



# PROGRAMME BOOK

**THE 17<sup>th</sup> NATIONAL CONGRESS  
OF THE INDONESIAN PHYSIOLOGY  
SOCIETY AND 27<sup>th</sup> INTERNATIONAL  
PHYSIOLOGY SEMINAR 2018**

*Integrated Physiology for One Health*

 ELO KARSA UTAMA





THE 17<sup>th</sup> NATIONAL CONGRESS OF THE INDONESIAN  
PHYSIOLOGY SOCIETY  
2<sup>nd</sup> INTERNATIONAL WORKSHOP, SYMPOSIUM AND SEMINAR  
OF PHYSIOLOGY  
(IUPSIC 2018)  
June 28-30, 2018, Bandung, Indonesia

PROGRAMME BOOK  
(ABSTRACT)



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**The 17<sup>th</sup> National Congress of The Indonesian Physiology Society and 27<sup>th</sup> International Physiology Seminar 2018 (BIPSC 2018)**  
Bandung, 28<sup>th</sup> -30<sup>th</sup> of June 2018

### **Preface**

Dear colleagues,

Welcome to the 17<sup>th</sup> National Congress of Indonesian Physiology Society and the 27<sup>th</sup> International Physiology Seminar (BIPSC) in Bandung, West Java, Indonesia. BIPSC 2018 is an annual meeting of the Indonesian Physiology Society. This year we welcome all researchers and lecturers to share an interesting report in all aspects of Physiological Sciences, including advanced research and translational physiology including in human, plant and animal study area. The theme for the congress is "Harmony of life: Integrated Physiology for one health". We believe that harmony of animal health, environment (plant health) and human health as one triad health will be a key point to improving human quality of life.

We had received more than 100 abstracts and more than 150 registrations from Indonesia and foreign country especially Asian and Oceanian countries. Guest speakers are coming from many renowned universities in London, Japan, Singapore, Malaysia, Australia, and also from Indonesia itself. They will share their knowledge and experiences on related topics during the event. The congress will also be associated with Teaching Workshops and Training Courses for young researchers. There will be numerous opportunities to gain new knowledge, share technical expertise and the latest research discoveries, and to enjoy scientific and educational interactions.

Through the workshop, symposium and seminar, the Indonesian Physiological Society aims to help physiologist, exercise physiologist, specialist, general practitioner, coaches and other related professionals by sharing the latest science and technology to prevent Non-Communicable Diseases (NCD) and Improve Athlete Performance.

Finally, the output from this event will be reviewed and the selected full manuscript will be published in national or international indexed Scopus partner journal.

Whether you are attending the workshop, symposium or seminar, we wish you a successful event and hope you will enjoy your visit and leave with many happy memories from BIPSC2018.

Chairman of BIPSC 2018,

**BIPSC 2018**

Dr. Vita Murniati Tarawan, dr., Sp. OG., M.Kes., AIFO., SH.

Workshop 1			
Venue	Time	Topic	Speaker
Eijkman Building	09.00-16.00	Western Blot	Ronny Lesmana, dr., MKes., PhD Andri Rezano, dr., M.Kes, PhD M.Rizky Anggun dr., MKes., PhD Susianti
Workshop 2			
Venue	Time	Topic	Speaker
Grand Tjokro	09.00-11.30	Exercise Physiology I: Exercise endocrinology and Doping assessment	Prof. Dr Ieva B. Akbar., dr., AIF Dr.Vita M.Tarawan, dr., SpOG., MKes., SH., AIF
	13.00-16.00	Exercise Physiology II: Implementation of Sport Science in athlete training program	Prof.Dr.Ambrosius Purba dr., MS., AIF Prof Beltasar Tarigan Dr.dr.Ermita Isfandiari Ibrahim, MS (UI)
Workshop 3			
Venue	Time	Topic	Speaker
Eijkman Building	09.00-16.00	Cell Culturing, RNA Extraction, RT PCR	dr Edward Jayahadi., M.sc
Workshop 4			
Venue	Time	Topic	Speaker
Grand Tjokro	09.00-16.00	Scientific Writing	Ronald Hamidie., dr., PhD Kasno Pamungkas SS., MHum Ahmad Faried., dr., SpBS., PhD Rizky Abdullah, Apt., PhD Dr. Dra. Triadiati M.Si
Workshop 5			
Venue	Time	Topic	Speaker
Grand Tjokro	13.00-15.00	Teaching Physiology I: Cross Organ Principles and Inter Organ Physiology	Prof. Cheng Hwee Ming
	15.30-18.30	Teaching Physiology II: Virtual Physiology Laboratory Experiments	Adrianta., dr., AIFM., AIFO Maria del Mar Quiroga (Monash University) Eijkman Building
	18.00-21.00	Welcome Dinner	

## Day 2 (Friday, 29th June 2018)

Venue	Time	Activity	Topics	Speaker	
Grand Tjokro Ballroom	07.30-08.30	Registration			
	08.30-09.00	Opening Ceremony	Sundanese Traditional Dance Indonesia Raya Hymne IAIFI Sambutan Ketua Panitia Sambutan PP IAIFI Pembukaan oleh Rektor UNPAD		
	09.00-10.00	Plenary Lecture		Menkes Indonesia (atau yang mewakili) Prof Tri Hanggono Achmad (Rektor UNPAD)	
	10.00-11.30	Keynote Speaker: Physiology for One Health		Prof.Dr.drh.Agik Suprayogi, MSc.Agr., AIFH (IPB) Prof.Dr. A. Purba, dr., AIF (Unpad) Dylan Morrissey (Queen Mary University London)	
	11.45-13.00	LUNCH + Break - Friday Pray			
Parallel Symposia Ruang I					
Venue	Time	Theme	Topics	Speaker	Moderator
A	13.00-14.30	Symposia I: Physiological updates on Aging, Metabolic and Endocrine	Physiology of Aging	Prof. Dr. Ieva Baniasih Akbar, dr., MKes., AIF (Unisba) Paul M Yen (Duke NUS)	Astrid Feinisa
			Sarcopenia Obesity: New Updates	Lazuardi, dr, SpPD	
	14.30-16.00	Symposia II: Updates on Cardiac Physiology		Dr. Rizky M.Akbar, dr., SpJP (Unpad) Badai Tiksnadi, dr., SpJP dr. M.Iqbal, SpJP (Unpad)	Nova Sylviana
	16.00-17.30	Coffee Break and Poster Session			
	17.30-18.00	Oral Presentation			
	18.00-21.00	Kongress Dinner			

Parallel Symposia Ruang II				
Venue	Time	Theme	Speaker	Moderator
B	13.00-14.30	Symposia III: Animal Physiology	Dr. Endang Yuni Setyowati, drh.,MSc.Ag (Unpad) Prof Dr. Roostita B Prof.Ir.Wasmen Menalu PhD (IPB)	Pranyata Tanggud Waskita, (Unpad)
	14.30-16.00	Symposia IV: Neurophysiology and Sport Biomechanics	Prof.Dr.dr.I Putu Gde Adiatmika, Mkes (Unud) Hanna, dr., Mkes.,PhD (Unpad) Siti Baitul Mukaromah	dr. Renaldi Prasetya Mkes.,SpOT (Unpad)
	16.00-16.30	Coffee Break and Poster Session		
	16.30-18.00	Oral Presentation		
Parallel Symposia Ruang III				
Venue	Time	Theme	Speaker	Moderator
C	13.00-14.30	Symposium V: Exercise Physiology	Prof. Sayuti Leonardo Lubis.,dr.,Mkes.,AIFO Prof. Beltazar Tarigan (UPI)	Titing Nurhayati
	14.30-16.00	Symposium VI : Biomolecular Approach of Exercise Physiology for Health and Athletes Performance	Prof Irawan Yusuf (Unhas) Dr.dr.Ermita Isfandiary Ibrahim, MS (UI) Prof Gusbakti Reinaldi (UISU)	Yosef Purwoko
	16.00-16.30	Coffee Break and Poster Session		
	16.30-18.00	Oral Presentation		

Parallel Symposia Ruang I				
Venue	Time	Theme	Speaker	Moderator
A	08.00-10.00	Symposia VII: Aging, Metabolic and Endocrine Physiology	Noriyuki Koibuchi (Gunma University) Annisa Widjaya (DUKE NUS) Prof. Naguib Saleh MD (UM)	Prof.Lovita Adriani.,lr.,MS
	10.00-11.00	Symposia VIII: Molecular Physiology	Dr.med.Setiawan, dr., AIF (Unpad) Winifred PhD (DUKE NUS)	Nur Atik
Parallel Symposia Ruang II				
Venue	Time	Theme	Speaker	Moderator
B	08.00-10.00	Symposia IX: Plant Physiology	Dr. Dra. Triadiati M.Si (IPB) Noladhi Wicaksana, SP.,MP.,PhD (Unpad) Dr. rer nat Soeseno Amien	Kadapi
	10.00-11.00	Symposia X: Psychophysiology	Prof Cheng Hwee Ming Aulia	Yuni Susanti
Parallel Symposia Ruang III				
Venue	Time	Theme	Speaker	Moderator
	08.00-10.00	Symposia XI: Physiological Prespective of Doping	Ronny Lesmana, dr.,Mkes.,PhD (Unpad) Dr.Vita M.Tarawan, dr.,SpOG.,Mkes.,SH.,AIF (Unpad) Dr. Gaga Irawan, dr., Mkes (Unpad)	Titing Nurhayati
	10.00-11.30	Symposia XII: Pharmacophysiology	Keri Lestari, PhD (Unpad) Rizky Abdulah, PhD (Unpad) Melisa PhD (Unpad)	Dr. Irma Melyani Puspitasari
	11.00-11.00	Oral Presentation		
	11.00-11.00	Lunch Break		
	11.00-11.00	Oral Presentation		
	11.00-11.00	Coffee Break & poster Session		
	11.00-11.00	Closing Remarks & Award		

SUSUNAN KEPANITIAAN

KONGRES NASIONAL IAIFI KE-XVII DAN 27<sup>th</sup> INTERNATIONAL WORKSHOP, SYMPOSIUM SEMINAR OF PHYSIOLOGY, BANDUNG, 28-30 JUNI 2018

Penasehat	: Rektor Universitas Padjadjaran
Pengarah:	: Dr. med. Setiawan, dr., M.Kes., AIFM (Dekan FK-UNPAD, Bandung) Prof. Dr. drh. Agik Suprayogi, MSc, AIF Prof. Adnyana Manuaba Hon.FErg.S., FIPS, SF Prof. Dr. H.R. Soedarso Djojonegoro, dr., AIF Prof. Dr. dr. A Purba, MSc, AIFO Prof. Dr. Wahyu Kahiwikarta, dr., MS. Prof. Dr. Ir. H. Mochamad Bintoro, M. Agr Prof. Dr. Beltasar Tarigan, MS, AIFO Prof. Dr. Ieva B. Akbar, dr., AIF. Prof. Dr. dr. I Ketut Tirtayasa Prof. Dr. Sayuti Syahara, MS., AIFO Prof. Dr. drh. Pudji Astuti, M.P
Ketua	: Dr. Vita Murniati Tarawan, dr., M.Kes., SpOG., AIFO, SH
Sekretaris Umum	: Ronny Lesmana, dr., M.Kes., Ph.D.
Sekretaris I	: Yuni Susanti Pratiwi, dr., M.Kes., AIFO
Sekretaris II	: Tyagita, drh., MVSc
Staf Kesekretariatan	: Aziiz M. Rosdianto, Skep., Ns., MH.Kes., MSi. Aep Kusnandar, SSI. Susianti, SSI. dr. Naufal M. Nurdin. S.ked. M.Si
Bendahara Umum	: Hanna, dr., M.Kes., PhD, AIFO
Bendahara	: Julia Windi Gunadi, dr., M.Kes Titing Nurhayati, dr., M.Kes
Bidang Ilmiah	:
Koordinator	: Ronald Hamidie, dr.,PhD
Sekretaris	: Lucky Angkawidjaya, dr., M.Pd
Anggota	: Dr. Caecilia, drg. Dr. Sri Tjahajawati Dr. Reni Farenia, dr., M. Kes
Bidang Workshop	:
Koordinator	: Hanna, dr., MKes., PhD
Sekretaris	: Stella Tinia dr, M.Kes
Anggota	: Susianti, S.Si.
Bidang Sponsor dan Pameran	:
Koordinator	: Dr. M. Rizki Akbar, dr., SpJP(K), M.Kes
Sekretaris	: Rudolf Andean, dr., Sp.PD, M.Kes.
Anggota	: Renaldi Nagar Rasyid, dr., SpOT Widayanti, dr., M.Kes. Apen, dr., SpPD

Bidang Program dan Protokol (welcome dinner)	:	
Ketua	:	Nova Sylviana, dr., M.Kes.
Sekretaris	:	Decky dr., M.Kes Naufal M. Nurdin, dr., S.Ked., M.Si Dr. Triadiati, MSi, AIFT Dr. Drh. Aryani Sismin Satjaningtjas, MSc.
Bidang Sosial (Hospitality dan Ladies Program)	:	
Ketua	:	Kartika Indah Sari, drg., M.Kes
Sekretaris	:	Anggun, drg
Bidang Publikasi dan Dokumentasi	:	
Koordinator	:	Harijadi, dr.
Sekretaris	:	Decky, dr., M. Kes
Bidang Konsumsi	:	
Koordinator	:	Juliati, dr., AIF
Sekretaris	:	Yuni Susanti Pratiwi, dr., M.Kes., AIFO
Anggota	:	Eka, dr.
Bidang Logisitik	:	
Koordinator	:	Ronny, dr., M.Kes., PhD
Sekretaris	:	Fathul Huda, dr., PhD
Anggota	:	Dr. Leonardo Lubis, dr., M.Kes., AIFO Aziz MR Masri, S.Si Edi Sukmayadi Wanto

Tanggal : 15 Februari 2018

Ketua Umum PP IAIFI

Prof. Dr. drh. Agik Suprayogi, M.Sc, AIF

A-1

**Dislipidemia Prevention Caused by The Administration of Coconut Dregs Extract in Rats Given A High-Fat Diet**

Aris Prasetyo<sup>1</sup>, Harjanto<sup>2</sup>, Achmad Subagio<sup>3</sup>

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3. Professor Chemistry Departement Agrocultural Technology Faculty University of Jember

Consumption of coconut dregs extract/ CDE were reported to have much benefit in preventing dyslipidemia profile, such as total cholesterol, triglycerides, LDL cholesterol and HDL cholesterol. CDE containing galactomannan is nondigestible carbohydrate in intestine so fermented in colon and enhancing SCFA production (acetat, propionate, and butyrate). GLP-1 may serve as a potent prevention agent for dislipidemic. This study investigated the effect CDE prevent increasing of cholesterol, triglycerides, LDL cholesterol and prevent decreasing HDL cholesterol in male rats given high fat diet. Wistar male rats were 3-4 months age and determination of the object of research in completely randomized design with four treatments, namely (1) rats with a diet high in fat, (2) rats with high-fat diet + CDE 70 mg/200gw, (3) rats with high-fat diet + CDE 140 mg/200gw, (4) rats with high-fat diet + Simvastatin 0,18mg/200gw. Feeding rats administered orally, whereas CDE was given in ad-libitum. The rats were euthanized and the ovarium and fallopian tube were prepared for calculating the number of follicles de Graaf and atretic follicles of ovarium and thickness of fallopian tubes by using a light microscope. The results suggested that CDE prevent significantly increased total cholesterol, trigliseride, LDL cholesterol in 140mg dose ( $p < 0,05$ ) and prevent significantly decreased HDL cholesterol ( $p < 0,05$ ). The administration of CDE contributed to preventing the increase in LDL cholesterol and the decrease in HDL cholesterol.

**Keywords:** CDE, Galactomannan, SCFA, GLP-1, high fat diet, dyslipidemia

A-2

**The Effect of Monosodium Glutamate & High-Fat Diets on Ovarian and Fallopian Tube Histopathological Changes of Rattus novercigus Strain Wistar**

Hastuti RD<sup>1</sup>, Ariani NKD<sup>1</sup>, Mustika D<sup>2</sup>, Kurnianingsih N<sup>2</sup>, Agustin D<sup>3</sup>, Indriani A<sup>4</sup>

1. Undergraduate of Midwifery Program, Faculty of Medicine, Brawijaya University, Indonesia.
2. Department of Physiology, Faculty of Medicine, Brawijaya University, Indonesia.
3. Department of Anatomy and Histology, Faculty of Medicine, Brawijaya University, Indonesia.
4. Department of Midwifery, Faculty of Medicine, Brawijaya University, Indonesia.

Increased prevalence of obesity and obesity-associated complications continues to be a major health issue. It is well accepted that both excessive consumption of monosodium glutamate and high-fat diets lead to obesity and disorder of reproductive organ. However, there are studies that showed the effect of daily consumption dose of MSG combined high-fat diets on reproductive organ. Therefore, this research focused at the effects high-fat diets combined with MSG, on the average daily consumption of humans, on ovarian and fallopian tube histopathological changes. Wistar rats were selected and divided into 6 groups, consists of control, high-fat diet (HFD), high dose MSG (0.7mg/gBW) alone, combined HFD and MSG (0.05; 0.2; 0.4 mg/gBW). Each group consists of 5 rats. MSG was administrated once a day for 56 days and the rats were euthanized and the ovarium and fallopian tube were prepared for calculating the number of follicles de Graaf and atretic follicles of ovarium and thickness of fallopian tubes by using a light microscope. The results showed that HFD significantly decreased the secretory epithelial cells number ( $p = 0.008$ ) and Graafian follicles number of ovarium ( $p = 0.001$ ), whereas insignificantly decreased Graafian follicles thickness of fallopian tubes ( $p = 0.001$ ) compared to control. It also significantly decreased the number of atretic follicles of ovarium ( $p = 0.001$ ) compared to control. Nevertheless, there were no significant differences between HFD and HFD alone, accept for the number of atretic follicles. In this study, the daily consumption dose of MSG combined HFD have same effects with high fat diet on ovarian and fallopian tube histopathological changes. High-fat diets combined with MSG on the average daily consumption of humans, have the same effect as the effects of high-fat diets on ovarian and fallopian tube histopathological changes of



D-4

## The effect of Ambon Banana stems sap (*Musa paradisiaca L var sapientum*) as an anti-angiogenesis towards HUVEC induced by IL1 and CdCl<sub>2</sub>

Sofiana KD<sup>1</sup>, Wulan PMY<sup>2</sup>, Alinda R<sup>3</sup>, Dorothy MJ<sup>3</sup>, Prihardina B<sup>4</sup>, Permatasari N<sup>5</sup>, Husnul K<sup>5</sup>, Widodo MA<sup>5</sup>

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Tumors are characterized by an increase in angiogenesis that is identical to cell growth, invasion, and metastasis. Contamination of heavy metal such as Cadmium causes cell transformed into malignancy. VEGF levels and migration are markers of angiogenesis process. Ambon banana is a plant that became local wisdom of the Indonesian nation which is used as a treatment therapy of various diseases. The antioxidant contains inside this banana stem sap according to some studies are useful to inhibit the proliferative process or excessive migration in cases of tumor or cancer. The aim of this research to look at the anti-angiogenesis effect through migration and VEGF levels on HUVECS which induced by IL1 and CdCl<sub>2</sub>. About 70-80% confluent HUVECs were divided into five groups. The control group was HUVEC were left within 12 hours then scratched and incubated in 24 hours. Induction group was induced by IL1 (200ng / ml) in 12 hours then scratched and was given CdCl<sub>2</sub> (24,154 µg / L) in medium and incubated in 24 hours. The treatment group was HUVEC induced by IL-1 (200 ng/ml) for 12 hours scratched and was given CdCl<sub>2</sub> (24,154 µg/L) along with various concentrations of Ambon banana sap (0.125%, 0.25%, 0.5%) then incubated for 24 hours. Migration measurements were performed by scratch assay at 12 and 24 hours and the measurement of VEGF levels on culture medium was done at 12 and 24 using elisa method. Data were analyzed using SPSS software. Ambon banana stem sap inhibit excessive migration on IL-1 and CdCl<sub>2</sub> induced HUVECs on certain time and concentration. Administration of Ambon banana stem sap is also able to downregulate VEGF levels at the certain time and concentration. Ambon banana stem sap can suppress excessive angiogenesis process due to induction of IL1 and CdCl<sub>2</sub> in in-vitro study on HUVEC.

**Keyword:** HUVEC, CdCl<sub>2</sub>, Ambon banana stem sap, migration, VEGF

D-5

## The Effect of Glutathione to a Change of SGOT, SGPT, and ALP White Rated High Diets Diet

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Department of Physiology, Hang Tuah Medical School Surabaya

Hard work without rest will ultimately burden the heart. These conditions can damage cells including liver cells, resulting in a fourfold increase in aspartate plasma transaminase (AST / SGOT) and elevated bilirubin levels which are a sign of impaired liver function (Droge, 2002). Exercise done for a moment, also can increase AST / SGOT and Alanin amino transaminase (ALT / SGPT) in the blood (KoutLdakis, 1993). Liver damage is reversible as a result of accumulation of fat accumulation in liver cells from abnormal metabolism. Causes of fatty liver (FDL) include alcohol abuse, protein malnutrition, diabetes mellitus, obesity, hepatotoxins and drugs. Antioxidants are defined as compounds that can delay, slow down, and prevent lipid oxidation processes. In a special sense, antioxidants are substances that can delay or prevent the occurrence of free radical antioxidation reactions in lipid oxidation. High levels of free radicals such as heavy physical activity, resulting in an unbalanced state between free radicals and antioxidants called oxidative stress. Glutathione is one of the endogenous thiol compounds that act as defense of anti-oxidants in the cells so it can also act as a powerful anti-oxidant. And one way is the use of anti-oxidants endogenous that should be produced in the body, but added in certain amounts to be exogenous antioxidant that is glutathione. (Ashtiani et al., 2011). Glutathione protects cells from damage caused by oxygen containing unstable molecules, which are a by-product of energy production (Kerksick C and Willoughby D. 2005). Proving Glutathione can improve SGOT, SGPT and ALP due to high-fat diet induction. Wistar strain male, 20 weeks old, weighing 180 - 200 grams, divided into 4 groups, each group of 8, with Separate pre-post test control groups design. The treatment group performed one intravenous adrenaline injection and was exposed to egg yolks as a high-fat diet. Moderate treatment controls without adrenaline injection and standard feed exposure were all performed within 14 days. Glutathione was administered intraperitoneally at a dose of 600 mg / kilogram BB and 1200 mg / KgBB, once daily for 7 days. Data was taken on day 14 by means of cardiac puncture. Blood analysis unit taken from the heart is done by measurement of SGOT and SGPT enzyme and ALP by using photometer. Giving Glutathione due to the induction of a high-fat diet with a short time can not decrease the SGPT level is evidenced by anova assay that is greater than alpha value, the difference in decreased levels of SGOT on LSD parametric test, and decreased ALP levels due to high-fat diet induction is evidenced by significant P value 0.001 <5% in the non parametric test of Mann Whitney. Short-term glutathione with high-fat diet induction can not lower levels of SGPT but may lower levels of SGOT and ALP

**Keywords:** Glutathione, oxidative stress, fatty liver.

C-18

## Assesment of Heavy Metal Pollution in Lung and Kidney of Broiler, and It's Correlation of Water and Animals Feed

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3. Divion of Pharmacology and Toxicology, Department of Anatomy, Physiology and Pharmacology, Bogor Agricultural Univeristy, Bogor, West Java, Indonesia.

Cadmium belongs to heavy metal with high anthropogenic pollutant and non-essential to physiological function. Cadmium present in soil, water, air as well as in food. Regular intake of consuming cadmium leads to physiological disorders in poultry animal as well as humans as one who consume it. The aim of this study was to analyze the profile of cadmium content in environmental samples (poultry feed and water) and it correlated with the degree of contamination in broiler tissue. The study used 30 sample of poultry feeds and animal water, 30 sample of chicken lungs and 30 sample of chicken kidneys. Feed samples were taken at each floc where the chickne were previously taken. Testing and determining levels of heavy metal cadmium is referred to the Indonesian National Standard (SNI) 01-2354.5-2011 by using AAS (*Atomic Absorption Spectrophotometry*). The results showed level of cadmium in feed between 0.009-0.202 mg / kg and 0.0068-0.0096 mg / l of cadmium in the water. Cadmium in the lungs and kidneys was positively contaminated by cadmium with a range of 0.438-0.655 mg / kg and it was significantly different ( $p < 0.05$ ) among the organs. A strong positive correlation was found between cadmium and water levels in renal ( $r = 0.925$ ). In contrast, a weak positive correlation ( $r = 0.624$ ) was found in the relationship between cadmium in feed and lung. The environmental quality of cadmium contamination should be aware for its effects to physiological status of animals as well as humans as the highest food chain. It is indicated by the relationship between cadmium in feed and water deposited in chicken tissues. Cadmium concentration in the poultry feed and water increased significantly to the concentration of cadmium deposited in organs.

**Keyword:** cadmium, water, pollutant, poultry, animal

C-19

## The Role of Resistant Starch Type 3 Modified Cassava Flour (MOCAF) as an Alternative Prebiotic in Diabetes Mellitus Rats Model

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1. Departemen of Physiology, Faculty of Medicine, University of Jember
2. Departement of Pharmacology, Faculty of Medicine, University of Jember

Prebiotics has widely known to have benefit in human health. As an alternative prebiotics Resistant Starch type 3 (RS3) has several advantages which do not cause constipation nor diarrhea, RS3 also decrease blood glucose and increase the level of Glucagon Like Peptide-1 (GLP-1) which has a major role in the mechanism of blood glucose control in patients with diabetes mellitus (DM). One that can be used as a source of RS3 is Modified Cassava Flour (MOCAF). **Objective:** The goal of this study is to analyze the role of RS3 MOCAF as an alternative prebiotic in diabetes mellitus rats model. This study used twenty four rats randomly selected and grouped into 4 group (normal, MOCAF, RS3 MOCAF and Diabetes) given different food (standard, MOCAF and RS3 MOCAF) as much as 20 gram each day for 4 weeks. In the end of study blood taken to measure post prandial blood glucose and fasting blood glucose. Stool sample were taken from large intestine for Short Chain Fatty Acid (SCFA) and microbiological analysis. Dietary RS3 MOCAF decrease post-prandial blood glucose from 526 mg/dL to 96 mg/dL and fasting blood glucose from 494 mg/dL to 107 mg/dL. SCFA analysis showed that fermentation of RS3 MOCAF produces acetic acid (16:18 mmol), propionic acid (5:51 mmol) valeric acid (2:52 mmol) and butyric acid (0.57 mmol). Microbiological analysis showed that the most widely grown bacteria in the large intestine after dietary RS3 mocaf is *Lactobacillus Sp*. RS3 MOCAF plays role as prebiotics and has ability to decrease blood glucose in diabetes mellitus rats model.

**Keyword:** Prebiotics , Resistant starch type 3, MOCAF, Blood glucose, SCFA, Diabetes mellitus

D-16

## Influence of Left Ventricular Pump Dysfunction on Estimated VO<sub>2</sub>max in Patients after ST-Segmen Elevation Myocardial Infarction.

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Left ventricular (LV) remodeling and dysfunction started Early after ST-Segmen Elevation myocardial Infarction especially in a large Myocardial Infarction (MI). A model of the relationships among the concepts of level of left ventricular pump dysfunction is ability to perform exercise without an ischemic response and achievement of an exercise trained state and functional capacity. The 6 MWT as a tool to evaluate the estimated VO<sub>2</sub>max is a safe and reproducible measurement of functional capacity in stable patients after a noncomplicated MI, even when performed within a week of the event. The greater the level of left ventricular pump dysfunction as measured by ejection fraction following an MI, the less the heart is able to pump blood at rest and during exercise. The present study investigated how LV pump dysfunction influence the patient after ST-Segmen Elevation Myocardial Infarction to perform exercise. This is a cross sectional study of 42 consecutive patients with STEMI. Eligible patients measurement of Left Ventricular ejection fraction (LV EF) using echocardiography within 48 hour of admission and 6MWT pre- discharge or at the first follow-up visits (day 4-9). Conversion 6 MWT distance in estimated VO<sub>2</sub>max using Cahalin formula. The correlation of LVEF and VO<sub>2</sub>max was analyzed through Pearson's correlation test. There was a weak correlation between echocardiographic LVEF and VO<sub>2</sub>max ( $r=0.273$ ,  $p=0.081$ ). The mean of six-minute walk distance among this STEMI patiets was 368.36 ( $\pm 58.90$ ), mean VO<sub>2</sub>max was 10.56 mL/(kg.minutes) ( $\pm 1.18$ ) and mean of LVEF was 45.29% ( $\pm 8.256$ ). This weak correlation between LVEF and VO<sub>2</sub>max in patients after STEMI explain why post-MI patients differ in their response to exercise

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## Effect of The Problem-Focused Coping Stress Management Program on Self Efficacy of Students Semester I University of Udayana

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The academic tasks or work load of medical students is heavy in quantitative or qualitatively. This is in accordance with the demands of the profession and their responsibilities which will have to deal with the risk of patient death and medical misconduct. The academic load factor combines with individual factors and another related factors resulting of academic stress. Academic stress must be manage early, as it may lead to a tendency of decreased academic performance and an increased risk of mental disorders. The problem-focused coping stress management program proved to be effective in improving self-efficacy in some professions. High score of self-efficacy indicate with reduces psychological distress in a reason that the person will see the demands of the task as a change to achieve the goal. Problem-focused coping stress management program can include personal skill component training and time management skills training. This experimental study aims to analyze the improvement of student self-efficacy after undergoing a problem-focused coping stress management program. From 40 first semester students of Faculty of Medicine Udayana University selected by a simple random sampling and have high academic stress score determined proportionally and grouped as control group (14 people) and treatment group (26 people), and selected by random allocation with simple random sampling technique using lottery method. This study conducted at Denpasar in April to December 2015. The intervention was in the form of problem-focused coping stress management training which was done 4 times each week with the duration of each session was 1 1/2 hours in each classroom training session. In the subject matter of study subjects was introduced with the impact of academic stress, the pathophysiology of academic stress on the tendency of physical or mental illness, and the benefits of academic stress management program of problem-focused coping methods. Participants was also trained in practicing time management techniques, and to be internal locus of control type to improve cognitive performance. Subjects are also given independent tasks that are done in the form of each home work and learn to fill the mood diary. The result of this study showed that the self-efficacy was significantly different between before and after treatment in the intervention group with  $p = 0.005$  (using statistic paired sample t-test), with mean of  $19.31 \pm 2.396$  to  $21.27 \pm 2.677$ . This shows that there is an increase of self-efficacy by 10%. There was no significant difference between baseline self-efficacy data (pre) and post in the control group. Different self-efficacy test after treatment between those two group using independent sample t-test also showed a significant difference, with the p value = 0.029 with mean and SD of self-efficacy (post) respectively were  $19.29 \pm 1.541$  and  $21.27 \pm 2.677$ . It can be concluded that the effect of problem-focused coping stress management improves student self-efficacy by 10%.

**Keywords:** problem-focused coping management program, student self-efficacy