

Full Paper Preparation Guidelines

Authors are recommended to follow the Guidelines in preparing full paper accordingly. A single word document containing all required information should be uploaded in a **single** file (Word Document).

The total page for full paper is **4 pages** only (including title page, abstract, text, table, figure, and references). The full paper will be compiled into the conference proceedings' electronic media. The full paper must be submitted electronically via ConfBay submission system. (<https://submit.confbay.com/conf/ifrc2017>)

The full papers that do not meet the stipulated formatting requirements, or are not adequately revised, will not necessarily be published in the proceedings.

Language

The full paper must be submitted in English. It is the author's responsibility to pay attention to grammar and spelling.

Title

Should concise and be written in the form of lower-case with capitalization of the first word.

Author names and affiliations

Please ensure that all authors' names are correctly spelled. Authors' names should be abbreviated and arrange as last name first, followed by given names in initials. Present the authors' affiliation addresses below the names. Indicate all affiliations with number superscripts, **before** the author's name and in front of the appropriate address. Please provide full postal address of each affiliation.

Corresponding author

Clearly indicate who with (*) in front of the author's name and only the e-mail address of the corresponding author is allowed.

Manuscript Style

Manuscripts should be **single-spaced**, typed using 11 point Arial of equivalent typeface with a margin of **2.5 cm** on all four sides.

The manuscript should be divided into the following sections:

a) Abstract

Author should provide essential information such as stating the purpose of the research, the principal results and the main conclusions. It should be intelligible without reference to the paper itself. Non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

b) Keywords

A minimum of 3 keywords and maximum of only 6 words allowed indicating the essentials of the research work. Separate the keywords with comma.

c) Introduction

Author should provide the aim of the investigation and a brief statement of previous relevant work with references.

d) Materials and Methods / Methodology

Only new techniques need to be described in detail for reproducibility. Known or published methods must have adequate reference. Relevant modifications should be described.

e) Results

Clear and concise. Presentation of results with tables and figures may improve its clarity.

f) Discussion

Explains the significance of the results.

Note: Results and Discussion can be separated or combined.

g) Conclusion

Summary of results interpretation with suggested recommendations. The conclusion should not merely repeat points made in the preceding sections.

h) Acknowledgement

Should be kept to the absolute minimum

Headings of the sections are to be bold and not underlined. They should appear clearly on its own. Any subsections should be given a brief heading, italicize and it should also appear clearly on its own separate line. Authors are advised to minimize subsections.

Tables, Graphs, Figures and Photographs

Tables, graphs and figures should be displayed in the full paper. Tables and figures should be numbered consecutively in accordance with their appearance in the text. Tables are captioned on top of the table body and place any table notes below the table body with proper indications to the contents in the table body (if needed). Figures are captioned at the bottom of the figures. Scanned or digital photographs should be in high resolution, minimum 300 dpi in the PC format

Footnotes

Footnotes should be kept to a minimum; in most cases, it will be possible to incorporate the information in the text. If footnotes are used, they should be numbered in the text indicated by superscript numbers and kept as brief as possible.

References

Citation in text

References should be cited in the text by the author. All references in the text must be listed at the end of the paper, with the names of authors arranged alphabetically, and titles of papers given.

Reference style

It is the authors' responsibility to provide the accurate details of the bibliographic citations. Please ensure that all references cited within the text must also be present in the reference list (and vice versa).

Citation in text:

1. Single author: the author's name (without initials) and the year of publication
2. Two authors: both authors' names and the year of publication

3. Three or more authors: first author's name followed by 'et al.' and the year of publication. Citation may be made directly (or parenthetically). Groups of references should be listed chronologically according to the year of publication.

Examples: "as demonstrated (Son *et al.*, 1996; Duan and Su, 2005). Son *et al.* (2000) have recently studied..."

Reference List

All references should be arranged **alphabetically** by authors' name, listing all authors, the full title of articles and journals, publisher and year. Please note that journal names are **not to be abbreviated**. The references in text and in the list of the manuscript should be cross-checked to ensure similarity.

Examples:

Journal

Collins, S. J., Bester, B. H. and McGill, A. E. J. 1993. Influence of psychrotrophic bacterial growth in raw milk on the sensory acceptance of UHT skim milk. *Journal of Food Protection* 56(5): 418-425.

Monograph/Book

Connel, J. J. 1990. Control of fish quality. 2nd ed. London: Fishing News Books.

Chapter in Book

Hart, R. J. 1998. Food Science and the transport of food. In Heap, R., Kierstan, M. and Ford, G. (Eds). *Food Transportation*, p. 1-21. London: Thomson Science.

Proceedings/Seminars/Conferences

Jinap, S. and Yusof, S. 1994. Development of juice from cocoa pulp. In Jinap, S., Bong, C. L., Tan, K. L. and Wan Rahimah, W. I. (Eds). *Proceeding of the Malaysian International Conference*, p. 351. Kuala Lumpur: Malaysian Cocoa Board.

Internet

United States Department of Agriculture (USDA) Food Safety and Inspection Service (FSIS). July 2006. Food Safety Information: Microwave Ovens and Food Safety. Retrieved on August 24, 2014 from FSIS Website:

[www.fsis.usda.gov/shared/PDF/Microwave Ovens and Food Safety.pdf](http://www.fsis.usda.gov/shared/PDF/Microwave_Ovens_and_Food_Safety.pdf)

Report

Lontoc, A. V. 1981. Existing food analytical methods and problems in the Philippines. Report of the ASEAN Workshop on Analytical Techniques. Singapore: ASEAN Subcommittee on Protein.

Thesis

Yusep, I. 1997. The effect of fermentation and soaking times on pyrazines and acidity and concentration of Thai Forastero cocoa beans. Bangkok, Thailand: Kasertsart University, MSc thesis.

Patent

Bell, A. G. 1876. U.S Patent No. 174, 465. Washington, DC: U.S. Patent and Trademark Office

International Food Research Conference 2017
July 26-28, 2017
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Authors are encouraged to refer to International Food Research Journal (www.ifrj.upm.edu.my) for detail the format of full paper preparation.

Example of Full Paper for IFRC2017

Antioxidant and nutrition contents of different parts of Mengkudu (*Morinda citrifolia*)

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Abstract

The study was carried out in order to determine the proximate composition, total phenolic content, total flavonoid content, ascorbic acid content and the antioxidant activity of *Morinda citrifolia* leaf, mature seed and old seed. In the mature seed, with protein, crude fiber and but high moisture content was at 16.72%, 3.55% and 71.48%, respectively. However, in the old seed, the protein, crude fat and crude fiber was at 51.88%, 18.76% and 14.06%, respectively. In the leaf, with protein and crude fiber was 19.74% and 2.60%, respectively. Antioxidant activity of the extracts was carried out using ferric ion reducing antioxidant activity potential (FRAP). Result of the study showed that hexane extracts of mature seed had higher free radical scavenging activity. In conclusion, mature seed of *Morinda citrifolia* has a potential as nutritive food component with antioxidant property.

Keywords: *Morinda citrifolia*, proximate analysis, antioxidant activity, ferric reducing potential.

Introduction

Phenolic compounds are essential part of human diet and are provided antioxidant properties. These compounds have an aromatic ring bearing one or more hydroxyl groups and their structures may range from that of a simple phenolic molecule to that of a complex high-molecular weight polymer. The antioxidant activity of phenolic compounds depends on the structure, the number and positions of the hydroxyl groups and the nature of substitutions on the aromatic rings. Phenolic compound can be found in fruits and vegetables for human diet (Balasundram et al., 2006).

The objective of the study is to determine the proximate composition and functional property for different part of Mengkudu.

Material and Methods

3.1. Sample preparation

Leaves, old seeds and mature seeds of Mengkudu were collected from the Faculty of food science and technology, Universiti Putra Malaysia, Selangor, Malaysia. Samples were ground by using a laboratory blender.

3.2. Proximate analysis was done in duplicate for lipid contents, and was done in triplicate for moisture, protein, ash and fiber contents according to AOAC Standard Methods.

3.3 Total phenolic content (TPC) was determined spectrophotometrically using Folin–Ciocalteu reagent by the method of Singleton and Rossi (1965).

3.4 The reducing capacity of ferric ions was determined ferric-reducing antioxidant power (FRAP) assay according to a modified method by Benzie and Strain (1996).

3.4. All data were expressed as mean \pm standard deviation and were done in triplicate independent analyses. Data were analyzed using one-way ANOVA using SPSS version 16 (SPSS Inc., Chicago, Illinois, USA).

Results and Discussion

Proximate analysis for different parts of Mengkudu was carried out according to AOAC standard methods. Table 1 presents the proximate composition of moisture content, ash, protein, total fat, crude fiber and carbohydrate in mature seeds, old seeds and leaf of Mengkudu. In the present study, total phenolic content for methanol extract of different part from Mengkudu was determined by used the Folin-Ciocalteu reagent method as shown in Figure 1. The FRAP values of different part of Mengkudu as shown in Figure 2. Gallic acid was used as standard compound and total phenolic content were expressed in mg gallic acid equivalent/g extract (mg GAE/g extract). Antioxidant activity as analysed using ferric-reducing antioxidant power (FRAP) showed that hexane extracts from different of Mengkudu had antioxidant activity as shown in Figure 2.

Result of the study showed that the leaf extract had significantly higher total phenolic content at 1,794.66 mg GAE/g extract, compared with other parts. The TPC for old seeds and the mature seeds was found with at 146.11 \pm 52.01 mg GAE/g and 118.03 \pm 34.94 mg GAE/g, respectively.

The previous study estimation of total phenolic content of other plant material such as *L. leucocephala* leaf revealed that the total flavonoid content was found to be 2.933 \pm 0.19 mg GAE/g for methanol extracts (Sharma and Chaurasia, 2015). The different of total phenolic content may because of the different extraction method used, different climate, different in maturity level during harvesting and storage conditions of the samples

The plant extracts that contain high total phenolic content also show the high antioxidant activity. However, in this study, the leaves that contain high total phenolic content but showed low FRAP activity. This could be due to the presence of antioxidant compounds such as polyphenols that are not reactive for FRAP activity (Reihani & Azhar, 2012). According to the present study, mature seed had highest antioxidant activity as compared to others. This can be explained with the presence of more phenolic compounds in mature seed as compared with other part of Mengkudu.

Table 1: Proximate composition from different parts of Mengkudu mature seed, old seed and leaf

Percentage (%)	Mature seed	Old seed	Leaf
Moisture	70.48 ± 0.15 ^a	11.61 ± 0.02 ^b	67.74 ± 0.98 ^c
Ash	1.05 ± 0.01 ^a	3.59 ± 0.09 ^b	1.37 ± 0.19 ^c
Protein	16.72 ± 0.32 ^a	51.88 ± 0.60 ^b	19.74 ± 0.62 ^c
Fat	5.19 ± 0.57 ^a	18.76 ± 2.35 ^b	6.96 ± 0.03 ^a
Crude fiber	3.55 ± 0.47 ^a	14.09 ± 0.37 ^b	2.60 ± 0.05 ^c

Values are the mean ± SD (n=3); means that do not share a same letter are significantly different (p<0.05) as measured by Duncan test.

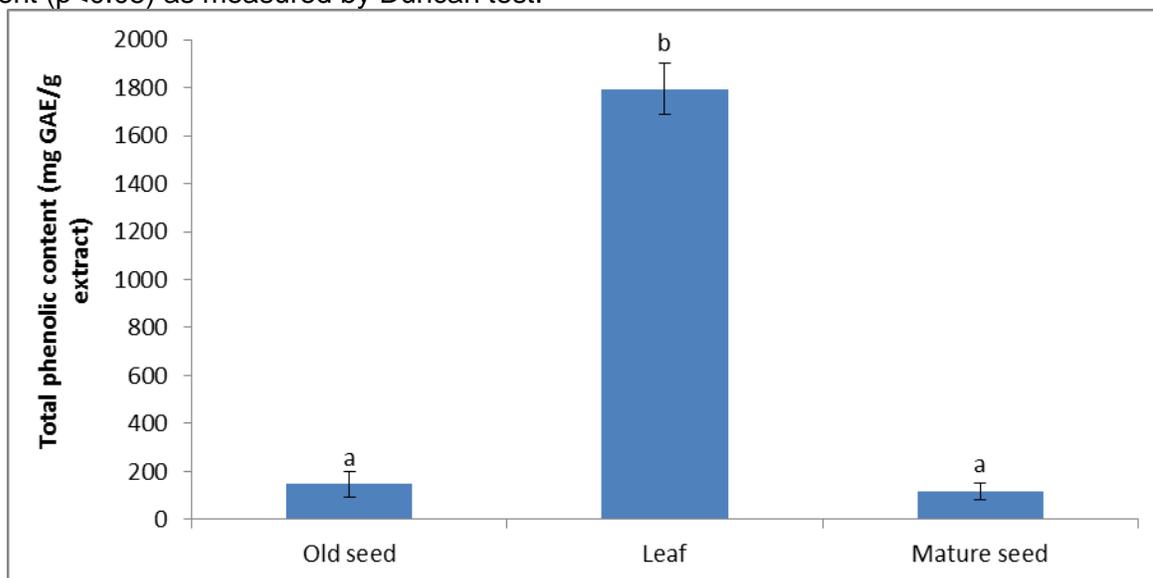


Figure 1. Total phenolic content of Mengkudu old seed, leaf and mature seed extracts. Values are the mean ± SD (n=3); means that do not share a letter are significantly different (p<0.05) as measured by Duncan test.

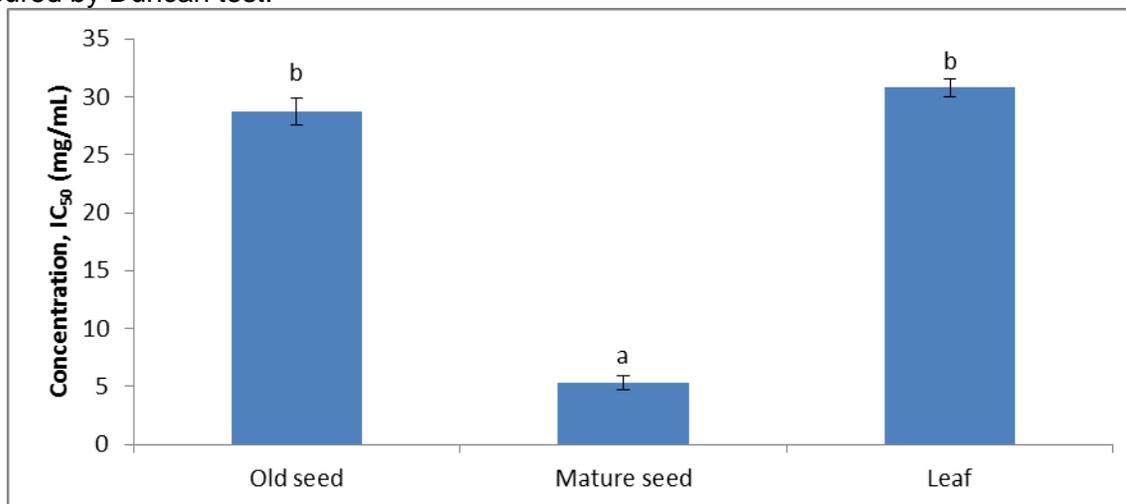


Figure 2: Ferric-reducing antioxidant power (FRAP) activity of hexane extract from old seed, mature seed and leaf of Mengkudu. Values are the mean ± SD (n=3); means that do not share a letter are significantly different (p<0.05) as measured by Duncan test.

Conclusion

This work has shown that Mengkudu contained high level of protein with low level of moisture in old seed and quite high moisture in leaf and mature seed. The high protein 51.88 % of old seed makes it good as cake for human consumption and useful as animal feeds. The low content of moisture is advantage when the shelf life is considered. Hexane extract of mature seed had higher antioxidant activity as compared with all three parts of Mengkudu. Further analysis of the different solvent for different part of Mengkudu should be carried out in future. In addition, identification of compound for antioxidant property of mature seed will provide exact information on antioxidant mechanism of Mengkudu extract.

Acknowledgements

The authors would like to thank UPM for financial support.

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