. Etc
2. To provide uniformity…… etc

CHAPTER VII
LITERATURE AND REFERENCE WRITING

7.1 Literature writing inside text

Scientific information that is written in the explanation can be taken from published-unpublished scientific work and private communication. The writer's name is only the last name. if there are two writer, their last name are written and conjuncted by '&'. If there are more than two, only the first writer's last name is written followed by 'et al'. in consistent, for literature that is written in Indonesia and English. The procedure is as follow:

1. Writer name is in the beginning sentence
   "According to Untung et al. (1993) mechanism of natural contro……" or "Untung (1993) stated that……."
2. Writer name is in the last sentence
   "This thing assumes that natural enemy likes certain plant composition (Albertcht, 1998)."
3. Two writers
   "This structure causes the detergent has emulsion character (Fessenden at al., 1982)." Or "Sawyer & Carty (1978) use general supprting material……."
4. More than two writers. For example: "Altieri at al. (1981) found that the things can increase……' or "It assumes that certain natural enemy likes certain plant composition (Altiery at al., 1981)."
5. Literature of an instance that does not mention the writer name , so the instance name becomes the reference that is written in the last sentence, not in the beginning. For example: "……is founded in 2008 (Balitkabi, 2010)." It is not written like "According to Balitkabi (2010)……found in 2008."
6. Refered to two or more literatures (it is ordered chronologically as the year). For example: "According to Heywood (1976) and Shuka & Mirsa (1979) family study is the part of systematic study." Or "……..caused by compound reaction of polyfenol becoming brown quinon (Haru=isuseno, 1974;Bidwell, 1976; Wareing & Philips, 1976)."
7. Statement or information that is referred from text referred another literature. For example: "……continued to appropriate organs as the active

respond, for example behavior (Atkins, 1978 in Wahyuni, 1998)". This matter must be avoided because the writer does not read the original text. If the researcher cannot avoid it, it must be Wahyuni, not Atkins.

8. Literature that is obtained from unpublished texts that is unpublished. This reference is not mentioned in the reference. For example: "the biggest component of coconut oil is……. (Suwarno, unpublished)."

Private comunication. For example: "According to Sumarmi…… (private communication, 2010)." This literature is not mentioned in the reference. It is better avoided because of the responsibility.

1.1 Reference writing

Between literature is one space. If the reference writing is more than one line, so the first line is on the left margin and the next line started on the sixth tap from left side (14).

3. Reference is ordered in alphabetic based on the family name of first writer.
4. The order of reference writing is:

h. Journal: writer name. published year. Article title (upright position). Journal name (using official acronym, 15) in italic. Vol: page. Example:

Corey, E.J. & A.K. Long, 1978. Computer assisted synthetic analysis performance of long-range for stereoselective olefin synthesis. *J. Org. Chem.* 43:2208-2216.

Sieg, C.H. 1997. The mysteries of a praire orchid. *Endangered Spec. Bull*. 22(4):12-13.

i. Book. Writer name. published year. Book title (bold). Volume. Edition (if any). publisher name. publisher city. Textbook title and unpublished literature (thesis, dissertation, manuscript and research report) is written in small letter except initial letter of the first word/person name/species/place. They are written in bold. For example: Bruce. A. 2010. Biology molecular of the cell. Second edition. Prentice Hall, Baltimore.

Reynolds, C.S. 2006. **Ecology of phytoplankton**. Cambridge Univ. Press. Seiten.

j. Literature contained of some articles and collected by an editor: article writer. Published year. Article title (it is written like the article title on

the reference of journals).word ‘in’ editor name of word ‘(Ed.). Book title (first letter of all the words is written in capital except conjunction). Publisher name. city. Page. article page. example:

Wink, M. & O. Schimmer. 2010. Molecular modes of action of devensive secondary metabolite. dalam M. Wink (Ed.). **Annual plant reviews, functions and biotechnology of plant secondary metabolites**. Blackwell Publ. Ltd. Singapore. hal. 21-161.

k. Translated literature: original writer, published year, translation title, vol, edition, word ‘translation’, translation name, translation year, published translation and year. Translator name is not back return. If the published year is not mentioned, it is written ‘no year’. Example:

Kimball, J.W. 1983. **Biology**. Vol 2. Fifth edition. Translation E. Nugroho, Z.S. Bystami & I. Darmansjah. 1995. UI Press. Jakarta.

Literature without writer name before published year is written the instance name not anynomous. Example:

CSIRO. 1983. Soybean respond to controlled waterlogging. dalam R. Lehane (Ed.) **Rural research**. Dickson: The Science Communication of CSIRO’s Bureau of Scientific Services.

Universitas Negeri Malang. 2000. **Pedoman penulian karya ilmiah: skripsi, tesis, disertasi, artikel, makalah, laporan Penelitian**. Edisi Keempat. Universitas Negeri Malang. Malang.

l. Literature of proceeding, thesis, dissertation and abstract compilation. For example:

Read, E.L., Tovo-Dwyer A.A., Chakraborty A.K. 2012. Stochastic effects are important in intrahost HIV evolution even when viral loads are high. *PNAS 109 (48) 19727-19732*

Nurlaila, 1998. **Prevalensi *Salmonella* yang terbawa oleh lalat di Tempat Pembuangan Sampah Akhir (TPA) Supit Urang Kodya Malang dan Junrejo Kotatif Batu**. Jurusan Biologi Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Brawijaya. Malang. Skripsi.

Sulistyo, E. 1998. **Adaptasi padi gogo terhadap naungan: pendekatan morfologi dan fisiologi**. Pascasarjana Institut Pertanian Bogor. Bogor. Tesis.

Butcher, E. 1983. **Studies of interference between weeds and peas**. PhD Dissertation. Univ. of East Angila.

m. Literature of online journal. For example:

Hansen, L. 1999. Non-target effects of Bt corn pollen on the monarch butterfly (Lepidoptera: Danaidae). http://www.ent.iastate.edu/entsocl,ncb99/prog/abs/D81.html. Diakses 12 Pebruari 2001.

Griffith, A.I. 1995. Coordinating family and scholl : Mothering for schooling policy analysis archives (Online). Vol 3. No. 1. http://oalm.ed.asu.edu/epaa. Diakses 20 Januari 2000.

1. procedure of writer writing

if the writer name consists of two or more syllables, the last name followed by comma, first-middle name acronym, separated by dot. The name followed by acronym is assumed that the acronym becomes one with syllable in front of it. For example: William D. Ross Jr. ditulis Ross Jr.,W.D. degree title is not mentioned. First name is shotened.

Full name	Back returned
H. van Den-Brink	Van Den-Brink, H.
P. van Vliet	Van Vliet, P.
Ali Abdel-Aziz	Abdel-Azis, A.
Ali Ibn-Saud	Ibn-Saud, A.
Kees de Vries	De Vries, K.
A, van der Haar	Haar, A. Van der
H. zur Horst-Meyer	Horst-Meyer, H. Zur
Carl von Schmidt	Schmitd, Carl von
Mario dos Santos	Santos, Mario dos
B.C. Sen Gupta	Sen Gupta, B.C.
A.D. Das Gupta	Das Gupta, A.D.
J. Le Beau	Le Beau, J.
V. du Bary	Du Bary, V.
Derek Keith Thomas	Thomas, D.K.

First name is back returned, another writer name is not. If there are two writers, all are written and conjuncted by '&'. If there are more than two, all are writtten and conjuncted by comma and symbol & before the last writer. For example:

Keller, B. 1993. Structural cell.....etc.

Su, N.Y. & M. Tamashiro. 1987. An overview of the formosan .....etc

Weiser, R.L., S.J. Wallner & J.W. Weddel. 1990. Cell wall and .....etc

The same writer name that is more than one in a literature but the published year is different. For example

Nishitani, K. & R. Tominaga. 1992. Endo-xyloglucan transferase, a novel class of glycosiltransferase..... *J. Biol. Chem.* 268:25364-25368.

Nishitani, K. & R. Tominaga. 1997. The role of endo-xyloglucan transferase in the organization of plant cell walls. *Int. Rev. Cytol*. 173:157-206.

3. The same writer in more than one literature in the same year, so after published year there is notation (a, b, c, d etc) that is written in year order. For example:

   Dodeman, V.L. & G. Ducreux, 1996a. Isozyme patterns in zygotic and somatic embryogenesis of carrot. *Plant Cell Rep*. 16:101-105.

   Dodeman, V.L. & G. Ducreux, 1996b. Total protein expression during induction and development of carrot somatic embryos. *Plant Sci*. 120:57-69.

4. Writing of Journal volume and page number is separated by colon without space. Example:

   Brewin, N.J. & L.V. Kardailsky. 1997. Legume lectins and nodulation by Rhizobium. *Trends Plant Sci. Rev.* 63:322-326.

CHAPTER VIII
WRITING OF TABLE AND FIGURE LAYOUT

6.1 Table writing

1. Table title is written above the table
2. Table order above the table title is pointed with word ”table” followed by table number and given dot written befre table title.
3. Table title is written in small letter except the initial letter of the first word and specific name of something. Table title is not ended by dot. Table title consisting of one line on the center while table title consisting of one line is wrtitten align text left, second line and next in one space. The first word of second line and next are written below the initial letter of table title.
4. Table is placed in the ‘center’ of line. Table title, table and information must be set in one page.
5. Space between table title and and thesis review before or after the table title is 3 spaces. Space between table title and table is one a half space.
6. Table information is written below the table, in one space, one space from space and three space from thesis review below it.
7. Colomn and line of table is given a right title and among colomn or line are separated by definite space without underline. ’border’ horizontal in the table is only in ’heading’ and below table side. ’border’ vertical does not need to be appeared.
8. If table wide is over the paper size, table is placed in line with paper length in the position top of table, left align. Page number is written in the right-below page in landscape.
9. If table is entered in to review, it must be written ’(table 1)’ not ’(tab 1)’.
10. Table inside , the numbering is based on the table of main part of thesis.
11. Table refered from a literature, the writer and published year are written on the right-below of table, font size 10.

6.2 Figure Layout

Chart, diagram, graphic, map and photo are figure so not mentioned chart 1, diagram 1, graphic 1, map 1 and photo 1.

1. Figure title is placed below the figure.

2. Figure order on the figure title is showed by word ’figure’ followed by figure number and dot mark before figure title.
3. Figure title is written in small letter except first letter of the first word and name of something. Figure title is not ended by dot. Figure title consisting of one line is written in the center while more than one line is written in left align, second line and next is one space. The first word on the second line and next are written below the initial letter of figure title. Figure title may not reveal figure information (figure title is the written figure list). Figure title does not need to be began with word ’figure’, ’hystogram’, ’graphic’ or ’photo’. The example of wring figure title writing: ’figure 1. Growth graphic.....’.
4. Figure is placed ’center’ in the line. Figure, figure title, and information must be written in one page.
5. Space between figure title and thesis review after title is three space. Space beteen figure title and figure is one a half space. Space of figure from thesis review before the figure and space of figure title and thesis review is three space.
6. If a figure has information of figure so main title of figure is figure title that is written in the figure list may not contain of figure information. Figure information is written after figure title but not started in the new line.
7. Figure size (width and height) must be proportional (not too big or small). If one figure title is more than one figure so some figures are set well so out side figure is symetrical. Example: 16. If the figure is over the paper, figure can be set in line with the position of top of figure in the left margin.
8. Page number is written on the right-below of page in landscape.
9. Scale must be made for making easy of interpolation or extrapolation. Objective/ocular zoom lense in the microscope must be conversed according to photo zoom.
10. Information and unit on ’y’ axleof a graphic should be written in ’rotated title’ (MS Excel). Example on 16.
11. If it is entered into review, it is written ’figure 1’, not ’fig. 1’ or ’fg. 1’.

12. Figure in the , the numbering follows order number based on the appendix.

CHAPTER IX
SUBMITTING DISSERTATION

After exam conducted and students are announced pass the exam, they still have to revise. Revision time is:

1. Deadline of revision is due to 2 weeks since thesis exam.
2. If the bound revision is not submitted in 2 weeks since exam, the students is ranked lower.
3. If the revision is not submitted for one month, students must retake the exam.
4. If the revision is not submitted for two months, students must reconduct research with new topic and title.

REFERENCE

O'Connor, M. & F.P. Woodford. 1976. **Writing scientific papers in English.** An ELSE-Ciba Foundation Guide for Authors, Elsevier: New York

Rumawas, F. & J. Koswara. 1985. **Teknik penulisan dan presentasi ilmiah.** Fakultas Pertanian, Institut Pertanian Bogor: Bogor

PART III
DISSERTATION WRITING

CHAPTER I
INTRODUCTION

1.1 Definition

Final project conducted by Doctoral student is dissertation, it is a scientific text written based on the research finding (experiment/survey) which has 32 credits. It is written by doctoral students at Biology Doctoral Program UB to receive Doctoral degree.

1.2 Objective

This writing manual is written to:

1. Give easiness for students in writing final project
2. Make the same final project written by all students

1.3 Stages of thesis writing

1. Writing proposal research
2. Proposal exam/dissertation feasibility
3. Revising the proposal according to promoter and examiner
4. Conducting research
5. Research Finding Seminar
6. Writing dissertation for feasibility exam
7. Closed exam
8. Submitting the revised-legalized final project by supervisor to the Head of study program at department and faculty

CHAPTER II
DISSERTATION PARTS

Generally, there are three parts in the dissertation writing, beginning, main and last (table 1). Parts of dissertation and the content.

Table 1. dissertation parts and the content

Parts	Content
Beginning	Cover Page of Title LEGITIMATION SHEET PROMOTOR AND EXAMINER CERTIFICATE OF AUTHORSHIP CURRICULUM VITAE SUMMARY ACKNOWLEDEMENT TABLE OF CONTENT TABLE LIST FIGURE LIST LIST SYMBOL AND ACRONYM LIST
Main (type 1)	CHAPTER I Introduction CHAPTER II review of related literature CHAPTER III research method

	CHAPTER IV finding and discussion CHAPTER V conclusion and suggestion
Main (type 2)	CHAPTER I INTRODUCTION CHAPTER II RESEARCH AT STAGE 1 CHAPTER III RESEARCH AT STAGE 2 CHAPTER IV RESEARCH STAGE 3 (every research chapter consists of introduction, research method, finding and discussion, conclusion and suggestion) CHAPTER V GENERAL DISCUSSION CHAPTER VI GENERAL CONCLUSION
Last	REFERENCE

No blank paper among chapters. Every part or content is started in the new page.

CHAPTER II
BEGINNING PART OF DISSERTATION

2.1 Cover

It is hard cover in black (doctor). All letters are in capital except word by, name/symbol in small letter according to the order below;

1. Title of final project
2. THESIS DISSERTATION
3. Student name,
4. Student number
5. Symbol of UB

1. Biology Doctoral Program, Department, faculty and university
2. Year
3. On the back of cover, write the writer, ‘dissertation’ and completion year.

The example can be seen on appendix 1c

2.2 Page of Title

Page of title is as same as the cover. Write a sentence ‘As the requirement of getting degree title of Biology Doctor’. It is written below the ‘DISSERTATION’ and the word format on the appendix 2c.

2.3 Legitimation Sheet

Legitimation sheet consists of sentence ‘LEGITIMATION SHEET OF DISSERTATION’, thesis title, writer name, student number, information of exam, the sentence is ‘after presenting to examiner on date and accepted to get title Biology Doctor Degree’. For undergraduate and master thesis, supervisor ID number and his

signature are placed on the left side and supervisor II on the right. For dissertation, promoter ID number and his signature are placed on the center, co-promoter I on the left and co-promoter II on the right. Then, write the name of head of study program on the center. Title of final project and writer are written as on the cover. Example is on the appendix 3c.

2.4 Promotor and Examiner names

Example on appendix 4b

2.5 Certificate of Authorship

Students must write their statement telling about the dissertation authorship. Example is on the appendix 5c.

2.6 Page of dissertation usage

This page informs the procedure of making quotation of reference. Example is on appendix 6.

2.7 Page of dissertation usage manual

It is written to inform and to remind about the usage ways or dissertation quotation as the literature source based on the scientific ethique. Example is on appendix 6c.

2.8 Summary

Summary is short but complete review of final project. Abstract consists of research identity and content. Research identities are title, writer, supervisor, and year. Research contents are research objectives, research finding, and conclusion and keywords. Title is bold and capital letter for initial word. Species name, chemical compound, genetic and other words do not exist on Indonesian Dictionary typed oblique line/ writer and supervisor are typed separately with instance, year. Summary is writer thought that cannot be added by reference quotation. Background and objective of research is taken from chapter of introduction, research method from chapter research method, research finding from chapter research finding, conclusion from chapter conclusion and

suggestion. Summary is written in Indonesia and English in different paper, 1 space. Example is on appendix 7.

2.9 Acknowledgement

Acknowledgement is a short review of research purpose and gratitude. It is written in one space, one page and no scientific writing. Month and year of writing is based on the time of final project submit. Name of person is written formally and complete (no nick name) and academic title if any. Example can be seen on appendix 9.

2.10 Table of Content

This page contains of list of title (from page of title to s) and title of sub chapter are based on the page order, no point and one space except among each chapter and other information is typed in two spaces. Word ‘page’ is written on the right, capital only for initial letter, no bold and four spaces from word ‘table of content’, word ‘abstract’, ‘acknowledgement’, ‘list of table’, ‘list of figure’, ‘’, ‘acronym and technical term’, ‘reference’, ‘’ and title of chapter is written in bold.

Title of sub chapter is written in small letter except the initial letter of every word which is not conjunction. Title which needs more one line, the second line begins below of first letter of sub chapter title. Number of page before CHAPTER I is written in Roman letter (iii, iv, v, etc). Page number is written align text right below word ‘page’. Type ‘…..’ between title of chapter and sub chapter. Example can be seen on appendix 10.

2.11 Table List

The list of table consists of three columns; table number, table title, and page. On the column ‘table number’, write page number without word ‘table’. Table number and page number (typed on the right) are written in Arabic numeral. Title of table is placed between table number and page number. Write ‘page’ on the top of page column, not bold. Space between table title is two spaces. If table title is more than one line, so between first line and second line is two spaces. Table title and page number is connected by ‘……’. Example is on the appendix 11.

2.12 Figure List

The writing manual for figure is as similar as table. Example is on appendix 12.

2.13 Appendix List

Page of appendix presents the of table and figure. The writing manual is as similar as page of table and figure.

2.14 Symbol and Acronym List

Page of symbol and acronym which is written after page of presents the symbol and acronym used in the research. The acronym which can be used is the general ones. This list is formed in two columns; first column contains with symbol/acronym and second column contains of the information of them. Acronym writing is based on the alphabet order. If the symbol is written in Romaic, it is also ordered in Romaic (exp: alpha, beta, delta, and gamma). Information on second column is written in small letters. Example is on appendix 14.

CHAPTER IV
BEGINNING PART OF DISSERTATION

4.1 Introduction

This chapter presents the background of study, research problems, research objectives, and research significance.

4.1.1 Research Background

Background presents the explanation of reasons of the prombles are interesting, important and reaserchable. The problems researched are presented in larger scope. The authenticity of research must prove that the prombles have not been solved by previous researchers or the researcher must definitely write the difference between theirs and previous researches.

Doctoral students have to be able to discuss the previous researches related to dissertation. They should consider the novelty of research by seeing the problems that have not been solved and weak problems.

4.1.2 Research Problems

Research problems are the problems that will be researched and stated in question statement. Problem sentence presents the parameters and variables used in the research.

4.1.3 Research Objectives

It specifically mentions the objectives that will be reached according to research problems. It is in the form of statement.

4.1.4 Research Significances

It presents the contribution of research finding for the development of science and technology, civilization and welfare for human.

4.2 Review of Related Literature

It presents the subjects related to the research theme and hypothesis (if any). It is needed in drawing the ideas based on the theories to write a hypothesis. It also gives theories that become the foundation of research, research finding of previous research and showing that the problems researched have not been solved well. The literature is

the newest and taken from the original source (textbook, handbook, journal, internet). Practice guide and article that does not have ISBN cannot be used as the reference.

Hypothesis (if any) presents the brief explanation summarized from review of literature and temporary answer of problems. The truth of hypothesis is proved through research conducted. Hypothesis is written in the end of review of literature.

4.3 Concept Framework

It could be research concep or theory concept. Basically, concept is a phenomena which is a fundamental element of thinking process including thinking framework, hypothesis. It could be literature review that supports or refuses the theory around research problems. Writer also writes the difference from previous researches so his research is researchable. Description written in concept frequently those which lead to hypothesis and written in naration or diagram.

Concept could also be a theoretical review about factors related to analyzed parameter. Besides, concept is used to show the research position to the whole mechanism that happens.

4.4 Hypothesis

Hypothesis (if any) presents the brief explanation summarized from review of literature and temporary answer of problems. The truth of hypothesis is proved through research conducted. Hypothesis is written in the end of review of literature.

4.8 Research Method

This chapter presents the explanation of time and place of research, research design, research steps, variable, data collection and data analysis. Objects and equipments are not written in the sub chapter but written in the research steps that written in order:

1. Time and place of research, explains the time and location of research conducted. Field research must explain the research area including geography, landscape, height, rainfall, land, time and season when research conducted.
2. Operational framework presents the description of research steps in form of diagram.
3. Research steps are the explanation of steps taken in conducting research, kind of data and how to collect it. The researcher can write diagram/flow chart. Sub

chapter of research steps is adjusted with the work ways without writing sub chapter “work ways” (exp: sub chapter “DNA isolation”). It can be seen on the 9 where the sub chapter 3.2. Not the “work ways” but research steps that will be done, it is “SDS PAGE and Western Blotting”.

4. Research design explains the approach strategy that will be taken to get the answer from problems and objectives of research.
5. Data analysis is the complete explanation of data process in drawing the conclusion. If there is a statistic analysis, so there must be the degree of carefulness and software are written down.

5.4 Finding and discussion

This chapter presents the research finding and discussion which are not written in another sub chapter. Research finding can be explained in some models; table, figure, graphic, map or photo. The researchers can choose the informative model. Every data that is shown must be stated in a statement. The discussion of finding can be theoretical explanation in qualitative, quantitative or statistic. The literature used in the research can be a fact that is similar or contrast from the finding and must be given the theoretical explanation.

5.5 Conclusion and suggestion

Conclusion and suggestion must be stated in different sub chapter.

1. Conclusion is a brief and complete preview from the research finding and discussion that prove the truth of hypothesis (if any) and related to research problems.
2. Suggestion writing starts from the sentence giving basic or reason of why the suggestion is needed. The suggestion written must be referred to fact on the chapter of finding and discussion. It can be normative but must be based on three things; a) method revision b) further research c) utilization of research finding.

CHAPTER V
FINAL PART OF DISSERTATION

5.1 Reference

Every title of book, article, journal and other literature that have been published and quoted in the research must be written down o reference. For thesis, dissertation and research report, which are not published must be written too. Literature of reference and private communication are not listed in the reference. Practice guide, study note and information source that do not have ISBN cannot be used as reference. Example on 15. Some literatures that can be listed in the reference:

1. Text book is scientific book that is published in indefinite time, written by one or more writers or editor team. For example: Animal Physiology, Plant Cell Development, Ecology, Molecular Biology of the cell, and spectrometric identification of organic compound.
2. Journal is scientific magazine containing of scientific text published by professional publisher such as Journal of Fertility and Sterility, Plant Cell Physiology Phytopalogy, Carcinogenesis, Science and Cancer Research.
3. Journal review is an article written from some research articles of a science; botanical review, biological review, and FEMS microbiology review.
4. Periodical is scientific magazine of research finding published periodically by an institution.
5. Yearbook is a book presenting facts and statistic data for a year published by an institution.
6. Bulletin is a brief scientific text published periodically, scientific note or guide of operational agenda such Bulletin HPT.
7. Annual review is explanation of published literature. For example: annual review of microbiology, annual review of biochemistry and annual review of plant physiology.
8. Proceeding is compilation of article published in seminar or cymphosium. Prosiding forum komunikasi ilmiah pemanfaatan pestisida nabati, proceeding of the 198 annual meeting of the international research grown on wood preservation
9. Bibliography that contains of articles. Example: PubMed

10. Thesis, dissertation and research report. The feasibility of using the scientific work is decided by supervisor.
11. Website and CD-ROM. Example: eBook, Tutorial. Wikipedia, private blog, text on website that does not write the name of researcher and institution cannot be used as the guide.

5.2 Appendix List

In this section, it is presented the information or things that are needed in helping final project. The es given such as table, figure, and calculation. If, there is one table/figure, so the title of table is or figure can be put as the title of . If there are some tables, there must be order number. Table number on the starts with LT (exp LT1., LT2, etc). figure number starts with (exp LG1, LG2 etc).

CHAPTER VI
WRITING MANUAL

6.1 Paper Format

Final project for undergraduate is typed on the paper A4 (14,8 cm x 21 cm), HVS 80 gram front-bact. Letter is times new roman font 12 with 1 space. Page is in mirror margin, top and right margins is 1,5 cm and bottom and left is 2,5 cm. text is set on justify but new alinea, mathematics equation, list, table, figure or specific things.

6.3 Typing Text/review

6.3.1 type and font of letter

Final project is typed in times new roman 12. On the cover, page of research titleans ‘thesis’ is typed in 20 font. Species names is initalic. It must be typed in times new roman 12.

6.3.2 Line Spacing

Typing of chapter and chapter title is typed in the center in 1,5 space. Title of table, figure, table content, abstact, table list, figure, , figure information is typed in 1 space. Between chapter title and review or chapter title and sub chapter are 2 space. Between review and the next sub chapter is 1,5 space. Between line in review, between cub chapter title and another sub chapter title and between sub chapter title and review are 1,5 space. Exp on 14.

6.3.3 layout

Layout must be full. Typing must start from left margin to right margin and there is no empty space. It has been explained in 6.3.5.

6.3.4 paragraph

One paragraph must have minimal 2 sentences. New paragraph starts with fifth type from left typing. The last line may not be typed on the next page. The writing of new paragraph must be there min two first lines of the paragraph.

6.3.5 title of chapter, sub chapter, and next sub chapter.

The procedures are below:

1. Before Chapter title, researcher must write rome number (CHAPTER I, II etc). on the next line ‘chapter title’ is written in capital letter-bold-symetric in the center. Between the chapter order pointing and the chapter title is one space. Example in appendix 14.
2. The writing of sub chapter title starts from left margin, numbering as the chapter number order before it, it is in bold without dot. Sub chapter title is written in small letters but first letter of the word which is not conjunction. The first sentence after sub chapter title is the beginning of new alinea. Example in 14.
3. Sub-sub chapter title is typed starts from left margin, numbering as the chapter number order, sub chapter title, sub-sub chapter title is typed bold-capitel letter in initial letter without dot. Example on appendix 14.

6.3.6 Number, Symbol, Chemical Formula, and Unit

1. Integer less than 10 must be written in letter, 10 or more is written in number but table number, figure and enclosure in the review such as two bullion, 10 repetition, and 14 sample. Serial number used before 10 and after 10 is used number, for example treatment using dosis 0,4,8 and 10 mg/BB mouse. All numbers in the beginning sentence must be written in letter, for example,”one hundred milimeter is added to….”.
2. Number and unit are stated in number and acronym of unit is separated one tap (for example: 3,5 mg), except if the unit is not preceded by a sum (for example: “weight of leave is in gram”).
3. The writing of number in long line is shortened by changing the unit (for example: 2.500.000 to be 2,5 juta; 5x10-6m to be 5 µm).
4. Decimal symbol in decimal fraction is comma, not a dot, except in English abstract, for example: 13,5 cm not 13.5 cm.
5. Measurement unit uses international unit system with general acronym used.
6. Number, symbol or chemical formula which are in the beginning sentence must be spelled, for example: twenty milimeter aquades is added to……etc. chloride clacium that has been dissolved… etc.

6.3.7 Page Numbering, table list and figure

1. Page number in the beginning part of final project uses smal rome number (I, ii, iii, etc.) and written on bottom page, symetric left and right margin. Page number is 1,5 cm from bottom margin. Page numbering starts from legitimation sheet to table of content.
2. Page number in the main part of final project uses arabic number and written out of bottom including sub chapter page.
3. Table numbering, figure and enclosure must be given arabic order number and started from chapter number from figure or table where they are, then followed by figure/table order number, for example table 2.3 means that the table is written in the chapter 2 in the third table order.

6.3.8 Equation

Equation that is in the form of mathematical formula, chemical reaction and others that will be used for following review must be given arabic order number. Order number consists of only one number, for example:

$CaSO4 + K2CO3 \longrightarrow CaCO3 + K2SO4$ (3)

6.3.9 Below Detail

Detail is ordered in below line is set to be below by using nuber placed in the beginning. For example: thesis guide book is written for:

1. To give easiness……. Etc

   To provide uniformity…… etc

CHAPTER VII
WRITING LITERATURE AND REFERENCE

7.1 Writing literature in the explanation

Scientific information that is written in the explanation can be taken from published-unpublished scientific work and private communication. The writer's name is only the last name. if there are two writer, their last name are written and conjuncted by '&'. If there are more than two, only the first writer's last name is written followed by 'et al'. in consistent, for literature that is written in Indonesia and English. The procedure is as follow:

1. Writer name is in the beginning sentence
   "According to Untung et al. (1993) mechanism of natural contro……" or "Untung (1993) stated that……."
2. Writer name is in the last sentence
   "This thing assumes that natural enemy likes certain plant composition (Albertcht, 1998)."
3. Two writers
   "This structure causes the detergent has emulsion character (Fessenden at al., 1982)." Or "Sawyer & Carty (1978) use general supprting material……."
4. More than two writers. For example: "Altieri at al. (1981) found that the things can increase……' or "It assumes that certain natural enemy likes certain plant composition (Altiery at al., 1981)."
5. Literature of an instance that does not mention the writer name , so the instance name becomes the reference that is written in the last sentence, not in the beginning. For example: "……is founded in 2008 (Balitkabi, 2010)." It is not written like "According to Balitkabi (2010)……found in 2008."
6. Refered to two or more literatures (it is ordered chronologically as the year). For example: "According to Heywood (1976) and Shuka & Mirsa (1979) family study is the part of systematic study." Or "……..caused by compound reaction of polyfenol becoming brown quinon (Haru=isuseno, 1974;Bidwell, 1976; Wareing & Philips, 1976)."

7. Statement or information that is referred from text referred another literature. For example: "……continued to appropriate organs as the active respond, for example behavior (Atkins, 1978 in Wahyuni, 1998)". This matter must be avoided because the writer does not read the original text. If the researcher cannot avoid it, it must be Wahyuni, not Atkins.
8. Literature that is obtained from unpublished texts that is unpublished. This reference is not mentioned in the reference. For example: "the biggest component of coconut oil is……. (Suwarno, unpublished)."
9. Private comunication. For example: "According to Sumarmi…… (private communication, 2010)." This literature is not mentioned in the reference. It is better avoided because of the responsibility.

1.2 Reference writing

Between literature is one space. If the reference writing is more than one line, so the first line is on the left margin and the next line started on the sixth tap from left side (appendix 14).

1. Reference is ordered in alphabetic based on the family name of first writer.
2. The order of reference writing is:

   Journal: writer name. published year. Article title (upright position). Journal name (using official acronym, appendix 15) in italic. Vol: page. Example:

Corey, E.J. & A.K. Long, 1978. Computer assisted synthetic analysis performance of long-range for stereoselective olefin synthesis. *J. Org. Chem.* 43:2208-2216.

Sieg, C.H. 1997. The mysteries of a praire orchid. *Endangered Spec. Bull*. 22(4):12-13.

n. Book. Writer name. published year. Book title (bold). Volume. Edition (if any). publisher name. publisher city. Textbook title and unpublished literature (thesis, dissertation, manuscript and research report) is written in small letter except initial letter of the first word/person name/species/place. They are written in bold. For example: Bruce. A. 2010. Biology molecular of the cell. Second edition. Prentice Hall, Baltimore.

Reynolds, C.S. 2006. **Ecology of phytoplankton**. Cambridge Univ. Press. Seiten.

o. Literature contained of some articles and collected by an editor: article writer. Published year. Article title (it is written like the article title on the reference of journals).word 'in' editor name of word '(Ed.). Book title (first letter of all the words is written in capital except conjunction). Publisher name. city. Page. article page. example:

Wink, M. & O. Schimmer. 2010. Molecular modes of action of devensive secondary metabolite. dalam M. Wink (Ed.). **Annual plant reviews, functions and biotechnology of plant secondary metabolites**. Blackwell Publ. Ltd. Singapore. hal. 21-161.

p. Translated literature: original writer, published year, translation title, vol, edition, word 'translation', translation name, translation year, published translation and year. Translator name is not back return. If the published year is not mentioned, it is written 'no year'. Example:

Kimball, J.W. 1983. **Biology**. Vol 2. Fifth edition. Translation E. Nugroho, Z.S. Bystami & I. Darmansjah. 1995. UI Press. Jakarta.

Literature without writer name before published year is written the instance name not anynomous. Example:

CSIRO. 1983. Soybean respond to controlled waterlogging. dalam R. Lehane (Ed.) **Rural research**. Dickson: The Science Communication of CSIRO's Bureau of Scientific Services.

Universitas Negeri Malang. 2000. **Pedoman penulian karya ilmiah: skripsi, tesis, disertasi, artikel, makalah, laporan Penelitian**. Edisi Keempat. Universitas Negeri Malang. Malang.

q. Literature of proceeding, thesis, dissertation and abstract compilation. For example:

Read, E.L., Tovo-Dwyer A.A., Chakraborty A.K. 2012. Stochastic effects are important in intrahost HIV evolution even when viral loads are high. *PNAS 109 (48) 19727-19732*

Nurlaila, 1998. **Prevalensi *Salmonella* yang terbawa oleh lalat di Tempat Pembuangan Sampah Akhir (TPA) Supit Urang Kodya Malang dan**

Junrejo Kotatif Batu. Jurusan Biologi Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Brawijaya. Malang. Skripsi.

Sulistyo, E. 1998. **Adaptasi padi gogo terhadap naungan: pendekatan morfologi dan fisiologi**. Pascasarjana Institut Pertanian Bogor. Bogor. Tesis.

Butcher, E. 1983. **Studies of interference between weeds and peas**. PhD Dissertation. Univ. of East Angila.

r. Literature of online journal. For example:

Hansen, L. 1999. Non-target effects of Bt corn pollen on the monarch butterfly (Lepidoptera: Danaidae). http://www.ent.iastate.edu/entsocl,ncb99/prog/abs/D81.html. Diakses 12 Pebruari 2001.

Griffith, A.I. 1995. Coordinating family and scholl : Mothering for schooling policy analysis archives (Online). Vol 3. No. 1. http://oalm.ed.asu.edu/epaa. Diakses 20 Januari 2000.

2. Procedure of writer writing

If the writer name consists of two or more syllables, the last name followed by comma, first-middle name acronym, separated by dot. The name followed by acronym is assumed that the acronym becomes one with syllable in front of it. For example: William D. Ross Jr. ditulis Ross Jr.,W.D. degree title is not mentioned. First name is shotened.

Full name	Back returned
H. van Den-Brink	Van Den-Brink, H.
P. van Vliet	Van Vliet, P.
Ali Abdel-Aziz	Abdel-Azis, A.
Ali Ibn-Saud	Ibn-Saud, A.
Kees de Vries	De Vries, K.
A, van der Haar	Haar, A. Van der
H. zur Horst-Meyer	Horst-Meyer, H. Zur
Carl von Schmidt	Schmitd, Carl von
Mario dos Santos	Santos, Mario dos
B.C. Sen Gupta	Sen Gupta, B.C.

A.D. Das Gupta	Das Gupta, A.D.
J. Le Beau	Le Beau, J.
V. du Bary	Du Bary, V.
Derek Keith Thomas	Thomas, D.K.

First name is back returned, another writer name is not. If there are two writers, all are written and conjuncted by '&'. If there are more than two, all are writttten and conjuncted by comma and symbol & before the last writer. For example:

Keller, B. 1993. Structural cell.....etc.

Su, N.Y. & M. Tamashiro. 1987. An overview of the formosan .....etc

Weiser, R.L., S.J. Wallner & J.W. Weddel. 1990. Cell wall and .....etc

The same writer name that is more than one in a literature but the published year is different. For example

Nishitani, K. & R. Tominaga. 1992. Endo-xyloglucan transferase, a novel class of glycosiltransferase..... *J. Biol. Chem.* 268:25364-25368.

Nishitani, K. & R. Tominaga. 1997. The role of endo-xyloglucan transferase in the organization of plant cell walls. *Int. Rev. Cytol*. 173:157-206.

5. The same writer in more than one literature in the same year, so after published year there is notation (a, b, c, d etc) that is written in year order. For example:

   Dodeman, V.L. & G. Ducreux, 1996a. Isozyme patterns in zygotic and somatic embryogenesis of carrot. *Plant Cell Rep*. 16:101-105.

   Dodeman, V.L. & G. Ducreux, 1996b. Total protein expression during induction and development of carrot somatic embryos. *Plant Sci*. 120:57-69.

6. Writing of Journal volume and page number is separated by colon without space. Example:

   Brewin, N.J. & L.V. Kardailsky. 1997. Legume lectins and nodulation by Rhizobium. *Trends Plant Sci. Rev.* 63:322-326.

CHAPTER VIII
WRITING OF TABLE AND FIGURE LAYOUT

8.3 Table writing

1. Table title is written on the table
2. Table order on the table title is pointed with word ”table” followed by table number and given dot written befre table title.
3. Table title is written in small letter except the initial letter of the first word and name of something. Table title is not ended by dot. Table title consisting of one line on the center while table title consisting of one line is wrtitten alisgn text left, second line and next in one space. The first word of second line and next are written below the initial letter of table title.
4. Table is placed in the ‘center’ of line. Table title, table and information must be set in one page.
5. Space between table title and and thesis review before or after the table title is three spaces. Space between table title and table is one a half space.
6. Table information is written below the table, in one space, one space from space and three space from thesis review below it.
7. Colomn and line of table is given a right title and among colomn or line are separated by definite space without underline. ’border’ horizontal in the table is only in ’heading’ and below table side. ’border’ vertical does not need to be appeared.
8. If table wide is over the paper size, table is placed in line with paper length in the position top of table, left align. Page number is written in the right-below page in landscape.
9. If table is entered in to review, it must be written ’(table 1)’ not ’(tab 1)’.
10. Table inside enclosure, the numbering is based on the table of main part of thesis.
11. Table refered from a literature, the writer and published year are written on the right-below of table, font size 10.

8.2 Figure Layout

Chart, diagram, graphic, map and photo are figure so not mentioned chart 1, diagram 1, graphic 1, map 1 and figure 1.

1. Figure title is placed below the figure.
2. Figure order on the figure title is showed by word ’figure’ followed by figure number and dot mark before figure title.
3. Figure title is written in small letter except first letter of the first word and name of omething. Figure title is not ended by dot. Figure title consisting of one line is ritten in the center while more than one line is written in left align, second line and next is one space. The first word on the second line and next are written below the initial letter of figure title. Figure title may not reveal figure information (figure title is the written figure list). Figure title does not need to be began with word ’figure’, ’hystogram’, ’graphic’ or ’photo’. The example of wring figure title writing: ’figure 1. Growth graphic.....’.
4. Figure is placed ’center’ in the line. Figure, figure title, and information must be written in one page.
5. Space between figure title and thesis review after title is three space. Space beteen figure title and figure is one a half space. Space of figure from thesis review before the figure and space of figure title and thesis review is three space.
6. If a figure has information of figure so main title of figure is figure title that is written in the figure list may not contain of figure information. Figure information is written after figure title but not started in the new line.
7. Figure size (width and height) must be proportional (not too big or small). If one figure title is more than one figure so some figures are set well so out side figure is symetrical. Example: enclosure 16. If the figure is over the paper, figure can be set in line with the position of top of figure in the left margin.
8. Page number is written on the right-below of page in landscape.
9. Scale must be made for making easy of interpolation or extrapolation. Objective/ocular zoom lense in the microscope must be conversed according to photo zoom.
10. Information and unit on ’y’ axleof a graphic should be written in ’rotated title’ (MS Excel). Example on enclosure 16.
11. If it is entered into review, it is written ’figure 1’, not ’fig. 1’ or ’fg. 1’.

12. Figure in the enclosure, the numbering follows order number based on the enclosure.

CHAPTER IX
SUBMITTING DISSERTATION

After exam conducted and students are announced pass the exam, they still have to revise. Revision time is:

1. Dead line of revision is due to one month since dissertation exam.
2. If the bound revision is not submitted in one month since exam, the students is taken lower rank.
3. If the revision is not submitted for two months, students must retake the exam.
4. If the revision is not submitted for three months, students must reconduct research with new topic and title.

REFERENCE

O'Connor, M. & F.P. Woodford. 1976. **Writing scientific papers in English.** An ELSE-Ciba Foundation Guide for Authors, Elsevier: New York

Rumawas, F. & J. Koswara. 1985. **Teknik penulisan dan presentasi ilmiah.** Fakultas Pertanian, Institut Pertanian Bogor: Bogor

Appendix 1a. example of undergraduate thesis cover (dark blue)

5 cm

FORMULASI MASKER ALAMI BERBAHAN DASAR BENGKOANG DAN JINTAN HITAM UNTUK MELEMBABKAN DAN MENGURANGI KERUTAN PADA KULIT WAJAH

SKRIPSI

oleh
SWAIDATUL MASLUHIYAH AF
0810913054

JURUSAN BIOLOGI
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS BRAWIJAYA
MALANG
2012

SWAIDATUL M. AF. SKRIPSI 2012

Appendix 1b. example of master thesis cover (bright green)

5 cm

MUHAMMAD IMAM

TESIS

2011

VARIASI MORFOLOGI PADA IKAN LEMPUK (*Gobiopterus brachypterus*) DI DANAU RANUGRATI PASURUAN

TESIS

oleh
MUHAMAD IMAM
0920901016

PROGRAM MAGISTER BIOLOGI
JURUSAN BIOLOGI
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS BRAWIJAYA
MALANG
2011

Appendix 1c. example of dissertation cover (black)

5 cm

YULIANI

DISERTASI

2012

KAJIAN SENYAWA FENOLIK DARI FAMILY *Asteraceae* PADA BERBAGAI HABITAT SEBAGAI PENGENDALIAN *Spodoptera litura* (Fab.)

DISERTASI

oleh
YULIANI
117090100111001

PROGRAM DOKTOR BIOLOGI
JURUSAN BIOLOGI
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS BRAWIJAYA
MALANG
2012

Appendix 2a. example of page of undergraduate thesis title

IDENTIFIKASI POLIMORFISME PARTIAL GEN BMPR-1B PADA SAPI BALI (*Bos sondaicus*) MENGGUNAKAN METODE PCR-RFLP

SKRIPSI

Sebagai salah satu syarat untuk memperoleh gelar
Sarjana Sains dalam Bidang Biologi

oleh
Since Afifah
0810910065

JURUSAN BIOLOGI
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS BRAWIJAYA
MALANG
2012

Appendix 2b. example of page of thesis title

EKSPRESI PARP1, BZLF1-EBV DAN JUMLAH SEL NEKROTIK PADA JARINGAN KARSINOMA NASOFARING

TESIS

Sebagai salah satu syarat untuk memperoleh gelar
Magister Sains dalam Bidang Biologi

oleh
Wahyu Nur Laili Fajri
106090101011005

PROGRAM MAGISTER BIOLOGI
JURUSAN BIOLOGI
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS BRAWIJAYA
MALANG
2012

Appendix 2c. example of page of dissertation title

KAJIAN SENYAWA FENOLIK DARI FAMILY *Asteraceae*
PADA BERBAGAI HABITAT SEBAGAI PENGENDALIAN
***Spodoptera litura* (Fab.)**

DISERTASI

Sebagai salah satu syarat untuk memperoleh gelar
Doktor dalam Bidang Biologi

oleh
YULIANI
117090100111001

PROGRAM DOKTOR BIOLOGI
JURUSAN BIOLOGI
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS BRAWIJAYA
MALANG
2012

Appendix 3a. example of page of undergraduate thesis approval

HALAMAN PENGESAHAN SKRIPSI

POTENSI DIVERSITAS POHON LOKAL UNTUK PENINGKATAN PENYIMPANAN CADANGAN KARBON DI ZONA ARBORETUM, TAMAN NASIONAL BROMO TENGGER SEMERU

IVANA ODE LOLODATU
0810910051

Telah dipertahankan di depan Majelis Penguji
pada tanggal 20 Juli 2012
dan dinyatakan memenuhi syarat untuk memperoleh gelar
Sarjana Sains dalam Bidang Biologi

Menyetujui
Pembimbing

Dr. Endang Arisoesilaningsih
NIP 19590908 198903 2 001

Mengetahui
Ketua Program Studi S-1 Biologi
Fakultas MIPA Universitas Brawijaya

Rodliyati Azraningsih, S.Si., MAgr.Sc., PhD.
NIP 19700128 199412 2 001

Appendix 3b. example of page of thesis approval

HALAMAN PENGESAHAN TESIS

EKSPRESI PARP1, BZLF1-EBV DAN JUMLAH SEL NEKROTIK PADA JARINGAN KARSHINOMA NASOFARING

WAHYU NUR LAILI FAJRI
106090101011005

Telah dipertahankan di depan Majelis Penguji
pada tanggal 3 Agustus 2012
dan dinyatakan memenuhi syarat untuk memperoleh gelar
Magister Sains dalam Bidang Biologi

Menyetujui

Pembimbing I	Pembimbing II
Dra. Fatchiyah, M.Kes., Ph.D.	Dr. Sri Widyarti, M.Si.
NIP 19631127 198903 2 001	NIP 19670525 199103 2 001

Mengetahui
Ketua Program Studi Magister Biologi
Fakultas MIPA Universitas Brawijaya

Tri Ardyati, M.Agr., Ph.D.
NIP 19671213 199103 2 001

Appendix 3c. example of page of dissertation approval

HALAMAN PENGESAHAN DISERTASI

PENGEMBANGAN PROTEIN MARKER UNTUK MENDETEKSI DINI KERUSAKAN EKSOKRIN SECARA AUTOIMMUNE PADA DM TIPE-2

ARIE SRIHARDYASTUTIE, S.Si., M.Kes.
117090100111012

Telah dipertahankan di depan Majelis Penguji
pada tanggal….. dan dinyatakan memenuhi syarat untuk memperoleh
gelar Doktor dalam Bidang Biologi

Menyetujui
Promotor

Prof. Dr. drh. Aulanni'am, DESS
NIP 19600903 198802 2 001

Ko-Promotor I

Dra. Fatchiyah, M.Kes., Ph.D.
NIP 19631127 198903 2 001

Ko-Promotor II

Prof. dr. Djoko W. Soeatmadji, SpPD,KEMD
NIP 130 355 400

Mengetahui
Ketua Program Studi Doktor Biologi
Fakultas MIPA Universitas Brawijaya

Luchman Hakim, Ph.D.
NIP 19710808 199802 1 001

Appendix 4a example of supervisor and examiner commission

SUSUNAN KOMISI PEMBIMBING DAN PENGUJI TESIS

Judul Tesis:

EKSPRESI PARP1, BZLF1-EBV DAN JUMLAH SEL NEKROTIK PADA JARINGAN KARSHINOMA NASOFARING

Nama	: Wahyu Nur Laili Fajri
NIM	: 106090101011005
KOMISI PEMBIMBING	:
Ketua	: Dra. Fatchiyah, M.Kes., Ph.D.
Anggota	: Dr. Sri Widyarti, M.Si.
TIM DOSEN PENGUJI	:
Dosen Penguji I	: Dr. Ir. M. Sasmito Djati, MS
Dosen Penguji II	: Widodo, Ph.D.Med.Sc.
Tanggal Ujian	: 3 Agustus 2012

Appendix 4b example of supervisor and examiner commission for dissertation

SUSUNAN KOMISI PEMBIMBING DAN PENGUJI DISERTASI

Judul Disertasi:

INDUKSI MUTASI DENGAN MUTAGEN ETHYL METHANE SULFONATE (EMS) UNTUK MENGHASILAKN PERCABANGAN PADA KENAF (*Hibiscus cannabinus* L.)

Nama	: Estri Laras Arumningtyas
NIM	: 0130100005
KOMISI PROMOTOR	:
Promotor	: Dr. Ir. Nur Basuki
Ko Promotor	: Dr. Ir. Sujindro, MS
Ko Promotor	: Prof. Sutiman B. Sumitro, SU., D.Sc.
TIM DOSEN PENGUJI	:
Dosen Penguji I	: Dr. Ir. Nur Basuki
Dosen Penguji II	: Dr. Ir. Sujindro, MS
Dosen Penguji III	: Prof. Sutiman B. Sumitro, SU., D.Sc.
Dosen Penguji IV	: Dr. Ir. Adji Sastrosupadi, MS, APU
Dosen Penguji V	: Dr. Ir. Lita Sutopo
Dosen Penguji VI	: Ir. Retno Mastuti, M.Ag.Sc., D.Ag.Sc.
Dosen Penguji VII	: Prof. Dr. Aloysius Duran Corebima
Tanggal Ujian Tertutup	: 31 Desember 2005

Appendix 5a. example of legitimation sheet

HALAMAN PERNYATAAN

Saya yang bertanda tangan di bawah ini:

Nama	: Ivana Ode Lolodatu
NIM	: 0810910051
Jurusan	: Biologi
Penulis Skripsi berjudul	: Potensi Diversitas Pohon Lokal untuk Peningkatan Penyimpanan Cadangan Karbon di Zona Arboretum, Taman Nasional Bromo Tengger Semeru

Dengan ini menyatakan bahwa:

1. Skripsi ini adalah benar-benara karya saya sendiri dan bukan hasil plagiat dari karya orang lain. Karya-karya yang tercantum dalam Daftar Pustaka Skripsi ini semata-mata digunakan sebagai acan/referensi
2. Apabila kemudoan hari diketahui bahwa isi Skripsi saya merupakan hasil plagiat, maka saya bersedia menanggung akibat hukum dari keadaan tersebut

Demikian pernyataan ini dibuat dengan segala kesadaran

Malang, 20 Juli 2012
Yang menyatakan

(tanda tangan)

Ivana Ode Lolodatu
0810910051

Appendix 5b . example of certificate of authorship

HALAMAN PERNYATAAN ORISINALITAS TESIS

Saya menyatakan dengan sebenar-benarnya bahwa sepanjang pengetahuan saya, di dalam Naskah Tesis ini tidak terdapat karya ilmiah yang pernah diajukan oleh orang lain untuk memperoleh gelar akademik di suatu Perguruan Tinggi, dan tidak terdapat karya atau pendapat yang pernah ditulis atau diterbitkan oleh orang lain, kecuali yang secara tertulis dikutip dalam naskah ini dan disebutkan dalam sumber kutipan dan daftar pustaka.

Apabila ternyata di dalam Naskah Tesis ini dapat dibuktikan terdapat unsur-unsur jiplakan, saya bersedia Tesis (MAGISTER) dibatalkan, serta diproses sesuai dengan peraturan perundang-undangan yang berlaku (UU No. 20 Tahun 2003, pasal 2 dan pasal 70).

Malang, 3 Agustus 2012

Materai

(tanda tangan)

Nama : Wahyu Nur Laili Fajri
NIM : 106090101011005

Appendix 5c. example of certificate of authorship for dissertation

HALAMAN PERNYATAAN ORISINALITAS DISERTASI

Saya menyatakan dengan sebenar-benarnya bahwa sepanjang pengetahuan saya, di dalam Naskah Disertasi ini tidak terdapat karya ilmiah yang pernah diajukan oleh orang lain untuk memperoleh gelar akademik di suatu Perguruan Tinggi, dan tidak terdapat karya atau pendapat yang pernah ditulis atau diterbitkan oleh orang lain, kecuali yang secara tertulis dikutip dalam naskah ini dan disebutkan dalam sumber kutipan dan daftar pustaka.

Apabila ternyata di dalam Naskah Disertasi ini dapat dibuktikan terdapat unsur-unsur plagiasi, saya bersedia Disertasi ini digugurkan dan gelar akademik yang telah saya peroleh (DOKTOR) dibatalkan, serta diproses sesuai dengan peraturan perundang-undangan yang berlaku.

Malang,

Materai

(tanda tangan)

Nama : Yuliani
NIM : 117090100111001

Appendix 6a. example of curriculum vitae for thesis

RIWAYAT HIDUP

Wahyu Nur Laili Fajri, Malang, 23 April 1988 anak dari ayah Suyono dan ibu Suhermin, SD sampai kuliah di kota Malang, lulus SMA tahun 2006, selanjutnya melanjutkan studi di jurusan Biologi Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Brawijaya Malang mulai tahun 2006 dan menyelesaikan studi pada tahun 2010 dngan tugas akhir berjudul "Karakterisasi Proteome Serum Pasien Diabetes Melitus menggunakan 2D-GE (*Two Dimensional-Gel Electrophoresis*)". Pengalaman kerja sebagai asisten praktikum Teknik Analisis Biologi Molekuler untuk Jurusan Biologi , FMIPA, UB dan Program Studi Farmasi, Fakultas Kedokteran, UB pada tahun 2010, analisis di Laboratorium Sentral Ilmu Hayati Universitas Brawijaya (LSIH-UB) pada tahun 2009-2011, dan sekarang bekerja di Laboratorium Biosains UB.

Malang, Agustus 2012

Penulis

Appendix 6b. example of curriculumvitae for dissertation

RIWAYAT HIDUP

Estri Laras Arumningtyas, lahir di Trenggalek, 18 Agustus 1963, putrid dari ayah Kamidjan dan ibu Siti Rochani, lulus SMA di Trenggalek tahun 1982, menempuh pendidikan S-1 pada Jurusan Agronomi Fakultas Pertanian Institut Pertanian Bogor lulus tahun 1987, menempuh pendidikan S-2 di bidang Plant Genetics di Department of Plant Science University of Tasmania, Australia lulus tahun 1992, mengikuti overseas non degree training untuk teknik deteksi mutasi di Laboratory of Biomolecular, Graduate School of Agricultural Sciences, Tohoku University, Sendai, Jepang, sejak tahun 1988sampai sekarang menjadi PNS pada Departemen Pendidikan Nasional, Fakultas Mateatika dan Ilmu Pengetahuan Alam Universitas Brawijaya Malang.

Malang, Januari 2006

Penulis

Estri Laras Arumningtyas

Appendix 7a. example of page of thesis usage

PEDOMAN PENGGUNAAN SKRIPSI

Skripsi ini tidak dipublikasikan namun terbuka untuk umum dengan ketentuan bahwa hak cipta ada pada penulis. Daftar Pustaka diperkenankan untuk dicatat, tetapi pengutipan hanya dapat dilakukan seizin penulis dan harus disertai kebiasaan ilmiah untuk menyebutkannya.

Appendix 7b. example of page of thesis usage

PEDOMAN PENGGUNAAN TESIS

Tesis ini tidak dipublikasikan namun terbuka untuk umum dengan ketentuan bahwa hak cipta ada pada penulis. Daftar Pustaka diperkenankan untuk dicatat, tetapi pengutipan hanya dapat dilakukan seizin penulis dan harus disertai kebiasaan ilmiah untuk menyebutkannya.

Appendix 7c. example of page of dissertation usage

PEDOMAN PENGGUNAAN DISERTASI

Disertasi ini tidak dipublikasikan namun terbuka untuk umum dengan ketentuan bahwa hak cipta ada pada penulis. Daftar Pustaka diperkenankan untuk dicatat, tetapi pengutipan hanya dapat dilakukan seizin penulis dan harus disertai kebiasaan ilmiah untuk menyebutkannya.

Appendix 8a. example of undergraduate thesis abstract

Formulasi Masker Alami Berbahan Dasar Bengkoang dan Jintan Hitam untuk Melembabkan dan Mengurangi Kerutan pada Kulit Wajah

Swaidatul M. A., Widodo, Sri Widyarti
Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Brawijaya
2012

ABSTRAK

Penelitian ini bertujuan untuk mendapatkan formulasi masker pasta yang tepat dari campuran bubuk bengkoang, minyak jintan hitam, cokelat bubuk, dan madu, mengetahui pengaruh pemakaian masker alami terhadap kelembaban kulit wajah, dan mengetahui pengaruh pemakaian masker alami untuk mengurangi kerutan pada kulit wajah. Bahan yang digunakan untuk membuat formulasi masker alami ini adalah 2 gram bubuk bengkoang, 1 gram bubuk cokelat, 0.6 ml minyak jintan hitam, dan 5 ml madu. Bahan-bahan tersebut dicampurkan sehingga dihasilkan masker dengan struktur pasta yang siap digunakan. Masker digunakan setiap tiga hari sekali hingga 12 kali pemakaian masker. Masker diberikan pada sepuluh probandus wanita yang memenuhi kriteria inklusi yang ditentukan. Karakteristik kulit wajah yang diamati meliputi adanya kerutan dan nilai kelembaban kulit. Data kerutan diambil secara visual dengan difoto menggunakan camera DSLR 1000D pada tiga sisi wajah (depan, kanan, kiri) dan kelembaban kulit wajah di ukur dengan skin analyzer HL-611 (Beautistyle International Corporation) yang ditempelkan langsung pada kulit wajah selama 4-5 detik. Area kulit wajah yang di ukur kelembabannya adalah dahi, hidung, dagu, dan pipi. Data yang diperoleh dianalisis menggunakan uji ANOVA selang kepercayaan 95% dan uji signifikansi menggunakan SPSS 15 for windows serta uji persepsi. Berdasarkan hasil penelitian diketahui bahwa peningkatan kelembaban kulit wajah mulai terlihat pada minggu ke-2. Penggunaan masker pada minggu ke-6 memberikan pengaruh yang paling tinggi terhadap kelembaban kulit wajah dengan nilai rerata 36.85 %. Nilai kelembaban kulit pada setiap area wajah relatif sama dan tidak terdapat perbedaan yang signifikan. Hasil persepsi data kerutan wajah menunjukkan adanya perubahan kerutan sebanyak 100%.

Kata kunci: bengkoang, cokelat, jintan hitam, madu, masker

Appendix 8b. example of thesis summary

RINGKASAN

Variasi Morfologi pada Ikan Lempuk (*Gobiopterus brachypterus*) Di Danau Ranugrati Pasuruan

Muhammad Imam, Sri Widyarti, Rodiyati Azrianingsih
Program Magister Biologi, Jurusan Biologi,
Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Brawijaya
2012

Penelitian ini bertujuan untuk mendeskripsikan karakteristik morfologi ikan Lempuk di Ranugrati, membuktikan ada tidaknya variasi morfologi pada populasi ikan lempuk Ranugrati, membuktikan ada tidaknya variasi genetic pada populasi ikan lempuk Ranugrati dan membuktikan ada tidaknya perbedaan karakteristik morfologi ikan lempuk Ranugrati dengan karakteristik morfologi *Gobiopterus brachypterus*. Karakteristik umum ikan lempuk yang terdapat di danau Ranugratiditandai dengan warna tubuh yang transparan sehingga organ internal seperti jantung, ginjal, gelembung renang, pembuluh darah dan tulang belakang dapat terlihat dari luar tubuhnya. Berdasarkan pengamatan terdapat dua variasi tipe ikan lempuk yang dalam penelitian ini dikelompokkan sebagai Tipe B dan Tipe C. Ikan lempuk Tipe B memiliki duri sirip dorsal pertama sebanyak 4 s/d 5, duri dan jari sirip dorsal kedua sebanyak I,7 s/d I,8, duri dan jari sirip anal sebanyak I,10 s/d I,13, tinggi badan (BD) 4,5 s/d 5 kali lebih pendek dari panjang standar (SL), terdapat pigment pada pipi dan batas pre-perkulum berwarna hitam berbentuk memanjang vertical, sirip ekor berbentuk membulat, sirip dorsal kedua berbentuk jajaran genjang, sirip anal berbentuk jajaran genjang, memiliki mandibula yang pendek dan tebal serta memiliki pre-maxila yang melengkung. Perbandingan morfologi antara ikan lempuk di Ranugrati dan *Gobiopterus brachypterus* yang dideskripsikan oleh Kottelat, *et al*. (1993) menunjukkan adanya beberapa perbedaan. Perbedaan tersebut terletak pada sirip dorsal kedua, sirip anal dan rasio antara tinggi badan dengan panjang standar. Sementara itu dendogram fenetik hasil RAPD menunjukkan bahwa tidak terdapat bukti bahwa ikan Tipe B dan Tipe C merupakan dua spesies yang berbeda. Hasil ini memperkuat hipotesis bahwa dikotom morfologis yang ditemukan antara Tipe B dan Tipe C diduga merupakan dimorfisme seksual.

Appendix 8c. example of dissertation summary

RINGKASAN

Induksi Mutasi Denganh Mutagen Ethyl Methane Sulfonate (EMS) untuk Menghasilkan Percabangan pada Kenaf (*Hibiscus cannabinus* L.).

Estri Laras Arumningtyas, Nur Basuki, Sudjindro, Sutiman Bambang Sumitro
Program Pascasarjana Universitas Brawijaya
2005

Dalam penelitian ini dilakukan induksi mutasi dengan *Ethyl Methane Sulfoneta* (EMS) untuk menghasilkan percabangan pada kenaf (*Hibiscus cannabinus* L.), sebagai upaya untuk meningkatkan potensi menghasilkan biji dan biomassa. Deteksi secara morfologi, pewarisan sifat bercabang dan identifikasi molekuler terhadap gen percabangan serta deteksi hubungan antara munculnya percabangan dengan keberadaan gen repair photolyase dilakukan terhadap mutan hasil induksi dengan EMS. Induksi mutasi dilakukan dengan metode perendaman pada larutan EMS dengan konsentrasi 0.04 %; 0.05 %; 0.06 %; 0.08 %; 0.1 %; 0.3 %; 0.5 % dan 1.0 %. Identifikasi molekuler dengan metode *Restriction Fragment Length Polymorphism* (RFLP) menggunakan enzim restriksi *EcoRl, Pstl, Hind*lll, *BamHl* serta *Avall. Random Amplified Polymorphic DNA* (RAPD) menggunakan 1 set primer OPO dan 2 primer OPA (Operon Technologies). *Polymerase Chain Reaction* (PCR) menggunakan degenerate primer F: 5'GA(AG)AC(N)(TC)T(N)GC(N)(GA)T(N)AA(TC)TG (TC)GC-3' dan R : 5'-TA(N)CC(TC)TC(N)GA(N)GG(AG)TA(AG)TG-3'(Invitrogen) serta spesifik primer F: ATGAGAGGAATGTTATTGGTCGG dan R: CGCTCATTTAA TGGCAAAGATG (Alpha DNA). Sekuensing dilakukan dengan prosedur Big Dye Terminator mix pada mesin ABI 337 sequencer. Identifikasi gen *photolyse* diawali dengan PCR menggunakan primer AC1-AC3R dan AC4R, dilanjutkan dengan ekstraksi DNA target, ligasi fragmen tersebut pada vector plasmid pCR2. 1, transformasi pada *Eschericia coli* strain XL-1 Blue, cloning dan sekuensing fragmen yang diinginkan.

Perlakuan EMS menurunkan persentase tanaman hidup yang disebabkan karena biji tidak mampu berkecambah, secara umum peningkatan konsentrasi EMS sampai 0.08 % mampu menghasilkan mutan bercabang, tetapi peningkatan lebihdari itu menurunkan jumlah mutan bercabang dan menyebabkan biji tidak mampu berkecambah. Identifikasi morfologi menunjukkan bahwa semua tanaman hasil perlakuan EMS mempunyai morfologi yang sama kecuali pada parameter percabangan yang meliputi jumlah cabang dan rata-rata panjang cabang. Konsentrasi EMS yang mampu menghasilkan jumlah dan panjang rata-rata cabang tertinggi adalah antara 0.06 % dan 0.08 %. Berdasarkan letak cabang pada nodus, mutan dapat dikelompokkan menjadi mutan bercabang basal, dan mutan bercabang *aerial*. Berdasarkan fenotip M2 yang dihasilkan , maka M1 dapat dikelompokkan menjadi 4 kelompok. 1. M1 bercabang yang menghasilkan lebih banyak keturunanbercabang dan sebagian kecil keturunan tidak bercabang , menunjukkan pewarisan alel dominan. 2. M1 tidak

bercabang yang menghasilkan sedikit keturunan bercabang dan banyak keturunan tidak bercabang menunjukkan adanya alel resesif yang mengontrol sifat bercabang. 3. M1 bercabang yang menghasilkan keturunan tidak bercabang, menunjukkan adanya sifat bercabang yang epigenetic. 4. M1 tidak bercabang yang menghasilkan keturunan tidak bercabang, menunjukkan tidak terjadi mutasi.

Hasil identifikasi molekuler menunjukkan adanya perbedaan sekuen DNA antara tanaman control dengan tanaman bercabang, serta antara tanaman bercabang satu dengan yang lainnya. Pola RFLP maupun RAPD tanaman-tanaman bercabang tersebut tidak seragam yang mengindikasikan adanya banyak gen (famili gen) yang mengontrol percabangan kenaf melalui pengaruhnyaterhadap dominansi apikal. Berdasarkan konsistensi keberadaanya, pita-pita RFLP BamHl 900 bp, 1000 bp, 1100 bp, 1400 bp, 2000 bp, 3000 bp, dan 4000 bp, Hindlll 1100 bp, dan EcoRL 3000 bp, serta 4000 bp dan RAPD PO07 1000 bp dapat digunakan sebagai penanda percabangan. Sekuensing menggunakan degenerate dan spefisik primer menunjukkan adanya mutasi gen kloroplas dan mutasi pada sekuen yang homolog dengan transpodon *orge* yang tampaknya berperanan dalam penyediaan energy dan pembawa signal penghambatan auksin dalam proses pembentukan cabang. *Hot spot* mutasi oleh EMS diidentifikasi berada pada basa-basa purin yang menghasilkan mutasi *missense*, dan mutasi *frameshift.* Indentifikasi gen photollyase menunjukkan keberadaan skkuen yang homoloh dengan gen tersebut tetapi tidak menunjukkan adanya kemampuan repair pada semua tanaman yang diidentifikasi. Tampaknya telah terjadi mutasi pada gen *photolyase* menjadi *cryptochrome* yang mempunyai sekuen asam amino serupa dengan *photolyase* sehingga mekanisme repair tidak terjadi. Sebagai alternatifnya terjadi mekanisme aklimatisasi yang memicu munculnya percabangan.

Appendix 9a. example of undergraduate thesis abstract

Natural Mask Based on *Pachyrhizus erosus* and Black Seed as Skinmoisturizing and Reduce Face Wrinkles

Swaidatul M. A., Widodo, Sri Widyarti
Biology Department, Mathematics and Natural Sciences Faculty,
Brawijaya University
2012

ABSTRACT

This research aims to obtain an exact formulation of the mask pasta mixture *Pachyrhizus erosus* powder, black seed oil, cocoa powder, and honey, for knowing the effect of natural mask of the face moisture, and determine the effect of the use of natural mask to reduce wrinkles on the face. The ingredients which were used to make the formulation of this natural mask are 2 grams of powder Pachyrhizus erosus, 1 gram of cocoa powder, 0.6 ml of black seed oil, and 5 ml of honey. The ingredients were mixed to produce mask with pasta structure which ready to use. Mask was used once every three days up to 12 times using. Mask was given to ten women probandus which has the exactly inclusion characteristic. The characteristic face which was observed include wrinkles and value of skin moisture. Wrinkles data was taken by visual with was captured by using camera DSLR 1000D on three sides (front, right, left) and skin moisture was measured by skin analyzer HL-611(Beautistyle International Corporation) which was applied on the skin for 4-5 seconds. The moisture of skin area which was measured was forehead, nose, chin, and cheek. Data which were taken were analyzed by using ANOVA test 95% convidence interval and significance test using SPSS 15 for windows and also perception test. Based on research result has known that skin moisturizing increase has began appear on the second week. The using of mask on the sixth week has given the highest effect on skin moisture with mean 36.85%. The value of skin moisture on every face area was same and did not have significant differences. Wrinkles data perception result showed changes of the wrinkles as much as 100%.

Key words : *Pachyrhizus erosus*, cocoa, black seed, honey, mask

Appendix 9b. Contoh Ringkasan Tesis dalam Bahasa Inggris

SUMMARY

Morphological Variance of Lempuk Fish (*Gobiopterus brachypterus*) in Lake Ranugrati Pasuruan

Muhammad Imam, Sri Widyarti, Rodiyati A.
Biology Master Program, Biology Department, Mathematics and Natural Sciences Faculty, Brawijaya University
2012

The aim of the research are to describe morphological characteristics of lempuk fish in Ranugrati, to investigate morphological variance and genetic variance within the population of lempuk fish in Ranugrati and to verify the distinctive characteristics of morphologi between lempuk fish and *Gobiopterus brachypterus*. Common characteristics of lempuk fish are transparent body, so the internal organ such as heart, kidney, swim bladder, arteries and backbone are able to be viewed from outside of the body. There are two morphological grouping of lempuk fish in Ranugrati which are divided as Type B and Type C. The Type B are characterized by: the first dorsal fin consist of 4-5 spines, the number of spine and rays in the second dorsal fin are I,7 to I,8, the number of spine and rays in the anal fin are I,10 to I,13, the standard length is 4.5 to 5 times of the body depth, pigmen on cheek and margin of preopercle with dark vertical mark, the shape of caudal fin is truncate, the shape of second dorsal fin and anal fin are triangle, the mandible is long and thin, and the pre-maxilla is straight. The Type C are characterized by: the first dorsal fin consist of 4-5 sipnes, the number of spine and rays in the second dorsal fin are I,7 to I,9, the number of spine and rays in the anal fin are I,11 to I,15, the standard length is 4 to 4.5 times of the body depth, pigment on cheek and margin of preopercle with dark vertical mark, the shape of caudal fin is rounded, the shape of second dorsal fin and anal fin sre parallelogram, the mandible is short and thick, and the pre-maxilla is curve. Comparison of morphological charagteristics between lempuk fish in Ranugrati and the *Gobiopterus brachypterus* which was described by Kotelat, *et al*. (1993) shows several differences. The differences found in the second dorsal fin, anal fin and the ratio between body depth and standard length. At the same time, the phenogram based on the result of RAPD concluded that Type B and Type C are possibly the same species. This result supports the hypothesis that morphological dichotomy found between Type B and Type C was expected as sexual dimorphism.

Appendix 9c. example of thesis summary in English

SUMMARY

Induction of Mutation Using Mutagen *Ethyl Methane Sulfonate* (EMS) to Produce Branching on Kenaf (*Hibiscus Cannabinus* L.).

Estri Laras Arumingtyas. Nur Basuki, Sujindro, Sutiman Bambang Sumitro.
Postgraduate Program Brawijaya University
2005

Mutation was induced using *Ethyl Methane Sulfonate* (EMS) to produce branching on kenaf (*Hibiscus cannabinus* L.) in order to increase the potential to produce seed and biomass. Morphological detection of mutant, branching heritability and molecular identification to the branching gene and the relation of branching phenotype to the existence of repair gene photolyase was conducted. Induction of mutation was performed by immersing kenaf seed in EMS solution with the concentration of 0.04 %; 0.05 %; 0.06 %; 0.08; 0.1 %; 0.3 %; 0.5 % and 1.0 %. Molecular identification using *Restriction Fragment Length Polymorphism* (RFLP) method, employed restriction enzymes *EcoR*l, *Pst*l, *Hind*lll, *BamH*I and *Ava*ll. *Random Amplified Polymorphic* DNA (RAPD) was performed using 1 set primer OPO and 2 primers OPA (Operon Technologies). *Polymerase Chain Reaction* (PCR) was conducted using degenerate primer F : 5'-GA (AG)AC(N)(TC)T(N)GC(N)(GA)T(N)AA(TC)TG(TC) GC-3' and R :5'-T(N)CC(TC)(N)GA(N)GG(AG) TA(AG)TG-3' (Invitrogen) and specific primer F: ATGAGAGGAATGTTATTGGTCGG and R: CGCTCATTTAATGGCAAAG ATG (Alpha DNA). Sequencing was done using Big Dyne Terminator mix procedure on the ABl 377 A sequencer machine. Identification of photolyase was started by PCR amplification using primers AC1-AC3R and AC4R, continued by extraction of target DNA fragment, ligation of the fragment into plasmid vector pCR2.1, transformation of the plasmid construct to Eschericia coli strain XL-1 Blue, cloning the construct and sequenced the fragment.

EMS treatment decreased the percentage of viable plant caused by the failure of seed to germinate. Generally the increase of EMS concentration up to 0.08% capable to produce branching mutant, however, increasing concentration more than 0.08% caused the seed fail to germinate. Morphological identification of the M1 plants showed that all the morphological characters identified was identical between the control and the mutants except for the branching appearance (the number and average length of branches). Plants treated by EMS concentration of 0.06% to 0.08 % showed the highest number and average length of branches. According to their branches position on the nodus, the mutants was grouped into basal branching and aerial branching mutants. Based on the phenotype of M2 progeny, the M1 generation could be grouped into 4 groups. First, M1 branching plants that produce mostly branching progeny and a little number of non branching progeny showed dominant inheritance. Second, M1 non

branching plants that produced mostly non branching progeny and a small number brnching progeny showing recessive inheritance. Third, M1 branching plants that produce non branching progeny only, showing epigenetic phenomenon. Fourth, M1 non branching plants that produce non branching progeny, showing no mutation occurred.

Molecular identification showed differences between the DNA sequence of control plants to mutants and among mutants itself. RFLP and RAPD pattern of the mutant that was not identical indicate that there were many genes (gene family) that control branching phenotype through they role in apical dominance. Based on it is preservation RFLP bands of *BamH*l 900 bp, 1000 bp, 1100 bp, 1400 bp, 2000 bp, 3000 bp, 4000 bp, *Hind*III 1100 bp, *EcoR*I 3000 bp, and 4000 bp and RAPD band of PO07 1000 bp can be used as markers of branching gene. Sequencing using degenerate and specific primers showed mutation on chloroplast gene and sequence that homology o the ogre transposon of pea that may involved in the supply of energy for the production of branches and the messenger for inhibition signal of auxin. Hot spot mutation of EMS was identified at the purin base that produce missense and frameshift mutations. Photolyase identification showed the existence of this gene but no sign of it is role in pair mechanism. It seems that the photolyase gene was mutated to cryptochrome caused the loss of it is repair ability and the plants go to the acclimatization causing the production of branches.

Appendix 10. example of acknowledgement

KATA PENGANTAR

2 spasi

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Malang, Juli 2012

Penulis

Appendix 11. example of table content

DAFTAR ISI

Appendix 12. example of table list

DAFTAR TABEL

Appendix 13. example of figure list

DAFTAR GAMBAR

Appendix 14. example of Appendix

APPENDIX

Appendix 15. example of symbol and acronym

Simbol/Singkatan	Keterangan
A(A_{260})	absorbansi (absorbansi pada 260 nm)
A	ampere
BSA	bovine serum albumin
Con A	concanavalin A
cp	chloroplast
Da	Dalton
g	gram
g	percepatan gravitasi (5000 ×*g*)
DAPI	4-6-diamidino-2-phenylindole
ELISA	enzyme linked immunosorbent assay
EtBr	ethidium bromide
FITC	fluorescein isothiocyanate
IgG	immunoglobulin G
MES	2-[*N*-morpholino] ethanesulphonic acid
nos	nophaline synthase
TEMED	*n'n'n'n'* tetramethyl ethylene diamine
Tris	tris (hydroxymethyl) aminomethane

Simbol/Singkatan	Nama unit
α	alfa
β	beta
Ω	gama
∞	lamda
µm	mikrometer
nm	nanometer

Appendix 16. example of reference

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