

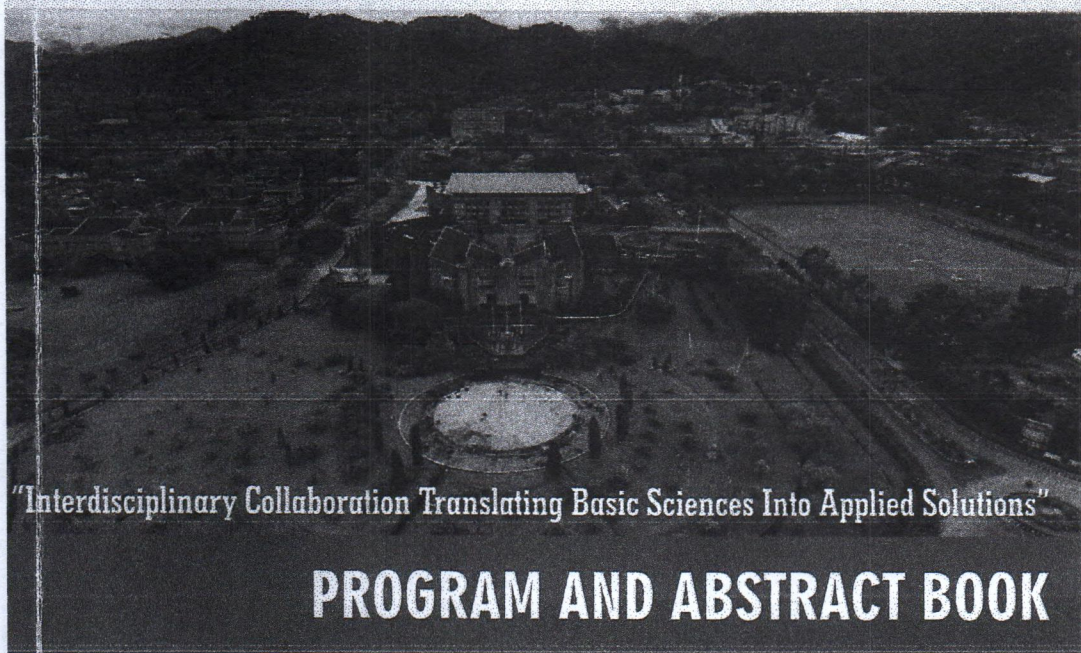
ICBSA 2018

INTERNATIONAL CONFERENCE

ON BASIC SCIENCES AND ITS APPLICATIONS

August 23-24, 2018

Grand Inna Padang Hotel & Convention Center
Padang, West Sumatera, Indonesia



"Interdisciplinary Collaboration Translating Basic Sciences Into Applied Solutions"

PROGRAM AND ABSTRACT BOOK




Organized by :
**FACULTY OF MATHEMATICS AND NATURAL SCIENCES
ANDALAS UNIVERSITY**

Supported by :



LPPM
Universitas Andalas

Bank  Nagari

 **BNI**


mandiri
syariah

Opening Speech from Rector of Andalas University

Assalamu'alaikum Warahmatullahi wabarakatuh,
Governor of Sumatera Barat,
Dean of Faculty of Mathematics and Natural Sciences,
Plenary and keynote speakers,
Colleagues and all participants,

Good morning,

Welcome to Andalas University. It gives me a great pleasure to welcome you on behalf of the Andalas University, and it is an honour to open this International Conference on Basic Sciences and Its Applications 2018, ICBSA2018

This is the first international conference organized by all of departments in Faculty of Mathematics and Natural Sciences, Andalas University. It is of the greatest importance for the national and international scientific community engaged in research on basic sciences, pharmaceuticals, medicine, agriculture and technology to meet and discuss the most recent and advanced research in basic science in order to bring it into applied solutions.

I congratulate the Faculty of Mathematics and Natural Sciences, as well as all the participants in this conference for their participants. Also, I would like to express great appreciation to the Plenary and Keynote speakers:

1. **Prof. Masaji Watanabe**, Okayama University, Japan
2. **Dr. Noviar Andayani**, Universitas Indonesia, Indonesia
3. **Prof. Mamoru Koketsu**, Gifu University, Japan
4. **Assoc. Prof. Kuniyoshi Shimizu**, Kyushu University, Fukuoka, Japan
5. **Prof. Zaki Su'ud**, Institut Teknologi Bandung, Indonesia
6. **Assoc. Prof. Hadi Susanto**, University of Essex, England
7. **Dr. Suhana Mohd Said**, University of Malaya, Malaysia
8. **Prof. Mustafa Mat Deris**, Universiti Tun Hussein Onn, Malaysia
9. **Prof. Hendra Gunawan**, Institut Teknologi Bandung, Indonesia
10. **Prof. Erizal Mukhtar**, Andalas University, Padang, Indonesia
11. **Prof. Hye Jin Lee**, Kyungpook National University, Republic of Korea
12. **Prof. Edwin Aldrian**, Agency for The Assessment and Application Technology (BPPT), Indonesia

Finally, we really hope, may what we discussed in this conference will contribute ideas to the real applications in life to get better life in the future.

Thank you for your attention. Enjoy the conference, enjoy the beautiful Sumatera Barat.

Assalamu'alaikum warahmatullahi wabarakatuh

Padang, 23rd August 2018
Rector of Andalas University
Prof. Dr. Tafdil Husni, SE, MBA

Committee

Streering Committee

Prof. Tafdil Husni	: Rector, Andalas University (Unand)
Prof. Dr. Dachriyanus, Apt	: Vice Rector for Academic and Student Affair, Unand
Prof. Dr. Syafrizal Sy	: Vice Rector for Finance, Assets and Human Resources, Unand
Prof. Dr. Mansyurdin	: Dean of the Faculty MIPA Andalas University
Dr. Uyung Gatot	: Director of Institute for Research and Community Services
Prof. Dr. Safni	: Director of Institute for Research and Community Services Vice Dean for Academic and Student Affair, FMIPA, Unand
Prof. Dr. Adlis Santoni	: Vice Dean for Finance, Assets and Human Resources, FMIPA, Unand
Dr. Mairawita	: Head of Department Biology
Dr. Afrizal	: Head of Department Chemistry
Dr. Mahdhivan Syafwan	: Head of Department Mathematics
Dr. Marzuki	: Head of Department Physics

Scientific Committee

Prof. Mustafa Mat Deris (Universiti Tun Hussein Onn Malaysia)
Prof. Edwin Aldrian (Agency for The Assessment and Application Technology, Indonesia)
Prof. Mamoru Koketsu (Gifu University, Japan)
Assoc. Prof. Kuniyoshi Shimizu (Kyushu University, Fukuoka, Japan)
Assoc. Prof. Hadi Susanto (University of Essex, England)
Prof. Dr. Syukri Arief (Andalas University, Padang, Indonesia)
Prof. Dr. Safni (Andalas University, Padang, Indonesia)
Prof. Dr. Muhafzan (Andalas University, Padang, Indonesia)
Prof. Dr. Syafrizal Sy (Andalas University, Padang, Indonesia)
Prof. Dr. Efrizal Mukhtar (Andalas University, Padang, Indonesia)
Prof. Dr. Syamsuardi (Andalas University, Padang, Indonesia)
Dr. Mai Efdi (Andalas University, Padang, Indonesia)
Dr. Admi Nazra (Andalas University, Padang, Indonesia)
Dr. Djong Hon Tjong (Andalas University, Padang, Indonesia)
Dr. Marzuki (Andalas University, Padang, Indonesia)
Dr. Dahyunir Dahlan (Andalas University, Padang, Indonesia)
Dr. Harmadi (Andalas University, Padang, Indonesia)

Editors

Dr. Diana Vanda Wellia (Corresponding Editor)
Dr. rer.nat. Muldarisnur
Dr. Lyra Yulianti
Dr. rer.nat. Syafrizayanti
Dr. Putra Santoso

Organizing Committee

Chairperson : Dr. rer.nat. Syafrizayanti
Co-Chairperson : Dr. rer. nat. Muldarisnur
Secretary : Dr. Aadrean
Treasury : Dr. Arrival Rince Putri
Secretariat and Web Division : Dr. Eng Yulia Eka Putri (Coordinator)
Dr. Putra Santoso
Ardian Putra, M.Si
Dr. Shelvi Ekariani
Enda Desriansyah Aziz, S.Si
Nova Andriani, S.Si
Public Relation : Dr. rer. nat. Indra Junaidi Zakaria (Coordinator)
Emil Salim, M.Si
Elistia Liza Namigo, M.Si
Dr. Lyra Yulianti
Refinel, M.Si
Marniati Salim, MS
Program : Dr. Henny Herwina (Coordinator)
Dr. Diana Vanda Wellia
Dr. Dahyunir Dahlan
Dr. Des Welyyanti
Transportation and Equipment : Ahmad Taufiq, M. Si (Coordinator)
Dr. Syukri
Dr. Harmadi
Efendi, M.Si
Banquet Division : Dwi Pujiastuti, M.Si (Coordinator)
Dr. Dewi Imelda Roesma
Dr. Rahmayeni
Monika Rianti Helmi, M.Si

Thursday, 23 August 2018					
Time	Main Hall 1	Main Hall 2	Room 1	Room 2	Room 3
07.00-08.00	Registration				
	1. Opening				
08.00-08.30	2. Chairperson of Organizing Committee				
	3. Rector of Andalas University (Official Opening)				
08.30-09.00	Group Photo Session and Welcoming Gift				
09.00-09.45	Plenary Lecture 1		Dr. Noviar Andayani		
	Q & A (Moderator)		Dr. Tesri Maideliza		
09.45-10.30	Plenary Lecture 2		Prof. Masaji Watanabe		
	Q & A (Moderator)		Dr. Arrival Rince Putri		
10.30-10.45	Coffee Break and Poster Session				
11.00-12.15	11.00-11.20	Keynote Speaker 01		Prof. Mamoru Koketsu	
	11.20-11.40	Keynote Speaker 02		Prof. Hye Jin Lee	
	11.40-12.00	Keynote Speaker 03		Assoc. Prof. Kuniyoshi Shimizu	
	12.00-12.15	Q & A (Moderator)		Prof. Safni	
12.15-13.30	Lunch and Prayer				
13.30-14.45	13.30-13.50	Keynote Speaker 04		Prof. Hendra Gunawan	
	13.50-14.10	Keynote Speaker 05		Prof. Edvin Aldrian	
	14.10-14.30	Keynote Speaker 06		Prof. Erizal Mukhtar	
	14.30-14.45	Q & A (Moderator)		Dr. techn. Marzuki	
14.45-15.00	Coffee Break and Poster Session				
Parallel Session					
15.00-16.15	IS 001	IS 003	MNS 001	EBI 001	BHS 001
			MNS 002	EBI 002	BHS 002
	BHS 011	NOS 006	MNS 003	EBI 003	BHS 003
	BHS 012	NOS 007	MNS 004	EBI 004	BHS 004
	BHS 013	NOS 008	MNS 005	EBI 005	BHS 005
Moderator	Indra J	Afrizal	Syukri	Putra S	A. Taufik
	Q & A	Q & A	Q & A	Q & A	Q & A
16.15-17.30	IS 002	NOS 001	ERS 004	MNS 016	EBI 006
		NOS 002	ERS 005	MNS 017	EBI 007
	ERS 001	NOS 003	ERS 007	MNS 018	EBI 008
	ERS 002	NOS 005	ERS 008	MNS 019	EBI 009
	ERS 003			MNS 020	EBI 010
Moderator	Refilda	Mai Efdi	Syukri	Dahyunir	Aadrean
	Q & A	Q & A	Q & A	Q & A	Q & A

PROGRAM SCHEDULE ICBSA 2018

Friday, 24 August 2018				
Parallel Session				
Time	Main Hall 1	Main Hall 2	Room 1	Room 2
08.00-09.00	BHS 006	PAM 005	TPI 005	MNS 011
	BHS 007	PAM 006	TPI 006	MNS 012
	BHS 008	PAM 007	TPI 007	MNS 013
	BHS 009	PAM 008	TPI 008	MNS 014
	BHS 010			MNS 015
	BHS 020			
Moderator	Emil Salim	Lyra Yulianti	Muldarisnur	Diana Vanda W
	Q & A	Q & A	Q & A	Q & A
09.00-09.30	Poster Appraisal and Coffee Break			
09.30-10.20	Keynote Speaker 07		Prof. Zaki Su'ud	
	Keynote Speaker 08		Assoc. Prof. Suhana Mohd Said	
	Q & A (Moderator)		Dr. rer. nat. Muldarisnur	
10.20-11.10	Keynote Speaker 09		Prof. Mustafa Mat Deris	
	Keynote Speaker 10		Assoc. Prof. Hadi Susanto	
	Q & A (Moderator)		Dr. Madhivan Syafwan	
11.10-11.30	Poster Winner Announcement			
11.30-13.30	Lunch and Friday Prayer			
13.30-14.30	PAM 001	BHS 014	MNS 006	SCS 001
	PAM 002	BHS 015	MNS 007	SCS 002
	PAM 003	BHS 016	MNS 008	SCS 003
	PAM 004	BHS 017	MNS 009	SCS 004
		BHS 018	MNS 010	
		BHS 019		
Moderator	Monika R.H	Dewi I. R	Zulhadjri	Shelvi Ekariani
	Q & A	Q & A	Q & A	Q & A
14.30-15.30	EBI 011	TPI 001	MNS 021	
	EBI 012	TPI 002	MNS 022	
	EBI 013	TPI 003	MNS 023	
	EBI 014	TPI 004	MNS 024	
	EBI 015		MNS 025	
Moderator	Henny	Elfira S	Rahadian Z	
	Q & A	Q & A	Q & A	Q & A
15.30-15.45	Coffee Break			
15.45-16.30	Awarded Certificate			

Information for Oral Parallel Sessions

1. All speakers must submit the PPT file before the parallel session begins.
2. All speakers must be in the room before the session begins.
3. The moderator will call the speaker according to the serial number in the conference program.
4. The presentation will be in series and each presenter will give a talk in 10 minutes and 10 minutes for all Q&A.
5. The time keeper will give a sign "3 minutes" to presenter before the presentation ends.
6. The time keeper will give a sign "2 minutes" to moderator before the Q&A session ends.
7. The presenter will sign the attendance sheet after presentation.
8. All speakers are expected to remain seated in the room until the parallel session ends.

Topic codes:

- Statistics and Computational Science (SCS)
- Materials Science and Nanotechnology (MSN)
- Natural Products and Organic Synthesis (NOS)
- Biomolecular, Bioprocess and Health Sciences (BHS)
- Earth, Renewable Energy and Environmental Science (ERS)
- Theoretical Physics and Instrumentations (TPI)
- Pure and Applied Mathematics (PAM)
- Ecology and Biodiversity (EB)

Information for Poster Presentation

1. The poster should match the specified size (A₀/80cmx120cm).
2. The poster must be prepared 10 minutes before the poster appraisal begins.
3. The poster must be prepared on the poster board according to the ID number.
4. The presenter should be ready next to their poster during the poster session.
5. The judge will assess the poster during the poster appraisal.
6. The presenter will sign the attendance sheet after presentation.
7. All speakers are expected to remove their poster after the session ends.
8. The poster will be removed by the committee if it is not taken when the session ends.
9. The judges' decision is final and no correspondence or discussion will be entered into regarding their decision

CONTENT

Chairperson Welcoming Remarks.....	i
Opening Speech from Rector of Andalas University	ii
Committee	iii
PROGRAM Schedule ICBSA 2018	v
Information for Oral Parallel Sessions	vii
Information for Poster Presentation.....	viii
CONTENT	ix
PLENARY LECTURE.....	1
PL 1 Application of Numerical Techniques to Biological and Chemical Phenomena Masaji Watanabe ^{1*)} and Fusako Kawai ²⁾	2
PL 2 Living Landscape: From Policy to Conservation Practices in Indonesia Noviar Andayani.....	3
KEYNOTE SPEAKER	4
KS 01 Anti-termite Molecules Isolated from Indonesian Plants Mamoru Koketsu ^{1*)} , Antoni Pardede ²⁾ and, Morina Adfa ³⁾	5
KS 02 Nanoparticle Incorporated Surface Sandwich Biosensors for Medical Diagnostics Hye Jin Lee *	7
KS 03 Lifestyles of Health and Sustainability (LOHAS) for the better future- Multifunctional activity of <i>Ganoderma</i> mushroom- Kuniyoshi SHIMIZU	8
KS 04 Heisenberg's Uncertainty Principle and Its Implication Hendra Gunawan (FMIPA-ITB).....	9
KS 05 Climate change and sustainable development in Indonesia Edvin Aldrian	10
KS 06 Tree Diversity and Carbon Stock in Forest Conservation Of Palm Oil Plantation, West Sumatra, Indonesia Erizal Mukhtar *, Wilson Novarino and Rizaldi	11
KS 07 Evolution of Liquid Heavy Liquid Metal Cooled Advanced Fast Reactors Zaki Su'ud, Nina Widiawati, Fitria Miftasani, Hellen Rafliis, Indah Rosyidah M, Maryam Affah	12
KS 08 Thermoelectrics: From Molecular Design To Generators Suhana Mohd Said ^{1*} , Mohd Faizul Mohd Sabri ² and Megat Muhammad	

	Ikhlan Megat Hasnan ¹ , Nik Muhd Jazli Nik Ibrahim ¹ , Mohamad Syafie Mahmood ¹ , Syed Waqar Hasan ¹ , Mohd Faiz Mohd Salleh ¹	13
KS 09	Rough Set Theory and It's Applications Mustafa Mat Deris	14
KS 10	Formation of blooms and patterns in phytoplankton models Hadi Susanto	15
INVITED SPEAKER		16
IS 001	Cytotoxicity effect of Macaranga Trees extracts in several cancer cell lines Enos Tangke Arung ^{1*} , Rudianto Amirta ² , Djihan Ryn Pratiwi ³ , Ahmed E. Allam ⁴ , Yhiya Amen ^{4,5} , Kuniyoshi Shimizu ⁴	17
IS 002	Effect of Addition of Biosurfactant-Producing Bacteria on Biodegradation of DDT by Brown-rot Fungi Adi Setyo Purnomo	18
IS 003	The chemical constituents and medicinal properties of some Indonesian traditional plants Sri Fatmawati*	19
ORAL PRESENTATION		20
BHS 001	Evaluation of Serum IgA Antibodies to Epstein-Barr Virus Early and Viral Capsid Antigens in Nasopharyngeal Carcinoma Sukri Rahman	21
BHS 002	Improving of Dragon Fruit Peel Wastes Nutrient Quality by Fermentation with Local Microorganism from Bamboo Sprout for Laying Hens Feed Yusuf Mahlil ¹⁾ , Husmaini ²⁾ , Warnita ³⁾ , Mirzah ²⁾ , and Maria Endo Mahata ^{2*)}	22
BHS 003	<i>Aedes aegypti</i> (Diptera: Culicidae) Resistance Status to Temephos With Biochemical Test (Acetylcholinesterase Enzyme) Yeni Etma Nazar ¹ , Resti Rahayu ² , Hasmiwati ³	23
BHS 004	Applicability of the Bacterial Endotoxin Test (BET) to Some Radiopharmaceutical Sterile Kits by Using <i>Tachypleus</i> Amebocyte Lysate (TAL) Amal Rezka Putra, Endang Sarmini, Enny Lestari, Arni Aries	24
BHS 005	Photodegradation of Violet-3B Dye using C-N-codoped TiO ₂ as Catalyst Reza Audina Putri	25
BHS 006	Validation of Rituximab Iodination Procedure for Preparation of ¹³¹ I-Rituximab Used for Radioimmuno-therapy of B-cell non-Hodgkin lymphoma	

	Martalena Ramli	26
BHS 007	Activity of Acetylcholinesterase (AChE) and Mutation of Voltage Gate Sodium Channel (VGSC) Gene in <i>Blattella germanica</i> L. From Bukittinggi Tito Nurseha ¹ , Muhammad Rizki Saputra ¹ , Resti Rahayu ^{1*} and Hasmiwati ²	27
BHS 008	Comparison of Iron Reduction Methods on The Determination of Antioxidants Content In Vegetables Sample Yefrida*, Hamzar Suyani, Hermansyah Aziz, Mai Efdi	28
BHS 009	The Effect Of Laser Wavelength On Sensitivity And Accuracy Of The Evanescent-Based Blood Glucose Sensor Nola Fridayanti dan Mulda Muldarisnur*	29
BHS 010	Alpha Lipoic Acid Inhibits Expression of Intercellular Adhesion Molecule-1 (ICAM-1) in Type 2 Diabetic Rat Ismawati	30
BHS 011	Detection of Porcine DNA in Food Supplement Capsules Shell of Using Specific Polymerase Chain Reaction Method Rahmy Lia Noza ¹ , Eka Wahyuni Harlin ¹ , Marniati Salim ¹ , Syafrizayanti ^{1*}	31
BHS 012	Gambier-Catechin Administration Modulate TAU Protein Hyperphosphorylation in Alzheimer's Model Female Rat Ulya Uti Fasrini ^{1,2} , Nur Indrawaty Lipoeto ¹ , Yuliani Syafrita ³	32
BHS 013	Tensile and Flexural Properties of Hemp Micro-fibril Reinforced Poly-Lactic Acid Green Composite: Effect of Citric Acid Addition Sujito*, Sutisna, and E. Supriyanto	33
BHS 014	Selection Of Local Microorganism Solutions As Crude Fiber Digester In Areca catechu L. Peel Waste For Producing Poultry Feed Additive Maria Endo Mahata ¹ , Ardi ² , and Yose Rizal ¹	34
BHS 015	Synthesis Of Antibiotic Penicilin-G Enzymatically And Used ForThe Synthesis 6-Amino Penicilanic Acid (6-APA) Refidinal Nawfa ^{1*} , Adi S.Purnomo ² , Herdayanto S.Putro ³	35
BHS 016	Biopigment Of Microalgae <i>Chlorella</i> sp. As <i>Staphylococcus aureus</i> Antibacterials Hartini H ^{1*} , Titi Lasmjini ¹ and Mathylda Pratiwi ¹	36
BHS 017	<i>Scenedesmus Dimorphus</i> As Nutraceutical Anti-Obesity On Mice With High Fat Diet Armaini	37

BHS 001

Evaluation of Serum IgA Antibodies to Epstein-Barr Virus Early and Viral Capsid Antigens in Nasopharyngeal Carcinoma

Sukri Rahman^{1a}, Heru Kurniawan^{1b}, Bestari J Budiman^{1c}, Eti Yerizel², Hafni Bachtiar³

¹Department of Otorhinolaryngology Head and Neck Surgery, Faculty of Medicine, Andalas University

²Departement of Biochemistry Faculty of Medicine, Andalas University, Padang Indonesia

³Departement of Public Health Faculty of Medicine, Andalas University, Padang Indonesia

Corresponding author : sukri_rahman@yahoo.com

ABSTRACT

Nasopharyngeal carcinoma (NPC) has a unique geographic distribution, with endemic areas in southern China and intermediate incidence rates in Southeast Asia including Indonesia. NPC is the most common head and neck cancer in Indonesia. The cause of NPC is suspected to be an interaction between Epstein-Barr virus (EBV) infection, genetic susceptibility and environmental factors. EBV infection has been shown to play an important role in the cause of NPC. EBV DNA and anti-EBV can be detected in most NPC patients in endemic area, making EBV-related antibody as important non-invasive test for nasopharyngeal carcinoma. The objective of this study was to investigate serum level and prevalence of EBV EA-IgA and VCA-IgA in nasopharyngeal carcinoma patients in West Sumatra, Indonesia. Methods: A total of 15 untreated nasopharyngeal carcinoma patients in Dr. M. Djamil General Hospital Padang were recruited, in parallel with 15 healthy individuals as controls. Results: Serum EA-IgA and VCA-IgA levels were measured by enzyme-linked immunosorbent assay (ELISA). Positive criteria were: EA-IgA > 8 U/ml, VCA-IgA > 8 U/ml. The prevalence of serum EA-IgA and VCA-IgA in NPC patients (66.7% and 80.0%) was significantly higher than in the control groups (0.0% and 0.0%) ($p < 0.05$). Nasopharyngeal carcinoma patients had higher EA-IgA levels (114.705 + 136.524) compared to healthy controls (1.749 + 0.498) ($P < 0.05$) and higher VCA-IgA (mean 22.958 + 16.919) compared to healthy controls (1.571 + 0.572) ($P < 0.05$). The IgA antibodies level to Epstein-Barr EA and VCA were elevated in nasopharyngeal carcinoma patients and were more prevalence in NPC patients than those in the controls.

Keywords:

BHS 002

Improving of Dragon Fruit Peel Wastes Nutrient Quality by Fermentation with Local Microorganism from Bamboo Sprout for Laying Hens Feed

Yusuf Mahlil¹⁾, Husmaini²⁾, Warnita³⁾, Mirzah²⁾, and Maria Endo Mahata^{2*)}

1) PhD Student in the Graduate Program, Universitas Andalas, Kampus Limau Manis, Padang, Indonesia, 25163.

2) Lecturer at the Undergraduate, Magister, and Doctoral Faculty of Animal Science, Universitas Andalas, Kampus Limau Manis, Padang, Indonesia, 25163.

3) Lecturer at the Undergraduate, Magister, and Doctoral Faculty of Agricultural Science, Universitas Andalas, Kampus Limau Manis, Padang, Indonesia, 25163.

* Corresponding Author: maria@ansci.unand.ac.id

ABSTRACT

Background: Dragon fruit peel waste contains phytochemical compounds such as anthocyanins, beta-carotene, and lycopene, which are reported as antioxidant for lowering cholesterol in blood serum. Previous research showed that the problem of dragon fruit peel as laying hens feed was due to high content of crude fiber, which inhibited the amount of its utilization in the poultry diet and lowered its phytochemical absorption in the digestive tract. There is no report of processing of dragon fruit peel waste to improved nutrient quality using biological method thought fermentation with local microorganism (LM) from bamboo sprout. Previous research showed the crude fiber of pineapple peel decreased by fermentation with LM from bamboo sprout from 24 % to 17.16%. **Objective:** The goal of this study to see the effect of dragon fruit peel wastes fermentation by LM from bamboo sprout in improving its nutrient quality. **Methodology:** The experiment was performed in a Factorial completely randomized design, the first factor is fermentation duration (7, 9, 11, and 13 days), and the second factor is different level of inoculum (2, 4, 6, and 8 %), and each treatment was replicated 2 times. **Measurements:** Dry matter, crude fiber, and crude protein of dragon fruit peel wastes. **Results:** The experiment showed that fermentation of dragon fruit peel wastes by LM lowering the crude fiber and dry matter significantly ($P < 0.05$), and improved crude protein significantly ($P < 0.05$). **Conclusion:** Fermentation of dragon fruit peel waste with LM from bamboo sprout with inoculum level is 8% and fermentation duration 13 days are the best treatment in improving nutrient quality of dragon fruit peel wastes.

Keywords: Dragon fruit peel, fermentation, local microorganism, crude fiber, feed for laying hens.