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**THE GUIDELINES FOR MB 472: SCIENTIFIC WRITING AND  
RESEARCH METHODOLOGY (RESEARCH PROPOSAL), MB 490:  
INDEPENDENT STUDY (REPORT), MB 495: SEMINAR (SLIDES  
AND SPEECH) AND MB 499: RESEARCH PROJECT (REPORT,  
SLIDES, SPEECH AND POSTER)**

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**Department of Molecular Biology and Biotechnology  
Faculty of Science  
University of Peradeniya  
2020**

**The Guidelines for MB 472: Scientific Writing and Research Methodology (Proposal), MB 490: Independent Study (Report), MB 495: Seminar (Slides and Speech) and MB 499: Research Project (Report, Slides, Speech and Report)**

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***MB 472: SCIENTIFIC WRITING AND  
RESEARCH METHODOLOGY***



## Format of the project proposal (Undergraduate Degree)

### General format

An important fact to keep in mind when drafting a project proposal is, even if the thesis is in the chapter format, drafting the proposal considering only one chapter is enough to fulfill the evaluation requirements of this course.

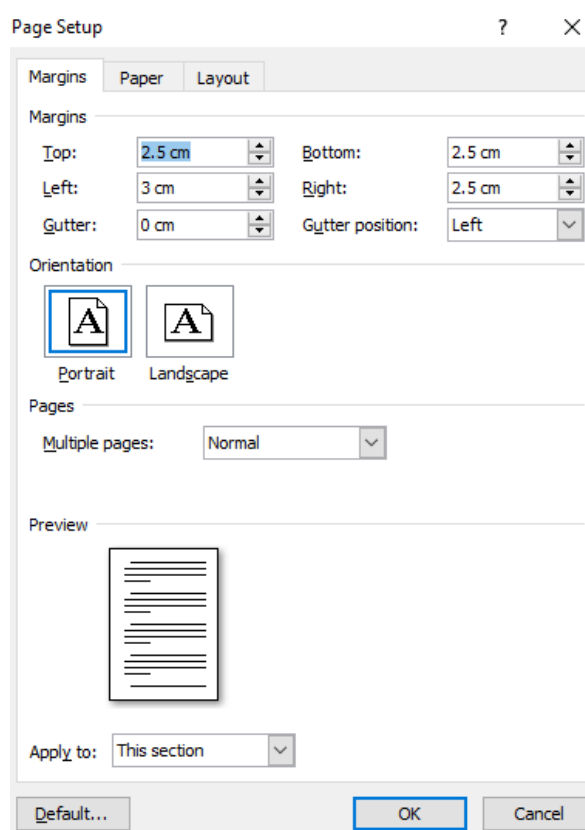
### Page settings

Each copy shall be on clear white **A4 sized (210 x 297mm)** paper. One type of paper must be used throughout the project report/thesis. All typing should be on one side of the paper.

### 1. Margins

Margins on each page must be maintained as mentioned in the following figure 1.

**Figure 1 Page margins:** Left-hand margin of **3 cm**; right hand, top and bottom margins of **2.5 cm** must be used throughout the proposal



### 2. Numbering of pages

Each page in a thesis should be numbered in consecutive order. This includes illustrative material as well as text. All page numbers should be in **Times new Roman, 12 font size**.

Do not number Title page.

Number the Summary Page with roman numbers. Number should appear at the bottom of the page (midpoint), 1 cm below the top-edge and 1 cm above the bottom-edge of the page.

**Main text pages** All the pages from Introduction to Appendix must be numbered using Arabic numerals (1, 2, 3, etc.). Numbering should be start with 1, should appear at the bottom

of the page (midpoint), 1 cm below the top-edge and 1 cm above the bottom-edge of the page.

Check whether an additional enter is there soon after the page number as mentioned in figure 2, if so, please delete it.

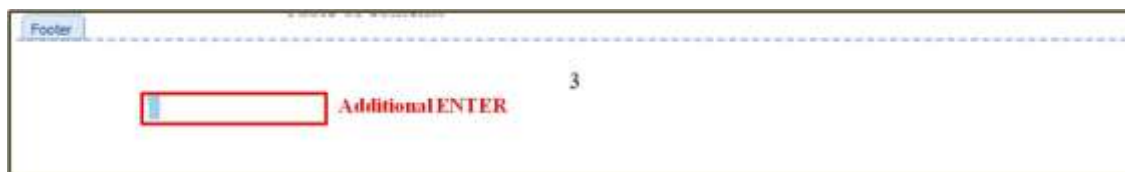


Figure 2 Additional Enter

## Order of Topics

- Title page
- Summary
- Introduction
  - Background
  - Importance
  - Objectives
- Materials and Methods
- Expected Results
- SMART and SWOT analysis
- References
- Budget
- Gantt Chart
- Appendices

## 3. Number of pages

- Title page - 1
- Summary - 1
- Introduction – 2-3
  - Background
  - Importance
  - Objectives
- Materials and Methods - 3
- Results – 3-5
- SMART and SWOT analysis - 3
- References - 2
- Budget - 1
- Gantt Chart - 1

## 4. Main topics and Sub topics

- Main topics should be written using **Times New Roman, size 14, bold and uppercase letters,**

- Sub topics and sub-sub topics should be written using **Times New Roman, size 12, bold and sentence-case letters**

## 5. Units

- Standard International units should be used. Unit symbols should be written after the numerical value, leaving a single space between the numerical value and unit,

e.g.: 5 m, 3.5 kg, 0.1 moldm<sup>-3</sup> etc.

- When indicate the temperature, use degree symbol in centigrade,

e.g.: 27 °C (**Make sure not to use superscript 0 (zero) as in 27 °C**)

- When expressing percentage values, do not keep space between the numerical value and the percentage (%) sign,

e.g.: 70%, 95%, 2.5% etc.

## 6. Scientific Names

All the scientific names should be written in italics according to the general guidelines that are used when writing a scientific name. Few examples are given below.

e.g.: *Babesia canis*, *Babesia canis rossi*, *Oryza sativa*, *Homo sapience* etc.

In the first citation, genus, species and sub species if any must be given. But in later citations, the genus name could be abbreviated,

e.g.: *B. canis*, *B. canis rossi*, *O. sativa*, *H. sapience* etc.

## 7. Main text

Main text should be written as paragraphs. Make sure to add one enter space to separate each paragraph.

- Font-Times New Roman
- Font size-12

Paragraph settings should be:

Each paragraph should consist of 10-15 lines

Alignment: Justify

Outline level: Body Text

Line spacing: 1.5

## Title page

The title should be informative and descriptive of the work done.



**ISOLATION AND CHARACTERIZATION OF ENGINE OIL  
DEGRADING BACTERIA FROM PETROLEUM WASTE  
CONTAMINATED SUBSURFACE SOIL**

By

B. THIVYA

A PROJECT PROPOSAL

In partial fulfillment of the requirements of the Degree of Bachelor of Science Honors in  
Molecular Biology and Biotechnology

of

UNIVERSITY OF PERADENIYA  
SRI LANKA

2019

## Summary

This should include an introduction, a knowledge gap statement, objectives of the study, methodology, results, discussion, conclusion and future directions. This should not exceed 250 words (excluding keywords), Single line spacing.

Should not use abbreviation

## Keywords

Keywords should not exceed 6 words and should not be taken from the title of the proposal. Start first keyword with capital. Then all of others are simple except gene names and other trade names.

## Introduction

Should contain

- Background
- Importance
- Objectives

Line spacing -1.5, between paragraphs have to give a one enter space.

## Materials and methods

This section is a combination of both materials and methods. At each methodological sentence, the materials used are indicated. No space between the topic and the paragraph.

## Results

- **Figures**

Not needed to include borders for figures. Figure has to be center aligned. Each figure and table must be cited within the text.

Size 10, Single spacing 1, Justify, Times New Romans

Citing Figures inside text: E.g. Engine oil-degrading bacteria that will show unique colony morphology (Figure 1)

- **Figure Caption**

E.g. **Figure 1** Engine oil degrading bacterial strains. A: Strain from garage 1(G1b). B: Strain from home garage (H1a).....

Bold only the Figure and the number.

- **Tables**

Recommended table font is Times new roman, 12. Use bold font for table numbers. Each table must be cited within the text. Text inside the table can go up to 7

### SMART and SWOT analysis

Explain each component of SMART and SWOT analysis and Include bar chart for SMART analysis and a Score chart for SWOT analysis (Figure) (include the percentage).

E.g.

- 4.1 SMART analysis
  - 4.1.1 Specific
  - 4.1.2 Measurable
  - 4.1.3 Achievable
  - 4.1.4 Realistic
  - 4.1.5 Time bound

### References

References should be arranged in alphabetically order. If there are more than one publication by the same author(s) in the same year, a, b, c, etc. should appear after the year. Any reference that have been cited in the text must be included in the list of references.

Hanging: 0.5 cm

Spacing: Single

No spacing between References

Format – (APA Formatting and Style Guide (7<sup>th</sup> edition)).

#### **Article in Print Journal:**

Scruton, R. (1996). The eclipse of listening. *The New Criterion*, 15(3), 5–13.

**Note:** APA 7 advises writers to include a DOI (if available), even when using the print source. The example above assumes no DOI is available.

#### **Article in Electronic Journal:**

As noted above, when citing an article in an electronic journal, include a DOI if one is associated with the article.

Baniya, S., and Weech, S. (2019). Data and experience design: Negotiating community-oriented digital research with service-learning. *Purdue Journal of Service-Learning and International Engagement*, 6(1), 11–16. <https://doi.org/10.5703/1288284316979>

DOIs may not always be available. In these cases, use a URL. Many academic journals provide stable URLs that function similarly to DOIs. These are preferable to ordinary URLs copied and pasted from the browser's address bar.

Denny, H., Nordlof, J., and Salem, L. (2018). "Tell me exactly what it was that I was doing that was so bad": Understanding the needs and expectations of working-class students in writing centers. *Writing Center Journal*, 37(1), 67–98. <https://www.jstor.org/stable/26537363>

### **Review Articles:**

Baumeister, R. F. (1993). Exposing the self-knowledge myth [Review of the book *The self-knower: A hero under control*, by R. A. Wicklund & M. Eckert]. *Contemporary Psychology*, 38(5), 466–467.

### **Basic Format for Books:**

Author, A. A. (Year of publication). *Title of work: Capital letter also for subtitle*. Publisher Name. DOI (if available)

Stoneman, R. (2008). *Alexander the Great: A life in legend*. Yale University Press.

### **Edited Book, No Author:**

Editor, E. E. (Ed.). (Year of publication). *Title of work: Capital letter also for subtitle*. Publisher. DOI (if available)

Leitch, M. G., & Rushton, C. J. (Eds.). (2019). *A new companion to Malory*. D. S. Brewer.

### **Edited Book with an Author or Authors:**

Author, A. A. (Year of publication). *Title of work: Capital letter also for subtitle* (E. Editor, Ed.). Publisher. DOI (if available)

Malory, T. (2017). *Le morte darthur* (P. J. C. Field, Ed.). D. S. Brewer. (Original work published 1469-70)

### **Article or Chapter in an Edited Book:**

Author, A. A., & Author, B. B. (Year of publication). Title of chapter. In E. E. Editor & F. F. Editor (Eds.), *Title of work: Capital letter also for subtitle* (pp. pages of chapter). Publisher. DOI (if available)

### **Article from an Online Periodical with DOI Assigned:**

Lastname, F. M., & Lastname, F. M. (Year). Title of article. *Title of Periodical*, Vol.(Issue), page numbers. DOI

Drollinger, T., Comer, L. B., & Warrington, P. T. (2006). Development and validation of the active empathetic listening scale. *Psychology & Marketing*, 23(2), 161-180. <https://doi.org/10.1002/mar.20105>

If the resource was written by a group or organization, use the name of the group/organization as the author. Additionally, if the author and site name are the same, omit the site name from the citation.

Group name. (Year, Month Date). *Title of page*. Site name. URL

American Society for the Prevention of Cruelty to Animals. (2019, November 21). *Justice served: Case closed for over 40 dogfighting victims*. <https://www.asPCA.org/news/justice-served-case-closed-over-40-dogfighting-victims>

**A work by two authors:**

Name both authors in the signal phrase or in parentheses each time you cite the work. Use the word "and" between the authors' names within the text and use the ampersand in parentheses.

Research by Wegener and Petty (1994) supports...

(Wegener and Petty, 1994)

**A work by three or more authors:**

List only the first author's name followed by "et al." in every citation, even the first, unless doing so would create ambiguity between different sources.

(Kernis et al., 1993)

Kernis et al. (1993) suggest...

**Organization as an Author:**

If the author is an organization or a government agency, mention the organization in the signal phrase or in the parenthetical citation the first time you cite the source, just as you would an individual person.

According to the American Psychological Association (2000),...

If the organization has a well-known abbreviation, you may include the abbreviation in brackets the first time the source is cited and then use only the abbreviation in later citations. However, if you cite work from multiple organizations whose abbreviations are the same, do not use abbreviations (to avoid ambiguity).

First citation: (Mothers Against Drunk Driving [MADD], 2000)

Second citation: (MADD, 2000)

**Two or more works in the same parentheses:**

When your parenthetical citation includes two or more works, order them the same way they appear in the reference list (viz., alphabetically), separated by a semi-colon.

(Berndt, 2002; Harlow, 1983)

**Authors with the same last name:**

To prevent confusion, use first initials with the last names. (E. Johnson, 2001; L. Johnson, 1998)

**Two or more works by the same author in the same year:**

If you have two sources by the same author in the same year, use lower-case letters (a, b, c) with the year to order the entries in the reference list. Use the lower-case letters with the year in the in-text citation.

Research by Berndt (1981a) revealed strong correlations. However, a parallel study (Berndt, 1981b) resulted in inconclusive findings.

## Budget

Insert a tables similar to table 1 mentioned below.

E.g.

**Table 1** Major equipment

Major equipment	Quantity	Estimated cost (SL rupees)
Autoclave	1	1,500,000
Spectrophotometer	1	2,000,000
Lamina flow	1	3,500,000

**Table 2** Minor equipment


Minor equipment	Quantity	Estimated cost (SL rupees)
Electronic balance	1	75,000
pH meter	1	75,000
Shaker	1	500,000
Centrifuge	1	500,000
Vortex machine	1	500,000
Microwave oven	1	15,000
Refrigerator	1	50,000
Micropipette	3	100,000

Continue the table according to the allocated budget

## Gantt chart

Page setup – Orientation – Landscape. Consider the figure 3 as an example.

Font size can go up to 7 according to the content

Highlight the time period with Grey color 

E.g.

	Jan				Feb				Mar				April				May				June				July				Aug				Sep				Oct				Nov				Dec			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Read Literature																																																
Design experiments																																																
Write research proposal																																																

Continue the table according to the project plan

**Figure 3** An example for a Gantt chart

## **Appendices**

### **Ap1 Curriculum vitae**

Attach your CV separately. Name it as “Ap1 Curriculum vitae\_Your name”





***MB 490: INDEPENDENT STUDY***



An independent study is a course where the candidate should carry out a study on scientific issues and problems independently and represent the details and opinions of the study effectively as a comprehensive report.

### **Topic selection**

The candidate will work on a topic related to recent areas on Molecular Biology and Biotechnology, approved by the Department.

### **Report submission**

One hard copy of the independent study report should be submitted. All the papers of the report should be bound using a stapler pin at the top left edge of the report in a way that the stapler pin is 1 cm diagonally away from the top left corner. Finally, stapler pin should be hidden using paper tape.

### **General Formatting**

#### **Page setup:**

Page set ups are as similar as mentioned under the section “FORMAT OF THE PROJECT REPORT/THESIS – UNDERGRADUATE DEGREE”

#### **Numbering of pages:**

Each page in the report starting from abstract, should be numbered in consecutive order. This includes illustrative material as well as text. Small Roman numerals should be used for the abstract pages. All pages of the main body of the report, beginning with the introduction up to the last page should be numbered with Arabic numerals. All page numbers should be in **Times new Roman, 12 font size and placed 1.0 cm** above the midpoint of the bottom edge of the page.

#### **Number of pages:**

The total number of pages in the report should at least be **23 pages, excluding the references**. But the maximum number can be altered according to each individual.

## Cover Page

Figure 4 and figure 5 below are examples for the expected cover page and second title page respectively.

1	<b>CTIP2- TRANSCRIPTION FACTOR AS A THERAPEUTIC DRUG</b>
2	<b>TARGET AGAINST HUMAN MEDIUM SPINY NEURONS</b>
3	<b>DEGENERATION IN HUNTINGTON DISEASE</b>
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	By
14	
15	
16	P.G.R.G. Rathnayake
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31	
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33	
34	Of
35	
36	
37	UNIVERSITY OF
38	PERADENIYA SRI LANKA
39	
40	
41	2019

Figure 4 First title page of the independent study

1 **CTIP2- TRANSCRIPTION FACTOR AS A THERAPEUTIC DRUG**  
2 **TARGET AGAINST HUMAN MEDIUM SPINY NEURONS**  
3 **DEGENERATION IN HUNTINGTON DISEASE**  
4  
5  
6  
7  
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12  
13 By

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15  
16 FULL NAME  
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38 PERADENIYA SRI LANKA  
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41

2019

Figure 5 Second title page of the independent study

## Abstract

Abstract represents the summary of the report. This should not exceed 250 words (excluding keywords). Keywords shall not exceed 5 words and should not be taken from the title of the report. In this abstract the candidate should include his/her affiliation. Title and Paragraph formatting throughout report are as under the section “FORMAT OF THE PROJECT REPORT/THESIS – UNDERGRADUATE DEGREE”. Consider figure 6 as an example.

1	<b>CTIP2- TRANSCRIPTION FACTOR AS A THERAPEUTIC DRUG</b>
2	<b>TARGET AGAINST HUMAN MEDIUM SPINY NEURONS</b>
3	<b>DEGENERATION IN HUNTINGTON DISEASE</b>
4	
5	
6	<b>S.M. Sahibdeen</b>
7	
8	Department of Molecular Biology and Biotechnology, Faculty of Science, University of Peradeniya,
9	Peradeniya, Sri Lanka
10	
11	COUP-TF-interacting protein 2 (CTIP2; also known as Bcl11b) is a transcription factor that
12	plays key roles in the development of the central nervous and immune systems. CTIP2 is
13	also highly expressed in the developing epidermis, and at lower levels in the dermis and in
14	adult skin. Analyses of mice harboring a germline deletion of CTIP2 revealed that the protein
15	plays critical roles in skin during development, particularly in keratinocyte proliferation and
16	late differentiation events, as well as in the development of the epidermal permeability
17	barrier. At the core of all of these actions is a relatively large network of genes, described
18	herein, that is regulated directly or indirectly by CTIP2. The analysis of conditionally null
19	mice, in which expression of CTIP2 was ablated specifically in epidermal
20	keratinocytes.....
21	
22	<b>Keywords:</b> Keyword1, keyword2.....

3

Figure 6 Abstract page

## Introduction

Should contain a general introduction of the studied subject and the length of the introduction depends on the study. Final sentence of the introduction should clearly specify the areas reviewed under the report. From introduction onwards numbers are assigned to each following topic. Number 1 is assigned to introduction.

## Main body of the Text

Introduction should then be followed by the comprehensive report of the study arranged under specific topics and subtopics. Title and Paragraph formatting throughout report are as indicated under the section “FORMAT OF THE PROJECT REPORT/THESIS – UNDERGRADUATE DEGREE”.

## Formatting of Figures and Tables

Formatting of the figures and tables must follow according to the guidelines of the journal PLOS ONE.

## References and Citations

The references in the text must be listed at the end of the thesis. Candidate should follow **Vancouver style**. Any reference that have been cited in the text must be included in the list of references. Citations and reference types are as below.

In the Vancouver System citation numbers may be introduced into a text within brackets

e.g.:

text[1]..... text[2]....., text[2,3] ....., text[1,3-6]...

In the Vancouver System references are listed in the order they appear in the text.

### Vancouver Referencing for Independent Study

#### Journal- PLOS One

##### Published Articles:

Hou WR, Hou YL, Wu GF, Song Y, Su XL, Sun B, et al. cDNA, genomic sequence cloning and overexpression of ribosomal protein gene L9 (rpL9) of the giant panda (*Ailuropoda melanoleuca*). Genet Mol Res. 2011;10: 1576-1588.

Devaraju P, Gulati R, Antony PT, Mithun CB, Negi VS. Susceptibility to SLE in South Indian Tamils may be influenced by genetic selection pressure on TLR2 and TLR9 genes. Mol Immunol. 2014 Nov 22. pii: S0161-5890(14)00313-7. doi: 10.1016/j.molimm.2014.11.005.

Rubio F, Guo E, Kamp L. Survey of glyphosate residues in honey, corn and soy products. J Environ Anal Toxicol. 2014; 5: 249. 10.

Chamkasem N, Vargo J. Development and independent laboratory validation of an analytical method for the direct determination of glyphosate, glufosinate, and aminomethylphosphonic acid in honey by liquid chromatography/tandem mass spectrometry. *Journal of Regulatory Science*. 2017; 5: 1–9.

**Accepted, unpublished articles:**

Same as published articles, but substitute “Forthcoming” for page numbers or DOI.

**Online Articles:**

Huynen MMTE, Martens P, Hilderlink HBM. The health impacts of globalisation: a conceptual framework. *Global Health*. 2005;1: 14. Available from: <http://www.globalizationandhealth.com/content/1/1/14>

**Books:**

Bates B. *Bargaining for life: A social history of tuberculosis*. 1st ed. Philadelphia: University of Pennsylvania Press; 1992.

**Book Chapters:**

Hansen B. New York City epidemics and history for the public. In: Harden VA, Risse GB, editors. *AIDS and the historian*. Bethesda: National Institutes of Health; 1991. pp. 21-28.

**Published media (print or online newspapers and magazine articles):**

Fountain H. For Already Vulnerable Penguins, Study Finds Climate Change Is Another Danger. *The New York Times*. 2014 Jan 29 [Cited 2014 March 17]. Available from: <http://www.nytimes.com/2014/01/30/science/earth/climate-change-taking-toll-on-penguins-study-finds.html>

**Masters' theses or doctoral dissertations:**

Wells A. *Exploring the development of the independent, electronic, scholarly journal*. M.Sc. Thesis, The University of Sheffield. 1999. Available from: <http://cumincad.scix.net/cgi-bin/works/Show?2e09>

**New media (blogs, web sites, or other written works):**

Allen L. Announcing PLOS Blogs. 2010 Sep 1 [cited 17 March 2014]. In: *PLOS Blogs* [Internet]. San Francisco: PLOS 2006 [about 2 screens]. Available from: <http://blogs.plos.org/plos/2010/09/announcing-plos-blogs/>

**Deposited articles (preprints, e-prints, or arXiv):**

Krick T, Shub DA, Verstraete N, Ferreira DU, Alonso LG, Shub M, et al. Amino acid metabolism conflicts with protein diversity. *arXiv:1403.3301v1* [Preprint]. 2014 [cited 2014 March 17]. Available from: <https://128.84.21.199/abs/1403.3301v1>

Kording KP, Mensh B. Ten simple rules for structuring papers. *BioRxiv* [Preprint]. 2016 *bioRxiv* 088278 [posted 2016 Nov 28; revised 2016 Dec 14; revised 2016 Dec 15; cited 2017 Feb 9]: [12 p.]. Available from: <https://www.biorxiv.org/content/10.1101/088278v5>

## Reference List

References should include in the list as the respective number order (Figure 7). Any reference that have been cited in the text must be included in the list of references. Citations and reference types are as below. Font size 12 with single line spacing should be maintained.

### 9. References

1. Costello EK, Stagaman K, Dethlefsen L, Bohannan BJM, Relman DA. The application of ecological theory toward an understanding of the human microbiome. *Science*. 2012; 336(6086):1255-1262.
2. Cho I, Blaser MJ. The human microbiome: At the interface of health and disease. *Nat. Rev. Genet.* 2012; 13(4):260-270.
3. Sender R, Fuchs S, Milo R. Revised estimates for the number of human and bacteria cells in the body. *PLoS Biol.* 2016; 14(8):e1002533.
4. Chow J, Tang H, Mazmanian SK. Pathobionts of the gastrointestinal microbiota and inflammatory disease. *Curr. Opin. Immunol.* 2011; 23(4):473-480.
5. Zechner EL. Inflammatory disease caused by intestinal pathobionts. *Curr. Opin. Microbiol.* 2017; 35:64-69.
6. De Santis S, Cavalcanti E, Mastronardi M, Jirillo E, Chieppa M. Nutritional keys for intestinal barrier modulation. *Front Immunol.* 2015; 6:220-231.
7. Sommer F, Backhed F. The gut microbiota engages different signaling pathways to induce Duox2 expression in the ileum and colon epithelium. *Mucosal Immunol.* 2015; 8(2):372-379.
8. Bayersdorf R, Schumacher B. Recent advances in understanding the mechanisms determining longevity. *F1000Research.* 2019; 8:1-8.
9. Kakimi K, Karasaki T, Matsushita H, Sugie T. Advances in personalized cancer immunotherapy. *Breast Cancer.* 2017; 24(1):16-24.
10. Mellman I, Coukos G, Dranoff G. Cancer immunotherapy comes of age. *Nature.* 2011; 480(7378):480-489.
11. Sivan A, Corrales L, Hubert N, Williams JB, Aquino-Michaels K, Earley ZM, et al. Commensal *Bifidobacterium* promotes antitumor immunity and facilitates anti-PD-L1 efficacy. *Science.* 2015; 350(6264):1084-1089.
12. Vetizou M, Pitt JM, Daillere R, Lepage P, Waldschmitt N, Flament C, et al. Anticancer immunotherapy by CTLA-4 blockade relies on the gut microbiota. *Science.* 2015; 350(6264):1079-1084.
13. Roy S, Trinchieri G. Microbiota: A key orchestrator of cancer therapy. *Nat. Rev. Cancer.* 2017; 17(5):271-285.
14. Viaud S, Saccheri F, Mignot G, Yamazaki T, Daillere R, Hannani D, et al. The intestinal microbiota modulates the anticancer immune effects of cyclophosphamide. *Science.* 2013; 342(6161):971-976.
15. Jenq RR, Taur Y, Devlin SM, Ponce DM, Goldberg JD, Ahr KF, et al. Intestinal *Blautia* is associated with reduced death from graft-versus-host disease. *Biol. Blood Marrow Transplant.* 2015; 21(8):1373-1383.
16. Peled JU, Devlin SM, Staffas A, Lumish M, Khanin R, Littmann ER, et al. Intestinal microbiota and relapse after hematopoietic-cell transplantation. *J. Clin. Oncol.* 2017; 35(15):1650-1659.
17. Fessler J, Matson V, Gajewski TF. Exploring the emerging role of the microbiome in cancer immunotherapy. *J. Immunother. Cancer.* 2019; 7(1):1-15.
18. Gopalakrishnan V, Helmink BA, Spencer CN, Reuben A, Wargo JA. The influence of the gut microbiome on cancer, immunity, and cancer Immunotherapy. *Cancer Cell.* 2018; 33(4):570-580.
19. Zitvogel L, Ma Y, Raoult D, Kroemer G, Gajewski TF. The microbiome in cancer immunotherapy: Diagnostic tools and therapeutic strategies. *Science.* 2018; 359(6382):1366-1370.
20. Shreiner AB, Kao JY, Young VB. The gut microbiome in health and in disease. *Curr Opin Gastroenterol.* 2015; 31(1):69-75.

Figure 7 Reference list





***MB 495: SEMINAR***



## Preparing and using visual aids

There are many types of visual aids. If you are giving a demonstration or an illustrated talk, you must have at least one visual aid. No visual aids are usually allowed for speeches. Following are some of the commonly used visuals:

- posters
- charts
- PowerPoint slides
- models
- pictures/photos
- dry erase boards
- overhead transparencies
- articles
- made equipment
- animals
- movie clips
- audio clips

You will need to choose the visual aid that will work best for the purpose you have in mind. It is important to know details of the location where you will be giving your presentation. Be sure you know what equipment/supplies they will have available and what you will need to bring yourself.

The size of the room, the lighting options, the noise level, etc. may all have an impact on your selection of visual aids. Whatever types of visual aids you choose, be sure you practice using them ahead of time. During your presentation, you should be able to use every visual smoothly and with confidence. If you have a lot of visual aids, you might want to make a list of everything you need beforehand. Then you can check each item off as you pack it to take with you. A common error is using an educational display as a presentation visual aid. Educational displays are meant to stand on their own without verbal explanation. The writing and pictures are too small to be of use to an audience during a presentation.

## Setting up your visual aids

Set up all your visual aids yourself unless you need help with large or heavy objects. If you have a lot of visual aids, sometimes in the interest of time you can have other people help you carry things in, but you should arrange them. How you place your visual aids is important. Be sure the audience can see everything and that none of your visuals block the audience's view of you. Place taller items in the back and arrange items in the order you will use them. Having movement flow from the audience's left to right can help them follow along. All of your visual aids should be within easy reach and convenient to use. Avoid clutter. Have only what you will actually need. Plan the order of your presentation so that you don't have to turn lights on and off multiple times. It always takes some time for eyes to adjust to changes in lighting. If you have any equipment, check to make sure it is working properly before you begin your talk. If you are borrowing equipment, know how to use it.

## **Using your visual aids**

Even when you are using a visual aid, it is important that you talk to the audience. Don't talk to your visual. Stand beside or behind your visual aid, never between it and the audience. Try to not spend too much time with one visual or the audience will lose interest. As much as possible, have only what you are using in view or as the center of interest. Plan what to do with a visual when you are finished with it. Generally, you do not want to throw things on the floor or toss them in a heap on a table. Set them aside neatly.

If you have multiple posters, stack them in order on an easel. When you are finished with one, place it back on the easel behind the other posters instead of setting it on the floor or on a table. The audience will find this less distracting, your posters will stay clean, and the posters will remain in the proper order should you need to refer to them when answering questions. If you must use noisy equipment during your talk (a blender, sander, etc.), don't talk while the equipment is running. You don't want to have to shout to make yourself heard. Explain what you are doing before and after, and try to not have the equipment running too long.

Do not pass things around while you are presenting. You want the audience to stay focused on you, not some object they are looking at. If there is something you would really like the audience to see up close, invite them to come up at the end.

## **Handouts**

Handouts should be distributed only when you are done with your presentation. Otherwise they are too distracting. People will be looking at the handout instead of listening to you. Handouts are not necessary, but they can be useful. If you have a lot of references, a list of these could be helpful. If you decide to distribute a handout, be sure they are neatly made and accurate. Bring enough for everyone.

## **Audio or Visual Clips**

When used properly, an audio clip or bit of video can greatly enhance a presentation. Remember, however, that these need to be short. The main focus is on you, and you need to be the one doing the majority of the talking and demonstrating. Before you begin your presentation, have the tape, DVD, record, etc. set at the correct spot. The audience doesn't want to hear or see extra material, and you don't want to lose their focus as you fumble to get the right bit to play.

The biggest mistake computers may not work, especially if you are trying to use your flash drive with someone else's computer. Any audio or visual clips you use during your presentation must be controlled by you. You cannot have any one else handle them.

### **Guidelines for specific visual aids: Posters, Charts (and variations)**

Posters may be the most commonly used visual aid as they are relatively inexpensive and easy to make. You can do them completely by hand or you can use a computer. The important thing is that you do them yourself. This should be a learning experience for you, not your parents or leader. Be sure you look them over carefully when you are done. You don't want any spelling errors, words left out, or photos mislabeled. Make sure your poster has a purpose.

Here are some times a poster is useful:

- Every demonstration or illustrated talk should have a title poster.
- An outline of your talk will help you remember what comes next and lessen your use of notecards. It will also help the audience follow along.
- All kinds of charts and graphs are easy to do as a poster.
- Bulleted lists (of main points, steps in a process, etc.) make good posters.
- Diagrams are useful as posters. These could be of buildings, rooms, farms, etc.

Each poster should have one main idea. It is better to use two or three posters than to try to cram too much information on to one. Keep posters simple, not "busy." Be sure to leave space around the edges so they don't look crowded. You might use the front and back of a poster so you don't have so many to carry around. When making posters, be original and creative. Posters don't have to be just text written on paper. For variety, add photos or something with texture. The design of a poster has a huge impact on its effectiveness. Whether you are making your posters by hand or using a computer, they can look professional if you follow these basic guidelines:

- **Size** Anything on your posters needs to be large enough for the audience to see. Text should be readable from the back of the room. This requires lettering 1½ to 2 inches high. Photos may need to be enlarged. Small artwork that is barely visible is not useful.

However, when it comes to a scientific audience, some general aspects of a poster targeting the general audience changes. An academic style poster usually has an approved format to be followed: section breakdown, tables and figures, flow charts etc. The main idea of an academic style poster is to deliver a brief but a complete idea about a particular research project or one such approach to a scientific audience.

### **Guidelines to prepare posters: a summary (currently recommended for MB499 only)**

- Follow the given format
- Check your posters yourself ahead of time.
- Stand where the audience would be and see if everything on your poster is readable or visible.
- If you write your text on a computer, cut out the words or lines neatly and align them correctly on the poster.

**Section to be included (see figure 8):**

- Topic and Authors
- Abstract
- Introduction
- Materials and Methods: Usually in a flow chart
- Results
- Discussion
- Conclusions
- Key references
- Acknowledgements

**Font and font color:**

- Use a lettering style or font that is easy to read and that fits your topic. Ornate fonts are usually not very effective. Be sure you don't use too many different fonts on one poster. Generally, one or two different styles are all you need.
- Capital letters are usually more difficult to read than lower case ones. Use capitals only when needed or for special emphasis.
- Boldface type, italics, and underlining can also be used for emphasis, but again, don't overuse them.

**Color:**

- The use of color is extremely important. Color can create a mood, it can match your topic, and it can help tie all of your presentation together. It can be used to highlight major points or to help organize your information.
- Don't overuse color; two to three colors per poster generally works best. You will need to experiment until you find a combination of colors that works well for what you are attempting to present.
- It is best to choose one color of posterboard to use for all your posters. This creates a professional look and unites all your visual aids together.
- Make sure the colors you select are readable. Use dark colors on light backgrounds and light colors on dark backgrounds.
- Good posterboard colors are white, green, blue and gray. Bright yellow, red or orange may be hard to look at for very long although they can be used for special effects. Try to use one dominant color and have a contrast between light and dark colors.
- It is advised to highlight the Introduction and conclusion sections of your research poster using one color, so that the audience can have a quick idea at the first glance, about what you have done.

- Avoid using red and green together as this is difficult for color blind people to see.

## **Borders**

- Borders visually force your audience to focus on the text on the poster by acting as a barrier. This barrier stops the audience's eyes from wandering off the paper.
- Borders can be as simple as a straight black line drawn around the perimeter of the posterboard. They can be more elaborate as long as they do not distract from the content. Decorating the four corners can be an effective border.
- The full size of the poster has to be 34 x 46 inches (height x length)
- Leave 1-inch border on the four sides
- Use the remaining space to design your poster: Divide the remaining space into three vertical sections and include all the sections appropriately, in the correct order.

## **Assembly**

- Create your posters on paper that is heavy enough that it will not bend or buckle. You don't want your poster to fall over in the middle of your talk.
- Backing or matting your photos and artwork will give a finished, professional look to your posters. Again, don't use too many colors and make sure everything is cut out neatly.
- Arrange all the pieces on your poster in a pleasing design. Using the same design pattern on all of your posters will help the audience follow along. Generally, working from the top to the bottom and left to right works best. Leave space separating various sections to make it easy for the audience to focus on the item you want.
- Be sure you glue everything down securely. Loose edges look sloppy and decrease the life of your posters. Equipment Select the best possible piece of equipment for the job you need to do. Be sure that your equipment is safe and that you demonstrate correct methods of using it.
- You must know how to use everything properly and practice ahead of time so there are no surprises. Before you begin your presentation, make sure all equipment is in good working order. Everything should be neat and clean and safe.



## **Preparing and using PowerPoint slides**

- Lettering on the slides needs to be large enough to be read from the back of the room. Depending on the font, this usually means 28-34 in size. It also helps to make the lettering bold. Don't use too many fonts on one slide and make sure the font can be easily read.
- Use color for emphasis, but don't use too many colors on one slide. Contrast is good. Use light on a darker background or dark on a light background.
- PowerPoint has all sorts of special-effect features for moving blocks of information on and off of the slides. Do not over-use these.
- Too many transition effects can be not only distracting but annoying as well.
- Also, don't switch slides too quickly. Each slide should be projected for a minimum of 30 seconds.
- When you have prepared all your slides, be sure you proof them. You don't want any errors in spelling or labeling in the final product.
- PowerPoint can be used to great effect when giving a presentation, but you must be aware of its limitations. Any time you are using a computer program to present, it's best if you have your own equipment. Too often, the format or device you use to save your slides won't work on another machine. If you have to use someone else's equipment, you should always have a backup plan in case it doesn't work.
- Another drawback is that a PowerPoint presentation can sometimes overpower you as the speaker. Especially in a contest, you need to be the focal point since you are the one being evaluated. Try to leave the room lights on so the audience can see you.
- Use a remote so you don't have to just stand by the projector but can move around and interact with the audience. A laser pointer can be helpful to point out specific items on a slide.
- Most important, don't over-use the PowerPoint. You are the critical part of a presentation, not the computer program.

## **Guidelines to prepare slides: a summary**

### **Three criteria**

- Simplicity
- Impact
- Relevance

### **Things to focus on:**

- Devote each slide to a single fact



- Illustrate major points, not detailed data
- Do not show complicated things
- Minimum number of words
- Standard abbreviations
- Colors improve attractiveness, interest and clarity
- Contrasting colors
- No *italics* or UPPER CASE LETTERS
- Appropriate size of the font
- Spelling (E.g.: Massage vs. Message)
- ‘Left indent’ the title
- Use adequate spacing between lines
- Use your space. Balance and spread the slide content
- Animate texts and objects when necessary
- Keep everything simple

#### **When you are using tables:**

- Not more than 3-4 vertical columns
- Not more than 6-8 horizontal rows
- Do not use grid lines
- Prefer graphs, bar charts etc. over tables

#### **When you are using graphs:**

- Try not to have more than 1-2 curves, if well-separated have maximum of 3-4 curves
- Do not show data points unless they are mandatory
- Name each curve without using a legend
- Use colored graphs

#### **Background color and Font color**

Choice of the background and font colors is very important since colors evoke a whole range of emotions in the audience that lead the audience either to enjoy a certain setting, feel drawn to it or even reject a specific idea. Therefore, choosing harmonious and impactful color scheme is very important. The accent colors should be used to highlight a word or portion of a graphic. Do not overuse or they may become annoying.

E.g. Dark blue or dark purple as the predominant color on the screen and yellow and white texts and graphics have good contrast with the background.

#### **Font**

Selection of a suitable font is equally important. Fonts with uniform thickness are often used. E.g.

Arial  
Comic Sans MS  
Tahoma  
Impact

## **Animations**

- Link to a webpage, a program, picture etc.
- Use only when necessary. Over use of animations may become annoying.

## **Do not use**

- Bright colors
- Too many colors (max 3-4)
- Too many fonts
- Too many figures
- Too many animations and sounds

## **Summary**

- Slides must be simple and concise
- Preparation is not simple and time consuming
- Do not read slides or rely heavily on the slides
- Maintain eye contact and practice all the techniques of teaching

## **Referencing**

Follow the correct format given. Do not forget to cross check your references in the Poster/Slides and in the reference list. Use the following basic styles and make minor adjustments to match the particular format given to you.

- Poster: Harvard style.
- PowerPoint slides: Harvard style.



***MB 499: RESEARCH PROJECT***



## Project report/thesis formatting

The project report/thesis shall consist of the candidate's own account of his/her research. It must form a distinct contribution to knowledge and provide evidence of originality shown by the exercise of independent critical power and/or by the discovery of new facts. It must be satisfactory as regards literary presentation.

A candidate shall not submit a project report/thesis or part thereof, on which a degree has been already conferred upon him/her by the University of Peradeniya or any other university/institution. A candidate may incorporate into project report/thesis any of his/her published work, which has not already been embodied in an earlier report by him/her for the conferment of a degree.

When preparing the undergraduate report/thesis, can follow two formats;

1. Classical thesis format
2. Journal article or chapter format

### 1. Classical thesis format

In classical format each section of the report is written under a specific heading. In this format only one research can be reported.

### 2. Chapter format

If a candidate carryout more than one research during his/her allocated research period, then all these research articles can be reported in one thesis. This is called as chapter format. In this format, each research comes under separate chapter. There is a common chapter for introduction and a common chapter for conclusion(s).

In both these types the general formatting is the same as described below.

## Thesis submission

In the first instance the temporarily bound project report (one copy per each supervisor) should be submitted for evaluation. Final corrected version of the project report/thesis (one copy per each supervisor and department copy) should be submitted in properly bound form (hard bound/ leather bound).

## General Formatting

### Page settings

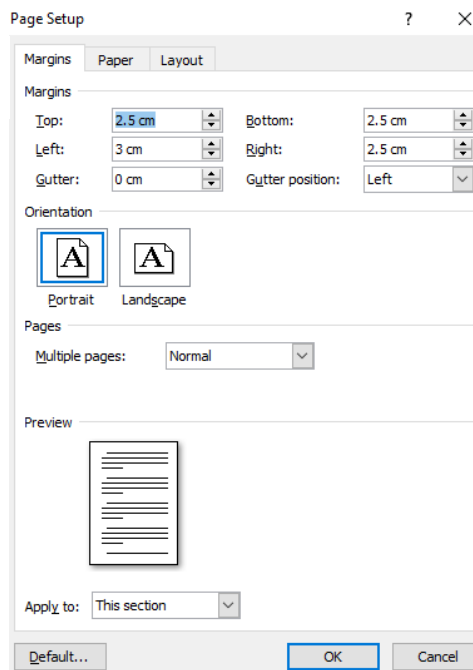
Each copy shall be on clear white **A4 sized (210 x 297mm)** paper. One type of paper must be used throughout the project report/thesis. All typing should be on one side of the paper.

### 1. Margins

Margins in each page must be maintained as mentioned in figure 9.

- Left-hand margin of **3 cm**; right hand, top and bottom margins of **2.5 cm** must be used throughout the project report/thesis.

**Figure 9 Margin settings in each page**



## 2. Numbering of pages

Each page in a thesis should be numbered in consecutive order. This includes illustrative material as well as text. All page numbers should be in **Times new Roman, 12 font size**.

**Prefatory pages** from title page to list of abbreviations must be numbered by lower case roman numbers. Number should appear at the bottom of the page (midpoint), 1 cm below the top-edge and 1 cm above the bottom-edge of the page.

- Title page
- Declaration
- Abstract
- Acknowledgement
- Table of contents
- List of tables
- List of figures
- List of abbreviations

**Main text pages** All the pages from Introduction to Appendix must be numbered using Arabic numerals (1, 2, 3, etc.). Numbering should be start with 1, should appear at the bottom of the page (midpoint), 1 cm below the top-edge and 1 cm above the bottom-edge of the page.

Check whether additional enter is there soon after the page number as mentioned in the figure 10, if so, please delete it.



**Figure 10 Additional Enter**

### 3. Number of pages

The total number of pages in the B.Sc. project report should not exceed **100pages** excluding Roman numbers.

### 4. Main topics and Sub topics

- Main topics should be written using **Times New Roman, size 14, bold and uppercase letters**,
- Sub topics and sub-sub topics should be written using **Times New Roman, size 12, bold and sentence-case letters**

### 5. Units

- Standard International units should be used. Unit symbols should be written after the numerical value, leaving a single space between the numerical value and unit. E.g.: 5 m, 3.5 kg, 0.1 mol dm<sup>-3</sup> etc.
- When indicate the temperature, use degree symbol in centigrade,  
  
e.g.: 27 °C (**Make sure not to use superscript of 0 (zero) as in 27 °C**)
- But, when expressing percentage values, please do not keep any space between the numerical value and the percentage (%) sign,  
  
e.g.: 70%, 95%, 2.5% etc.

### 6. Scientific Names

All the scientific names should be written in italics according to the general guidelines that are used when writing a scientific name. Few examples are given below.

e.g.: *Babesia canis*, *Babesia canis rossi*, *Oryza sativa*, *Homo sapience* etc.

In the first citation, genus, species and sub species if any must be given. But in later citations, the genus name could be abbreviated,

e.g.: *B. canis*, *B. canis rossi*, *O. sativa*, *H. sapience* etc.

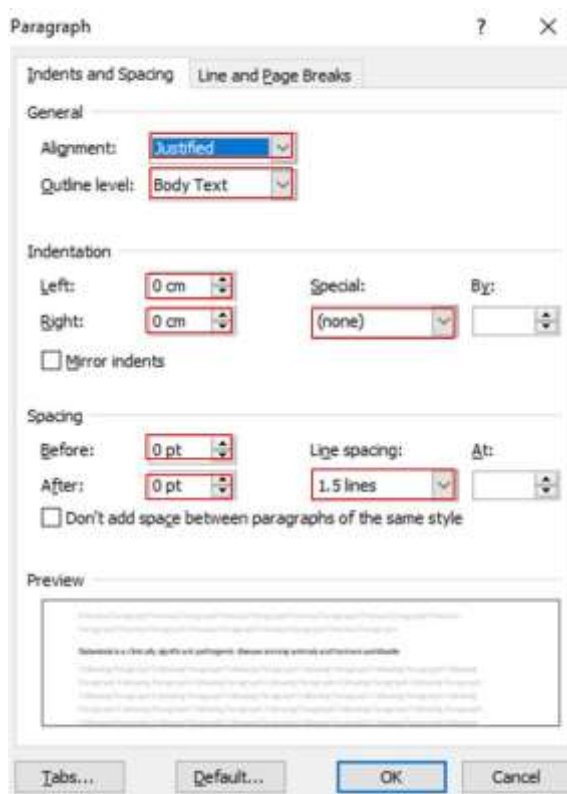
### 7. Main text

Main text should be written as paragraphs. Make sure to add one enter space to separate each paragraph.

- Font-Times New Roman
- Font size-12

Paragraph settings should be as in the figure 11.

**Figure 11 Paragraph settings**



## Title page

The title should be informative and descriptive of the work done. Two title pages should be appeared in the thesis/report. Title of the research thesis needs to be displayed at the top of the title page and title should be in the first line of the page. Title should be written in **Times new roman; font size-14, bold, uppercase letters and title should be aligned to center.**

If there are any scientific name/s included in the title, those scientific name/s should be written using lowercase italic letters except the first letter of the genus name, which is always needs to be capitalized. Title page of the thesis also carries the undergraduate candidate's name, the University/Institute which he/she was registered, the name of the degree and the year of the effective date of the degree (Figure 12 and 13).

*This box should not appear*

2.5 Cm

**TOPIC OF THE THESIS REPORT**

By

Name with initials

A REPORT  
In Partial Fulfillment of the Requirement of the Degree of Bachelor of Science  
Honors in Molecular Biology and Biotechnology

3.0 Cm

2.5 Cm

of

UNIVERSITY OF PERADENIYA SRI LANKA

Year of the effective date

2.5 Cm

**Figure 12 First inner title page of the thesis**



*This box should not appear*

2.5 Cm

**TOPIC OF THE THESIS REPORT**

By

FULL NAME

A REPORT

In Partial Fulfillment of the Requirement of the Degree of Bachelor of Science  
Honors in Molecular Biology and Biotechnology

3.0 Cm

2.5 Cm

of

UNIVERSITY OF PERADENIYA SRI LANKA

Year of the effective date

2.5 Cm

**Figure 13: Second inner title page of the thesis**

## Declaration page

Each project report/thesis should carry a declaration as specified in Figure 14.

*This box should not appear*

**DECLARATION**

I do hereby declare that the work reported in this project report was exclusively carried out by me under the supervision of (Name of the supervisor, Department, Faculty/Institute) and (Name of the co-supervisor, Department, Faculty/Institute). It describes the results of my own independent research project where due references have been made in the text. No part of this research has been submitted earlier or concurrently for the same or any other degree.

Name of the Candidate: .....

.....

Date ..... Signature of the Candidate .....

***Certified by***

Supervisor

Name: ..... Date: .....

Signature: ..... Date: .....

Co-Supervisor

Name: ..... Date: .....

Signature: ..... Date: .....

Head,

Department of Molecular Biology and Biotechnology,

Faculty of Science,

University of Peradeniya.

Name: ..... Date: .....

Signature: ..... Date: .....

**Department Stamp**

Figure 14: Declaration page of the thesis

## **Abstract**

Abstract represents the summary of the research project. This should include an introduction, a knowledge gap statement, objectives of the study, methodology, results, discussion, conclusion and future directions. This should not exceed 250 words (excluding keywords), Single line spacing.

## **Keywords**

Keywords should not exceed 6 words and should not be taken from the title of the report. Start first keyword with capital. Then all of others are simple except gene names and other trade names.

## **Dedication**

Dedication can be done according to his/her interest. Any font size and font style.

## **Acknowledgement**

The candidate shall acknowledge in the thesis the extent to which assistance has been obtained from others in the collection of material, design and construction of apparatus, performance of experiments, preparation of the thesis, financial support etc. This should follow a hierarchy starting from the supervisor(s). Inner circle can be acknowledged at the end of this section. No page limit. Do not mention methodology and negative things.

## **Table of Content**

Single spacing and tab option must be followed throughout the table of content as indicated in figure 15. Index numbers should be right align. Major topic should be in uppercase letters. Minor topics should be in lowercase letters. Font Size 12. Between the major topics, line spacing should be 1.5.

## **List of Tables**

Caption must be limited to maximum 2 lines. Formatting must be same as above (see figure 16).

## **List of Figures**

Formatting is as indicated in List of Tables (Figure 17). Must indicate all the descriptive figure captions.

TABLE OF CONTENTS		
Major topics- Times New Roman (12, uppercase, bold), 1.5 line spacing	DECLARATION .....	iii
	DEDICATION .....	v
	ACKNOWLEDGEMENTS .....	vi
	TABLE OF CONTENTS .....	vii
	LIST OF TABLES .....	viii
	LIST OF FIGURES .....	ix
	LIST OF ABBREVIATIONS .....	xii
Minor topics- Times New Roman (12), single line spacing	1. INTRODUCTION .....	1
	2. REVIEW OF LITERATURE .....	4
	2.1 Sub topic 1 .....	4
	2.1.1 Sub sub topic 1.1 .....	4
	5.3 Sub topic 2 .....	4
	2.1.1 Sub sub topic 2.1 .....	4
	3. MATERIALS AND METHODS .....	5
	3.1 Smple collection .....	5
	3.2 DNA extraction .....	5
	4 RESULTS .....	7
	4.1 Sample collection .....	7
	4.2 DNA extraction .....	7
	5 DISCUSSION .....	9
	6 CONCLUSIONS AND FUTURE DIRECTIONS .....	12
	REFERENCES .....	14
APPENDIX I .....	18	
APPENDIX II .....	19	

Figure 15 Table of Content page of the thesis/report

LIST OF TABLES		
1.5 line spacing	Table 2.1	Table caption 1 ..... 19
	Table 3.1	Table cation 2 ..... 46
single line spacing	Table 3.2	Table cation 3 # Table cation 3 # Table cation 3 # Table cation 3 # Table caption 3 ..... 50

Figure 16 List of table page formatting for the thesis/report

LIST OF FIGURES		
1.5 line spacing	Figure 2.1	Figure caption 1.....32
	Figure 3.1	Figure caption 2# Figure caption 2# Figure caption 2# Figure caption 2# Figure caption 2# Figure caption 2# Figure caption 2# Figure caption 2# Figure caption 2#.....49
single line spacing	Figure 3.2	Figure caption 3# Figure caption 3# Figure caption 3# Figure caption 3# Figure caption 3# Figure caption 3# Figure caption 3# Figure caption 3# Figure caption 3#.....51

Figure 17 Table of Figures page formatting of the thesis/report.

## List of Abbreviations

If abbreviations are used in the text, include them in this section with the words or phrases denoted by the abbreviation, ascending in alphabetical order. Between the abbreviation and its meaning, there should be a one-inch tab.

## Introduction

Should contain a general introduction of the research area including its scientific background, significance, and objectives of the research project. Introduction shall clearly indicate the problem(s) that the research seeks to address a knowledge gap statement and justification of the research. Final paragraph of the introduction is devoted to the objective(s)

of the research project. Maximum number of pages allowed is two. Line spacing -1.5, between paragraphs have to give a one enter space.

## Review of Literature

Number of pages spared for the review of literature lies within the rage of 20 – 25 pages. Candidate shall mainly use primary research articles of last **FIVE** years. Depending on the area of research, older articles can be used if essential.

## Materials and methods

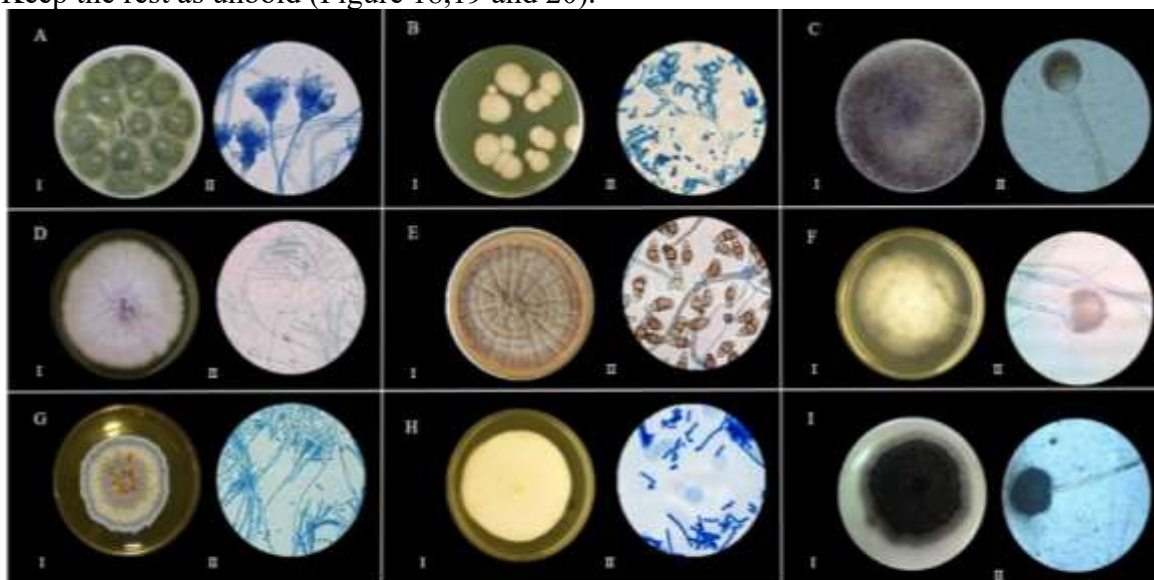
This section is a combination of both materials and methods. At each methodological sentence, the materials used are indicated. Number of pages used for this section depends on the methodology. Usually 15-20 pages are allocated. No space between the topic and the paragraph.

## Results

Present only the essential results. Results must cover the objective(s) of the research project. Candidate is strongly advised to present the results as they are. No explanation of results should be done under this section.

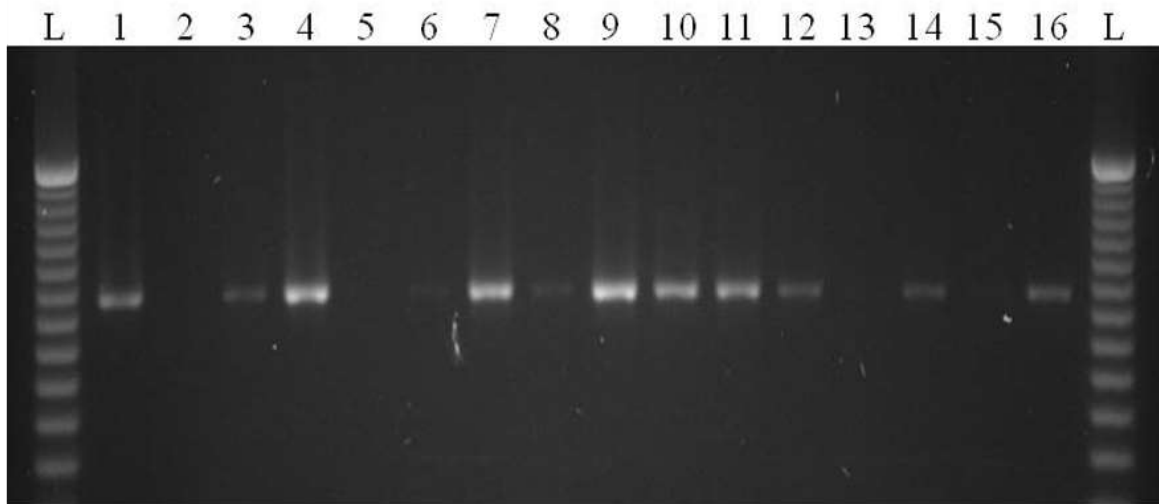
### • Figures

Not needed to include borders for figures. Figure caption must be in Times New Roman and font size 10. Figure has to be center aligned. Single line spacing for caption. Each figure and table must be cited within the text. Use bold font for figure number and for the topic sentence. Keep the rest as unbold (Figure 18,19 and 20).



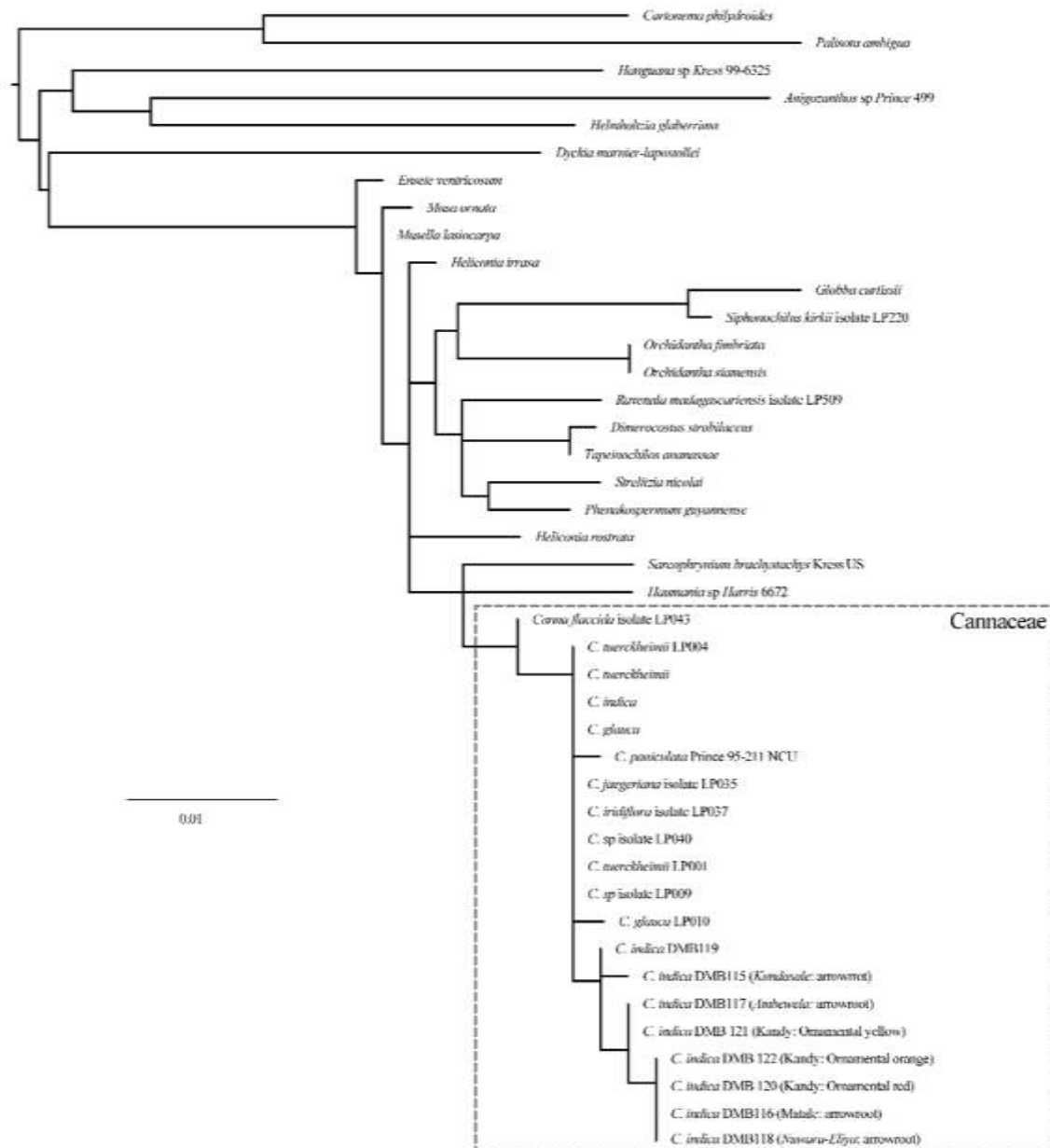
**Figure 2.4 Morphological Differences of fungi in the PDA plates and side culture observation with Lacto Phenol Blue.** A: *Aspergillus flavus*; B: *Candida albicans*; C: *Rhizopus* sp.; D: *Fusarium* sp.; E: *Curvularia* sp.; F: *Mucor* sp.; G: *Penicillium* sp.; H: *Geotrichum* sp.; I: *Aspergillus niger*. I: Colony morphology on PDA plates; II: Side culture observation with lactophenol blue.

Figure 18 Illustrates an example for editing a composite image for thesis/ project report



**Figure 2 Detection of *Babesia* sp. by using PCR amplification products of the 18S rRNA gene from selected dog blood DNA.** The amplification was done using genus-specific forward primer *BJ1* and reverse primer *BN2*. The presence or absence of bands was visualized in a 2% agarose gel with 50bp molecular markers (L). Lanes 3-16, showing PCR products from dog blood DNA that was infected or uninfected with the *Babesia* parasite. Lane 1, positive control for *Babesia*; lane 2, no template (negative control); lanes 3, 4, 6, 7, 8, 9, 10, 11, 12, 14, 16 test samples showing positive PCR products of *Babesia* sp; and lanes 5, 13, 15 showing negative test samples.

**Figure 19 Illustrates an example for gel image editing format for thesis report**



**Figure 2 The phylogenetic structure of *Canna* spp. in Sri Lanka.** *rbcL* phylogram showing the phylogenetic position of *Canna* spp. inhabited in Sri Lanka

Figure 20 Illustrates an example for phylogenetic tree image editing format for thesis report

- **Tables**

Recommended table font is Times new roman, 10. Use bold font for table numbers. Each table must be cited within the text (Figure 21 and 22).



**Table 2.3 Different types of genes that encoding fungal lipases**

Fungal Strain	Lipase Encoding Genes	Special Features	References
<i>Aspergillus flavus</i> <i>Aspergillus parasiticus</i>	<i>lipA</i>	<ul style="list-style-type: none"> <li>Gene is transcribed under diverse media conditions</li> </ul>	Yu <i>et al.</i> , (2003)
<i>Aspergillus tamarii</i> FS132	<i>atl</i>	<ul style="list-style-type: none"> <li>Have an open reading frame of 1024bp</li> <li>The coding region contains two introns (51bp and 52 bp)</li> </ul>	Shi <i>et al.</i> , (2010)
<i>Candida albicans</i>	<i>LIP1-LIP10</i>	<ul style="list-style-type: none"> <li>Encodes the lipases that are needed in the infection</li> <li>Some <i>LIP</i> are upregulated in the throughout the infection process</li> </ul>	Stehr <i>et al.</i> , (2004)
<i>Candida deformans</i>	<i>CdLIP1</i> , <i>CdLIP2</i> , <i>CdLIP3</i>	<ul style="list-style-type: none"> <li>All 3 has Gly-His-Ser-Leu-Gly-(Gly/Ala) conserved motif</li> <li><i>CdLIP1</i> encode the extracellular lipase</li> <li>Products of those 3 genes (lipases) are similar to lipases from <i>Yarrowia lipolytica</i></li> </ul>	Bigey <i>et al.</i> , (2003)
<i>Candida parapsilosis</i>	<i>CpLIP1</i> , <i>CpLIP2</i>	<ul style="list-style-type: none"> <li>Contain the consensus motif of G-X-S-X-G</li> <li><i>CpLIP2</i> only code for one active protein</li> </ul>	Vakhlu and Kour, (2006)
<i>Candida rugosa</i>	<i>lip1</i> , <i>lip3</i> , <i>lip2</i> , <i>lip4</i> , <i>lip5</i>	<ul style="list-style-type: none"> <li>Sequence patterns are closely related</li> <li><i>lip1</i> and <i>lip3</i> highly constitutively expressed</li> </ul>	Lee <i>et al.</i> , (1999)
<i>Fusarium graminearum</i>	<i>LIP1</i>	<ul style="list-style-type: none"> <li>Encoding a triglyceride lipase</li> <li>The promoter region is within the 563bp upstream of the coding region</li> <li>Cis acting elements within the P563 and P537</li> </ul>	Feng <i>et al.</i> , (2011)
<i>Malassezia furfur</i>	<i>MfLIP1</i>	<ul style="list-style-type: none"> <li>Consists of 1464bp</li> <li>Encodes the extracellular lipase</li> </ul>	Brunke and Hube, (2006)
<i>Malassezia restricta</i>	<i>MrLIP1</i>	<ul style="list-style-type: none"> <li>Encodes the Lipase 1 homolog of the fungi</li> <li>915bp in length</li> </ul>	Park <i>et al.</i> , (2015)
<i>Penicillium expansum</i>	<i>lipPE</i>	<ul style="list-style-type: none"> <li>encodes a novel lipase from <i>Penicillium expansum</i></li> <li>It is an extracellular cold-active lipase</li> </ul>	Mohammed <i>et al.</i> , (2013)
<i>Yarrowia lipolytica</i>	<i>LIP2</i>	<ul style="list-style-type: none"> <li>Encode 334 amino acids</li> <li>Encode extracellular Lip2p</li> </ul>	Pignède <i>et al.</i> , (2000)

**Figure 21 Table formatting for thesis**

**Table 4.2** The variation of mean leaf blade length and mean leaf blade width of 12 rice genotypes in *Maha* season

Variety	Mean leaf blade length (cm)					Mean leaf blade width (cm)				
	Age (weeks) since establishment									
	3	6	9	12	15	3	6	9	12	15
At362	24.77 <sup>c</sup>	48.20 <sup>b</sup>	48.99 <sup>c</sup>	50.60 <sup>a</sup>	–	0.70 <sup>a</sup>	1.22 <sup>a</sup>	1.22 <sup>b</sup>	1.29 <sup>a</sup>	–
Bg300	27.83 <sup>c</sup>	47.58 <sup>b</sup>	48.55 <sup>c</sup>	51.10 <sup>a</sup>	–	0.72 <sup>a</sup>	1.16 <sup>a</sup>	1.16 <sup>b</sup>	1.22 <sup>a</sup>	–
Bg366	28.80 <sup>c</sup>	45.84 <sup>b</sup>	46.81 <sup>c</sup>	47.28 <sup>a</sup>	–	0.74 <sup>a</sup>	1.14 <sup>a</sup>	1.13 <sup>b</sup>	1.20 <sup>a</sup>	–
Bg90-2	28.31 <sup>c</sup>	44.27 <sup>b</sup>	45.50 <sup>c</sup>	45.50 <sup>a</sup>	–	0.79 <sup>a</sup>	1.20 <sup>a</sup>	1.22 <sup>b</sup>	1.26 <sup>a</sup>	–
At307	26.40 <sup>c</sup>	43.67 <sup>b</sup>	46.06 <sup>c</sup>	42.79 <sup>a</sup>	–	0.83 <sup>a</sup>	1.29 <sup>a</sup>	1.29 <sup>b</sup>	1.32 <sup>a</sup>	–
Bg310	30.21 <sup>c</sup>	49.69 <sup>b</sup>	50.33 <sup>c</sup>	49.30 <sup>a</sup>	–	0.77 <sup>a</sup>	1.29 <sup>a</sup>	1.27 <sup>b</sup>	1.20 <sup>a</sup>	–
Bg352	25.13 <sup>c</sup>	43.42 <sup>b</sup>	43.96 <sup>c</sup>	43.58 <sup>a</sup>	–	0.77 <sup>a</sup>	1.41 <sup>a</sup>	1.38 <sup>a</sup>	1.42 <sup>a</sup>	–
Bw367	25.33 <sup>c</sup>	42.77 <sup>b</sup>	43.91 <sup>c</sup>	43.50 <sup>a</sup>	–	0.73 <sup>a</sup>	1.23 <sup>a</sup>	1.23 <sup>b</sup>	1.25 <sup>a</sup>	–
Bg250	24.41 <sup>c</sup>	44.12 <sup>b</sup>	45.20 <sup>c</sup>	39.25 <sup>a</sup>	–	0.72 <sup>a</sup>	1.35 <sup>a</sup>	1.35 <sup>a</sup>	1.35 <sup>a</sup>	–
Bw272-6b	28.99 <sup>c</sup>	51.85 <sup>b</sup>	54.00 <sup>b</sup>	55.00 <sup>a</sup>	–	0.63 <sup>a</sup>	1.22 <sup>a</sup>	1.21 <sup>b</sup>	1.14 <sup>a</sup>	–
<i>Pachchaperumal</i>	39.26 <sup>a</sup>	58.04 <sup>a</sup>	59.13 <sup>a</sup>	48.00 <sup>a</sup>	–	0.66 <sup>a</sup>	0.92 <sup>b</sup>	0.96 <sup>c</sup>	0.90 <sup>a</sup>	–
<i>Saradhal</i>	33.66 <sup>b</sup>	58.34 <sup>a</sup>	59.58 <sup>a</sup>	51.40 <sup>a</sup>	–	0.73 <sup>a</sup>	1.27 <sup>a</sup>	1.24 <sup>b</sup>	1.00 <sup>a</sup>	–

Means denoted by the same letters within the column are not significantly different at  $P < 0.05$

**Figure 22** Example for statistical data table

## Discussion

Use 5-6 pages for this section. Under the discussion, discuss the obtained results, compare the results for similarities and differences with other similar studies and discuss the drawbacks and errors obtained during the experiments.

## Conclusions and Future Directions

Should really answer the objectives and future aspects of the research. Maximum 2-3 pages.

## References

NO need to number as “7. References”. Should be arranged in alphabetically order. If there are more than one publication by the same author(s) in the same year, a, b, c, etc. should appear after the year. Any reference that have been cited in the text must be included in the list of references. Citations and reference types are as below. Single line spacing with 0.5 cm hanging.

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Arines, J., Vilorino, A. and Saing, M. (1989). Effect of different inocula of VAM fungi on manganese content and concentration in red clover plants. *New Phytologist* 112(2): 215-219.

### When the articles do not carry an issue number:

Dissanayake, M.A.K.L., Jaseetharan, T., Senadeera, G.K.R., Thotawatthage, C.A. (2018). A novel, PbS:Hg quantum dot-sensitized, highly efficient solar cell structure with triple layered TiO<sub>2</sub> photoanode. *Electrochimica Acta* 269:172-179 DOI <https://doi.org/10.1016/j.electacta.2018.02.140>

Yamaguchi, F., Ariga, T., Yoshimura, Y. and Nakazawa, H. (2000). Antioxidative and anti-glycation activity of garcinol from *Garcinia indica* fruit rind. *Journal of Agricultural and Food Chemistry* 48: 180-185. <https://doi.org/10.1021/jf990845y>

Watanabe, M., Gangitano, E., Francomano, D., Addessi, E., Toscano, R., Costantini, D., Tuccinardi, D., Mariani, S., Basciani, S., Spera, G. and Gnessi, L. (2018). Mangosteen extract shows a potent insulin sensitizing effect in obese female patients: a prospective randomized controlled pilot study. *Nutrients* 10: 586. <https://dx.doi.org/10.3390%2Fnu10050586>.

**Book:**

Humason, G. L. (2003). *Animal Tissue Techniques*. W. H. Freeman and Co. San Francisco, 468

**Book chapter:**

Lapage, S. P., Shelton, J.E. and Mitchell, T.G. (1970). Media for the maintenance and preservation of bacteria. In: J.R. Norris and D.W. Ribbons (Eds.), *Methods in Microbiology*, Academic Press, London Pp. 1-133.

**Proceedings of Symposia:**

Wild, B. (1993). Cycloheximide and phosphonate effects on the susceptibility of citrus fruit to green mold decay. *Proceedings of International Symposium on the Physiological Basis of Postharvest Technologies*, Davis, California, Pp.353-356. 5

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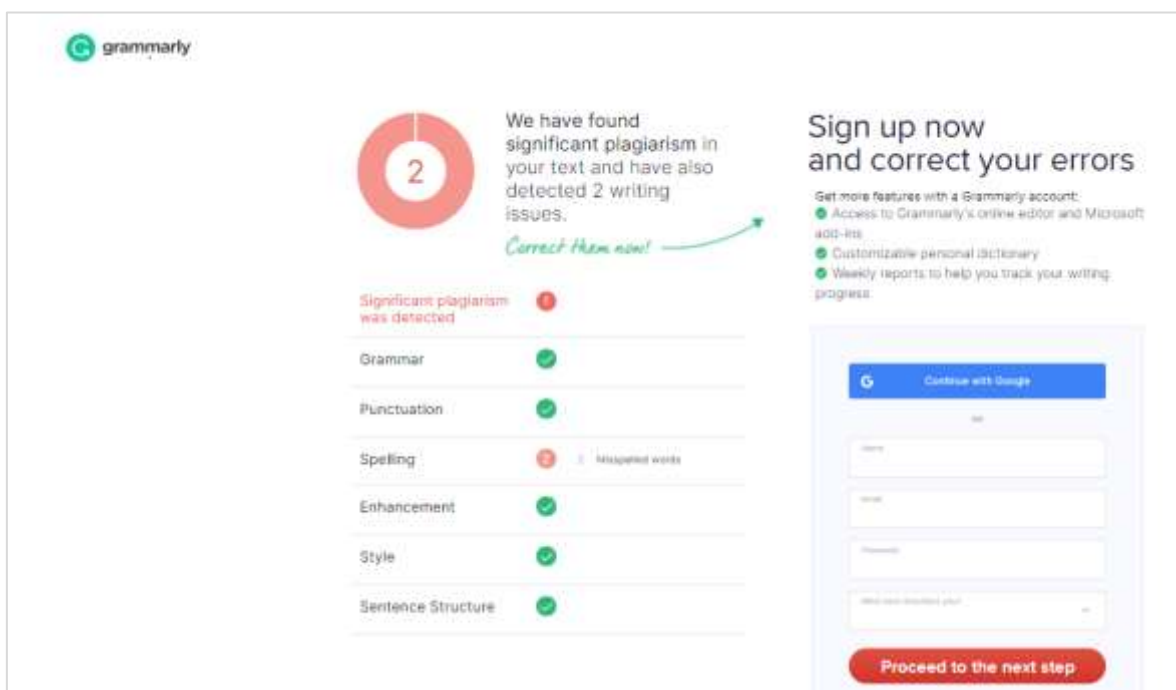


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