

**The Preventive Effects of MOCAF-based Analog Rice  
on The Pathogenesis of T1DM Through Improvement  
Gut Microbiota Composition**

Dipresentasikan Pada  
The 4th International Conference  
on Agriculture and Life Sciences  
Jember, 6-7 Oktober 2020

Oleh:  
Dr. dr. Hairrudin., M.Kes



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN  
FAKULTAS KEDOKTERAN  
UNIVERSITAS JEMBER



## The 4th International Conference on Agriculture and Life Sciences

Retouching Strategy for Exploring Potency of Industrial Crops for Health in Adapting to The New Normal Era

### CONFERENCE DAY 1

OCTOBER 6, 2020

#### AGENDA DETAILS

- + Opening Ceremony & Plenary Session I & II (08:00 - 11:50 GMT+7) >
- + Parallel Session Room A: Agronomy (13:00 - 17:00 GMT+7) >
- + Parallel Session Room B: Food Science and Smart Education for Plant Based-Diet (13:00 - 17:00 GMT+7) >
- + Parallel Session Room C: Biotechnology and Biomolecule (13:00 - 17:00 GMT+7) >
- + Parallel Session Room D: Agriculture engineering and Technology (13:00 - 17:00 GMT+7) >

### CONFERENCE DAY 2

OCTOBER 7, 2020

#### AGENDA DETAILS

- + Plenary Session III (08:50 - 09:45 GMT+7) >
- + Parallel Session Room A: Smart business for agriculture and healthy food (09:50 - 13:00 GMT+7) >

## ORGANIC FARMING WORKSHOP

OCTOBER 8, 2020, 08:30 GMT+7

**The 4<sup>th</sup> International Conference on Agriculture and Life Sciences (ICALS)**

**WORKSHOP**

**ORGANIC FARMING FOR SUSTAINABLE AGRICULTURE**

**SESSION 1 :**  
Socialization of Organic Product Certification Implementation

**SESSION 2 :**  
Socialization of Competency Test Implementation Organic Farming Facilitators and Operators

**Speakers:**

- drh. Purnomo**  
President of the Sriblana Organic Certification Institute (LeSOS)  
Tips for Getting Certificate and Organic Label
- Dr. I Nyoman Oka Tridjaja**  
Professional Certification Institute - Organic Agriculture (LSPPO)  
Organic Agriculture Professional Certification "Facilitator"
- Ir. Rudianto**  
Chairman of the Tani Jaya Cooperation "Semberjember, Jember"  
Lesson Learn (Experience Farming Organically)
- Mulyono**  
Chairman of the AI Bankab Association of Farmer group Lestak Kabos, Indonesia  
Lesson Learn (Experience Farming Organically)
- Dr. Hari Purnomo**  
Coordinator of the Agrotechnology Study Program Faculty of Agriculture, University of Jember  
Preparing strategy for prospective competency test participants
- Dr. Arthur FC Regar**  
Chairman of the Independent Competency Test Faculty of Agriculture, University of Jember  
Implementation of Competency Test at TLK Faculty of Agriculture, University of Jember

**Place and Date :**  
Jember, Indonesia  
8<sup>th</sup> October, 2020  
**at 08:30 AM**

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- Presented and selected paper will be published in Scopus-Indexed Proceeding with publication fee: IDR 1.000.000 / USD 70, or
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- [Agriculture Faculty, University of Jember](#)
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- [The Center of Excellence on Crop Industrial Biotechnology \(PUI-PT -BioTIn\), University of Jember](#)

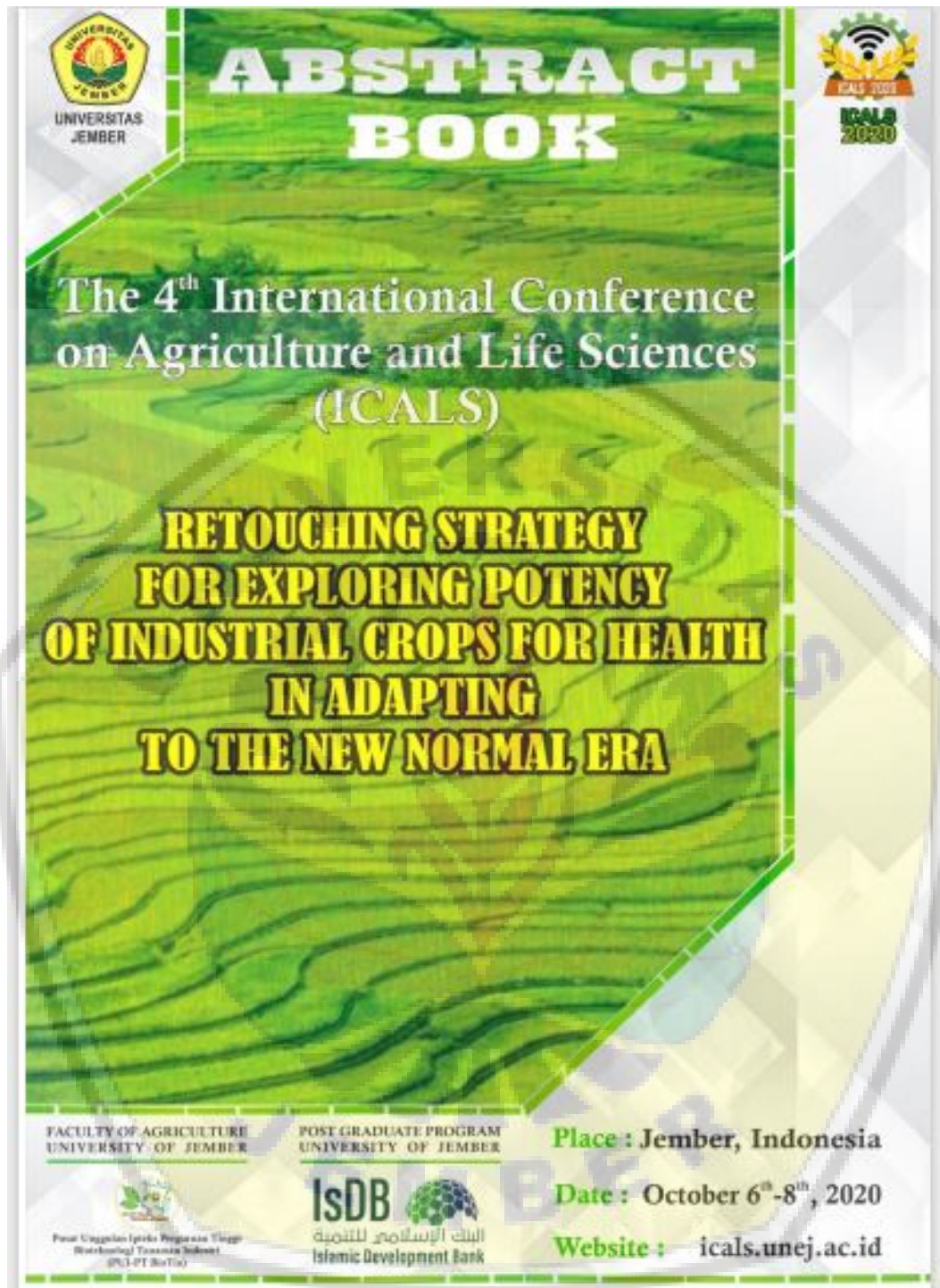
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### **“Retouching Strategy for Exploring Potency of Industrial Crops for Health in Adapting to the New Normal Era”**

This International Seminar will be conducted by strong interrelationship among the institutions as depicted below.

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15.00 - 17.00 <b>Presentation:</b> 10' <b>Discussion:</b> 5'	4	Ahya Natasya	The anti-inflammatory effect of ethanolic stem extract from <i>vaccinium varingiae folium</i> on plantar thickness of carrageenan-induced mice
	5	Dr. Ir. Soenar Soekopitojo, M.Si.	The antioxidant capacity of herbal teas made from jackfruit ( <i>Artocarpus heterophyllus</i> ) leaves and spices
	6	Yeyen Prestyaning Wanita, S.TP., M.MA	The quality improvement of uwi flour ( <i>Dioscorea alata</i> ) through the fermentation process
	7	Dr. Andi Yulyani Fadwiwati, S.Pt., M.Si.	Analysis of carrying capacity of food crop waste as contributive of beef cattle feed related to the availability of animal protein in Gorontalo district new normal adaptation period
	8	Yeyen Prestyaning Wanita, S.TP., M.MA	The effect of chrysanthemum leaf and sugar composition in manufacturing ready to drink beverages, and its added value analysis.
	9	Dr. Andi Yulyani Fadwiwati, S.Pt., M.Si.	Potential of food crop waste as one of beef cattle feed providers supporting meat self-sufficiency in Gorontalo district during the new normal period
<b>B2</b>  <b>Moderator:</b> Hasbi Mubarak, S.Tp., M.Si  <b>Time:</b> 15.00 - 17.00 <b>Presentation:</b> 10' <b>Discussion:</b> 5'	1	Nurul Chairiyah, S.Si., M.Si.	The correlation between glucomannan, calcium oxalate and crystal density in porang ( <i>Amorphophallus muelleri</i> blume) corms
	2	Erlin Susilowati, S.P	Free Radical Scavenging And Angiotensin I-Converting Enzyme Inhibitor Potency Of Red And Black Pigmented Rice Seed Protein
	3	Dr. dr. Hairrudin, M.Kes	The Preventive Effects Of MOCAF-Based Analog Rice On The Pathogenesis Of T1DM Through Improvement Gut Microbiota Composition
	4	Retno Utami Hatmi, ST., MSc.	The effect of the polishing process and sorgum type (brown and white) on the content of crackers nutrition
	5	Jhon David h, STP	Post-Harvest Harvest Management For Extensive Save
	6	Muhammad Ghufon Rosyady, S.P. M.P.	Nutrition Management Of Arabica Coffee Based On SSNM Technology (Site-Specific Nutrient Management)

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**The Preventive Effects of MOCAF-based Analog Rice on The Pathogenesis of  
T1DM Through Improvement Gut Microbiota Composition**

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**Abstract**

Type 1 diabetes mellitus (T1DM) is caused by an autoimmune reaction which is cause destruction of the pancreatic  $\beta$ -cells. Diet plays a role in that reaction because it causes alterations in the gut microbiota (GM) composition then stimulate pathogenesis of T1DM. The aim of this paper is describe the preventive effects of modified cassava flour (MOCAF)-based analog rice (MBAR) on the pathogenesis of T1DM. This paper is a literature review through a literature search in scientific journals that explains about diet and pathogenesis of T1DM. MBAR contains high fiber and resistant starch (RS). Fiber and RS increase the number of profitable GMs, on the contrary, lowering harmful GMs. Profitable GMs such as Lactobacilli may ferment fiber and RS then produce short-chain fatty acids (SCFAs) and mucin. The SCFAs may stimulate glucagon-like peptide production that has protection effect of  $\beta$ -cells from apoptosis, while the mucin has a protective effect of the integrity of the gut epithelium. Some of the GMs antigens stimulate an autoimmune reaction through T lymphocytes. The others produce flagellins and peptidoglycans that trigger T1DM through a local chronic inflammation. It can be concluded that the MBAR may prevent the pathogenesis of T1DM through improvement gut microbiota composition.

**Keywords:** analog rice, resistant starch, MOCAF, microbiota,  $\beta$ -cells



## CERTIFICATE OF PARTICIPATION

No: 3980/UN25/TU/2020

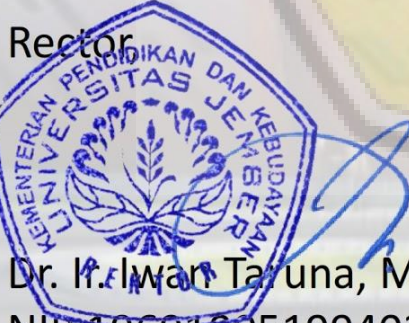
**This is to certify that**

**Dr. dr. Hairrudin, M.Kes**

**has attended as oral presenter following paper entitled:**

The preventive effects of MOCAF-based analog rice on the pathogenesis of T1DM through improvement gut microbiota composition

at the 4<sup>th</sup> International Conference on Agriculture and Life Sciences "Retouching Strategy for Exploring Potency of Industrial Crops for Health in Adapting to The New Normal Era" held at University of Jember, East Java, Indonesia October 6-7, 2020

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