3rd International Nutrition and Health Symposium 2019

November 9th, 2019, Yogyakarta, Indonesia

ABSTRACT ACCEPTANCE LETTER

This is a confirmation that the abstract entitled:

"Red Okra (*Abelmoeschus esculentus* L.moench.) Superiority in Controlling Insulin Resistance on Diabetic Rats"

Presenter : Nurina Tyagita

Abstract ID : INHESION-2019-001

has been accepted as oral presentation at 3rd INHESION.

Name of event : 3rd International Nutrition and Health Symposium 2019 (3rd INHESION 2019)

Date : November 9th, 2019

Venue : Auditorium Faculty Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

Kindly refer to the symposium website (www.inhesion.gizikesehatan.ugm.ac.id) for details of your presentation and we will inform you of any changes. We look forward to meet you on Novemeber 9th, 2019.

Note: You must register as participant to enter the venue. Participants are allowed to enter the venue after registering.

International Nutrition and Health Symposium

November 9th, 2019, Yogyakarta, Indonesia

ABSTRACT FORM

Please fill this abstract form and send it to ugm.inhesion@gmail.com.

TITLE: RED OKRA (*Abelmoeschus esculentus* L.moench.) SUPERIORITY IN CONTROLLING INSULIN RESISTANCE ON DIABETIC RATS
AUTHOR (S) : Nurina Tyagita; Azizah Hikma Safitri
AUTHOR'S AFILITIATION : Biochemistry Department, Medical Faculty of Universitas Islam Sultan Agung Semarang
EMAIL ADDRESS (presenting author): nurinatyagita@unissula.ac.id
ABSTRACT BACKGROUND Insulin resistance is one underlying pathogenesis for Diabetes Mellitus type 2 (DM). People tend to consume natural products to avoid harmful effects from hypoglycemic agent. Green okra (*Abelmoeschus esculentus* L.moench.) contains isoquercetin and myricetin. Isoquercetin act as alpha glucosidase inhibitor, known as a hipoglycemic agent. While myricetin improving glucose utilisation. Therefore, green okra considered to have effect on insulin resistance. The red okra supposed to have more flavonoid content than the green ones. OBJECTIVES To prove the superiority of red okra powder in controlling insulin resistance markers on diabetic rats. METHODS This experimental study required twenty male Wistar weighed 200 grams, divided into 4 groups equally: DM, Green Okra (GOP), Red Okra (ROP), and Acarbose. All rats were injected with 65 mg/kg BB niacinamide and streptozotocine 110 mg/kg BB i.p. Blood glucose were tested after induction, and achieve >250 mg/dl. Rats on DM group received only standard diet and distilled water. Rats on GOP, ROP, received 40 mg/day green and red okra powder respectively, while rats on Acarbose group received 6 mg/day acarbose for 28 consecutive days. Blood specimen was collected and measured for its insulin level using ELISA, and count the HOMA IR. Data were analysis with ANOVA, considered

significant only if p <0.05.

RESULTS The highest insulin level was found in ROP group (16.5± 0.14 µIU/ml) (p ANOVA <0.05). The best HOMA-IR score also found in ROP (4.65±0.07) (p ANOVA <0.05).

CONCLUSION The red okra powder is superior than the green okra in controlling insulin resistance markers.

This abstract will be presented as:

POSTER □ ORAL □ √

Topics :

Public Health □ Clinical □ Sport □ Food Science □

Food Safety □ Nutrigenomic □ Biomedical □ √ Others □

POWERPOINT PRESENTASI

RED OKRA (*Abelmoeschus esculentus* L.moench.) SUPERIORITY IN CONTROLLING INSULIN RESISTANCE ON DIABETIC RATS

Nurina Tyagita; Azizah Hikma Safitri

Biochemistry Department, Medical Faculty of Universitas Islam Sultan Agung Semarang

Insulin resistance is one underlying pathogenesis for Diabetes Mellitus type 2 (DM)

People tend to consume natural products in controlling degenerative disorders (Glynn & Bikha, 2018) to avoid harmful effects from hypoglycemic agent

Green okra contains:
Isoquercetin
Myricetin
Kaempferol
Polysaccharide

green okra → antidiabetic effect → improving insulin resistance marker

The red okra supposed to have more flavonoid content than the green ones (Anjani, 2018)

→ More potent than the green ones????

The superiority of red okra powder (ROP) in controlling insulin resistance on diabetic rats

Fasting blood glucose level

Insulin level

HOMA-IR

INHESION

Experimental study using posttest only controlled group design

20 male Wistar rats, weighed 200 grams

standard diet and distilled water

Induction with 65 mg/kg BB niacinamide and streptozotocine 110 mg/kg BB i.p

DM	Green Okra Powder (GOP)	Red Okra Powder (ROP)	Acarbose
	40 mg/day green okra powder	40 mg/day purple okra powder	6 mg/day acarbose

28 consecutive days → insulin level using ELISA & HOMA IR

INHESION

METHODS

Animal Preparation (1)

20 Male Sprague Dawley rats randomly divided into 4 groups: DM, Green Okra Powder, Red Okra Powder, Acarbose

DM Induction (2)

Induction with niacinamide and streptozotocine intra peritoneal

FBG measurement (3)

Considered succeed if → **FBG >250 mg/dL**

Sampling (4)

Ophthalmic vein

Measurement (5)

FBG after treatment, Insulin level, HOMA IR

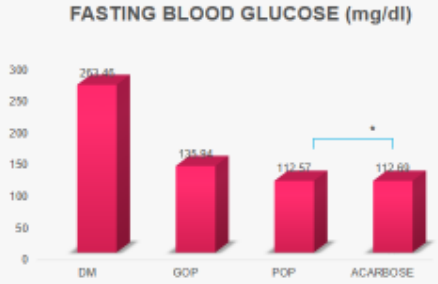
AFTER STREPTOZOTOCINE-NIACINAMIDE INJECTION

	FBG (mg/dL)	SHAPIRO-WILK	LEVENE	ANOVA
DM	260.97±2.2	0.299	0.657	0.485
GOP	259.07±2.22	0.548		
ROP	262.86±1.74	0.913		
ACARBOSE	258.4±2.59	0.434		

Streptozotocine injection considered succeed if fasting glucose level >250 mg/dL

Four groups were >250 mg/dL, and comparable → continue to 28 days of treatment

AFTER 28 DAYS OF TREATMENT



FBG	DM	GOP	ROP	ACARBOSE
DM	0.000	0.000	0.000	0.000
GOP	0.000	0.000	0.000	0.000
ROP	0.000	0.000	0.000	0.959*
ACARBOSE	0.000	0.000	0.959*	0.000

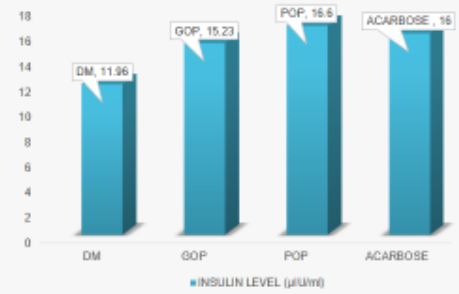
The highest FBG found in DM rats

Meanwhile, the FBG on GOP, POP & acarbose were lower than the DM rats.

The FBG on POP is the lowest, even better than GOP

And the FBG between POP and ACARBOSE groups were not significantly different (p>0.05).

INSULIN LEVEL



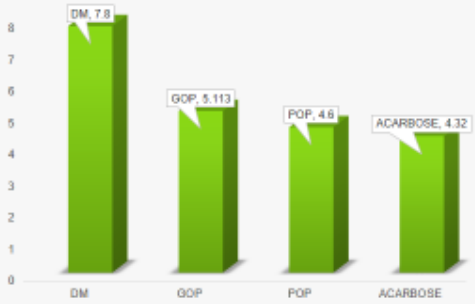
INSULIN LEVEL	DM	GOP	ROP	ACARBOSE
DM	0.000	0.000	0.000	0.000
GOP	0.000	0.000	0.000	0.000
ROP	0.000	0.000	0.000	0.000
ACARBOSE	0.000	0.000	0.000	0.000

The Insulin level on the DM group was significantly the lowest amongst all → confirming the DM induction

The Insulin level on GOP, POP & acarbose were higher than the DM rats.

The Insulin level on POP is the highest, even better than Acarbose

HOMA-IR



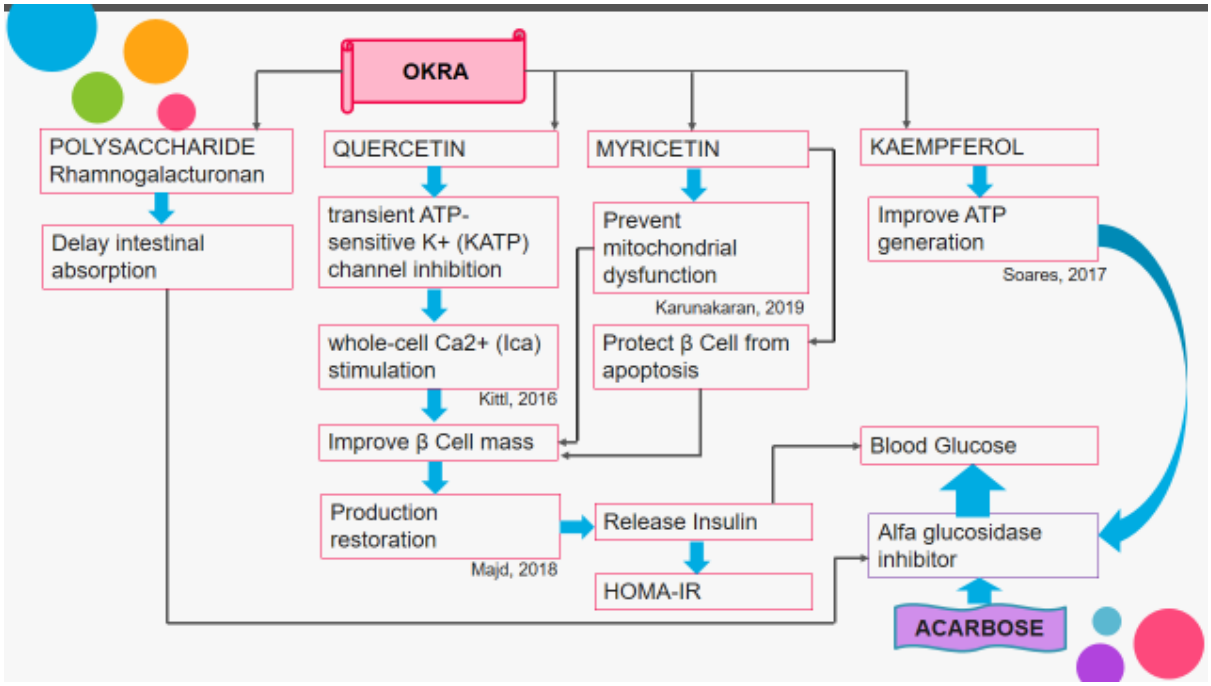
HOMA IR= FPG (mmol/L)*FINS (mU/L)/22.5

INSULIN LEVEL	DM	GOP	ROP	ACARBOSE
DM	0.000	0.000	0.000	0.000
GOP	0.000	0.000	0.000	0.000
ROP	0.000	0.000	0.000	0.125*
ACARBOSE	0.000	0.000	0.125*	0.000

The HOMA-IR on the DM group was significantly the HIGHEST amongst all → confirming the DM induction

The HOMA-IR on POP is lower than GOP

And the HOMA-IR between POP and ACARBOSE groups were not significantly different (p>0.05).



The red okra powder is superior than the green okra, and even acarbose in controlling insulin resistance markers

The lowest fasting blood glucose level found in ROP (112.57±4.16 mg/dL)

The highest Insulin Level found in ROP (16.5±0.14 µIU/ml)

HOMA-IR in ROP is lower than GOP (4.65±0.07)

INHESION

SURAT TUGAS

YAYASAN BADAN WAKAF SULTAN AGUNG
UNIVERSITAS ISLAM SULTAN AGUNG (UNISSULA)
Jl. Raya Kaligawe Km. 4 Semarang 50112 Telp. (024) 6583584 (8 Sal) Fax.(024)6582455
email : informasi@unissula.ac.id web : www.unissula.ac.id

FAKULTAS KEDOKTERAN — Bismillah Membangun Generasi Khaira Ummah

SURAT TUGAS

Nomor : 296/D1-ST/SA-K/XI/2019

Pimpinan Fakultas Kedokteran Universitas Islam Sultan Agung (UNISSULA) Semarang memberi tugas kepada :

Nama	:	**dr. Nurina Tyagita, M.Biomed**
Jabatan	:	Dosen Bagian Biokimia
Unit	:	Fakultas Kedokteran UNISSULA

Untuk melaksanakan tugas berupa :

Tugas/ Agenda	:	*Presentasi Oral pada acara 3rd International Nutrition and Health Symposium 2019*
Tempat Tujuan	:	Auditorium Faculty Medicine, public Health and Nursing UGM
Tanggal	:	9 - 10 November 2019
Lama Penugasan	:	2 Hari
Biaya	:	Simposium Rp 750.000.-
Anggaran	:	Dana FK UNISSULA

Demikian harap dilaksanakan dengan sebaik-baiknya dan memberikan laporan setelah selesai

Semarang, 5 November 2019
Dekan,

Dr. dr. Setyo Trisnadi, S.H, Sp.KF.
NIK 210199049

Tembusan:
1. Yth. Ka.Ur Keuangan FK UNISSULA
2. Arsip

LAMPIRAN:

SURAT TUGAS PERJALANAN DINAS

Nomor : /D1-ST/SA-K/XI/2019

I	Rektor (.....) NIK	Berangkat dari (tempat kedudukan) Pada Tanggal Ke :
II	Tiba di : Pada Tanggal: Kepala: Dr. Toto Sudargo, SKM, M. Kes NIP. 19600609 198601 1 001	Berangkat dari : Ke : Kepala : Dr. Toto Sudargo, SKM, M. Kes NIP. 19600609 198601 1 001
III	Tiba di : Pada Tanggal : Kepala : (.....) NIK.	Berangkat dari : Ke : Kep .ala : (.....) NIK.
IV	Tiba Kembali di Semarang: (tempat kedudukan) an.Rektor (.....) NIK.	
V	Catatan lain lain	

Perhatian :

1. Pegawai yang ditugaskan dalam melakukan perjalanan dinas diwajibkan mendapat pengesahan dari pejabat yang terkait dengan pelaksaanan tugasnya.
2. Pegawai yang telah selesai menjalankan tugas diwajibkan membuat laporan lengkap pada Dekan dalam tempo 10 hari dari tanggal selesai tugas

SERTIFIKAT PRESENTER

Certificate
OF APPRECIATION

This Certificate is Proudly Presented to

dr. Nurina Tyagita, M.Biomed

in recognition of valuable contribution as the Presenter of 3rd
INHESION "International Nutrition and Health Symposium" 2019
Conducted by
Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing,
Universitas Gadjah Mada
Saturday, November 9th 2019

SKP : 1 No. 4631/SK/DPP-PERSAGI/X/2019

Chairperson of Department
Dr. Toto Sudargo, SKM., M.Kes
NIP. 196006091986011001

Chairperson of Nutrition Student Association
FK-KMK UGM
Fina Cahya Hasanah
NIM. 17/412206/KU/19919

Chairperson of
INHESION 2019
Ziyada Qonita
NIM. 17/412223/KU/19936

SERTIFIKAT PESERTA

Certificate
OF APPRECIATION

This Certificate is Proudly Presented to

dr. Nurina Tyagita, M.Biomed

in recognition of valuable contribution as the Participant of 3rd
INHESION "International Nutrition and Health Symposium" 2019
Conducted by
Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing,
Universitas Gadjah Mada
Saturday, November 9th 2019
SKP : 2 No. 4631/SK/DPP-PERSAGI/X/2019

Chairperson of Department
Dr. Toto Sudargo, SKM., M.Kes
NIP. 196006091986011001

Chairperson of Nutrition Student Association
FK-KMK UGM
Fina Cahya Hasanah
NIM. 17/412206/KU/19919

Chairperson of
INHESION 2019
Ziyada Qonita
NIM. 17/412223/KU/19936

ABSTRAK TERCANTUM DALAM PROGRAM BOOK

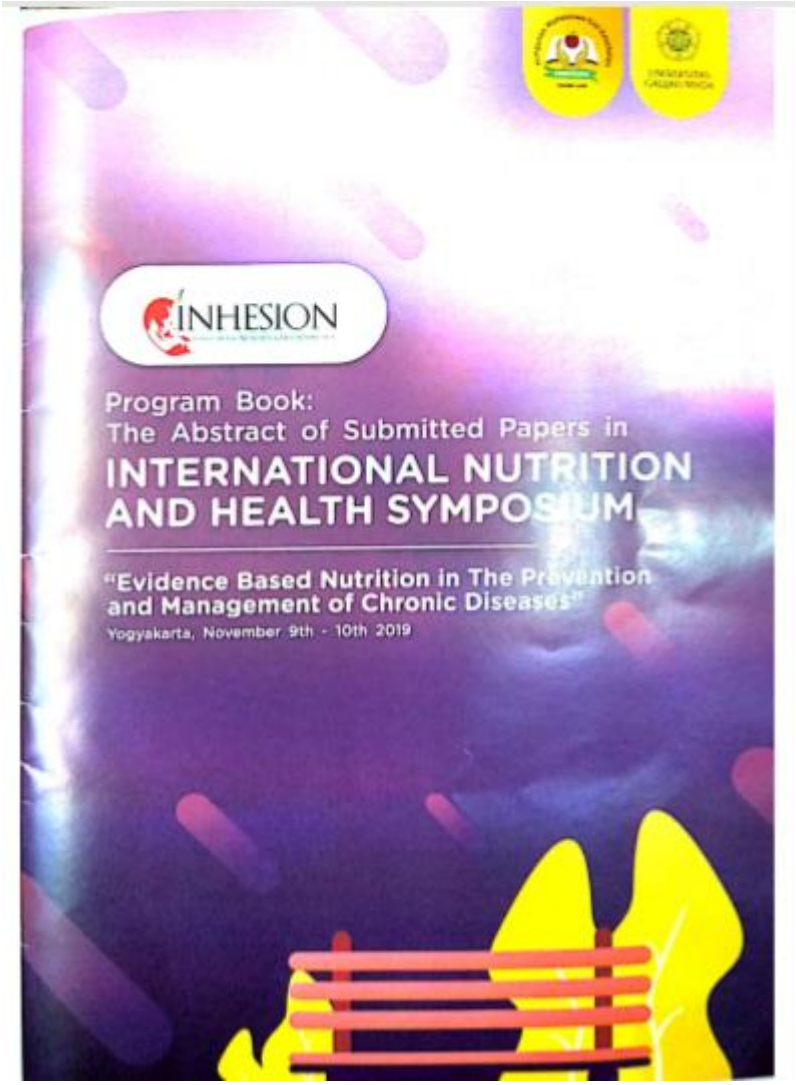


TABLE OF CONTENTS

INHESION 2019

11

BIOMEDICAL

INHESION-OBM-001
Red Okra (*Abelmoeschus esculentus L.moench.*) Superiority in Controlling Insulin Resistance on Diabetic Rats

Nurina Tyagita; Azizah Hikma Safitri
Biochemistry Department, Medical Faculty of Universitas Islam Sultan Agung Semarang
Email: nurinatyagita@unissula.ac.id

BACKGROUND: Insulin resistance is one underlying pathogenesis for Diabetes Mellitus type 2 (DM). People tend to consume natural products to avoid harmful effects from hypoglycemic agent. Green okra (Abelmoeschus esculentus L.moench.) contains isoquercetin and myricetin. Isoquercetin act as alpha glucosidase inhibitor, known as a hipoglycemic agent. While myricetin improving glucose utilisation. Therefore, green okra considered to have effect on insulin resistance. The red okra supposed to have more flavonoid content than the green ones.
OBJECTIVES: To prove the superiority of red okra powder in controlling insulin resistance markers on diabetic rats.
METHODS: This experimental study required twenty male Wistar weighed 200 grams, divided into 4 groups equally: DM, Green Okra (GOP), Red Okra (ROP), and Acarbose. All rats were injected with 65 mg/kg BB niacinamide and streptozotocine 110 mg/kg BB i.p. Blood glucose were tested after induction, and achieve >250 mg/dl. Rats on DM group received only standard diet and distilled water. Rats on GOP, ROP, received 40 mg/day green and red okra powder respectively, while rats on Acarbose group received 6 mg/day acarbose for 28 consecutive days. Blood specimen was collected and measured for its insulin level using ELISA, and count the HOMA IR. Data were analysis with ANOVA, considered significant only if $p < 0.05$.
RESULTS: The highest insulin level was found in ROP group (16.5± 0.14 µlU/ml) (p ANOVA <0.05). The best HOMA-IR score also found in ROP (4.65±0.07) (p ANOVA <0.05).
CONCLUSION: The red okra powder is superior than the green okra in controlling insulin resistance markers.

NUTRIGENOMIC

INHESION-ONG-006
Potential Inhibitory Mechanism of Kaempferol on PMA induced HepG2 Cells in Insulin Signalling Pathway

Adelya Desi Kurniawati[1]; Tzou-Chi Huang[2]
[1]*Nutrition Department, Faculty of Medicine, Universitas Brawijaya, Indonesia*
[2]*Biological Science and Technology Department, National Pingtung University of Science and Technology, Taiwan*
Email: adel.kurniawati@ub.ac.id

BACKGROUND: Impairment in insulin secretion and resistance to the action of insulin are both causally linked to the development of diabetes mellitus (DM), a disease becoming increasingly prevalent worldwide.
OBJECTIVES: This study focused on the inhibitory effect of kaempferol aglycone on insulin signalling pathway in HepG2 cell lines.
METHODS: The HepG2 cell lines were induced by PMA to produce a diabetic cell, then treated by five different concentrations of kaempferol (10, 20, 30,

DOKUMENTASI SAAT PRESENTASI