LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	Evaluation of food drying with air dehumidification system: a short review		
Jumlah Penulis	:	4 Orang (M Djaeni, F D Utari, **S B Sasongko** and A C Kumoro)		
Status Pengusul	:	Penulis ke-3		
Identitas Prosiding	:	a. Judul Prosiding	:	International Symposium on Food and Agro-biodiversity (ISFA) 2017
		b. ISBN/ISSN	:	Online ISSN: 1755-1315, Print ISSN: 1755-1307
		c. Thn Terbit, Tempat Pelaks.	:	2017, Semarang, Indonesia
		d. Penerbit/Organiser	:	IOP Publishing Ltd
		e. Alamat Repository/Web	:	https://iopscience.iop.org/article/10.1088/1755-1315/102/1/012069
		Alamat Artikel	:	https://iopscience.iop.org/article/10.1088/1755-1315/102/1/012069/pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	3,00	3,00	3,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00	7,50	8,25
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	8,50	7,80	8,15
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00	8,40	8,70
Total = (100%)	**29,50**	**26,70**	**28,10**
Nilai Pengusul = (40% x 28,10)/3 = 3,75			

Semarang, 20 Agustus 2020

Reviewer 2

Prof. Tutuk Djoko Kusworo, S.T., M.Eng., Ph.D.
NIP. 197306211997021001
Unit Kerja : Dept. Teknik Kimia FT UNDIP

Reviewer 1

Prof. Dr. Ir. Budiyono, M.Si.
NIP. 196602201991021001
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		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah : [√] *Prosiding* Forum Ilmiah Internasional
(beri ✓pada kategori yang tepat) [ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding Internasional [30]	Nilai Maksimal Prosiding Nasional [ ]	Nilai Akhir Yang Diperoleh
a. Kelengkapan unsur isi prosiding (10%)	3,00		3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		9
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		8,5
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		9
Total = (100%)	30,00		29,5
Nilai Pengusul = (40% x 29,50)/3 = 3,93			

Catatan Penilaian Paper oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi paper:**
Isi artikel lengkap utk sebuah artikel short review, namun menyajikan hal penelitian, abstrak lengkap, metode, pembahasan, dan kesimpulan ditulis dg kalimat efektif. Namun perlu memunculkan saran/rekomendasi penelitian selanjutnya.

2. **Ruang lingkup dan kedalaman pembahasan:**
Pembahasan cukup mendalam dan komprehensif didukung daftar pustaka 22 artikel dr jurnal. Potensial utk dikembangkan riset penelitian lebih lanjut. Bahkan sudah saatnya dilakukan pd penelitian yg skala lebih besar utk potensial diajukan paten.

3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**

Data dan metodologi cukup akurat dg alat untuk mencapai tujuan dan kesimpulan yg diterapkan. Didukung dg referensi ilmiah terkini.

4. **Kelengkapan unsur dan kualitas terbitan:**

Penulis 10 Publishing terkenal terpercaya dan publikasi artikel terindeks Scopus, kualitas bagus bebas plagiasi dg index similaritas hanya 5%.

Semarang,

Reviewer I

Prof. Dr. Ir. Budiyono, MSi
NIP. 196602201991021001
Unit Kerja : Dept. Teknik Kimia FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
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		f. Terindeks di (jika ada)	:	Scopus

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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
e. Kelengkapan unsur isi prosiding (10%)	3,00		3
f. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		7,5
g. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		7,8
h. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		8,4
Total = (100%)	**30,00**		**26,7**
Nilai Pengusul = (40% x 26,7)/3 = 3,56			

Catatan Penilaian oleh Reviewer:

a. Kelengkapan unsur isi paper (10%)
Artikel memiliki unsur lengkap (Introduction, Material & Methods, Results & Discussion, Conclusions, Acknowledgement, References). Isi artikel sesuai dengan bidang ilmu penulis, yaitu Teknik Kimia. State of the art, tujuan dan kesimpulan dinyatakan dengan jelas. Pengecekan plagiarism dengan Turnitin menunjukkan similaritas sebesar 5%. → (nilai = 10 %)

b. Ruang lingkup dan kedalaman pembahasan (30%)
Artikel ini membahas tentang review proses pengeringan pada bahan makanan dengan menggunakan kondisi humidifikasi udara. Pembahasan yang dilakukan cukup singkat akan tetapi cukup terarah dan mengelaborate penelitian terdahulu yang membahas pada pengeringan padi dan bawang. Kajian yang dilakukan adalah dengan melihat pengaruh humidifikasi udara terhadap kualitas padi maupun bawang dan juga melihat efisiensi sistemnya. → (nilai = 25 %)

c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)
Referensi yang dipakai 22 dan sebanyak 14 atau sekitar 63,6 % merupakan referensi yang baru atau 10 tahun terakhir. Hanya saja sebagai artikel review, referensi yang digunakan terlalu sedikit untuk mereview sebuah proses. → (nilai = 26 %)

d. Kelengkapan unsur dan kualitas terbitan/prosiding (30%)
IOP merupakan prosiding yang diterbitkan oleh penerbit IOP Publishing Ltd **Publishers** dengan **ISSN** Online ISSN: 1755-1315, Print ISSN: 1755-1307. Prosiding ini **terideks pada Scopus dengan SJR 2019 = 0,18. Editorial Board terdiri dari pakar-pakar yang berasal dari berbagai negara. Penulis berasal dari berbagai Negara. Penulisan di tiap artikel di dalam prosiding ini konsisten (28 %)**

Semarang, 20 Agustus 2020

Reviewer 2

Prof. Tutuk Djoko Kusworo, ST, M.Eng., PhD
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INTERNATIONAL SYMPOSIUM ON FOOD AND AGRO-BIODIVERSITY

CERTIFICATE

No.66/UN7.5.5/KP/2017

given to

Prof. Mohamad Djaeni

as

Oral Presenter

at the 2nd International Symposium on Food and Agro-biodiversity

Organized by Faculty of Animal and Agricultural Sciences Diponegoro University

Grand Candi Hotel, Semarang, Indonesia on 26-27 September 2017

Dean of Faculty of Animal and Agricultural Sciences Diponegoro University

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NIP 196107261987031003

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Volume 102, Issue 1, 31 January 2018, Article number 012069
2nd International Symposium on Food and Agro-Biodiversity, ISFA 2017; Grand Candi HotelSemarang; Indonesia; 26 September 2017 through 27 September 2017; Code 134394

Evaluation of food drying with air dehumidification system : A short review (Conference Paper) (Open Access)

Djaeni, M., Utari, F.D., Sasongko, S.B., Kumoro, A.C.

Department of Chemical Engineering, Diponegoro University, Jl. Prof. H. Soedarto, SH, Tembalang, Semarang, Indonesia

Abstract

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Energy efficient drying for food and agriculture products resulting high quality products has been an important issue. Currently, about 50% of total energy for postharvest treatment was used for drying . This paper presents the evaluation of new approach namely air dehumidification system with zeolite for food drying . Zeolite is a material having affinity to water in which reduced the moisture in air . With low moisture content and relative humidity, the air can improve driving force for drying even at low temperature. Thus, the energy efficiency can be potentially enhanced and the product quality can be well retained. For proving the hypothesis, the paddy and onion have been dried using dehumidified air . As performance indicators, the drying time, product quality, and heat efficiency were evaluated. Results indicated that the drying with zeolite improved the performances significantly. At operating temperature ranging 50 - 60°C, the efficiency of drying system can reach 75% with reasonable product quality.

SciVal Topic Prominence

Topic: Casing | Nicotiana Tabacum | Drying Apparatus

Prominence percentile: 35.184

Author keywords

dehumidified | efficiency | humidity | quality | zeolite

Indexed keywords

Engineering controlled terms: Atmospheric humidity | Biodiversity | Efficiency | Energy efficiency | Humidity control | Image quality | Moisture | Quality control | Temperature | Thermal processing (foods) | Zeolites

Engineering uncontrolled terms: Agriculture products | Air dehumidification | dehumidified | Dehumidified air | High-quality products | Operating temperature | Performance indicators | Post-harvest treatments

Engineering main heading: Drying

ISSN: 17551307
Source Type: Conference Proceeding
Original language: English
DOI: 10.1088/1755-1315/102/1/012069
Document Type: Conference Paper
Sponsors:
Publisher: Institute of Physics Publishing

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Djaeni, M.; Department of Chemical Engineering, Diponegoro University, Jl. Prof. H. Soedarto, SH, Tembalang, Semarang, Indonesia; email:moh.djaeni@live.undip.ac.id

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IOP CONFERENCE SERIES

Earth and Environmental Sciences

Volume 102, 2018 (Book 1)

BOOK 1

Online ISSN : 1755-1315
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Preface

Thanks for the supports given to **The 2nd International Symposium on Food and Agro-biodiversity**. The symposium has been held successfully on 26-27 September 2017 at Grand Candi Hotel, Semarang, Indonesia. It is the second symposium after the first one in 2014, and we plan to continue the ISFA as 3-yearly program in the future.

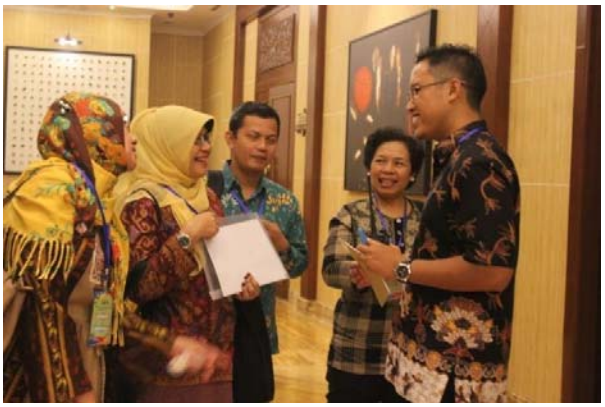
This year's theme is **'Developing Sustainable Agriculture and Food Production'**. The symposium has been honored by the attendance of 4 keynote speakers: Prof. Hayakawa from Kagawa University, Japan; Prof. Cheng Neng-chan from Guangdong Institute of Eco-environmental Science and Technology (GIEST), China; Dr. Bessie M. Burgos from The Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), The Philippines; and lastly Dr. Agung P. Murdanoto from PT. Rajawali Nusantara Indonesia (RNI).

The committee has seen a very big interest to the symposium and finally accepted 125 abstracts after careful selection, in which 105 papers have been presented in parallel session and 20 papers in the format of poster. There are 6 international participants, from China and Philippine, while the rest are from many universities, research agencies and government institutions across Indonesia.

Selected papers from this symposium have been through rigorous review by the scientific committee and resulted in 101 papers submitted to **IOP Conference Series: Earth and Environmental Sciences (EES)** and form this proceeding.

On behalf of the symposium organizers, we would like to express our sincerest gratitude to all editors, and all reviewers for their contributions and dedications for the development of this proceeding. We also thank all authors for the trust and support given to the symposium. Last but not least, we thank IOP publisher for their help on publishing this special work.

Below are some interesting pictures from the symposium:



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ISFA 2017 proceeding will be published very soon

Dear Respected Authors, A good news in a new year. After the rigorous review, the committee has successfully submitted the manuscripts of ISFA 2017 to the IOP Publisher. There were several manuscripts that were sent back to committee for further revision. However, we have done the revision and the manuscripts were re-submitted. [...]

Important Announcement – REVIEW PROCESS

First of all, the committee would like to thank you for your participation at ISFA 2017. We hope that you enjoyed the symposium. We are glad to inform you that we have contacted the international proceeding publisher, and they have confirmed that there is no limit for submission. Thus, we will put all abstracts under review and the [...]

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Please find the slide's file from our speaker below (please note, this files will be available for 30 days after symposium): Slide from Prof. Shigeru Hayakawa (click here to download) Slide from Dr. Bessie M. Burgos (click here to download) Slide from Prof. Nengchang Chen (click here to download) Slide from Dr. Agung P Murdanoto (click [...]

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Table of contents

Volume 102

2018

Previous issue Next issue

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Accepted papers received: 13 December 2017
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Open all abstracts

Preface

Papers

OPEN ACCESS 012002

Effect of various solvent on the specific amino acids of black soybean (*Glycine soja*) sprout

B Kanetro, A Slamet and A Wazyka

+ Open abstract View article PDF

OPEN ACCESS 012003

The browning value changes and spectral analysis on the Maillard reaction product from glucose and methionine model system

A.N. Al-Baarri, A.M. Legowo and Widayat

+ Open abstract View article PDF

OPEN ACCESS 012004

Quantitative risk assessment of *E. coli* in street-vended cassava-based delicacies in the Philippines

I C P Mesias

+ Open abstract View article PDF

OPEN ACCESS 012005

Prospect for the development of salted egg agro industry: an analysis on marketing distribution aspect

W Sumekar, A N Al-Baarri and E Kurnianto

+ Open abstract View article PDF

OPEN ACCESS 012006

The potential of avocado paste (*Persea americana*) as fat substitute in non-dairy ice cream

Ervina, I Surjawan and E Abdillah

+ Open abstract View article PDF

OPEN ACCESS 012007

Effect of green spinach (*Amaranthus tricolor* L.) and tomato (*Solanum lycopersicum)* addition in physical, chemical, and sensory properties of marshmallow as an alternative prevention of iron deficiency anemia

B Yudhistira, D R Affandi and P N Nusantari

+ Open abstract View article PDF

OPEN ACCESS 012008

Improving characteristics of goat milk yogurt drink fortified by mangosteen rind (*Garcinia mangostana Lin*.) extract

J M W Wibawanti, Rinawidiastuti, H D Arifin and Zulfanita

+ Open abstract View article PDF

DT Astuti, Y Pujiastuti, SHK Suparman, N Damiri, S Nugraha, ER Sembiring and Mulawarman

+ Open abstract View article PDF

OPEN ACCESS 012064

Characterization of *Bacillus thuringiensis* Berl. indigenous from soil and its potency as biological agents of *Spodoptera litura* (Lepidoptera: Noctuidae)

Y Pujiastuti, D T Astuti, S R Afriyani, S Suparman, C Irsan, E R Sembiring, S Nugraha, Mulawarman and N Damiri

+ Open abstract View article PDF

OPEN ACCESS 012065

Effect of *Pseudomonas spp* on infection of *Peronosporaparasitica* (Pers. Fr), the pathogen of downy mildew on Chinese cabbage

N Damiri, Mulawarman, A Umayah, S E Agustin and M Rahmiyah

+ Open abstract View article PDF

OPEN ACCESS 012066

Isolation and toxicity test of *Bacillus thuringiensis* from Sekayu region soil, South Sumatra on *Spodopteralitura*

S R Afriani, Y Pujiastuti, C Irsan, N Damiri, S Nugraha and E R Sembiring

+ Open abstract View article PDF

OPEN ACCESS 012067

Constant rate of paddy rice drying using air dehumidification with zeolite

F D Utari, M Djaeni and F Irfandy

+ Open abstract View article PDF

OPEN ACCESS 012068

An analysis of the feasibility of the copra business in the village of Pendowo Harjo, sub-district of Sungsang, Banyuasin Regency

Y Z W Purba and W Saleh

+ Open abstract View article PDF

OPEN ACCESS 012069

Evaluation of food drying with air dehumidification system: a short review

M Djaeni, F D Utari, S B Sasongko and A C Kumoro

+ Open abstract View article PDF

OPEN ACCESS 012070

Effect of bio-organomineral fertilizer on the growth of chili (*Capsicum annum* l.)

OPEN ACCESS 012098

The influence of maturity of VMAC5 (*Cocos nucifera* L. 'makapuno') on its physicochemical, proximate composition and fatty acid profile

M Leorna and K A Israel

+ Open abstract View article PDF

OPEN ACCESS 012099

Chemical structure, comparison antioxidant capacity and separation antioxidant of hen, duck and quail egg white protein hydrolysate

A Fatah, M Meihu, Q Ning, B E Setiani and V P Bintoro

+ Open abstract View article PDF

OPEN ACCESS 012100

The comparison of fatty acid and cholesterol profile on fresh and mozarella cheese made by pampangan buffalo milk

H Rizqiati, Nurwantoro and S Mulyani

+ Open abstract View article PDF

OPEN ACCESS 012101

Evaluation of resistant starch, glycemic index and fortificants content of premix rice coated with various concentrations and types of edible coating materials

W A Yulianto, A M Susiati and H A N Adhini

+ Open abstract View article PDF

JOURNAL LINKS

Journal home

Information for organizers

Information for authors

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Evaluation of food drying with air dehumidification system: a short review

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Abstract. Energy efficient drying for food and agriculture products resulting high quality products has been an important issue. Currently, about 50% of total energy for postharvest treatment was used for drying. This paper presents the evaluation of new approach namely air dehumidification system with zeolite for food drying. Zeolite is a material having affinity to water in which reduced the moisture in air. With low moisture content and relative humidity, the air can improve driving force for drying even at low temperature. Thus, the energy efficiency can be potentially enhanced and the product quality can be well retained. For proving the hypothesis, the paddy and onion have been dried using dehumidified air. As performance indicators, the drying time, product quality, and heat efficiency were evaluated. Results indicated that the drying with zeolite improved the performances significantly. At operating temperature ranging 50 – 60°C, the efficiency of drying system can reach 75% with reasonable product quality.

Keywords: *efficiency, dehumidified, humidity, quality, zeolite*

1. Introduction

The main challenge in global food demand is how to obtain high quality dry food products in efficient processing. The dry food or its extract can be a good option due to the long life storage and consumer convenience. To realize this preference, drying process offers the major role corresponding to the moisture removal from wet product. In general, the agriculture and food products with high moisture content (vegetables, herbs, starch products) are dried at low (10°C) to moderate temperatures (50-70°C) to conserve the valuable ingredients (protein, vitamins, enzymes, oil) as well as physical appearance such as color, and texture [1,2].

Currently, a huge amount of energy was used for food drying processes. In post harvest treatment, about 60 - 70% of total energy was used for drying [1,3,4]. The efficiency of energy utilization by food dryer ranged between 30 – 60%. It means that the total of energy used was about 1.5 – 3.0 times from the theoretical load.

Meanwhile, the modern drying technology has been widely developed with attractive results in the product quality aspects. However, the efficient dryer development has been scared. For example, the energy efficiency in freeze and low temperature dryers is lower than that of a conventional convective dryer. This is due to the low value of driving force for moisture transfer and higher latent heat of moisture evaporation. Recently, the energy usage has become an important issue with respect

Soil problems in China and its lessons for other developing countries

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Abstract. With the rapid growth of economy in China for more than 35 years since 1980, the soils in China experienced severe chances featured in high input of chemical fertilizers indeed of organic fertilizers to pursue high yield for the ever-growing population and the increase of life style and in high input of a large amount of metals especially cadmium from manure and atmospheric deposition. The shift of fertilizer application pattern and the high-yield output greatly change the soil quality, of which soil acidification is one of the main problems. Soil acidification and high cadmium input not only caused pollution on the soil but also contaminated the food. Cadmium with high percentage based on the strict soil quality standard (cadmium 0.3 mg/kg for soil, 0.2 mg/kg for rice grain). This paper will elucidate the soil pollution process in China during this 35 years and evaluate the soil and food problem properly and it may give a lesson for other developing countries when they are pave the way of modernization.

Keywords *: soil, cadmium pollution, acidification, food safety, China*

1. Introduction

China, a country with big population and limited land resources is highly dependent on soil for food production. Thanks to “green revolution”, food production in China has increased several folds now when compared in 1980s. However, large amount of fertilizer and pesticide application have greatly changed the soil properties; what is more, large amount of pollutants mainly from industrial emission have made the situation to worse, resulting in high rate of occurrence of cadmium and other metal tainted rice and pose a health threat to human in some

Quantitative risk assessment of *E. coli* in street-vended cassava-based delicacies in the Philippines

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Abstract. In the Philippines, rootcrop-based food products are gaining popularity in street food trade. However, a number of street-vended food products in the country are reported to be contaminated with *E. coli* posing possible risk among consumers. In this study, information on quantitative risk assessment of *E. coli* in street-vended cassava-based delicacies was generated. The assessment started with the prevalence and concentration of *E. coli* at post production in packages of the cassava-based delicacies. *Combase* growth predictor was used to trace the microbial population of *E. coli i*n each step of the food chain. The @Risk software package, version 6 (Palisade USA) was used to run the simulations. Scenarios in the post-production to consumption pathway were simulated. The effect was then assessed in relation to exposure to the defined infective dose. In the worst case scenario, a minimum and most likely concentration of 6.3 and 7.8 log CFU of *E. coli* per serving respectively were observed. The simulation revealed that lowering the temperature in the chain considerably decreased the *E. coli* concentration prior to consumption and subsequently decreased the percentage of exposure to the infective dose. Exposure to infective dose however was increased with longer lag time from postproduction to consumption.

Keywords: *quantitative risk assessment, street-vended cassava-based delicacies, E. coli*

1. Introduction

The Food and Agricultural Organization defines street food as a ready-to eat food and beverage prepared and/or sold by vendors on the street from pushcarts, buckets, balance pole, stalls or shops having fewer than four permanent walls. It encompasses a wide range of ready-to-eat foods and beverages prepared and/or sold by mobile or stationary vendors and hawkers especially on streets and around public places [1-5]. Such foods feed millions of people daily with a wide variety of foods that are relatively cheap and easily accessible. In selling snacks, complete meals, and refreshments at relatively low prices, vendors provide an essential service to students, workers, shoppers, travellers, and people on low income [6]. People who depend on such food are often more interested in its convenience than in questions of its safety, quality and hygiene. However, to date, it is well known that majority of the reported contamination of food that contributes to food-borne disease in countries is associated with street-vended foods [7-8]. In developing countries, since infrastructure development was relatively limited, with restricted access to potable water, toilets, refrigeration and washing and waste disposal facilities [9], food-borne illnesses are occurring and recurring.

In the Philippines, increasing pace of urbanization has resulted in proliferation of street food vendors and hawkers as the movement of people from rural to urban areas has led to the need to feed

The potential of avocado paste (*Persea americana*) as fat substitute in non-dairy ice cream

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Abstract. Consumer preferences towards plant-based food have shifted significantly due to sustainable and healthy reasons. Dairy products consist of high Saturated Fatty Acid (SFA) and overconsumption of SFA could lead to cardiovascular diseases. Avocado contains high levels of fat dominated by Monounsaturated Fatty Acid (MUFA) and phytosterol that have the potential as a plant-based fat source to substitute dairy-fat in ice cream. The objective of this study was to analyze the physicochemical, rheological and sensorial properties of ice cream substituted with different concentrations of avocado paste ranging from 0%, 25%, 50%, 75% and 100% respectively against dairy fat to produce non-dairy fat ice cream. The psychochemical properties and total fat were determined. Sensorial quality and hedonic attributes of ice cream were investigated using 60 semi-trained panelists. There were significant differences ($p<0.05$) for overrun, melting rate, and viscosity of the ice cream substituted with avocado paste. The addition of avocado paste lead to the increase in viscosity and hardness of the ice cream significantly ($p<0.05$) while the sensorial properties for airiness and creaminess were perceived the same ($p>0.05$). The addition of 50% avocado paste was the most preferred among the panelists. Avocado could provide a potential substitution for dairy-fat in ice cream.

Keywords: avocado, ice cream, plant-based food, non-dairy, MUFA

1. Introduction

Consumers prefer plant-based diets [1], which are more sustainable [2] and able to provide better health benefit. The preference towards plant-based diets has significantly increased [3], with the rise of millennial generation who are increasingly adopting vegan and free-lactose diets [4]. It also has been reported that dairy milk sales have decreased globally by 7% in 2015 due to the negative health perception of dairy-based product consumption. Plant-based food diets however have become more inclusive within personalized nutrition plans for more than 70% of consumers [5]. Several factors such as lactose intolerance, gastrointestinal discomfort, and allergies have become the principal reasons for people avoiding dairy-based products [6]. Moreover, the clean label trend has also become one of the major concerns that affect consumer preference towards dairy consumption [7]. Furthermore, traces of antibiotics and hormones potentially carried in dairy and dairy-based products can also contribute to