

# TARCH

TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH

**MODULE VOLUME 2**

## Keeping your research organised

DR. NOORUL JANNAH ZAINUDDIN | SYAHIRAH YAHYA | RAZ ZARINDA MOHD RASHID



DR. NOORUL JANNAH ZAINUDDIN

SYAHIRAH YAHYA

RAZ ZARINDA MOHD RASHID

Politeknik Tun Syed Nasir Syed Ismail  
Hab Pendidikan Tinggi Pagoh,  
KM 1, Jalan Panchor, 84600 Pagoh,  
Johor Darul Takzim.



# TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - MODULE VOLUME 2

Author:

DR. NOORUL JANNAH ZAINUDDIN

SYAHIRAH YAHYA

RAZ ZARINDA MOHD RASHID

Editor: Raz Zarinda Mohd Rashid

Cover Photo: Syahirah Yahya

**FIRST PUBLISHED IN 2024**

ALL RIGHTS RESERVED. Any unauthorized reprint or use of this material is prohibited. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system without express written permission from the author/publisher.

ISBN 978-967-2736-37-0

Published by:

**Politeknik Tun Syed Nasir Syed Ismail**

Hab Pendidikan Tinggi Pagoh,

KM 1, Jalan Panchor, 84600 Pagoh,

Johor Darul Takzim.

Tel: 06-974 2288 Fax: 06-974 2395



Cataloguing-in-Publication Data

Perpustakaan Negara Malaysia

A catalogue record for this book is available  
from the National Library of Malaysia

eISBN 978-967-2736-37-0

# PREFACE

**TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - MODULE VOLUME 2** is a text written by the instructors of DMK40142 (*Project 1 – Proposal and Research Methodology*), DMT40162 (*Seminar*), DMK50203 (*Project 2 – Implementation and Evaluation*) and DMT50194 (*Project*) courses in Department of Chemical and Food Technology, Politeknik Tun Syed Nasir Syed Ismail. This book is a continuation of *TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - MODULE VOLUME 1*. The content of the module consists of the step-by-step guidance to present the obtained data from the designed research project starting from:-

- **CHAPTER 5: RESULTS AND DISCUSSION**
- **CHAPTER 6: CONCLUSION AND RECOMMENDATIONS**
- **CHAPTER 7 : REPORT WRITING**

The book highlights the concept of student-centric approach and contributes to pedagogical advancements in research education discourse. This book aims to help new students who are starting their research journey by guiding them in presenting their main points, discussing their results, drawing conclusions from their research, and providing recommendations for future studies. In Politeknik Tun Syed Nasir Syed Ismail, this book is focusing on Semester 5 of Diploma and Semester 2 of Foundation in Engineering Technology.

The complete techniques starting from *TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - MODULE VOLUME 1*, followed by *TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - MODULE VOLUME 2*, complement with *TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - PROGRESSION FORM*, providing the use of teaching aids and measurement to assess the impact of the content on both educators and students.

Finally, we welcome comments and suggestions from all parties, particularly fellow academics, to enhance future editions of the book. Your input is valuable for improving future editions of the book.

**Authors,**

**DR. NOORUL JANNAH ZAINUDDIN**  
**SYAHIRAH YAHYA**  
**RAZ ZARINDA MOHD RASHID**



# ACKNOWLEDGEMENT

Alhamdulillah, TARCh has finally been published. As a sign of gratitude, we would like to express our appreciation to the wonderful people who supported our journey in completing this book.

At the top of the list is our Head of the Department of Chemical and Food Technology, Politeknik Tun Syed Nasir Syed Ismail, Ts. Sazaliana Binti Sopian, for her encouragement, support, and permission to test run the module in the department.

The second appreciation goes to the lecturers and students who have been incredibly supportive and cooperative in utilizing the technique in the teaching and learning sessions. Their feedback and suggestions have been the driving force behind the creation of this technique.

We are also very grateful to our team involved in publishing this book, particularly our language checkers, Madam Rohaya binti Mohamed Bahari and Miss Wirdawati binti Ahmad @ Mohd Isa. Thank you for your guidance in the publication process.

Last but not least, special recognition goes to our families for their tremendous support in our work and studies. Your unwavering encouragement has been invaluable.

Our biggest hope is that this technique will guide and assist future researchers in starting their exciting research journeys. Best wishes and happy exploring.

## AUTHORS,

**Dr. Noorul Jannah binti Zainuddin**  
**Syahirah Yahya**  
**Raz Zarinda binti Mohd Rashid**



# USER GUIDELINE TARCh MODULE VOL. 1

**1**

**MODULE 1**

**2**

**INSTRUCTIONAL/ TEACHING SESSION  
CONDUCTED BY LECTURER FOR CHAPTER 1**

**3**

**STUDENT CENTRIC ACTIVITY USING  
PROGRESSION FORM 1**

**4**

**REVIEW SESSION LED BY LECTURER  
DISCUSSING THE PROGRESSION FORM 1  
IN CLASS**

**5**

**SELF-EDITING THE  
PROGRESSION FORM 1**

**6**

**DISCUSSION PROGRESSION FORM 1 WITH  
SUPERVISOR**  
\*RETURN TO PREVIOUS STEP FOR IMPROVEMENT

**7**

**INSTRUCTIONAL/ TEACHING SESSION  
CONDUCTED BY LECTURER FOR CHAPTER 2**

**8**

**STUDENT CENTRIC ACTIVITY USING  
PROGRESSION FORM 2**



# **USER GUIDELINE TARCh MODULE VOL. 1**

**9**

**REVIEW SESSION LED BY LECTURER  
DISCUSSING THE PROGRESSION FORM 2  
IN CLASS**

**10**

**SELF-EDITING THE  
PROGRESSION FORM 2**

**11**

**DISCUSSION PROGRESSION FORM 2 WITH  
SUPERVISOR**  
\*RETURN TO PREVIOUS STEP FOR IMPROVEMENT

**12**

**INSTRUCTIONAL/ TEACHING SESSION  
CONDUCTED BY LECTURER FOR CHAPTER 3**

**13**

**STUDENT CENTRIC ACTIVITY USING  
PROGRESSION FORM 3**

**14**

**REVIEW SESSION LED BY LECTURER  
DISCUSSING THE PROGRESSION FORM 3  
IN CLASS**

**15**

**SELF-EDITING THE  
PROGRESSION FORM 3**

**16**

**DISCUSSION PROGRESSION FORM 3 WITH  
SUPERVISOR**  
\*RETURN TO PREVIOUS STEP FOR IMPROVEMENT



# **USER GUIDELINE TARCh MODULE VOL. 1**

**17**

**INSTRUCTIONAL/ TEACHING SESSION  
CONDUCTED BY LECTURER FOR CHAPTER 4**

**18**

**PROPOSAL DEFENCE  
PRESENTATION SLIDE REVIEWED BY  
SUPERVISOR USING PROGRESSION FORM 4.1**

**19**

**STUDENT CENTRIC ACTIVITY ON  
PROPOSAL WRITING**

**20**

**PROPOSAL REVIEWED BY SUPERVISOR  
USING PROGRESSION FORM 4.2**

**21**

**MODULE 2**



# USER GUIDELINE TARCh MODULE VOL. 2

**21**

MODULE 2

**22**

(Objective 1)  
STUDENT CENTRIC ACTIVITY USING  
PROGRESSION FORM 5

**23**

DISCUSSION PROGRESSION FORM 5 WITH  
SUPERVISOR  
\*RETURN TO PREVIOUS STEP FOR IMPROVEMENT

**24**

(Objective 2)  
STUDENT CENTRIC ACTIVITY USING  
PROGRESSION FORM 5

**25**

DISCUSSION PROGRESSION FORM 5 WITH  
SUPERVISOR  
\*RETURN TO PREVIOUS STEP FOR IMPROVEMENT

**26**

(Objective 3)  
STUDENT CENTRIC ACTIVITY USING  
PROGRESSION FORM 5  
*\*If applicable*

**27**

DISCUSSION PROGRESSION FORM 5 WITH  
SUPERVISOR  
\*RETURN TO PREVIOUS STEP FOR IMPROVEMENT

**28**

STUDENT CENTRIC ACTIVITY USING  
PROGRESSION FORM 6



# USER GUIDELINE TARCh MODULE VOL. 2

**29****DISCUSSION PROGRESSION FORM 6 WITH  
SUPERVISOR****\*RETURN TO PREVIOUS STEP FOR IMPROVEMENT****30****FULL REPORT WRITING****FINISH**



# USER TIMELINE

Plan your research timeline according to your study learning time (SLT) in your course information.

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
PF 1 Brainstorming TARCh – Module Volume 1 (CHAPTER 1)	Introduction																												
	Brainstorming idea																												
	Problem statement																												
	Objective																												
	Scope of Study																												
PF 2 Literature Review TARCh – Module Volume 1 (CHAPTER 2)	Title																												
	DISCUSSION PF 1 WITH SUPERVISOR																												
	Point Out Keyword																												
	Research Question																												
	Scholar Finding and Reference																												
PF 3 Methodology TARCh – Module Volume 1 (CHAPTER 3)	Create Related Subtopic																												
	Rearrangement of LR content																												
	DISCUSSION PF 2 WITH SUPERVISOR																												
	Research Framework																												
	List of Methods																												
PF 4 Compilation of Research TARCh – Module Volume 1 (CHAPTER 4)	Procedure for Each Method																												
	Chemical and Apparatus Listing by Method Category																												
	Accumulation of Chemical Cost Estimation																												
	DISCUSSION PF 3 WITH SUPERVISOR																												
	Presentation (PF 4.1)																												
PF 4 Compilation of Research	Writing Proposal (PF 4.2)																												


 Pedagogical Method
  Student-Centric Approach
  Supervision





# TABLE OF CONTENT

<b>Preface</b>	<b>i</b>
<b>Acknowledgement</b>	<b>ii</b>
<b>User Guideline</b>	<b>iii</b>
<b>User Timeline</b>	<b>viii</b>
<b>Chapter 5: Results and Discussion</b>	<b>1</b>
<b>Chapter 6: Conclusion and Recommendations</b>	<b>15</b>
<b>Chapter 7 : Report Writing</b>	<b>20</b>
<b>Bibliography</b>	<b>30</b>
<b>Author's Biography</b>	<b>31</b>

The page features abstract geometric shapes in teal and yellow. In the top right corner, there are several overlapping chevron-like shapes pointing downwards and to the right. In the bottom left corner, there are similar shapes, including a large teal triangle and several yellow and teal bars of varying lengths and orientations.

# CHAPTER 5

# RESULTS &

# DISCUSSION

COMPARISON OF RESULT AND DISCUSSION  
RESULT AND DISCUSSION WRITING TEMPLATE  
WRITING RESULT AND DISCUSSION USING  
CHATGPT





# CHAPTER 5

## Result and Discussion

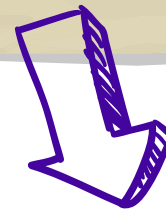
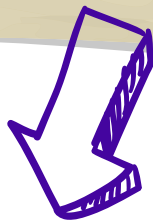
### INTRODUCTION:

In academic writing, result and discussion section is a vital part that **present** and **interpret** the findings of your research.

**Result**



**Discussion**



Research findings based on the information gathered. (WHAT ?)

**EXAMPLE 1**

Metal A and B displayed different effects after being treated with a water solution for one hour where **metal B became rusty and changed its original color**

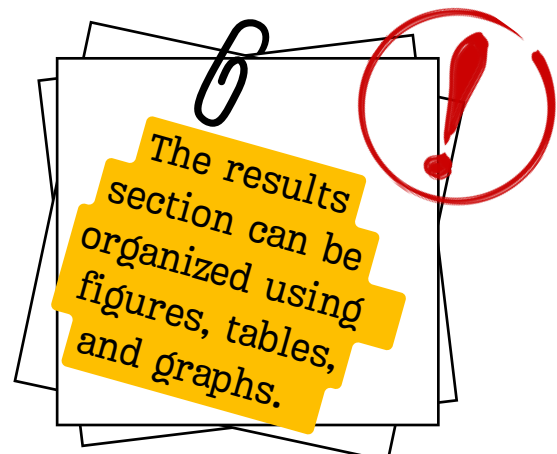
Interpretation / explanation of the findings (HOW / WHY ?)

**EXAMPLE 1**

Physical changes that happen to metal B are **due to the corrosion process**. The four main factors that affect corrosion are the **presence of impurities on the metal surface, variations in temperature around the metal and inappropriate surface conditions**



Figure 1 : Two types of metals with different physical conditions



# Result **VS** Discussion

Research findings based on the information gathered. (WHAT ?)

## EXAMPLE ②

In the stability study, the formulated emulsion displayed two separate layers consisting of oil and bluish water.

Interpretation / explanation of the findings (HOW / WHY ?)

## EXAMPLE ②

Emulsion became **unstable** and separated due to **insufficient amount of emulsifier**

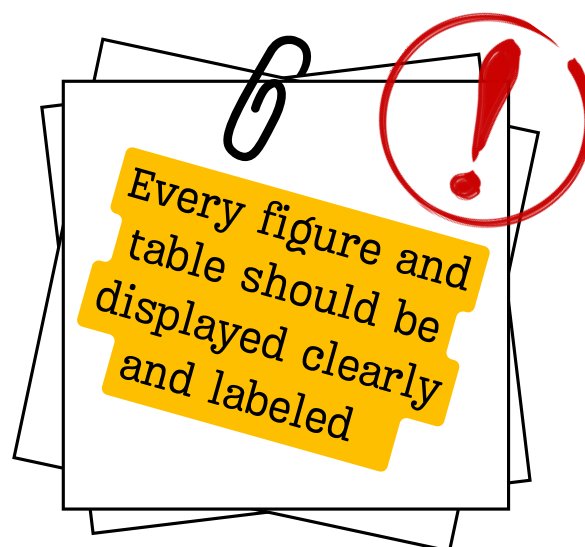
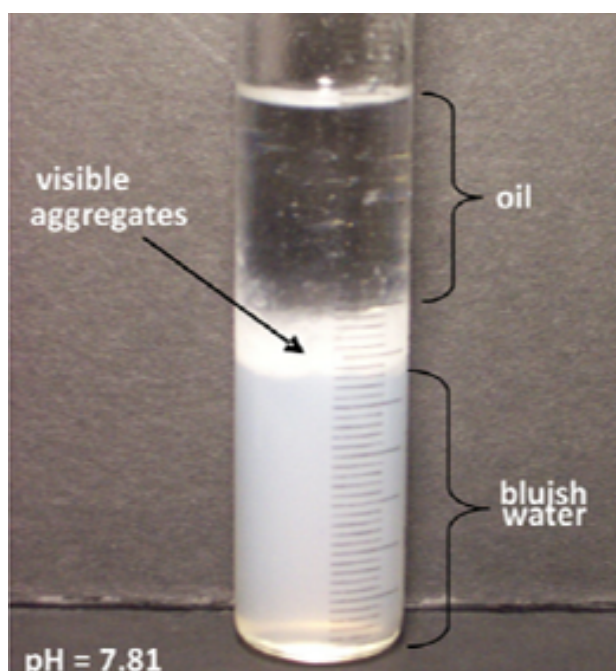


Figure 2 : The formulated emulsion after stability study



# TEMPLATE FOR RESULT AND DISCUSSION

RMRC  
Technique

## 1. RESULT

State your result in the form of statement/ table/ graph/ spectrum/ others

## 2. MAIN FINDINGS

Statement of the result-WHAT

## 3. REASON

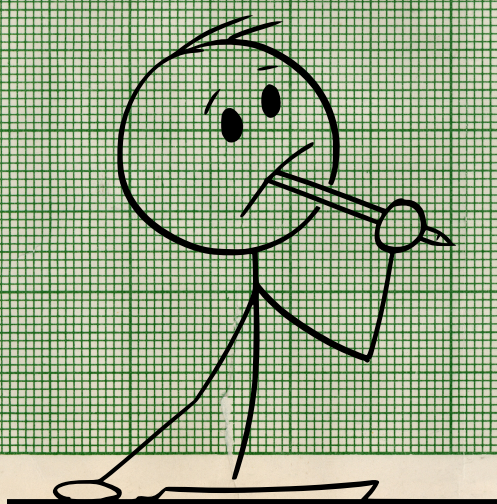
Importance of your Finding – (WHY/ HOW)

## 4. CURRENT STUDIES

Relationships among result studies – (Correlation / Connection)

## 5. LITERATURE STUDIES

Relationships with other result studies – (Correlation / Connection)



# RESULT AND DISCUSSION

## WRITING

EXAMPLE

1

According to Figure 1, the reformulated bakery products elaborated with whole flours, intending to increase the fiber amount, showed great differences in color compared to the control ones. Crust color is affected by the Maillard reaction between reducing sugars and amino acids during baking. The lighter color of the crust in the reformulated product could be due to the higher moisture content of this product. The result is in agreement with differences found for crust color measures (see Figure S1, Supplementary Materials). The  $L^*$ ,  $b^*$ , and hue values were higher in reformulated products, whereas  $a^*$  was higher in control products. Differences in  $CieL^*a^*b^*$  measures for crust and crumb have also been reported in vegan muffins (Rahman et al.2020).

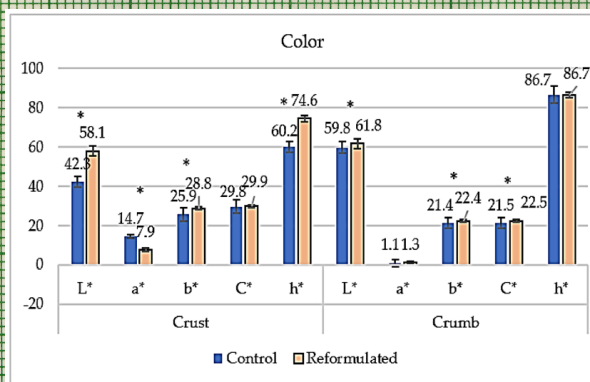


Figure 3. Color parameters of control and reformulated cakes. The results are expressed as mean values.



Figure S1. Control and reformulated cake

\*Figure 3 and S1 was adapted from : Rahman et al. 2020



# RESULT AND DISCUSSION

## WRITING

EXAMPLE 2

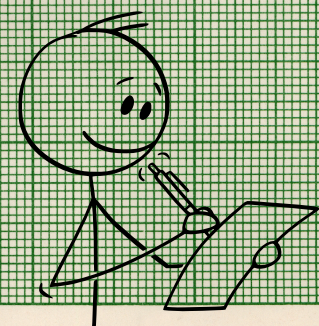
The use of aloe vera in nano-emulsions had significant effects on their radical scavenging activity ( $p < 0.05$ ). It can be seen in Table 3 that the antioxidant activity of the nano-emulsions increased with increasing aloe vera concentration. Previous studies have shown that aloe vera owes its antioxidant property due to the presence of compounds such as polysaccharides and flavonoids (Hu et al. 2003). According to particle size analysis, antioxidant activity is higher in a smaller particle size which is the nano-emulsion compared to regular emulsion. Previously, Liu et al. 2018 found that antioxidant activity can be affected by particle size due to maximum surface area, which in turn enhances the transfer of bioactive compounds into the formulation.

Table 3. DPPH Radical scavenging activity of nanoemulsions produced with different concentrations of *Aloe vera* and eugenol

Aloe vera (g/L)	Eugenol (mL/L)	Nano emulsion	Regular emulsion
0	0	0.00 <sup>Cc</sup> ± 0.00	0.00 <sup>Ca</sup> ± 0.00
	15	70.89 <sup>Bc</sup> ± 1.56	61.58 <sup>Bc</sup> ± 1.35
	30	75.67 <sup>Ac</sup> ± 1.49	69.13 <sup>Ac</sup> ± 1.32
10	0	0.99 <sup>Cb</sup> ± 0.02	0.24 <sup>Ca</sup> ± 0.02
	15	78.89 <sup>Bb</sup> ± 2.22	71.38 <sup>Bb</sup> ± 1.10
	30	89.12 <sup>Ab</sup> ± 0.89	82.96 <sup>Ab</sup> ± 1.63
20	0	2.21 <sup>Ca</sup> ± 0.16	1.26 <sup>Ca</sup> ± 0.11
	15	80.29 <sup>Ba</sup> ± 2.95	76.32 <sup>Ba</sup> ± 1.58
	30	97.04 <sup>Aa</sup> ± 0.94	95.65 <sup>Aa</sup> ± 1.68

Different capital letter shows the difference between eugenol concentration and different small letters shows difference between *Aloe vera* concentrations ( $P < 0.05$ ).

Make sure all facts are cited, with all citations from the last five years



\*Table 3 was adapted from : Liu et al. 2020

## Writing result and discussion by using ChatGPT



### Understand your requirements:

Clearly define your  
needs.

### Focus :

Focus the topic into a  
specific or single task  
to receive a relevant  
response.

### Add related information

Provide necessary  
background  
information to help  
ChatGPT understand  
the task better.

### Interaction:

Feel free to ask for  
amendments of the  
suggested sentences  
such as to simplify or  
change certain words.



# Writing result and discussion by using ChatGPT

1

Compile all the results and arrange them in the most organized and presentable arrangement.

Transform the results into different forms to increase the clarity and impact of the research findings.

## Table

Table 5 Germination percentage (GP) for *D. ocimifolia* seed treated by different concentrations of PHCE and PHNE.

Sample	Concentration (g L <sup>-1</sup> )	GP (%)
Control	0	75.00 ± 3.53 <sup>ab</sup>
	1	83.75 ± 8.93 <sup>a</sup>
	2	68.75 ± 6.50 <sup>b</sup>
	5	8.75 ± 4.15 <sup>d</sup>
	10	0.00 ± 0.00
	15	0.00 ± 0.00
PHCE	1	70.00 ± 3.54 <sup>ab</sup>
	2	31.25 ± 7.40 <sup>c</sup>
	5	0.00 ± 0.00
	10	0.00 ± 0.00
	15	0.00 ± 0.00
PHNE	5	0.00 ± 0.00
	10	0.00 ± 0.00
	15	0.00 ± 0.00

Data are mean (± S.E) of four replicates. Means by different superscript letter (<sup>a</sup> to <sup>d</sup>) are significantly different at  $p < 0.05$

## Graph

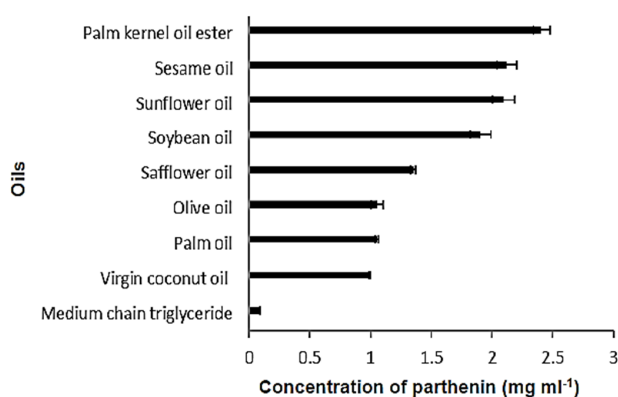


Figure 4.7: Solubility of parthenin in different oils

## Spectrum

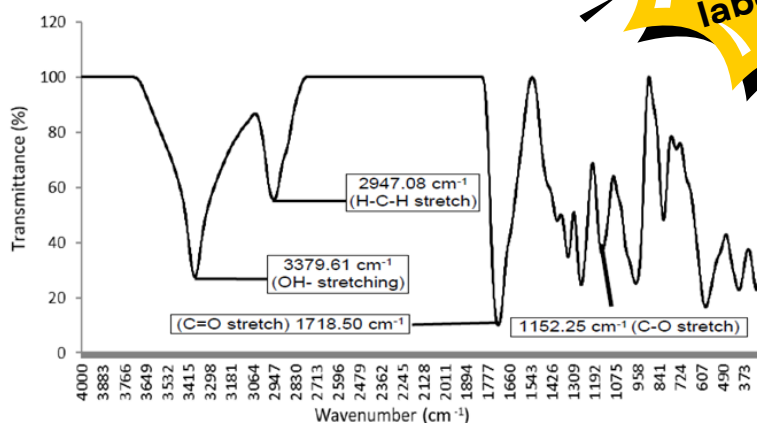


Figure 10 : FTIR spectrum of organic compounds extracted by using ethanol from banana peel

Don't forget to label all the results

## Image

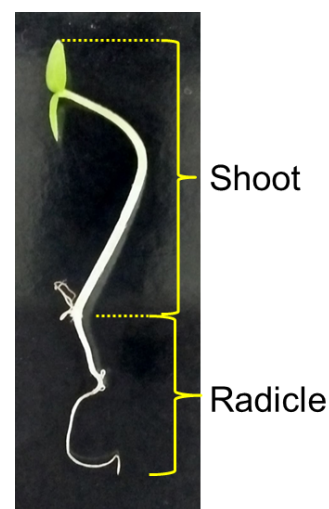
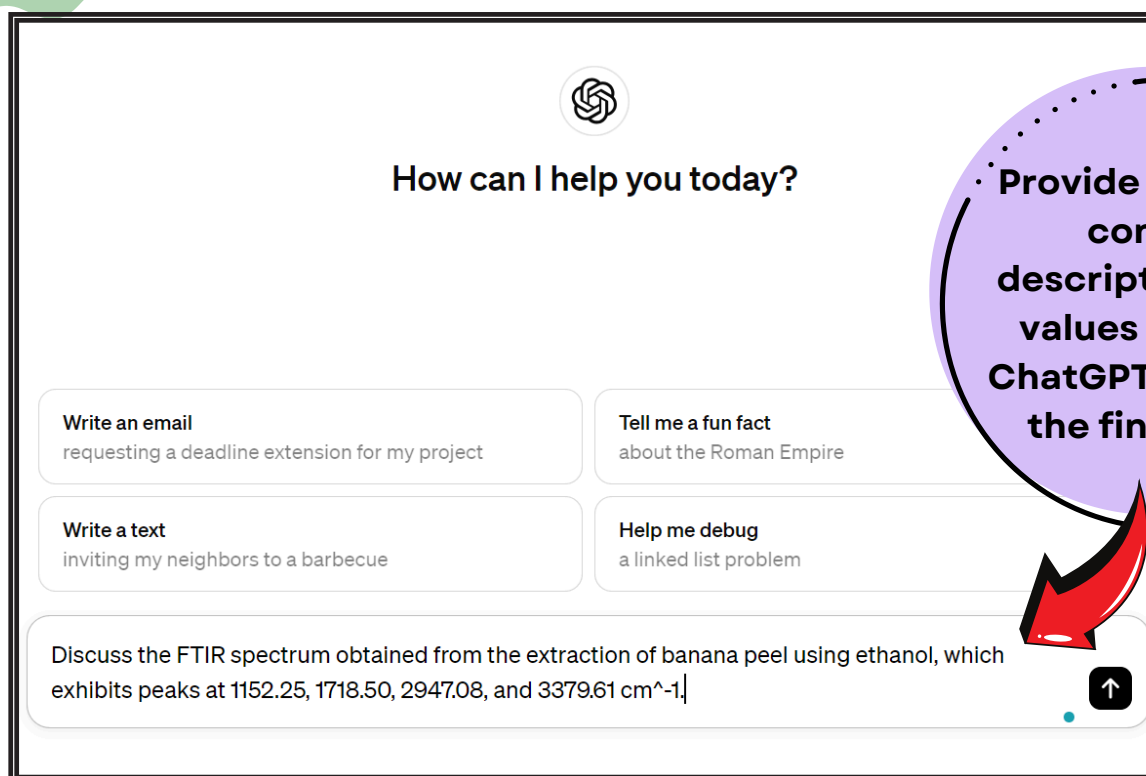


Figure 3 : Two main parts of germinated seed

# Writing result and discussion by using ChatGPT

2

Write the related keywords as prompts in ChatGPT.



How can I help you today?

Write an email  
requesting a deadline extension for my project

Tell me a fun fact  
about the Roman Empire

Write a text  
inviting my neighbors to a barbecue

Help me debug  
a linked list problem

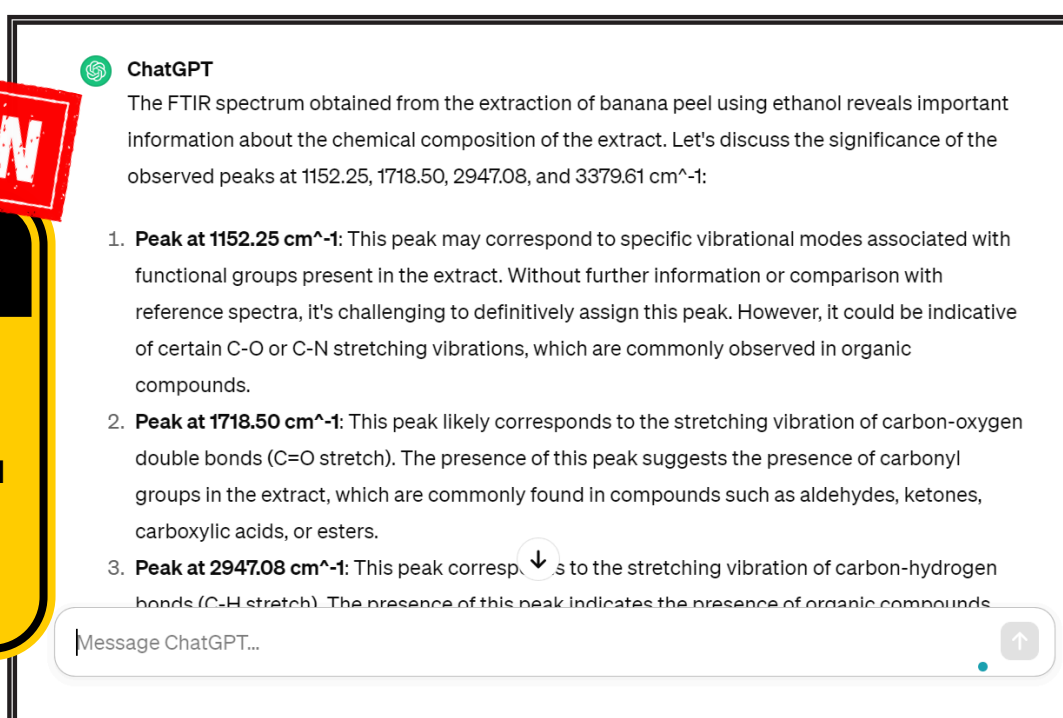
Discuss the FTIR spectrum obtained from the extraction of banana peel using ethanol, which exhibits peaks at 1152.25, 1718.50, 2947.08, and 3379.61  $\text{cm}^{-1}$ .

Provide clear and concise descriptions with values to guide ChatGPT interpret the findings.

**ATTENTION**

## WARNING

ChatGPT is only a tool to initiate ideas and assist in arranging sentences. However, all facts must be **VERIFIED** with recognized references.



**ChatGPT**

The FTIR spectrum obtained from the extraction of banana peel using ethanol reveals important information about the chemical composition of the extract. Let's discuss the significance of the observed peaks at 1152.25, 1718.50, 2947.08, and 3379.61  $\text{cm}^{-1}$ :

- Peak at 1152.25  $\text{cm}^{-1}$ :** This peak may correspond to specific vibrational modes associated with functional groups present in the extract. Without further information or comparison with reference spectra, it's challenging to definitively assign this peak. However, it could be indicative of certain C-O or C-N stretching vibrations, which are commonly observed in organic compounds.
- Peak at 1718.50  $\text{cm}^{-1}$ :** This peak likely corresponds to the stretching vibration of carbon-oxygen double bonds (C=O stretch). The presence of this peak suggests the presence of carbonyl groups in the extract, which are commonly found in compounds such as aldehydes, ketones, carboxylic acids, or esters.
- Peak at 2947.08  $\text{cm}^{-1}$ :** This peak corresponds to the stretching vibration of carbon-hydrogen bonds (C-H stretch). The presence of this peak indicates the presence of organic compounds.

Message ChatGPT...



## Writing result and discussion by using ChatGPT

3

Use ChatGPT to make any necessary adjustments to improve the flow and organization of the section.

Example of  
a command for  
an  
adjustment.

hydrocarbons, and hydroxyl-containing compounds. The specific compounds present in the extract can be further identified and confirmed through additional analysis techniques such as chromatography or mass spectrometry.

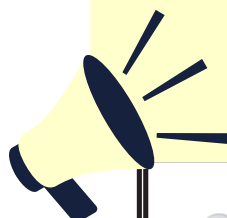


Is this conversation helpful so far?

simplify the explanation to 200 words



Before fully utilizing all the wording as part of your report writing, paraphrase and insert a citation to ensure academic **INTEGRITY.**



You

simplify the explanation to 200 words



ChatGPT

The FTIR spectrum of banana peel extract with ethanol as solvent shows peaks at 1152.25, 1718.50, 2947.08, and 3379.61  $\text{cm}^{-1}$ . These peaks indicate the presence of specific chemical groups. The peak at 1152.25  $\text{cm}^{-1}$  suggests the presence of alcohol (ethanol). At 1718.50  $\text{cm}^{-1}$ , it indicates carbonyl groups found in compounds like esters or ketones. The peak at 2947.08  $\text{cm}^{-1}$  corresponds to aliphatic hydrocarbons, possibly from lipids or waxes. Finally, the peak at 3379.61  $\text{cm}^{-1}$  indicates hydroxyl groups, implying the presence of alcohols (from ethanol) and potentially phenols or carbohydrates. Overall, the spectrum suggests the banana peel extract contains a mix of alcohols, carbonyl-containing compounds, aliphatic hydrocarbons, and hydroxyl-containing compounds. Further analysis can identify specific compounds present in the extract.



## Finding informations from scientific article or journal

### EXAMPLE

#### Research title:

The Investigation of Physicochemical Properties of Gelatinous Marshmallow with Banana Peel Extract

#### Objective:

To analyse the stability of marshmallow.

#### Results:

Sample	Banana Peel Extract (%)	Moisture Content (%)	Density (g/cm <sup>3</sup> )	Total acidity
A	20	12.5±0	49±0	2±0.2
B	30	14.2±0	50±0	3±0.2
C	40	14.6±0	50±0	7±0.1

Find related articles from Google Scholar

Search keywords related to the project

The screenshot shows the Google Scholar search results for the query "PROPERTIES marshmallow". The search bar at the top contains the text "PROPERTIES marshmallow" and a magnifying glass icon. Below the search bar, it indicates "About 6,540 results (0.07 sec)". The results are listed under the heading "Articles".

On the left side of the results, there are filters for "Any time", "Since 2024", "Since 2023", "Since 2020", and "Custom range...". Below these, there are options to "Sort by relevance" and "Sort by date". At the bottom left, there are options for "Any type" and "Review articles".

Two articles are visible in the results list:

- Article 1:** "[PDF] Studies on Physicochemical and Structural Properties of Marshmallow (Althaea officinalis) Seed Mucilage". The authors are S Moazzezi, AH Elhamirad, L Nateghi. It is from the Journal of Food, 2022, published by journals.srbiau.ac.ir. The abstract mentions determining the characteristics of marshmallow seed mucilage and its shear-thinning behavior.
- Article 2:** "Effect of soapwort extract as an alternative to albumin on the physical, textural, sensory, and rheological properties of marshmallow". The authors are Y Ozcan, NC Icyer, D Ozmen. It is from the Journal of Food, 2022, published by Wiley Online Library. The abstract discusses the use of s25/a75 ratios as an alternative to improve product properties in marshmallow production.

Each article entry includes options to "Save", "Cite", "Cited by", "Related articles", and "All versions".

Select the date of the latest FIVE years.

Select FREE PDF file for the articles



deviation (SD). Student's t-test was used for comparison between two means. A difference was considered statistically significant when  $p \leq 0.05$ .

### Results and discussion

#### Physico-chemical parameters

Marshmallow samples showed different values of the studied parameters depending on the added GSE concentration.

The following physico-chemical indices were investigated in the experimental samples: **moisture** content, reducing sugars content and total titratable acidity. The obtained results are illustrated in table 1.

The obtained results (Table 1) indicate that with an increase in the mass fraction of grape skin extract, the moisture content of marshmallows increases as well from 15.05% for the control sample to 15.68% for the sample with 3% GSE addition. This increase in moisture can be explained by the increase, in the same time, of reducing sugars (glucose, fructose) and dietary fibers amount that lead to the increase of marshmallow water binding capacity (Ergun et al., 2010).

**Find information in the Results and Discussion section.**

**Search keywords related to the results or finding**

**EXAMPLE**

**1. Main Findings** – The higher the banana peel extract in marshmallow production, the higher the moisture content of the marshmallow.

**2. Reason** - The increasing of moisture content can be explained by the increasing of reducing sugar (Boaghe et. al., 2021) and dietary fiber (Azarudeen & Nithya, 2021) which leads to the increasing of water binding capacity of marshmallow.



The obtained results (Table 1) indicate that with an increase in the mass fraction of grape skin extract, the moisture content of marshmallows increases as well from 15.05% for the control sample to 15.68% for the sample with 3% GSE addition. This increase in moisture can be explained by the increase, in the same time, of reducing sugars (glucose, fructose) and dietary fibers amount that lead to the increase of marshmallow water binding capacity (Ergun et al., 2010).

and everyday life [21,22,23]. Banana peel has a high source of total dietary fiber (43 - 49%), crude protein (6 - 9%), crude fat (2.8 - 11%), starch (3%) and

**3. Current studies** - The result of moisture content is aligned with its density. This correlation can be seen between Marshmallow A and Marshmallow B. The higher the moisture content, the higher the mass of marshmallow leading to a higher density. However, Marshmallow B and Marshmallow C contained similar moisture content resulting to the same density.

**4. Literature studies** - Boaghe et. al. (2021) has produced marshmallow from grape seed extraction. The results obtained indicate the increase in the mass fraction of grape skin extract (GSE), the moisture content of marshmallows increases as well from 15.05% for the control sample to 15.68% for the sample with 3% GSE addition.



**Physico-chemical characteristic of the marshmallow**

Sample	Moisture,%	Reducing sugar,%	Titratable acidity, mEq/l
Control sample	15.02±0.19	14.05±0.24	7.63±0.11
Marshmallow – 1% GSE	15.21±0.21	14.11±0.16	7.80±0.09
Marshmallow – 2% GSE	15.45±0.15	14.15±0.18	7.82±0.13
Marshmallow – 3% GSE	15.68±0.23	14.21±0.22	8.01±0.08

**EXAMPLE**

**1. Main Findings** – The higher the banana peel extract in marshmallow production is also resulting in the increasing of acidity.

**2. Reason** - It might be due to the presence of polyunsaturated fatty acid in banana skin especially linoleic acid and  $\alpha$  linoleic acid (Azarudeen & Nithya, 2021).



and everyday life [21,22,23]. Banana peel has a high source of total dietary fiber (43 - 49%), crude protein (6 - 9%), crude fat (3.8 - 11%), starch (3%), and polyunsaturated fatty acids (PUFA) especially linoleic acid  $\alpha$  linoleic acid. It includes essential amino acids such

**3. Current studies** - Not related.

**4. Literature studies** - GSE Marshmallow produced by Boaghe *et. al.* (2021) was also resulting in increasing of acidity from 7.63% to 8.01% when the extraction was increased from 0% to 3%. However, the difference results with banana peel marshmallow might be because of the different types of extraction was added.



The fact that the titratable acidity of marshmallow samples increases from 7.63 to 8.01 with increasing GSE concentration is confirmed by the presence of three major acids in grape skin (Le Moigne *et al.*, 2008). The presence of organic acids from natural plant extracts has been associated with the possibility of extending the shelf life of sugar confections like fruit paste, jelly candy and others (Anand *et al.*, 2013).



**IT'S TIME!  
TO START!**

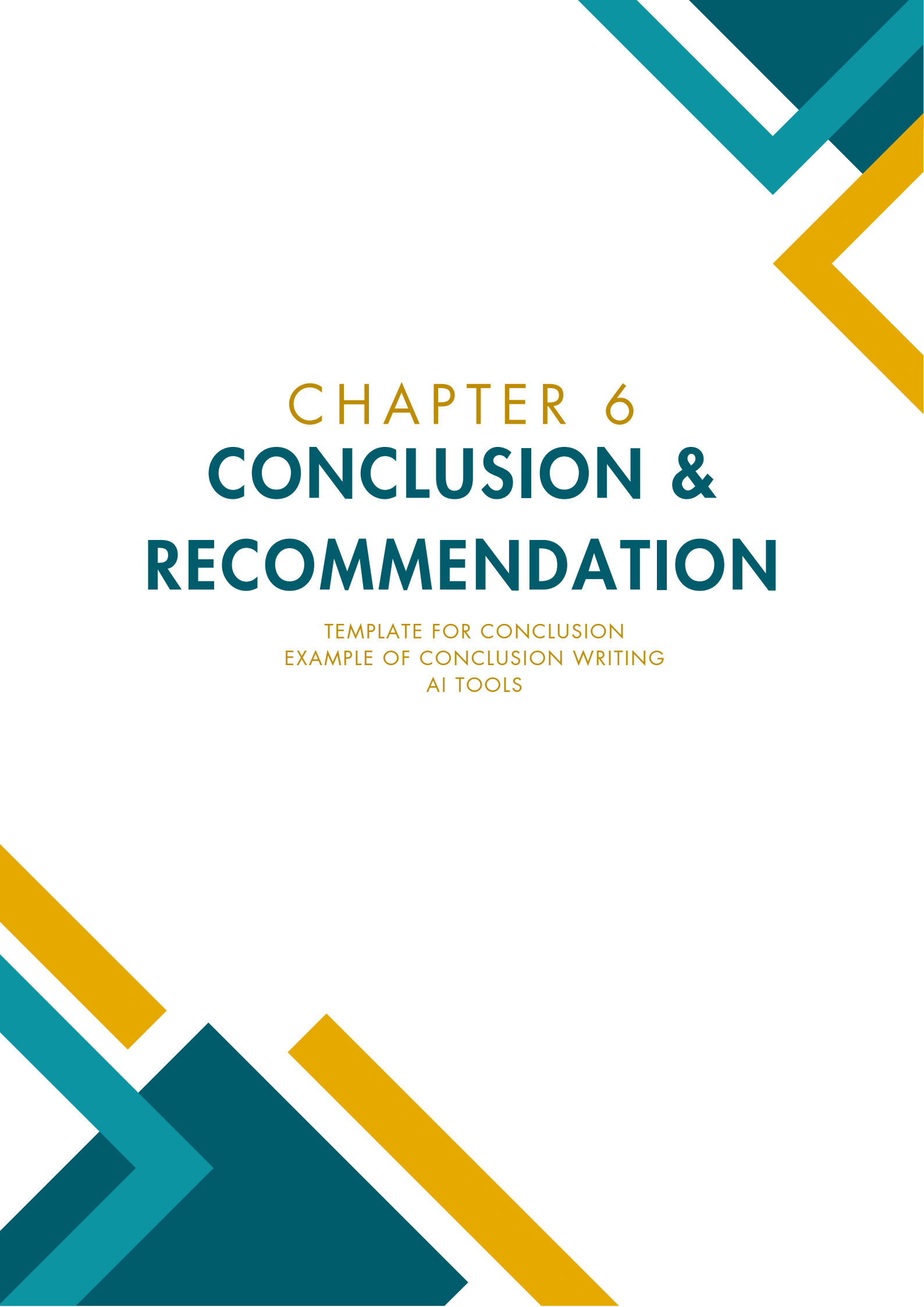
**LET'S DO  
THIS**

**TARCh-PROGRESSION FORM**



**Do  
your  
best**



The page features abstract geometric shapes in teal and yellow. In the top right corner, there are several overlapping chevron-like shapes pointing downwards and to the right. In the bottom left corner, there are similar shapes, including a large teal triangle and a yellow chevron pointing upwards and to the right.

# CHAPTER 6

# CONCLUSION &

# RECOMMENDATION

TEMPLATE FOR CONCLUSION  
EXAMPLE OF CONCLUSION WRITING  
AI TOOLS





# CHAPTER 6

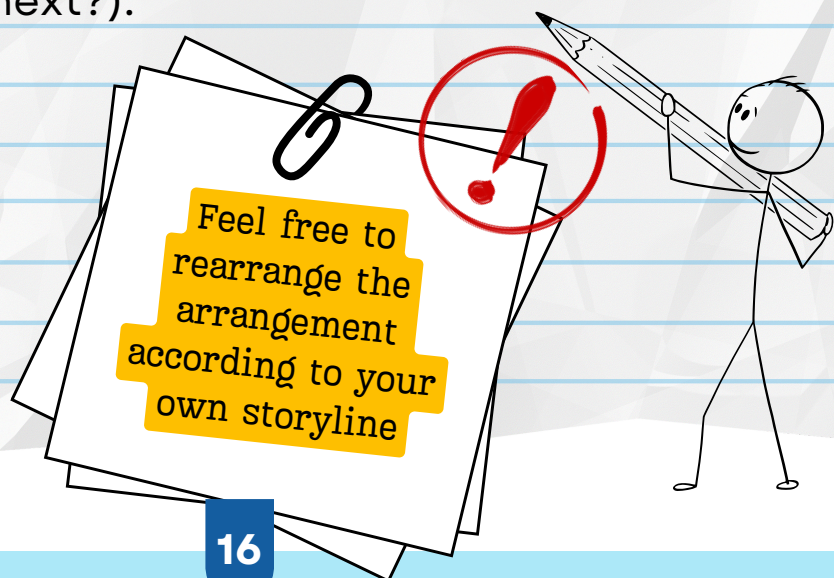
## Conclusion and recommendation

### INTRODUCTION:

Conclusion is the final section that **summarizes the key findings**, discusses their implications, and provides a sense of closure to the reader.

### TEMPLATE FOR CONCLUSION

- **Restate your main research statement addressed in the introduction section (research problem).**
- **Summarize your main arguments, important findings, and broader implications (significant of study).**
- **Synthesize key takeaways from your study (contributions).**
- **Limitation**
- **Recommendation : propose actionable steps (whats next?).**



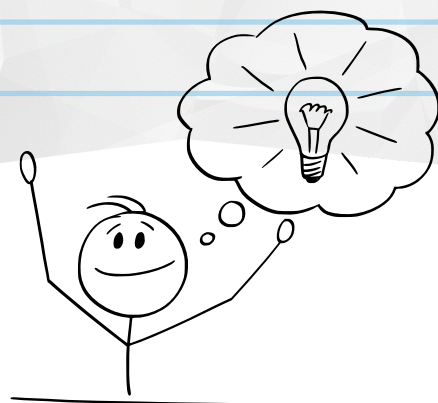
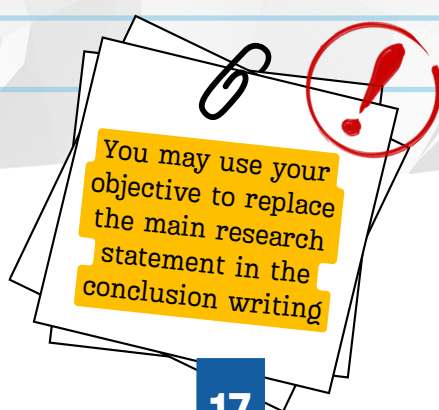


# CONCLUSION WRITING

# EXAMPLE

## PROJECT TITLE : Antioxidant and Functionality Evaluation of Green Cosmeceutical Herbal Face Cream Containing Mangosteen Peel Extract

Green cosmeceutical herbal face creams containing standardized mangosteen (*Garcinia mangostana*) peel extract which are skin-friendly and physically stable were successfully formulated. The uniqueness of the mangosteen creams was demonstrated by the absence of SLS, sulfides, parabens and alcohol that frequently cause skin irritation. This study demonstrated that mangosteen peel extracts were stable after being subjected to various stability tests and were shown to have antioxidant and anti-tyrosinase activity. It was observed that the addition of extracts did not have a significant influence on the parameters related to functionality (foaming properties and viscosity). Hence, mangosteen-based cream is expected to be used as a safe and effective alternative to synthetic antioxidant and whitening products. The development of green cosmeceutical mangosteen herbal face cream helps boost the local economy and increase the chance of international collaboration. Furthermore, the utilization of fruit waste such as mangosteen peel reduces waste generation and achieves sustainability development goals advocated by the United Nations. This study only focuses on antioxidant and functionality thus, randomized controlled trials should be conducted to evaluate the anti-aging and pigmentation control effects of mangosteen-based facial cream in order to complete its functionality as a cosmeceutical cream products.





## Writing conclusion and recommendation by using ChatGPT

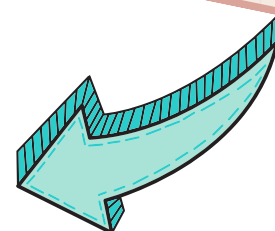


**ChatGPT**



**QuillBot**

List of AI tools that could assist you in writing



**grammarly**



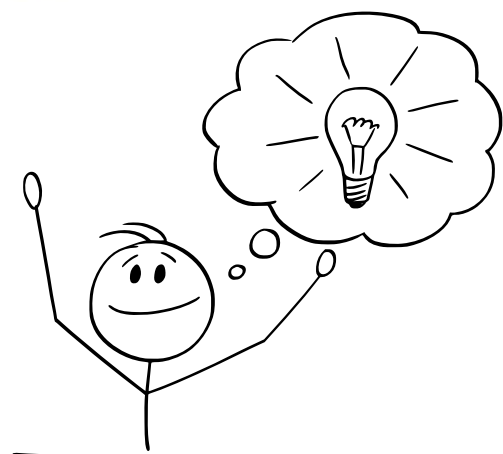
**Elicit**



**jenni**

### NOTES

Refer again to notes in Chapter 5 for guidelines to use ChatGPT to help with your writing.



**IT'S TIME!  
TO START!**

**LET'S DO  
THIS**

**LET'S TRY  
PROGRESSION FORM 6**

**Do  
your  
best**





The page features abstract geometric shapes in teal and yellow. In the top right corner, there are several overlapping chevron-like shapes pointing downwards and to the left. In the bottom left corner, there are more overlapping shapes, including a large teal triangle and several yellow and teal bars of varying lengths and orientations.

# CHAPTER 7

# REPORT WRITING

ELEMENT IN FINAL REPORT  
SAMPLE OF FINAL REPORT  
GUIDELINE FOR ABSTRACT WRITING

# CHAPTER 7

## Report Writing



### INTRODUCTION:

A structured report with good formatting allows the content to be easy to read, visually appealing, and professional-looking. The proposed structured content for the final project report includes two main parts namely ;



#### Elements in the final project report

#### 1<sup>st</sup> part of the report

- Cover
- Title
- Authenticity Declaration
- Acknowledgement
- Abstract
- Table of Content
- List of Table
- List of Figure
- List of Symbol
- List of Abbreviation

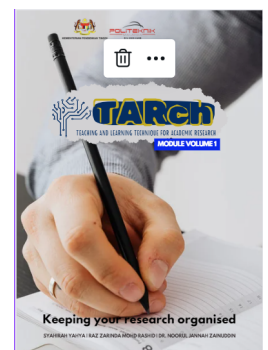
#### 2<sup>nd</sup> part of the report

- Chapter 1 Introduction
- Chapter 2 Literature Review
- Chapter 3 Methodology
- Chapter 4 Result and Discussion
- Chapter 5 Conclusion and Recommendations
- References
- Appendixes



REMEMBER!

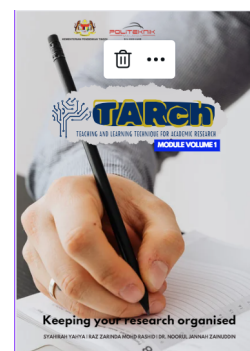
Refer to TARCh Module  
volume 1 (chapter 4)  
for guidelines on  
technical settings





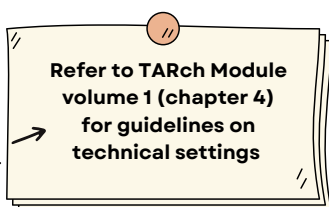
# Sample of Final Project Report

This section provides sample for chapter; ‘Result and Discussion’ and ‘Conclusion and Recommendation’. The other parts of report writing can be referred to TARCh Module volume 1 (Chapter 4)



**Disclaimer:** The following writing sample serves as an example of a Final Project Report and is not directly associated with any ongoing or prospective studies. The arrangement of sentences may vary based on the objectives and creativity of the author.

REMEMBER!



#### 4.1 EXTRACTION OF RAMBUTAN SEED OIL

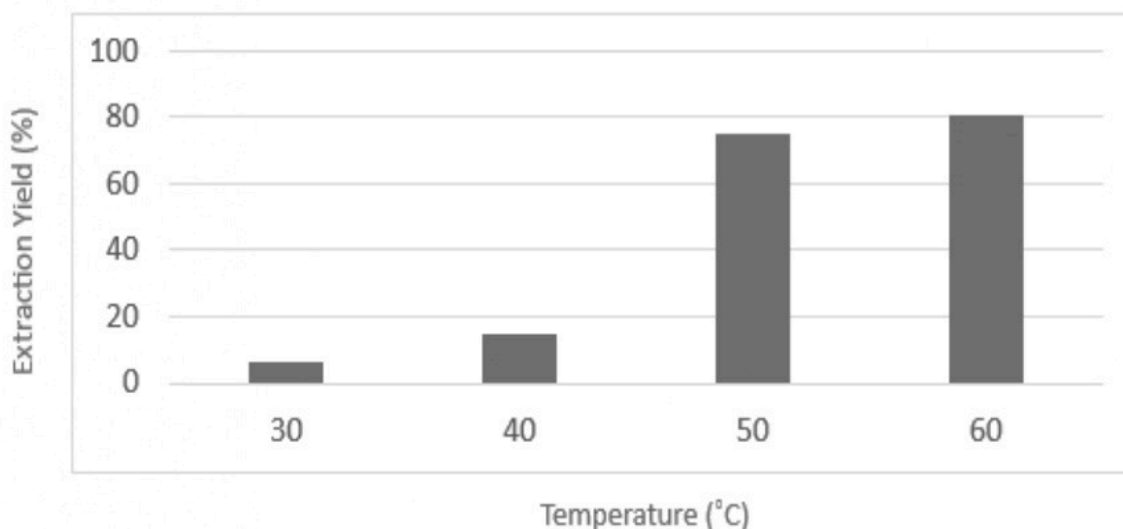


Figure 4.1: Oil percentage yield from different extraction temperature.

According to Figure 4.1, increasing extraction temperature, increase the extraction yield. Temperature 60 °C gives the highest extraction yield where 80% of oil was recovered from the process. At low temperature (30 – 40 °C), the yield was significantly low compared to extraction at temperature 50-60 °C. The increase in extraction yield was contributed by the fact that temperature affect the solubility of oil in solvent. The higher the temperature, the higher the solubility of oil in hexane (Muhammad *et al.* 2020; Elbert & Low 2019). The result was in agreement with study conducted by Sulaiman *et al.* 2022 where the optimum extraction yield of mango seed was achieved at 50-60°C by using hexane as the solvent.

#### 4.2 SAPONIFICATION OF RAMBUTAN SEED OIL

Rambutan seed oil undergoes saponification analysis to determine its fatty acid composition and suitability for various applications. This method involves the hydrolysis of triglycerides in the oil to form soap, enabling quantitative analysis of its constituent fatty acids. By referring to Table 1, the saponification value for rambutan seed oil is in the range of 155 – 157 mg KOH/g of oil while the



saponification value of palm oil is in the range of 188 to 189 mg KOH/g. Comparing the saponification values of rambutan seed oil and palm oil, it can be observed that rambutan seed oil has a lower saponification value compared to palm oil. This difference suggests variations in the chain length and composition of fatty acids present in these oils. A higher saponification value indicates a shorter average chain length of fatty acids, while a lower value suggests longer chains. (Ibraheem *et al.* 2020; Fateh & Noura 2019). Based on data given, seed oil from rambutan have a wide potential in soap production as it contained suitable fatty acid composition. According to Hazim 2020, vegetable oil with saponification value in the range of 150-190 mg KOH/g are suitable for bar soap application due to its higher melting point properties.

Table 4.1: Saponification value of rambutan seed oil and palm oil.

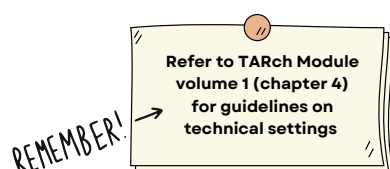
Sample	Rambutan seed oil. (mg KOH/g)	Palm oil (mg KOH/g)
1	157.21	188.65
2	155.60	189.80
3	157.86	188.02

### 4.3 CHARACTERIZATION OF RAMBUTAN SEED OIL SOAP

Table 4.2: pH value, total alkali, and moisture content of rambutan seed oil.

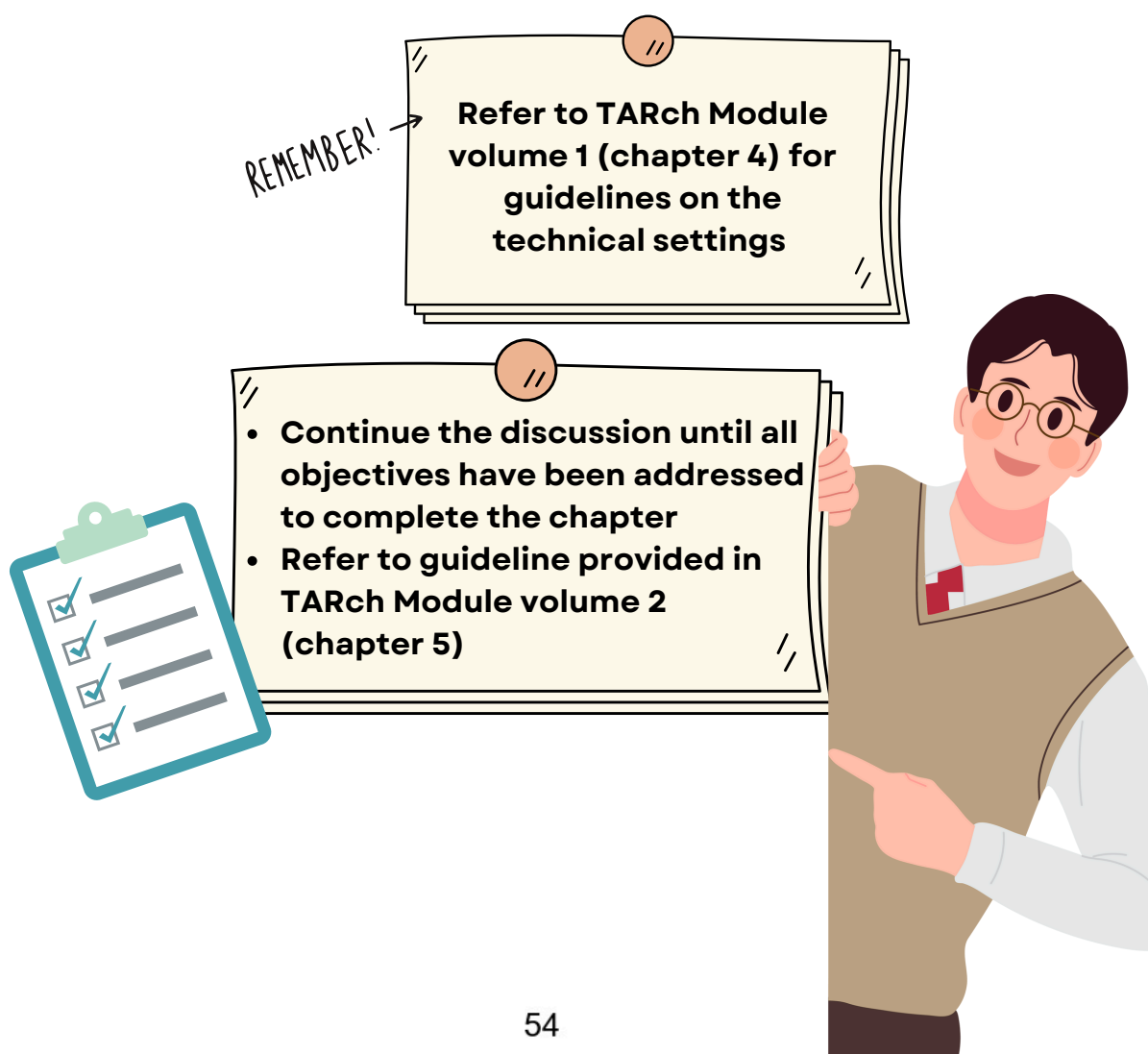
Sample	1	2	3
pH value	4	5.5	9
Total alkali content	4.48	5.48	8.31
Moisture content	7.4	9.1	1.7

The characterization of rambutan seed oil soap was detailed in Table 4.2, focusing on three key parameters: pH value, total alkali content, and moisture content. These analyses were conducted to understand its composition and potential applications. Notably, sample 3 exhibited the highest pH value, indicating an alkaline characteristic, while samples 1 and 2 displayed mild acidic characteristics with pH values of 4.0 and 5.5, respectively. Sample 3 also demonstrated the highest total alkali content among all soaps, whereas sample 1 exhibited the lowest total alkali content. The variations in NaOH composition during soap production directly influenced the pH values, with higher NaOH compositions resulting in higher pH values, and vice versa. The pH of healthy skin is between 4.5 and 5.5. The too



alkaline soap led to bad effect for baby skin (Amponash, 2014). In 2013, Braun *et al.* compared the effect of washing infants with syndet (pH 5.5) or soap (pH 9.5). They found that in younger infants (0–4 weeks of age) the syndet recover the rashes skin surface pH toward acidic values in short-term effect. Therefore, the pH value of sample 2 appears to be well-suited for the delicate nature of baby skin, offering a balance that promotes comfort and hydration without causing irritation or disrupting the skin's natural protective barrier. This finding suggests that the formulation of sample 2 may be particularly beneficial for use in products intended for infants and young children, where maintaining skin health and minimizing the risk of adverse reactions is very important.

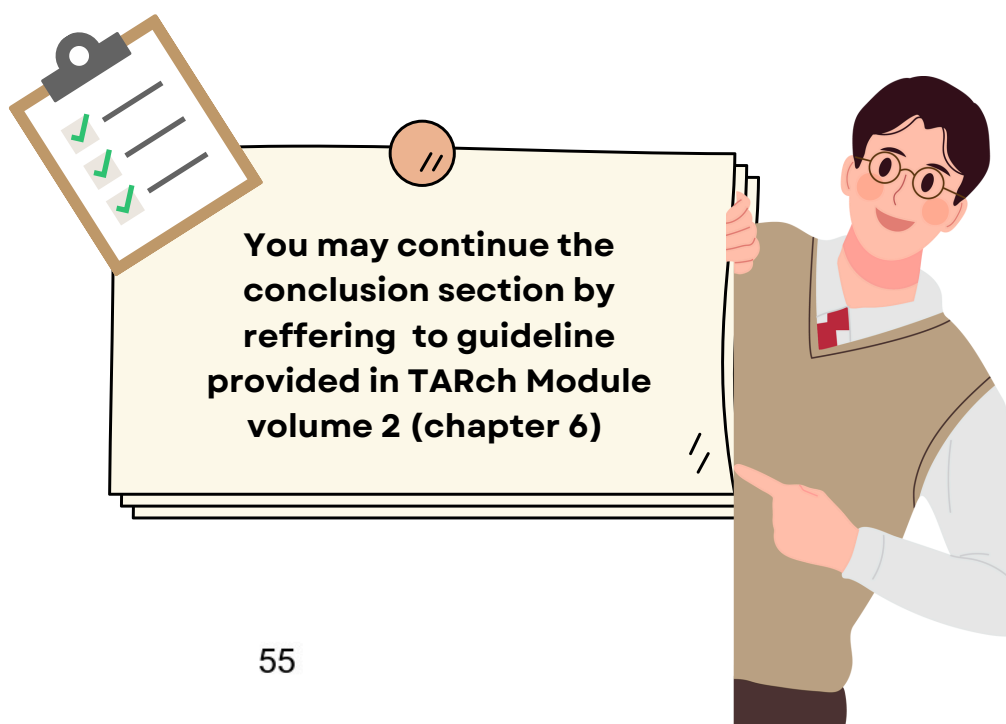
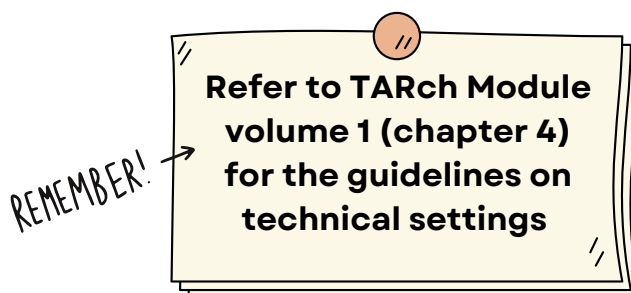
Additionally, Table 4.2 illustrates the moisture content in the soap, with sample 2 having the highest volatility, followed by sample 1 and sample 3. Higher composition of rambutan seed oil, resulted in increased moisture content. This is because, rambutan seed was extracted using steam-distillation method and according to the result in Figure 4.1, the optimum temperature for rambutan seed extraction method was 50 °C. The temperature is below water boiling point. Therefore, the steam during extraction might be remained in the rambutan seed extraction. At occluded areas, excess moisture may enhance percutaneous absorption (Britney *et al.*, 2013). Hence, it is advisable to lower the moisture content to an appropriate level through a drying procedure. By taking this step, the risk of skin irritation can be reduced and ensure better efficacy of topical treatments or skincare products.



## CHAPTER 5

### CONCLUSION AND RECOMMENDATIONS

Exploring the utilization of rambutan seed oil presents an avenue for innovation in soap formulation, offering the potential for new product developments and bolstering the competitive edge of soap manufacturers. The findings from this study indicate that rambutan seed oil shows promise as a substitute for palm oil in soap production, evidenced by its favourable saponification value and compatibility with desired pH levels, total alkali content, and moisture levels. Moving forward, it is advisable to conduct additional research to assess the consistency and cleansing efficacy of rambutan oil soap compared to existing commercial products. This deeper investigation will contribute to a better understanding of its versatility and potential applications in the market.



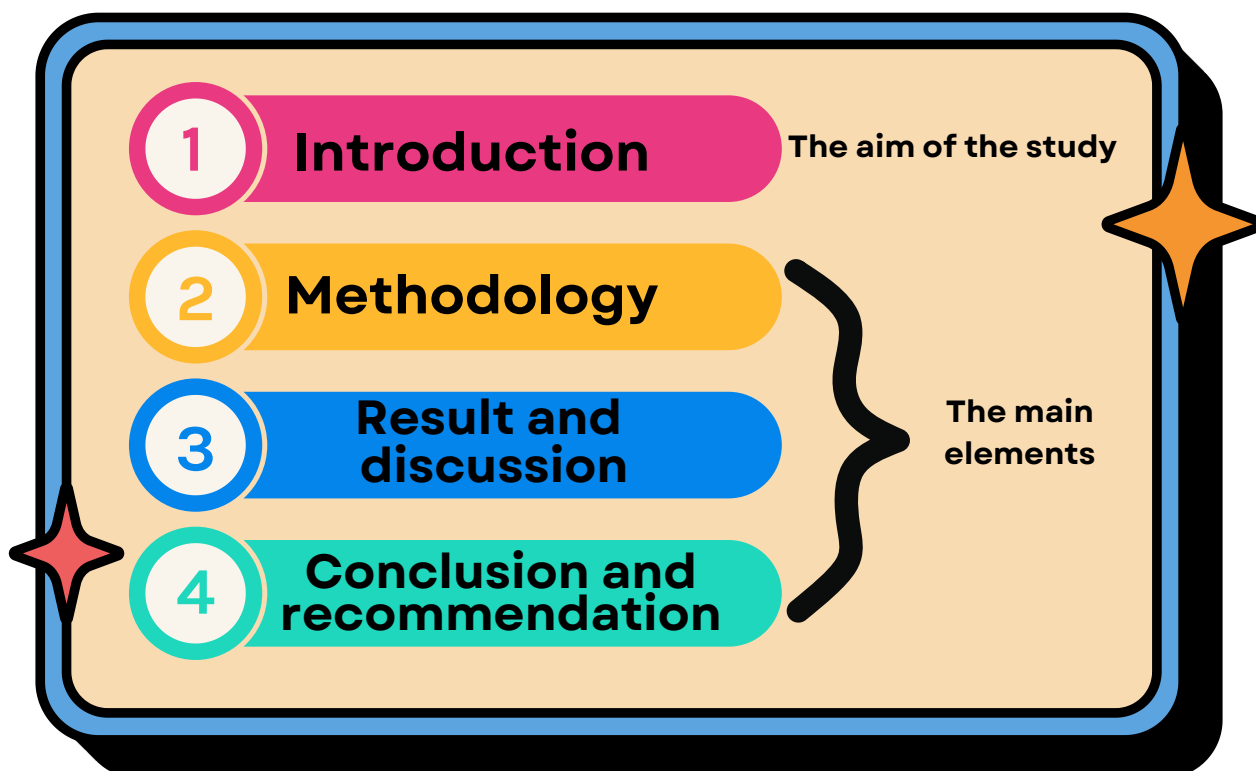


# GUIDELINE FOR ABSTRACT WRITING

## INTRODUCTION:

An abstract is a **short summary** of a longer work such as report that concisely outline the aims and outcomes of the research, to provide readers with an understanding of the whole content.

### Content of an abstract :



# GUIDELINE FOR ABSTRACT WRITING

## Example of abstract writing

The present study revealed the optimization of nanoemulsions containing palm oil derivatives and *Parthenium hysterophorus* L. crude extract (PHCE) as pre-emergence herbicide formulations. The

 Introduction

nanoemulsion formulation was prepared by high-energy emulsification method, and it was optimized by a mixture experimental design (MED). From the optimization

 Methodology

process, analysis of variance (ANOVA) showed a fit quadratic polynomial model with an optimal formulation composition containing 30.91% of palm kernel oil ester (PKOE), 28.48% of mixed surfactants (Tensiofix and Tween 80, 8:2), 28.32% of water and 12.29% of PHCE.

 Result and discussion

Under the optimal condition, the smallest particle size obtained was 140.10 nm, and the particle was shown by morphology analysis to be spherical and demonstrated good stability (no phase separation) under centrifugation and different storage conditions ( $25 \pm 5^\circ\text{C}$  and  $45^\circ\text{C}$ ). Nanoemulsion stored for 60 days exhibit a monodisperse emulsion with a slight increase in particle size. The increase in particle size over time might have been contributed by the Ostwald ripening phenomenon which is shown by a linear graph from the Ostwald ripening rate analysis. In the in vitro germination test, *P. hysterophorus* nanoemulsion (PHNE) was shown to cause total inhibition of *D. ocimifolia* seed at a lower concentration (5 g/L) as compared to PHCE (10 g/L). The findings of the research could potentially serve as a platform for the development of palm oil based formulations containing plant crude extract for green weed management.

 Conclusion and recommendation

ABSTRAK

ARIAL  
14PT  
BOLD  
UPPERCASE

2x ENTER

2x ENTER

ARIAL  
12PT

1 PARAGRAPH  
1.0 SPACING

The present study revealed the optimization of nanoemulsion containing palm oil derivatives and *Parthenium hysterophorus* L. crude extract (PHCE) as pre-emergence herbicide formulation. The nanoemulsion formulation was prepared by high energy emulsification method, and it was optimized by mixture experimental design (MED). From the optimization process, analysis of variance (ANOVA) showed a fit quadratic polynomial model with an optimal formulation composition containing 30.91% of palm kernel oil ester (PKOE), 28.48% of mixed surfactants (Tensiofix and Tween 80, 8:2), 28.32% of water and 12.29% of PHCE. Under the optimal condition, the smallest particle size obtained was 140.10 nm, and the particle was shown by morphology analysis to be spherical and demonstrated good stability (no phase separation) under centrifugation and different storage conditions ( $25 \pm 5^{\circ}\text{C}$  and  $45^{\circ}\text{C}$ ). Nanoemulsion stored for 60 days exhibits monodisperse emulsion with a slight increase of particle size. The increase in particle size over time might have contributed by Ostwald ripening phenomenon which is shown by a linear graph from Ostwald ripening rate analysis. In the in vitro germination test, *P. hysterophorus* nanoemulsion (PHNE) was shown to cause total inhibition of *D. ocimifolia* seed at lower concentration (5 g/L) as compared to PHCE (10 g/L). The finding of the research could potentially serve as a platform for the development of palm oil-based formulation containing plant crude extract for green weed management.





# BIBLIOGRAPHY

- Azarudeen, A. M., & Nithya, R. (2021). Pharmaceutical aspects of banana peel: a review. *Journal of Pharmaceutical Sciences and Research*, 13(2), 112-117.
- Boaghe, E., Suhodol, M. N., Chirsanova, C. A., Capcanari, T., Grosu, C., & Siminiuc, R. (2021). Effect of grape skin powder extract addition on functional and physicochemical properties of marshmallow. *Ukrainian Food Journal*, 333-345.
- Carpenter, D., Emerson, A., Mott, B. W., Saleh, A., Glazewski, K. D., Hmelo-Silver, C. E., & Lester, J. C. (2020). Detecting off-task behavior from student dialogue in game-based collaborative learning. In *Artificial Intelligence in Education: 21st International Conference, AIED 2020, Ifrane, Morocco, July 6–10, 2020, Proceedings, Part I* 21 (pp. 55–66). Springer
- Iskandar Abdul Samad, Siti Sarah Fitriani, Endah Anisa Rahma, Sofia, Novalia Rizkanisa (2020). *Academic Writing for University Students*.
- Ismail, M. S. *et. al.* (2023). *Garis Panduan Penulisan Laporan Projek Bidang Mekanikal, Penyelenggaraan Pesawat, Perkapalan & Petrokimia (Edisi 1). Bahagian Kurikulum, Jabatan Pendidikan Politeknik dan Kolej Komuniti*.
- Kacena, M. A., Plotkin, L. I., & Fehrenbacher, J. C. (2024). The use of artificial intelligence in writing scientific review articles. *Current Osteoporosis Reports*, 1-7.
- Politeknik Malaysia. (2021). *Buku Panduan Pelaksanaan Projek Pelajar (Program Diploma) Politeknik Malaysia Kementerian Pengajian Tinggi (Edisi 2021). Bahagian Instruksional dan Pembelajaran Digital, Jabatan Pendidikan Politeknik dan Kolej Komuniti*.
- Streefkerk, R. (2024, January 17). *How to Create or Generate APA Reference Entries (7th edition)*. Scribbr. Retrieved February 19, 2024, from <https://www.scribbr.com/apa-style/reference-entry/>
- Universiti Tun Hussein Onn Malaysia. (2023). *Garis Panduan Penulisan Tesis Secara Penerbitan. Edisi Pertama*.
- Vasanthakumari, S. (2021). Writing research proposal. *World Journal of Advanced Research and Reviews*, 10(1), 184-190.
- Yan, L., Sha, L., Zhao, L., Li, Y., Martinez-Maldonado, R., Chen, G., ... & Gašević, D. (2024). Practical and ethical challenges of large language models in education: A systematic scoping review. *British Journal of Educational Technology*, 55(1), 90-112.



# AUTHORS' BIOGRAPHY



## SYAHIRAH YAHYA

- Master of Science (Chemistry), Universiti Sains Islam Malaysia (USIM)
- Bachelor of Science and Technology with Honour (Industrial Chemical Technology), Universiti Sains Islam Malaysia (USIM)

**Syahirah Yahya**, an enthusiastic educator and researcher at Politeknik Tun Syed Nasir Syed Ismail (PTSN) since 2020, previously served as a part-time tutor at Tamhidi Center, USIM, in 2019. In addition to her teaching profile, her research has been published in various indexed journals, including Renewable Energy, Materials Today: Proceedings, the Asia Pacific Journal of Educators and Education, and the Malaysian Journal of Science, Health, and Technology. Beginning in 2019, she started her research career as the editor of the Malaysian Journal of Science, Health, and Technology. Concurrently, she achieved second place in the 3-Minutes Thesis Competition at USIM, leading to participation in the Falling Walls Lab AIMST 2019 competition. Her notable research achievements include winning the Best Thesis Award in Hadiah Analisis 2019 in the Master Category, the Best Manuscript Award 2020 (USIM), the Best Master Student Award 2020 (USIM) in the Best Thesis Category, the Best Extended Abstract Award in the Multi-disciplinary Innovation Competition (IMIC2021), and the Best Extended Abstract Award in the International Innovation Competition (INNOCOM) 2022. While at PTSN, she gained extensive experience teaching project courses over nine sessions spanning semester 4 and semester 5. Leveraging her accumulated expertise and skills, she aspires that the development of TARCh will aid students in their academic journey with structured guidance to achieve positive educational outcomes.

## RAZ ZARINDA BINTI MOHD RASHID

- Master of Science (Chemistry), Universiti Sains Islam Malaysia (USIM)
- Bachelor of Science and Technology with Honour (Industrial Chemical Technology), Universiti Sains Islam Malaysia (USIM)



**Raz Zarinda**, an exceptional academic force, has been illuminating Politeknik Tun Syed Nasir Syed Ismail (PTSN) as a captivating lecturer since 2021. Her journey began in 2015 at Politeknik Pagoh as a part-time lecturer, marking the inception of her commitment to knowledge dissemination. With notable contributions to publications such as the National Technology Research in Engineering and the Design and Social Science Conference 2022 (nTrends'22), Zarinda has become a prominent scholar. Her brilliance extends to her remarkable achievements at the Malaysian Polytechnic and Community College Sustainability Award (MPCCSustAWARD'23), where she secured both the Best Paper and Best Presenter accolades. As a dynamic leader, she moderates conferences like the International TVET Academic and Research Symposium (ITARS 2023), Strengthening Scientific Writing Webinar and facilitates workshops on grant proposal writing. Zarinda's impact on student success is evident in guiding mentees to victory in competitions like IDEA'22 and securing awards in innovative projects. Internationally recognized as a jury member in competitions such as the International Research and Innovative Technology Competition (i-RITEC'23), she continues to shape minds in her role as a lecturer and coordinator for the Seminar Course, collaborating on this TARCh innovative modules. Raz Zarinda stands as a beacon of scholarly excellence, enriching the academic landscape with her unwavering dedication and invaluable contributions in developing TARCh with her team.



# AUTHORS' BIOGRAPHY

## DR. NOORUL JANNAH ZAINUDDIN

- Doctor of Philosophy (Nanoscience), Universiti Putra Malaysia (UPM)
- Master of Science (Food Science), Universiti Kebangsaan Malaysia (UKM)
- Bachelor of Science (Oleochemistry), Universiti Kebangsaan Malaysia (UKM)



**Dr. Jannah** is a passionate educator and researcher from Politeknik Tun Syed Nasir Syed Ismail (PTSN) with previous teaching experience as a part-time lecturer at Universiti Teknologi Petronas (UTP), University Malaysia of Computer Science & Engineering (UNIMY), and tutor at Universiti Kebangsaan Malaysia (UKM). In addition to her teaching profile, her research has led her to serve as a project leader for the TVET Applied Research Grant Scheme (T-ARGS) and as a member of the Tier 1 Research Grant from Universiti Tun Hussein Onn (UTHM). She has also successfully published articles in several indexed journals, including the Journal of Plant Protection Research, Journal of Oleo Science, and Malaysian Journal of Analytical Science (MJAS). Throughout her career, she has contributed as a reviewer to peer-reviewed scientific journals such as Natural Product Research, Aceh Journal of Animal Science, International Journal of Food, and International Journal of Technical Vocational and Engineering Technology (IJTVET). Moreover, she has shared her expertise as a jury member at research and innovation events, including the International TVET Academic and Research Symposium 2023 (ITARS 2023) and Pertandingan Inovasi Teknologi Hijau Karnival Sains Matrikulasi (MASCAR) 2023 at the national level. Her passion for education extends beyond the classroom, as she and her team continually seek to develop techniques that facilitate effective teaching and learning processes, specifically in the research field. This dedication ultimately led to the development of TARCh.





BOOK SERIES:



1

TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - MODULE VOLUME 1

AUTHORS: SYAHIRAH YAHYA | RAZ ZARINDA MOHD RASHID | DR. NOORUL JANNAH ZAINUDDIN

2

TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - MODULE VOLUME 2

AUTHORS: DR. NOORUL JANNAH ZAINUDDIN | SYAHIRAH YAHYA | RAZ ZARINDA MOHD RASHID

3

TEACHING AND LEARNING TECHNIQUE FOR ACADEMIC RESEARCH (TARCh) - PROGRESSION FORM

AUTHORS: RAZ ZARINDA MOHD RASHID | DR. NOORUL JANNAH ZAINUDDIN | SYAHIRAH YAHYA



e ISBN 978-967-2736-37-0



9 789672 736370