

The concentration of sago flour to taro-mung bean composite flour on the quality of non- gluten biscuits

by Cek Turnitin UWKS

Submission date: 06-Dec-2023 08:46AM (UTC+0700)

Submission ID: 2190950337

File name: 2a.1.2.pdf (2.13M)

Word count: 11210

Character count: 55239



(<https://icgab.uib.ac.id/>)

Search



Wellcome to The ICGAB 2020 on 25 August 2020 in Malang, Indonesia

About the Conference

Global industrial expansion to foster economic growth entails severe damaging impacts on the environment, commonly derived from multiple sources including natural resource exploitation, fossil fuel use, greenhouse gas emissions, and deforestation. Thus, developing a resource efficient, climate-friendly technology, and low carbon economy have risen as the worldwide's demands and ambitions by 2050. With the estimation of the current global bioeconomy market worth at US\$2.7 trillion, and a growing population of 2-3 billion people in the next 40 years accounted for increasing global food demand by 70%, green agro-industry is expected to play a substantial role. The creation of bioeconomy through the expansion of green agro-industry thus can create sustainable jobs/industries contributed to overall economic growth for sustainable development, whilst maintaining natural resources/biodiversity, mitigating climate change, and increasing opportunities in the agricultural sectors.

Indonesia, as a major supplier of several agricultural products worldwide, is also globally known as one of the main agroindustry countries. With a rapidly growing interest on green agro-industry and potential optimisation for food security and bio-based products with green supply chain and eco-standardisation, it is important to accelerate the innovation and adoption of more sustainable and renewable resources/biomass, bioenergy, process, and technology, with fewer environmental impacts, less amounts of waste and carbon footprint. Yet, the transition toward a global and circular bioeconomy through green agro-industry is far more than the complex of the progression and innovations in research and technology, technical performances, sustainable biomass procurement and valorisation, policy-making, societal and multidisciplinary rethinking process. A call for disseminating knowledge, sharing of the success stories, and encouraging international collaboration of interdisciplinary stakeholders, is therefore essential to foster competitive green agro-industrial development and tackle associated challenges in the developing world.

This conference is intended to inform and communicate to wider stakeholders aiming to increase awareness on the sustainable development in the circular bioeconomy context. This event will also provide a platform where local and international academia or researchers, policy makers, industry leaders, and other stakeholders to translate technology, exchange ideas, provide feedbacks, and help in developing guidelines for shaping a worldwide green economy.

ICGAB 2020: Emerging Technology and Integrated Information System for S...



Keynote Speakers



Assoc. Prof. Yasmin Sultanbawa
University of Queensland - Australia



Rossana Marie Amongo, PhD
University of The Philippines Los Banos
Philippine



Prof. Teti Estiasih
Universitas Brawijaya - Indonesia



Ir. Mohd Fazly bin Mail P. Eng., M.I.E.M
Malaysian Agricultural Research and
Development Institute - Malaysia



Assoc. Prof. Grause Guido
Tohoku University - Japan

Emerging Technology and Integrated Information System for Sustainable Agroindustry

In the digitalisation era, necessities such as technology, innovation and information system are becoming critical for shifting agroindustries from conventional practices to be more sustainable. Furthermore, creation of bioeconomy has hugely highlighted and demanded in the global world. therefore Indonesia needs to strive and adapt by harnessing the emerging technology as well as integrated information system to address the chalanges of IoT as well as environmental problems in agroindustry. Such approaches may create opportunities forexpand sustainable agroindustry as well as to achieve sustainable development.

4

This conference is aimed to communicate and disseminate research experiences. technology innovation.

This conference is aimed to disseminate and disseminate research experiences, technology, innovation, research and technology advances, as well as case studies related to sustainable agroindustry. This event provides a scientific platform enabling both local and international academia, researchers, policymakers, industry leaders, professionals, and other stakeholders to build networks, share ideas, and create research collaboration. ICGAB 2020 is hopefully offering all participants to engage with the practices and/or implementation of advance technology and information system to further develop green economy in Indonesia through creation of sustainable agroindustry.

Since 2017, ICGAB has been successfully attracting more than 300 participants from different countries. This year we are proudly inviting participants to attend and participate in the 4th ICGAB on 25 August 2020 at Online System. ICGAB 2020 is organised by Faculty of Agricultural Technology, Universitas Brawijaya in collaboration with MSAE (Malaysian Society of Agriculture and Food Engineers) and AUCFA (ASEAN Universities Consortium on Food and Agro-based Engineering & Technology).

We are also partnered with IOP Publisher to publish selected manuscripts in the IOP Conference Series: Earth and Environmental Science. Non-selected papers will be published in our electronic ICGAB proceeding with registered ISBN or recommended to be published in our International Journal "Advances in Food Science, Sustainable Agriculture and Agroindustrial Engineering (AFSSAAE)".

Online Conf

Please note that due the Covid-19 pandemic issue all over the world, ICGAB 2020 will be held as an **ONLINE CONFERENCE (REMOTE PRESENTATION) THROUGH VIDEO MEETING**

Detailed information regarding the online conference implementation will be informed further.

>


IOP Publishing 2020

Konferenzi

 Under Reviewed

 Paper Submission (<https://confbeam.org/2020/icgab/kfz/>)

BOOK OF ABSTRACTS AND CONFERENCE PROGRAMS

 Book of Abstracts and Conference Programs (<https://icgab.ub.ac.id/wp-content/uploads/2020/08/Book-of-Abstract-ICGAB-2020.pdf>)

IMPORTANT DATES

Name	Date	Deadline Extension
Abstract Submission	1 May 2020	14 July 2020
Abstract Acceptance	4 July 2020	16 July 2020
Manuscript (Full paper)	5 July 2020	10 August 2020
Registration Deadline		15 August 2020
Conference Day	25 August 2020	

CONFERENCE TOPICS

The conference invites contributions on the following topics but not limited to:

1. Food Safety and Security
2. Agricultural Engineering
3. Agricultural Product Technology
4. Agroindustrial Production System Management and Regulation
5. Renewable Energy And Biorefinery
6. Waste And Environmental Management
7. Health, Nutrition and Medical Microbiology
8. Industrial Biotechnology and Bioprocessing
9. Food Microbiology

7. FOOD MICROBIOLOGY
10. Agro Forestry and Biodiversity
11. Fisheries and Marine Resources Technology
12. Animal Welfare and Technology
13. Bioeconomy and Biobusiness

CONFERENCE COMMITTEE

SCIENTIFIC COMMITTEE	STEERING COMMITTEE	ORGANIZING COMMITTEE
<p>Sri Suhartini, Ph.D (Chairman)</p> <p>Muhammad Nurcholis, Ph.D</p> <p>Dego Ali Musa, MP.</p> <p>Zaqlul Iqbal, STP, MSi</p> <p>Nimas Mayang S. Sunyoto, PhD</p> <p>Wenny Bekti Sunarharum, Ph.D</p> <p>Joko Prasetyo, M.Si</p> <p>Masúd Effendi, MP</p> <p>Hendrix Yulis Setyawan, STP, MSi. PhD</p>		

ICGAB Committee



Faculty of Agricultural Technology, Universitas Brawijaya | Jl. Veteran Malang – 65145, East Java, Indonesia



TELEPHONE
+62341 580106



INTERNATIONAL
+62341 568917



EMAIL
icgab@ub.ac.id (<mailto:icgab@ub.ac.id>)



©2017 ICGAB ALL RIGHTS RESERVED

Table of contents

Volume 733

2021

◀ Previous issue Next issue ▶

International Conference on Green Agro-industry and Bioeconomy 25 August 2020, Malang, Indonesia

Accepted papers received: 25 March 2021

Published online: 04 May 2021

Open all abstracts

Preface

OPEN ACCESS 011001

Preface

+ Open abstract  View article  PDF

3 OPEN ACCESS 011002

Peer review declaration

+ Open abstract  View article  PDF

Agricultural Engineering

OPEN ACCESS 012001

Heavy metal content in the leaves of *Crassocephalum crepidioides* due to the application of various types of manure

M W Lestari

+ Open abstract  View article  PDF

OPEN ACCESS 012002

Study of mathematics modeling on ginger geometric changes during drying using image analysis

G M D Putra, D A Setiawati and Murad

+ Open abstract  View article  PDF

OPEN ACCESS 012003

Land conversion from coffee to citrus and changes of farmers livelihood strategies (case study in Palu Village, Bermani-Ulu Raya sub-district, Rejang Lebong Regency, Bengkulu)

This site uses cookies. By continuing to use this site, you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



A Ishak, H B Astuti, S Yuliasari, W A Wulandari, I Calista, Miswanti and Y Sastro

+ Open abstract  View article  PDF

OPEN ACCESS

012004

Effect of carbonisation temperature and activating agents on the characteristics of activated carbon produced from oil palm empty fruit bunch

Y Hendrawan, D Y Nurseta, R Utami, Daisy, M I A Trilaksana, S H Sumarlan and Y Wibisono

+ Open abstract  View article  PDF

OPEN ACCESS

012005

Classification of total carotene and quality of chili pepper (*Capsicum frutescens*) based on image analysis

Y Hendrawan, R Utami, D Y Nurseta, Daisy, S Nuryani, D M Maharani and Sandra

+ Open abstract  View article  PDF

OPEN ACCESS

012006

Design and performance evaluation of edible film printing machine based on automatic casting knife

A W Putranto, M M Sakhbani, N H Khoir, N Mutiarani, B Susilo and M B Hermanto

+ Open abstract  View article  PDF

OPEN ACCESS

012007

The sustainability challenges of the poultry industry during pandemic Covid-19

Ika Yunita and Sawarni Hasibuan

+ Open abstract  View article  PDF

OPEN ACCESS

012008

Performance of the solar distillation pyramid type to desalinate seawater into freshwater

R Damayanti, G Djojowasito and F A Dharmawan

+ Open abstract  View article  PDF

OPEN ACCESS

012009

Predicting the sweetness level of avomango (*Gadung Klonal 21*) using multi-predictor local polynomial regression

M Ulya, N Chamidah and T Saifudin

+ Open abstract  View article  PDF

OPEN ACCESS

012010

Physical properties of dried red chili (*Capsicum annum*) var. Hot Beauty as a function of moisture content

L C Hawa, R P Dipoari and M Lutfi

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more,

+ Open abstract  View article  PDF



OPEN ACCESS 012011

Drying cabya (*Piper retrofractum* Vahl.) at three ripeness stages

L C Hawa, A Sugesti, A N Laily, N I W Yosika, Y Wibisono and S M Sutan

+ Open abstract  View article  PDF

OPEN ACCESS 012012

Quality control of cardboard using MEWMA and MEWMV control chart (case study in PT. Y Kediri Indonesia)

A Ihwah, Sucipto and B R Ekatama

+ Open abstract  View article  PDF

OPEN ACCESS 012013

Comparison of the separation process of crude citronella oil using vacuum fractionation distillation on a pilot plant scale and laboratory scale

S Kanza, R Silvianti, D S Ramadhan, M Cahayo and Sukardi

+ Open abstract  View article  PDF

OPEN ACCESS 012014

Growth, yield and radiation energy conversion of sweet potato (*Ipomoea batatas* (L.) lam.) plant under different stake angles and various mulch type in the Papua highlands

A Soplanit, M K Rumarar and N E Suminarti

+ Open abstract  View article  PDF

OPEN ACCESS 012015

Morphological and quality characteristics of genus of *Canarium* L.: A review

N A H A Rashid, R Shamsudin, S H Arifin and W N Z Z Abdullah

+ Open abstract  View article  PDF

OPEN ACCESS 012016

Monitoring of fluorescence characteristic in tomato surface during over-ripening stage

A Nurulhuda, D F Al Riza, Muharfiza, M Kuramoto, T Suzuki and N Kondo

+ Open abstract  View article  PDF

OPEN ACCESS 012017

Performance evaluation of cassava peels starch-based edible coating incorporated with chitosan on the shelf-life of fresh-cut pineapples (*Ananas comosus*)

I K Maharsih, M D Pusfitasari, C A S Putri and M T Hidayat

+ Open abstract  View article  PDF

OPEN ACCESS 012018

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



Analysis of power requirement of a prototype four-wheeled electric vehicle under different off-road conditions

M Ali, M Chowdhury, M N Islam, K Rasool, H S Lee and S O Chung

+ Open abstract  View article  PDF

OPEN ACCESS

012019

Theoretical analysis of velocity, acceleration and torque calculation of a five-bar onion transplanting mechanism

K Rasool, M Ali, M Chowdhury, H J Kwon, K M Swe and S O Chung

+ Open abstract  View article  PDF

OPEN ACCESS

012020

Effect of gear design on the power transmission unit of a small-sized multipurpose agricultural utility vehicle

M Ali, M N Islam, M Chowdhury, N A Khan, K Rasool and S O Chung

+ Open abstract  View article  PDF

OPEN ACCESS

012021

Stability and vibration analysis of a tractor-mounted Chinese cabbage collector

B E Jang, M Chowdhury, M Ali, M N Islam, K M Swe, D U Jung, S H Lee and S O Chung

+ Open abstract  View article  PDF

OPEN ACCESS

012022

Stress and fatigue analysis of the hydraulic motor shaft and conveyor joints of a tractor-mounted Chinese cabbage collector

K M Swe, M N Islam, B E Jang, M Chowdhury, S H Lee, D U Jung and S O Chung

+ Open abstract  View article  PDF

OPEN ACCESS

012023

Land consolidation (contiguous farming) for sustainable crop production for the agro-industry

R Amongo, M Larona, M Onal, A Resurreccion, G Lalap and M Limbo

+ Open abstract  View article  PDF

OPEN ACCESS

012024

ACSE (automatic canopy space expander): Automatic spacing system based on increasing plant canopy area on hydroponics for space efficiency

A Jaenuri, M Hafizh, S Primatama, A P Nugroho and R E Masithoh

+ Open abstract  View article  PDF

OPEN ACCESS

012025

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

Agricultural soil moisture sensor based on U-bend Plastic Optical Fibre (POF)



Murti Marinah, Nadhifa Aqilla Husna, Hafiz Salam and Agus Muhamad Hatta

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012026

Mobile mecavision: automatic plant monitoring system as a precision agriculture solution in plant factories

A Wijanarko, A P Nugroho, A I Kusumastuti, M A F Dzaky, R E Masithoh, L Sutiarto and T Okayasu

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012027

Plant growth prediction model for lettuce (*Lactuca sativa.*) in plant factories using artificial neural network

A Rizkiana, A P Nugroho, N M Salma, S Afif, R E Masithoh, L Sutiarto and T Okayasu

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012028

Three-dimensional (3D) reconstruction for non-destructive plant growth observation system using close-range photogrammetry method

M A A Arief, A P Nugroho, A W Putro, D H Dananta, R E Masithoh, L Sutiarto and T Okayasu

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012029

The potential of rice husk ash for silica synthesis as a semiconductor material for monocrystalline solar cell: a review

A W Putranto, S H Abida, A B Sholeh and H T Azfa

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012030

Smart food packaging from sago starch incorporated with anthocyanin from *Brassica oleracea*

N H C Hamzah, N A M Shaidi, M S Merais and N Khairuddin

[+ Open abstract](#) [View article](#) [PDF](#)

Agroforestry and Biodiversity

OPEN ACCESS

012031

Fading local wisdoms of upland rice varieties in situ conservation in South Bengkulu Regency (case in Pino Raya subdistrict)

A Ishak, E Fauzi, J Firison, Miswanti and Y Sastro

[+ Open abstract](#) [View article](#) [PDF](#)

1

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

OPEN ACCESS

012032

Ethnobotany of medicinal plant used by Sundanese Ethnic at Nyangkewok Hamlet, Kalaparea Village, Sukabumi District

K D Cita and P Waluyo

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012033

Adaptation pattern of trembesi (*Samanea saman* Jacq. Merr.) seedling to lead exposure at nutrient culture based on the characteristics of organic acid

L Setyaningsih, M Maslahat and M A Syahrizki

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012034

Optimization of NaOH concentration and cooking time in delignification of mature coconut (*Cocus nucifera* L.) coir

I A Dewi, A Ihwah, H Y Setyawan, A A N Kurniasari and A Ulfah

[+ Open abstract](#) [View article](#) [PDF](#)

Agroindustrial Production System Management and Regulation

OPEN ACCESS

012035

Parameter identification for the decision model of uncertainty price competition in food delivery services

D P Andriani, L T W N Kusuma, A B Rachman, S Z Firdausi, A D Azzahra and Q A Fadhlurrahman

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012036

Development of supply chain models of natural rubber products by considering quantity-discounts and environmental factors

S Susanto, I Santoso, S Wijana and R Astuti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012037

A thematic analysis on work safety and ergonomics issues in Indonesian food-producing SMEs

R L R Silalahi, B Ryan, S Cobb and R Houghton

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012038


Controlling of pasteurized milk production using SPC and TRIZ

S Sucipto, D R Ria and U Effendi

[+ Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



- OPEN ACCESS** 012039
Product development of corn rice using value engineering method
K Hidayat, M K Nasikin and Rakhmawati
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012040
Identification of product and design characteristics of *eucalyptus* herbal tea bags
M F F Mu'tamar, M Fakhry and M Ulya
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012041
Collaboration quality assessment in the sustainable rice supply chain by using an integrated model of QFD-FANP-DEA: A case study of the rice industry in Malang
W A P Dania, I B B Sitepu and A L Rucitra
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012042
Application of Craig Harris and fuzzy analytical hierarchy process methods to improve chicken farming productivity at Jimny's farm
M Kurniawan, S Wijana and E O Wilinda
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012043
Bill of material analysis framework of food menu to increase raw material inventory efficiency and halal food inspection of culinary business
M A Kamal, F D Effendi, M R Utomo, S Sucipto, I Santoso and U Effendi
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012044
Comparison halal food regulation and practices to support halal tourism in Asia: A review
S Nuraini and Sucipto
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012045
Integration of Halal Assurance System (HAS) in the Integrated Management System (IMS) to support food industry performance: a review
S D Puspaningtyas and S Sucipto
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012046
This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy. 

The effect of facilities layout and services on visitors' comfort in Keboen Kopi Karanganjjar Agro-tourism Blitar

H E Dewi, R Adityawati and H S H Subagyo

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012047

Forecasting export demand for L-Lysine as animal feed product in PT X Indonesia

A Ihwah and R Syafira

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012048

The impact of customer pressure and the environmental regulation on green innovation performance

E R Lestari, W A P Dania, C Indriani and I A Firdausyi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012049

Revitalising the role of interconnectedness on agricultural innovation platform: A network analysis

R Hardiyati, L Ariana and I Purwaningsih

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012050

Managing quality risk in a frozen shrimp distribution process

A D P Citraresmi and V S Arum

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012051

Strategies to implement total quality management in small scale rural agroindustry to enhance Indonesian pepper competitiveness

S Wulandari

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012052

Customer satisfaction and proximity analysis of white bread product in Malang City - East Java Province, Indonesia

J M Maligan and N N 'A Harisa

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012053

Quality control analysis for minimize of defect in potato chips production using six

[sigma DMAIC](#). By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).



S A Mustaniroh, B A Widyanantyas and M A Kamal

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012054

Development model on upstream-downstream integration of coffee agroindustry using dynamics modelling approach

I Santoso, YN Afifa, R Astuti and P Deoranto

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012055

Cleaner production analysis of tofu small scale enterprise

R Septifani, S Suhartini and I J Perdana

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012056

Sorbitol production optimization in B2B industry with six sigma approach

I I Pariasa, M A S Anam and A E Hardana

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012057

Quality control of bottled tea packaging using the Statistical Quality Control (SQC) and the Failure Mode and Effect Analysis (FMEA)

A L Rucitra and J Amelia

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012058

Development strategy of SMEs in the new normal era of *coronavirus disease 2019* (COVID-19): A literature review

V Pratama, I Santoso and S A Mustaniroh

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012059

The effect of supplier innovation on supply chain agility: Evidence from coffee shops in Malang area

A Aprilia, F Laili, P B Setyowati and K F Waringga

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012060

The impact of product familiarity on the purchase decisions of fruits and vegetables during COVID-19 pandemic

H E Dewi, A Aprilia, A E Hardana, I I Pariasa, D Y Sofianti and D I Prasetyaningrum

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more,

[+ Open abstract](#) [View article](#) [PDF](#)



OPEN ACCESS 012061
Product development of sweet potato dry noodle using Quality Function Deployment (QFD)

I A Dewi, E R Lestari and D F A Rahayu

+ Open abstract  View article  PDF

OPEN ACCESS 012062
Inventory control analysis of frozen processed shrimp using silver meal heuristic method (case study at PT. X Malang, East Java, Indonesia)

D M Ikasari, E R Lestari and Y Ni'matul

+ Open abstract  View article  PDF

OPEN ACCESS 012063
Malang coffee value chain analysis: A case study of Taji arabica coffee

M Effendi, A Sitorus, R Astuti and I Santoso

+ Open abstract  View article  PDF

OPEN ACCESS 012064
Green marketing mix: an example of its influences on purchasing decision

R Astuti, P Deoranto, M L A Wicaksono and A Nazzal

+ Open abstract  View article  PDF

Agricultural Products Technology

OPEN ACCESS 012065
Packaging development for fresh avocado (*Persea americana*) using quality function deployment method

A I D Larasati, S B Anoraga, M A F Falah, A H Laksono, L A Padantya, L A Windiputri and I Sabarisman

+ Open abstract  View article  PDF

OPEN ACCESS 012066
The improvement of white pepper quality through fermentation process by *Acetobacter* sp

K S Sasmitaloka, T Hidayat and Hernani

+ Open abstract  View article  PDF

OPEN ACCESS 012067
Natural biopesticide from liquid rice hull smoke to control brown planthopper

Hernani, S Yuliani and Rahmini

+ Open abstract  View article  PDF















This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).



- OPEN ACCESS** 012068
The potential of dry fermented cocoa (*Theobroma cacao* L.) variety Lindak bean shell treated at different degrees of roasting as a functional food
E Lembong, M Djali, Zaida and G L Utama
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012069
Optimization of process temperature and time of vacuum drying for production of cashew apple (*Anacardium occidentale* L.) powder using response surface methodology
R Prakoso and A Z Mubarok
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012070
Responses of rice new superior varieties to the application of biofertilizers and plant system in Jayapura
R H S Lestari, S Tirajoh, M K Rumbarar and M Thamrin
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012071
Effect of blanching and solar energy-based drying models on the quality of dried shredded apples
S A Mardiyani, D Susilowati and M Ulfah
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012072
Formulation and characterization of instant baby complementary food from red sorghum flour (*Sorghum bicolor* (L) Moench) and papaya puree (*Carica papaya* Linn.)
D N Surahman, W Cahyadi, T M Fernanda, T Rahman and A M Sazali
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012073
The effect of leaf age and drying method on physico-chemical characteristics of pandan (*Pandanus amaryllifolius* Roxb.) leaves powder
A Adhamatika, E S Murtini and W B Sunarharum
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012074
Chemical properties analysis of soygurt with ginger (*Zingiber officinale* var. *roscoe*) extract as functional foods
A A Anggraini, M Devi, N Nurjanah and N A Sunaryo
[+](#) Open abstract [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



- 5** OPEN ACCESS 012075
Proportion of taro and wheat flour, and konjac flour concentration on the characteristics of wet noodles
F S Rejeki, E R Wedowati, D Puspitasari, J W Kartika and M Revitriani
+ Open abstract  View article  PDF
- 2** OPEN ACCESS 012076
The concentration of sago flour to taro-mung bean composite flour on the quality of non-gluten biscuits
D Puspitasari, E Noerhartati, M Revitriani, F S Rejeki and E R Wedowati
+ Open abstract  View article  PDF
- OPEN ACCESS 012077
Agronomical performance and economic feasibility of new superior rice variety planted on the irrigated field in Jayapura, Papua
P A Beding, F Palobo, B M W Tiro, R H S Lestari and M K Rumbarar
+ Open abstract  View article  PDF
- OPEN ACCESS 012078
Formation and development of flavour of cocoa (*Theobroma cacao* L.) cultivar Criollo and Forastero: a review
N L Wahyuni, W B Sunarharum, D R A Muhammad and A D Saputro
+ Open abstract  View article  PDF
- OPEN ACCESS 012079
Effect of bulbil sizes on growth and corm yield of porang (*Amorphophallus muelleri* Blume) grown on alfisol soil
M Soedarjo
+ Open abstract  View article  PDF
- OPEN ACCESS 012080
The influences of storage temperature and time on decocted Robusta coffee leaves tea
A M Legowo, A N Al-Baarri, N A S J E Wardani and K Fibrianto
+ Open abstract  View article  PDF
- OPEN ACCESS 012081
The effects of pre-processing sanitation and modified atmosphere packaging on microbial growth in bulk packs of Atlantic salmon (*Salmo salar*) fillets
Fera R Dewi, Shane M Powell and Roger A Stanley
+ Open abstract  View article  PDF
- 1** OPEN ACCESS 012082
This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

Changes of gray level co-occurrence matrix (GLCM) texture and antioxidant level during freezing of pumpkin

Y Kristianto, W Wignyanto, B D Argo and I Santos

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012083

Comparative study on animal and vegetable fat as effective palate cleanser of spiciness

K Fibrianto and S W Syauqi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012084

The characteristics of dried Suji (*Dracaena angustifolia* (medik.) Roxb.) leaves powder produced by different drying methods and temperatures

D A Putri, E S Murtini and W B Sunarharum

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012085

Effect of glucomannan addition on physical and sensory characteristic of gluten-free muffin from modified cassava flour and maize flour

P S Dewi, D Ulandari and N S Susanto

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012086

Effect of different brewing techniques and addition of lemon peel (*Citrus limon*) on physico-chemical characteristics and organoleptic of cascara tea

W B Sunarharum, A N Yudawati and N E Asih

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012087

Antioxidant analysis of *Artocarpus heterophyllus* drink

M Devi, NA Sunaryo and AH Mansoor

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012088

Extraction Treatments Affect Total Flavonoid and Phenolic Contents of Cowpea (*Vigna Unguiculata* L. Walp.)

E Yusnawan, A Inayati and Y Baliadi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012089

Production and physicochemical characterization of modified tapioca

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

H Horavati, Hemanic S Yuliani and N Setyawan



[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012090

Phytochemicals properties of avocado seed: A review

H Y Setyawan, S Sukardi and C A Puriwangi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012091

The phytochemical potential of *Averrhoa bilimbi* – A review

H Y Setyawan, S Sukardi and B F Nareswari

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012092

The effects of powdered suji leaves (*Dracaena angustifolia* (medik.) roxb.) on the pasting properties of wheat flour and characteristics of steamed bun

E S Murtini, A Adhamatika and D A Putri

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012093

The Indonesian coffee consumers perception on coffee quality and the effect on consumption behavior

W B Sunarharum, D Y Ali, T Mahatmanto, P I Nugroho, N E Asih, A P Mahardika and I Geofani

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012094

Separation of *squalene* rich fraction from palm oil fatty acid distillate (PFAD): A review

R P Nurfatimah, K G S Ahmadi, I Hapsari, K Kholila and T Estiasih

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012095

Financial analysis of RGL citrus (*Citrus reticulata*) farming in Rejang Lebong Regency Bengkulu

E Fauzi, I Calista, Hamdan, W E Putra, W Mikasari, A Ishak, S Yuliasari and Y Sastro

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012096

Effectiveness of sunscreen on *galangal* (*Alpinia galangal*) crude extract using the microwave-assisted extraction method

C W Rizkita and Sukardi

[+ Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more,

[Open Access](#) and Cookies policy.

012097

The effect of microwave power and feed to solvent ratio on antioxidant activity and volatile compounds profile of crystal seedless guava leaves essential oils extracted using microwave-assisted hydrodistillation

A D Priyanto, N K Erliyanti and C Pujiastuti

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012098

The potentials of Indonesian tubers for the development of potato starch substitute: A short review

G M Ulfa, W D R Putri, K Fibrianto and S B Widjanarko

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012099

Cyanide detoxification methods in food: A review

D E Kuliahsari, I N I Sari and T Estiasih

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012100

Production optimization of green coffee extracts from Jember robusta (*Coffeacanephora*) coffee using foam mat drying method

D Pranowo, A Y Adiatmi and I A Dewi

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012101

The recent development of gluten-free bread quality using hydrocolloids

L C M Manik and M Nur

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012102

The effect of bulking agent and type of chocolate on the physicochemical characteristics of sucrose-free chocolate using stevia as a sweetener

M Nur, D R Suryatiani, R L Dewi and A B T Sari

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012103

Review: *Eucalyptus globulus* essential oil extraction method

N Z Immaroh, D E Kuliahsari and S D Nugraheni

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012104

Alm oil stripping through cellulolytic microorganism fermentation

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

E Julianty, S Gunting, H Sinaga, Z J Lubis and P P Sinaga

+ Open abstract  View article  PDF

Animal Welfare and Technology

OPEN ACCESS 012105

Meta-analysis of the effect of essential oil usage towards the production and milk composition of dairy cow

D R A Daning, L M Yusiati, C Hanim and B P Widyobroto

+ Open abstract  View article  PDF

OPEN ACCESS 012106

Effect of boiling on *in-vitro* nutrients digestibility, rumen fluid characteristics, and tannin content of mangrove (*Avicennia marina*) leaves as animal feed

N Jamarun, R Pazla and G Yanti

+ Open abstract  View article  PDF

Bioeconomy and Biobusiness

OPEN ACCESS 012107

Bioentrepreneurship approach as a pillar to accelerate the integrated farming system implementation

S Wulandari

+ Open abstract  View article  PDF

Food Microbiology

OPEN ACCESS 012108

Effect of temperature and time storage towards alcohol level in cow milk kefir

A E Setiawati, I N I Sari and N Hasyati

+ Open abstract  View article  PDF

Fisheries and Marine Resources Technology

OPEN ACCESS 012109

Substitution of red seaweed (*Porphyra*) with other seaweeds in nori making

E Sinurat, Nurhayati, D Fransiska and Sihono

+ Open abstract  View article  PDF

OPEN ACCESS 012110

Effect of molasses on the chemical characteristics of seaweed-based organic fertiliser

Nurhayati, W Cahyaningtyas, R Kusumawati and J Basmal

+ Open abstract  View article  PDF

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).



OPEN ACCESS 012111

Elemental composition of *Eucheuma cottonii* and *Gracillaria* sp. using scanning electron microscope-energy dispersive spectroscopic analysis

Agusman and S Wibowo

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012112

Characteristic of semi refined and refined carrageenan flours used in the making of biofilm (bioplastic)

P Wullandari, B B Sedayu, T D Novianto and A W Prasetyo

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012113

Effect of cooking process on the characteristics of *pindang* loin produced from mackerel tuna fish (*Euthynnus affinis*)

Suryanti, T D Suryaningrum, D Ikasari, E Hastarini, D L Ayudiarti and R N Sari

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012114

Optimization of stingray (*Trygon sephen*) smoking to extend shelf life and consumer preferences using response surface methodology

H Suprpto, S Kumalaningsih, W Wignyanto, I Santoso and S Sucipto

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012115

Prediction of fishers' income using a flexible model in Karanggongso fishers community, Trenggalek regency, Indonesia

A D Sulistyono, E Susilo, P Purwanti and N H Wardani

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012116

Data integration of humidity sensor and image texture for water content prediction of *Gracillaria* sp. during sun drying

I M S Erawan, W T Handoyo and W Sarwono

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012117

Conversion of fisheries processing by-product into salted-egg fish skin chips

R N Sari, Th D Suryaningrum, D L Ayudiarti, E Hastarini, Suryanti and D Fransisca

[+ Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



Food Safety and Security

OPEN ACCESS 012118

Good manufacturing practices for risk management in food safety sustainability: An empirical study

D P Andriani, A P N Aini, M Lestari and P Purba

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012119

Shelf-life prediction of pineapple dodol packed with edible film using accelerated shelf life tests

N Afifah and L Ratnawati

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012120

The effect of addition pumpkin and carrot puree on the physicochemical and textural properties of mocaf biscuit as complementary food

L Ratnawati, N Indrianti, R Ekafitri and N K I Mayasti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012121

Chemical properties, functionality, and morphology of taro flour modified by H₂O₂ oxidation and irradiation of UV light

R Ekafitri, Y Pranoto and A Herminiati

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012122

Factors affecting optimization of sustainable food house programs of accelerating food consumption diversification in Bantul Regency, Yogyakarta, Indonesia

L Rahayu, A Nadida and S Y Rusimah

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012123

Demand for animal source of food in Central Java, Indonesia

T S M Rianti and N Khoiriyah

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012124

Inhibition on color changes of raja banana (*Musa sapientum*) peel using specific acid

A N Al-Baari, A M Legowo, Widayat, H Rizqiati, A Hintono, Y B Pramono, M Somantri, W Broto,

Hadipernata, V C Santosa *et al*

[+ Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



OPEN ACCESS 012125

Business model analysis of mushroom agroindustry and its sustainable development strategy in Covid-19 pandemic

N Haryati

+ Open abstract  View article  PDF

OPEN ACCESS 012126

Enhancing the food labelling system in Indonesia: The case of food with health-related claims in small and medium enterprises

I Purwaningsih and R Hardiyati

+ Open abstract  View article  PDF

OPEN ACCESS 012127

Cassava genotypes selection for high yield and high starch content in advanced yield trials

T S Wahyuni and K Noerwijati

+ Open abstract  View article  PDF

Health, Nutrition, and Medical Microbiology

OPEN ACCESS 012128

Immunomodulatory Activity of Black Tea Kombucha (*Camellia sinensis*) and Arabica Coffee Leaves Tea Kombucha (*Coffea arabica*) for *Salmonella typhi*-infected mice

E Zubaidah, A R Iastika, T D Widyaningsih and K Febrianto

+ Open abstract  View article  PDF

OPEN ACCESS 012129

Anti-inflammatory effects of functional beverage from a mixture of moringa leaves, pandanus leaves, and red ginger in mice induced with monosodium urate crystal

T D Widyaningsih, M Rachmawati, E Prabawati and S Winarsih

+ Open abstract  View article  PDF

OPEN ACCESS 012130

The potential of various seeds as angiotensin-I converting enzyme inhibitory peptides derived from protein hydrolysate: a short review



A D Priyanto, A W Putranto and J L Hsu

+ Open abstract  View article  PDF

OPEN ACCESS 012131

Siwak (*Salvadora persica*) extract as a natural anti-halitosis mouth spray

S Resmisari, S T Wicaksono, N Alfiani and S R N Effendi

+ Open abstract  View article  PDF

see our Privacy and Cookies policy.



OPEN ACCESS 012132Nutritional and physical properties of three varieties of Hanjeli (*Coix lacryma-Jobi*) flour for food diversification and application uses

N K I Mayasti, A C Iwansyah, A Indriati, R Ekafitri and Y Adriana

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012133

Antioxidant analysis of instant herbal beverages ingredients

P Deoranto, I A Dewi, A D P Citraresmi, I P Sari and C Dewi

[+ Open abstract](#) [View article](#) [PDF](#)

Industrial Biotechnology and Bioprocessing

OPEN ACCESS 012134Characteristics of activated carbon from coconut shell (*Cocos nucifera*) through chemical activation process

M Lutfi, Hanafi, B Susilo, J Prasetyo, Sandra and U Prajogo

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012135

Isolation of thermo-tolerant and ethanol-tolerant yeast from local vegetables and their potential as bioethanol producers

M Nurcholis, R Kurniawan, J Kusnadi and J M Maligan

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012136

Effect of maltodextrin addition on the preparation of lipase from Coconut haustorium

ANF Suloi, M Mahendradatta, A Laga and AF Suloi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012137Techno-economic analysis of mung bean-based (*Vigna radiata* L.) synbiotic beverage production

Y Adriana, A C Iwansyah, T N Minh, A Indriati, N K I Mayasti, C E W Anggara, H M Astro and N Rahman

[+ Open abstract](#) [View article](#) [PDF](#)

Renewable Energy and Biorefinery

OPEN ACCESS 012138

Modeling and optimization of catalyst concentration and reaction temperature on yield

and calorific value of biodiesel from CPO

[This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.](#)

Y Hendrawan, Daisy, R Utami, D Y Nurseta, R Yudho, B D Argo and B Susilo



[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012139

Co-digestion of cocoa pods and cocoa leaves: Effect of C/N ratio to biogas and energy potential

S Suhartini, N Hidayat and M W R Hadi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012140

Effect of mixture ratio on co-digestion of vegetable and fruit waste with macro-algae, chicken manure and tofu dregs

S Suhartini, A S Naraswati and I Nurika

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012141

Potential valorisation of agro-industrial wastewater for bioenergy production

V R Permatasari, N Hidayat and S Suhartini

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012142

Microbial biomass and phospholipid fatty acid (PLFA) profile changes in bioconversion of wheat straw

I Nurika

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012143

The identification of ethanol and aromatic compounds from delignification of cacao pod husk using *Phlebia sp.MG-60*

I Nurika, Z A N M Majid and Suprayogi

[+ Open abstract](#) [View article](#) [PDF](#)

Waste and Environmental Management

OPEN ACCESS 012144

Global warming potential from maize cultivation as affected by organic and biochar coated urea fertilizer in rainfed lowland

A Pramono, T A Adriany, H L Susilawati and M T Sutriadi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS 012145

Assessing Indonesian sugarcane farmers' perceptions of climate change

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

A S Alim and R S Angraeni



[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012146

Assessing land degradation as the impact of deforestation due to the expansion of oil palm plantation in Rokan Hulu, Riau

A S Alim and R S Anggraini

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012147

Study of the potential use of rainwater as clean water with simple media gravity filters: A review

S D Muktiningsih and D M A R M S Putri

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012148

Recycling paper industry: Analysis of raw material consumption in Indonesia

M S Romas and S Martini

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012149

Synthesis of silica from rice husk by sol-gel method

N Setyawan, Hoerudin and S Yuliani

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012150

Faecal sludge treatment facility site selection using GIS-based multi-criteria analysis and AHP: Case study of Bogor Regency

L A Devianto, N N A M S U Dewi, Q Helmy and M Chaerul

[+ Open abstract](#) [View article](#) [PDF](#)

JOURNAL LINKS

[Journal home](#)

[Journal scope](#)

[Information for organizers](#)

[Information for authors](#)

[Contact us](#)

[Reprint services from Curran Associates](#)

1

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



PAPER · OPEN ACCESS

The concentration of sago flour to taro-mung bean composite flour on the quality of non-gluten biscuits

To cite this article: D Puspitasari *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **733** 012076

View the [article online](#) for updates and enhancements.

2

The concentration of sago flour to taro-mung bean composite flour on the quality of non-gluten biscuits

D Puspitasari, E Noerhartati, M Revitriani, F S Rejeki and E R Wedowati

5

Agro-Industrial Technology, Faculty of Engineering, Universitas Wijaya Kusuma Surabaya, Surabaya, Indonesia

E-mail: diana.puspitasari@uwks.ac.id

2

Abstract. The utilization of local raw materials, such as taro, avoids the gluten content usually found in wheat flour and creates innovation in the product development of biscuits. Taro has low protein content, thus requires the addition of other ingredients to meet the quality of the biscuits. The material used as a source of protein is mung bean flour. Besides, sago flour was used to improve the texture for being softer and crisp. The addition of sago flour also functions as an adhesive to replace the gluten found in wheat flour. This study aimed to determine the concentration of sago flour in biscuits of taro-mung bean composite flour that meet the quality standards of biscuits. The concentration of sago flour to taro-mung bean composite flour consists of four levels (0%, 20%, 40%, and 60%). The results showed that the selected treatment was the concentration of sago flour of 60%, with a total expected value of 6.10. Characteristics of the selected product include water content of 1.78%, carbohydrates of 63.55%, protein of 3.15%, fat of 29.86%, ash of 1.61%, the acceptance level of taste of 73.3%, color of 96.7%, and aroma of 90.0%.

1. Introduction

Non-gluten biscuits are a necessity for people who have celiac diseases or those who have a gluten intolerance. Innovation in developing non-gluten biscuits can be done by utilizing local resources, including taro, mung beans, and sago. Taro tubers could also be used for making chips and flour. In the form of flour, taro can be more flexible in its processing and better shelf life. Likewise, while sago on the market, green beans are already in the form of flour that is ready to use [1, 2].

Research conducted by Puspitasari et al. [3] showed that composite flour with cowpea based on selected formulations could be processed into biscuits. Taro flour is prepared from taro, which is treated to reduce the itching that usually arises due to oxalate content. Research conducted previously by Nurani and Yuwono [4] has used *kimpul* flour as a raw material for cookies.

The addition of mung bean flour can increase the low protein content in taro flour. In addition to giving bioactive peptides and essential amino acids source, pulse proteins have functional properties, for instance, fat binding, water retention, foaming, and gelation, which increase their conceivable use in a large collection of food things [5]. For these reasons, legumes are ideal supplements for cereals in vegetarian diets with increased attention and concentration as functional ingredients. Among legumes,



Content from this work may be used under the terms of the [Creative Commons Attribution 3.0 licence](https://creativecommons.org/licenses/by/3.0/). Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

Published under licence by IOP Publishing Ltd

1

mung bean (*Vigna radiata* L. Wilczek) is a magnificent source of 23.25% protein [6]. It is one of the protein source plants of the least expensive and most productive [7]. Moreover, mung beans are rich in essential fatty acids, antioxidants, and minerals [8–10].

Adding sago flour will improve the texture and crispness of the resulting biscuits. The replacement of wheat flour with sago starch in the traditional formulation of cookies has been considered. It is reported that sago flour could submerge wheat flour to a degree of 40 percent in creating treats that discover great shopper acknowledgment in Southern Thailand. Nonetheless, purchaser acknowledgment of treats declined significantly when sago starch in the treat definition expanded past 40%, inferable from helpless appearance and a crumbly texture [11]. Sago can also be used as a raw material for the food industry. It can, among others, be processed into foods such as bagel (traditional cake), pearl sago, dry cakes, noodles, biscuits, crackers, *laksa* (fine noodles similar to vermicelli), and bio-ethanol [12]. This research aimed to determine the concentration of sago flour in biscuits of taro-mung bean composite flour.

2. Methods

This examination utilized a Randomized Block Design (RBD) with a single factor, namely the concentration of sago flour to taro-mung bean composite flour with four levels, and repeated three times. In a preliminary study, the fraction of taro flour and mung bean flour used as initial composite flour was 50:50. Then, in the real experiment, sago flour according to treatment with a percentage: 0%; 20%; 40%; and 60% were added.

2.1. Observation parameters

Chemical parameters tested were water content, carbohydrate content, ash content, protein content, and fat content. The organoleptic parameters tested were taste, color, and aroma.

2.2. Data analysis

The analysis of variance does chemical test data processing. In the event that there is a distinction, the Duncan test was done with a 95% confidence level, and organoleptic analyzed using the Friedman Test method.

2.3. Alternative selection

To determine the best treatment for the concentration of sago flour in taro-mung bean composite flour for biscuits in different formulations, an alternative selection was made. The definition of expected value is to choose a choice that has the greatest pay-off or least expense. For biscuit products, the parameters tested were water content, ash content, protein content, fat content, and taste, color, and aroma. The selection of alternatives was made in order to choose the greatest treatment from several present treatments. Decision making is a method of choosing the greatest treatment systematically. Determination of the importance of each factor carried out by the Analytical Hierarchy Process (AHP) test. Based on the Expectation Value method, as for defining the option of the greatest treatment.

3. Results

3.1. Chemical content

The results of the variance analysis presented that the percentage of sago flour to taro-mung bean composite flour was significantly different in water content, carbohydrate content, protein content, fat content, and ash content. Table 1 shows that the biscuit's water content with various sago flour addition was significantly different. The more proportion of sago flour that was added, the water content of biscuits will decrease. Water content is related to protein content; the more protein the more water content, and vice versa. In this study, the more sago flour was added, the less protein content.

The higher the extent of added sago flour, the carbohydrate content increases. The sago flour carbohydrate content has a higher amount than the composite of taro-mung bean flour. Sago flour has a carbohydrate content of 84.7%, while mung bean flour has a carbohydrate content of 72.86%, and taro

flour has a carbohydrate of 71.56%. The statistical analysis result showed that there is a real association between treatments of carbohydrate content created. The more significant level of starch and the expansion in sago flour focuses are suspected on the grounds that sago flour contains higher sugar levels than sugar content in the composite flour of mung beans. As indicated by Baka et al. [12], sago contains a starch substance of 87.55%. The calculation of carbohydrate content in taro-mung bean-sago composite biscuits was finished by the distinction technique.

Table 1. Analysis of variance results chemical content of biscuits.

Treatment (% sago flour)	Water Content (%)	Carbohydrate Content (%)	Protein Content (%)	Fat Content (%)	Ash Content (%)
0	3.07 ± 0.04 d	58.27 ± 0.14 c	7.20 ± 0.02 a	29.10 ± 0.02 d	2.53 ± 0.05 d
20	2.61 ± 0.02 c	60.07 ± 0.07 b	5.62 ± 0.04 b	29.59 ± 0.03 c	2.23 ± 0.04 c
40	2.17 ± 0.03 b	60.17 ± 0.05 b	4.59 ± 0.05 c	29.86 ± 0.03 b	2.92 ± 0.03 b
60	1.78 ± 0.04 a	63.55 ± 0.11 a	3.15 ± 0.03 d	31.28 ± 0.03 a	1.61 ± 0.02 a

The greater quantity of added sago flour, the protein content decreases. The protein substance of sago flour has a lower amount compared to the composite of taro-mung bean flour. Sago flour has a protein content of 0.7%, while mung bean flour has a protein content of 19.09%, and taro flour has a protein of 6.43%. The higher the fraction of added sago flour resulted in a decrease of the protein level. These were supported by Tidore et al. [13], which shows the more starch flour is added, the lower the protein content. When the test is done, the greater the amount of sago flour added, the lower the amount of composite flour containing mung bean flour with high protein content, such that the protein content diminished. These were upheld by the finding of Man *et al.* [14]. The taro-mung bean-sago biscuits protein content is still below the Indonesian national standard (SNI) needed for biscuits (SNI 01-2973-1992), which contains at least 9% protein content.

The greater the percentage of added sago flour, the greater the fat substance increment. Fat assumes a critical function in the shelf life of food. Such moderately high-fat substances could be unwanted in heated food items since fat can advance rancidity in food, prompting the improvement of a horrendous and putrid compound. Fat is an energy source for biscuits [15]. This high-fat content was contributed by egg yolk as one of the biscuits' essential ingredients. The statistical analysis result indicated that there were substantial differences among treatments. The real difference was thought to be due to the difference in the percentage of sago flour added, which affects the fat substance difference. The greater the percentage of sago flour, the less proportion of taro-mung bean flour, the higher the fat substance of biscuits. These are supported by research results [16]. Mung beans have lesser oil content than wheat, which added to the diminishing fat substance of the cookies.

The more prominent the extent of added sago flour, the ash level decreases. Increasing the percentage of sago flour certainly reduces the proportion of mung beans, indicating a decrease in ash content. These upheld by the aftereffects of examination by Tidore et al. [13] shows that more starch flour was added, the ash content decreases as well as a decrease in ash content if the proportion of green beans decreases in the study [16]. There was thought to be caused by the addition of different levels of ash in the constituent materials. According to Puspitasari *et al.* [3], the composite ash powder of cowpea flour of 4.18%, and the ash substance of sago flour of 0.6%, so that with the expanding extent of sago flour, the subsequent ash substance of biscuits tends to be lower.

3.2. Organoleptic parameters

The score of aroma, color, and taste of biscuits shown in Figure 1. The highest total score of taste parameters obtained by treatment sago flour 0%, 20%, and 40%. According to Winarno [17], taste is

determined by taste and mouth stimulation. The texture and consistency of the material will also affect the taste caused by the content.

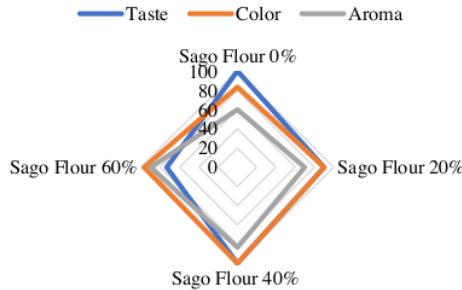


Figure 1. Result score of aroma, color, and taste of biscuits.

In the sago flour 60% treatment, there is the lowest score; this is possible because too much sago flour can make the texture of the biscuits more easily destroyed so that the panelists are less favored. The best score of the highest color parameter obtained by sago flour 40% treatment was 100%, while the lowest total score obtained by sago flour 0% treatment was 83.3. In the treatment of sago flour 0%, sago flour 20%, and sago flour 40%, the more the percentage of sago flour, the color of the biscuit will be more preferred. That was because the panelists liked the bright color of the biscuits. The more percentage of sago flour added, the more attractive the biscuit's color. The color of the biscuit is getting brighter due to the decreasing proportion of the composite of taro-mung bean flour, which can give the biscuit a dark color. In the treatment of sago flour 60%, the best score (3,4,5) from sago flour 40% decreased by 96.7%. It suspected that some panelists did not like the color of the biscuits that were too bright.

The best score of the highest aroma parameter obtained by sago flour 60% treatment was 90%, while the lowest best total score was obtained by sago flour 0% treatment by 60%. It suggests that the more the percentage of sago flour is added, the more biscuit aroma is preferred. That was presumably because of the more the percentage of sago flour, the unpleasant aroma of taro-mung bean composite flour.

3.3. Alternative selection

AHP is a decision making procedure for multi measures problems. The multi-criteria problem in AHP is easy in the form of a hierarchy containing three core components: decision-making goals, criteria of assessment, and valuation alternatives. The priority scale of each parameter is shown in Figure 2. A priority scale is used to determine the best alternative treatment.

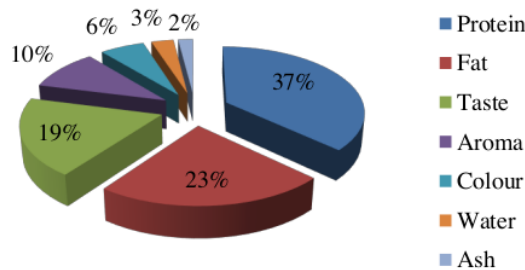


Figure 2. Priority scale of each parameter.

The best alternative is the treatment that has the highest expectation score. The results of the expected score for each treatment shown in the histogram presented in Figure 3. The highest expectation score founded in the treatment of sago flour of 60% with an expected score of 6.10.

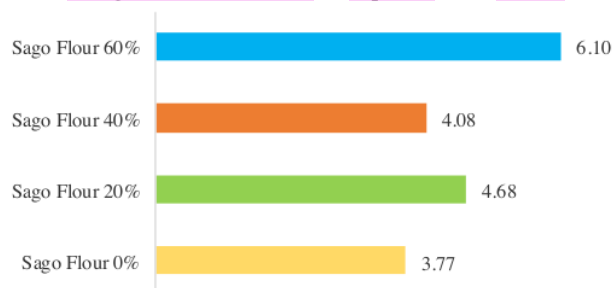


Figure 3. Total expectation value of biscuits.

4. Conclusions

Based on the study conducted, it determined that the treatment of concentration sago flour 60% selected treatment with a total score of 6.10. Moisture content of $1.78\% \pm 0.04$, carbohydrate content of $63.55\% \pm 0.11$, protein content of $3.15\% \pm 0.03$, fat content of $29.86\% \pm 0.03$, ash content of $1.61\% \pm 0.02$, taste level of 73.3%, color of 96.7%, and aroma of 90.0%.

5. Acknowledgment

This research was funded by internal research funds from the Institute for Research and Community Service, Universitas Wijaya Kusuma Surabaya.

References

- [1] Oyefeso B O, Raji A O 2020 Suitable model for thin layer drying kinetics of white and pink-fleshed tannia (*Xanthosoma sagittifolium*) cormels *LAUTECH J. Eng. Technology* **14** 1 1–7
- [2] Xie J, Ye H, Du M, Yu Q, Chen Y, Shen M 2020 Mung bean protein hydrolysates protect mouse liver cell line Nctc-1469 cell from hydrogen peroxide-induced cell injury *Foods* **9** 1 14
- [3] Puspitasari D, Rahayuningsih T, Rejeki F S 2015 Karakterisasi dan formulasi tepung komposit kimpul-kacang tunggak untuk pengembangan biskuit non terigu (Characterization and formulation of kimpul-cowpea composite flour for the development of non-wheat biscuits). Prosiding Seminar Agroindustri dan Lokakarya Nasional FKPT-TPI September 2015 2A18-A27 [In Indonesian]
- [4] Nurani S, Yuwono S S 2014 Pemanfaatan tepung kimpul (*Xanthosoma sagittifolium*) sebagai bahan baku cookies (kajian proporsi tepung dan penambahan margarin) (Utilization of kimpul flour (*Xanthosoma sagittifolium*) as raw material for cookies (Study of flour proportion and addition of margarine)) *J. Pangan dan Agroindustri* **2** 2 50–58 [In Indonesian]
- [5] Boye J, Zare F, Pletch A 2010 Pulse proteins: processing, characterization, functional properties and applications in food and feed *Food Res. Int.* **43** 2 414–431
- [6] Ekafitri R, Isworo R 2014 Pemanfaatan Kacang-Kacangan sebagai bahan baku sumber protein untuk pangan darurat (The Utilization of Beans as Protein Source for Emergency Food) *J. Pangan* **23** 2 134–145 [In Indonesian]
- [7] Pasha I, Rashid S, Anjum F M, Sultan M T 2011 Quality evaluation of wheat-mungbean flour blends and their utilization in baked products *Pakistan Journal of Nutrition* **10** 4 388-392
- [8] Kollárová K, Vatehová Z, Slovákova L, Li D 2010 Interaction of galactoglucomannan oligosaccharides with auxin in mung bean primary root *Plant physiology and biochemistry* **48** 401–406

- [9] Sulaeman A, Maya S, Sinaga T 2020 Alternative snack for diabetic patients from sago (*Metroxylon sp.*) starch and tempe *J. Gizi dan Pangan* **15** 1 27–36
- [10] Wabali V C, Giami S Y, Kiin-Kabari D B, Akusu O M 2020 Physiochemical, anti-nutrient and in-vitro protein digestibility of biscuits produced from wheat, african walnut and moringa seed flour blends *Asian Food Sci. J* 17–26
- [11] Konuma H, Rolle R, Boromthanasart S 2012 Adding value to underutilized food resources : substituting wheat flour with sago starch in cookie formulations *Journal of Agricultural Technology* **8** 3 1067–1077
- [12] Baka L A R, Hemon T, Pasolon Y B, Alberth 2013 System engineering of sago agro-industry development using a regional approach *Advances in Mathematics and Statistical Sciences* 488–493
- [13] Tidore Y, Mamujaja C, Koapaha T 2017 Pemanfaatan tepung kimpul (*Xanthosoma sagittifolium*) dan tepung tapioca pada pembuatan biskuit (Utilization of kimpul flour (*Xanthosoma sagittifolium*) and tapioca flour in processing of biscuits) *COCOS Jurnal Ilmiah Fakultas Pertanian Universitas Sam Ratulangi* **1** 4 1-9 [In Indonesian]
- [14] Man S, Păucean A, Muste S 2014 Preparation and quality evaluation of gluten-free biscuits *Buletin UASVM Food Science and Technology* **71** 1 38-44
- [15] Olaoye O A, Onilude A A, Oladoye C O 2007 Breadfruit flour in biscuit making : effects on product quality *African Journal of Food Science* 020-023
- [16] Yusufu M I, Obiegbuna J E 2015 Studies on the utilization of green bean as raw material in cookies produced from wheat flour *Agricultural Science Research Journal* **5** 6 92-97
- [17] Winarno F G 2004 *Kimia Pangan dan Gizi (Food Chemistry and Nutrition)* (Jakarta: Gramedia) [In Indonesian]

The concentration of sago flour to taro-mung bean composite flour on the quality of non-gluten biscuits

ORIGINALITY REPORT

14%

SIMILARITY INDEX

17%

INTERNET SOURCES

13%

PUBLICATIONS

9%

STUDENT PAPERS

PRIMARY SOURCES

1	eprints.uad.ac.id Internet Source	3%
2	www.scilit.net Internet Source	3%
3	repository.petra.ac.id Internet Source	3%
4	"Preface", IOP Conference Series: Earth and Environmental Science, 2021 Publication	1%
5	F S Rejeki, E R Wedowati, D Puspitasari, J W Kartika, M Revitriani. "Proportion of taro and wheat flour, and konjac flour concentration on the characteristics of wet noodles", IOP Conference Series: Earth and Environmental Science, 2021 Publication	1%
6	Submitted to University of Queensland Student Paper	1%

7

A Ubaidillah, E M S Rochman, D A Fatah, A Rachmad. "Classification of Corn Diseases using Random Forest, Neural Network, and Naive Bayes Methods", Journal of Physics: Conference Series, 2022

Publication

1 %

8

E Zubaidah, A R Iastika, T D Widyaningsih, K Febrianto. "Immunomodulatory Activity of Black Tea Kombucha (*Camellia sinensis*) and Arabica Coffee Leaves Tea Kombucha (*Coffea arabica*) for *Salmonella typhi*-infected mice", IOP Conference Series: Earth and Environmental Science, 2021

Publication

1 %

Exclude quotes Off

Exclude matches < 1%

Exclude bibliography Off