

# 3rd INTERNATIONAL OBESITY SUMMIT AND EXPO

&

2<sup>nd</sup> International Conference on

DIABETES, NUTRITION, METABOLISM & MEDICARE

&

**World Conference on** 

LASER, OPTICS AND PHOTONICS

November 05-06, 2018 | Philadelphia, USA

# DAY 1 Special Session



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# LASER, OPTICS AND PHOTONICS

Philadelphia, November 05-06, 2018

Robert W Liles, Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019



Robert W Liles Liles Parker PLLC, USA

### **Biography**

Robert W Liles background is somewhat unique. In addition to a law degree, he holds both an MBA and an MS in health care administration. He is also a certified professional coder. Robert has worked on the provider side, as a federal prosecutor and now represents physician practices and other health care providers around the country in connection with medicare / medicaid / private payor audits, state board of licensure actions, and false claims act cases. He also currently serves as an iro on corporate integrity agreements for the office of inspector general. While working as a federal prosecutor, Robert was asked to serve as the country's first "National Health Care Fraud Coordinator" for DOJ's Executive Office for US. Attorneys. In this capacity, he advised federal prosecutors around the country regarding health care fraud statutes, schemes, investigative tools, privacy concerns, and compliance issues. Since entering private practice, Robert has continued to build on his health care background and experience. He currently serves as compliance counsel for the American Association of clinical endocrinology.

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# THE BUSINESS OF MEDICINE: THE TOP 10 REGULATORY RISKS FACED BY ENDOCRINOLOGISTS AND THEIR **PRACTICES**

he business practices of Endocrinologists are under the regulatory microscope. Medicare, Medicaid and private payors are actively conducting audits of endocrinology claims for reimbursement. In this session, we will discuss a number of existing risk areas and what Endocrinologists and their practices should expect in 2019. Specific topics to be covered include:

- 1. The US Department of Justice's (DOJ's) current focus on "individual culpability," that has resulted in a renewed emphasis on individual, rather than merely corporate prosecutions in health care fraud cases. How should you respond if contacted by law enforcement?
- 2. The risks associated with the failure to collect copayments and deductibles and result in wide range of administrative, civil and / or criminal sanctions. Similarly, extending a "Professional Courtesy" discount or billing a patient "Insurance Only" may be a violation of the Federal Anti-Kickback Statute. How are supposed to handle copayments, deductibles and discounts?
- 3. How to respond if your practice is audited by a Medicare program integrity contractor such as UPIC or ZPIC.
- The impact of hiring an individual who has been "excluded from participation" in medicare or medicaid.
- The penalties associated with an improper breach of protected health information can be enormous. Is your practice compliant with applicable HIPAA / HITECH regulatory requirements?
- Private payor "Special Investigative Units" are actively auditing endocrinology practices. How should you respond if your claims are audited by one or more private payor insurance companies?
- 7. Federal and state mandates require your practice to have developed and implemented an effective compliance program. Is your practice currently in compliance with federal and state law?
- State licensure boards are focusing on a number of specific concerns. We will briefly cover several of these.
- Steps you can take to reduce the likelihood of healthcare workplace violence.



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10. Recent EEOC decisions affecting your practice."

### **Objectives:**

- Participants will learn about the current federal and state enforcement efforts and initiatives to identify and prosecute health care fraud.
- Participants will learn about the efforts of "Special Investigations Units" working for private payors to identify improperly paid claims and refer instances of fraud to the government for possible prosecution.
- Participants will learn about a number of the common medical necessity, documentation, coding and billing errors identified when auditing medical records and claims documentation.
- Participants will learn how to reduce their level of regulatory risk and liability.





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# DAY 1

Scientific Tracks & Abstracts

# Day 1 SESSIONS

November 05, 2018

Body Mass Index | Diabetes Metabolism and Obesity diseases | cardiovascular diseases | Diabetes Pathophysiology | Diabetes Complications | Diabetic Nutrition | Diabetes Science and Technology | Diabetes: Research | Alternative medicine for Diabetes

# **Session Introduction**



### **Session Chair**

JMA Hannan Independent University, Bangladesh

### **Session Co-chair**

Sushil Ranjan Howlader
University of
Dhaka, Bangladesh

Title: The result of clinical trial for the new Lonal drug for hepatoprotective effect in patient with drug induced steatosis: A randomized placebo-controlled double blind clinical trail

Buyanjargal Darkhija, Bayangol Districts Health Center, Mongolia

Title: Potential benefits of Chia seeds in prevention of cardiovascular diseases

**Beatrice Nyanchama Kiage Mokua,** Jomokenyatta University of Agriculture and Technology, Kenya

Title: Entrenched obesity deterrents demand radical measures

James L DeBoy, Lincoln University of Pennsylvania, USA

Title: Motivational self monitoring and digital healthcare technology

James Minor, LLC Diabetes Care by Designs, USA

Title: Impact of providing working lunch on health: A case study in stich right limited firm

at Tongi in Dhaka

Rafia Rahman, University of Dhaka, Bangladesh



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Buyanjargal Darkhijav et al., Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019

# THE RESULT OF CLINICAL TRIAL FOR THE NEW LONAL DRUG FOR HEPATOPROTECTIVE EFFECT IN PATIENT WITH DRUG INDUCED STEATOSIS: A RANDOMIZED PLACEBO-CONTROLLED **DOUBLE BLIND CLINICAL TRAIL**

### Buyanjargal Darkhijav<sup>1</sup>, Ariunaa Z<sup>2</sup>, Sarnai Ts<sup>3</sup>, Badamjaw S<sup>3</sup> and **Erdenetsoat D<sup>3</sup>**

<sup>1</sup>Bayangol Districts Health Center, Mongolia

<sup>2</sup>Research and Production Company of The Mong-Em, Mongolia

<sup>3</sup>School of Medical Science, Mongolian National University of Medical Sciences, Mongolia

Introduction: Following researchers determined the chronic hepatitis C virus infection which was 8,2% (Davaalkham.J et al, 2003), 9,6% (Takahashi.M et al, 2004), 9,8% (Tsatsralt-Od.B et al, 2006), 11,8% (Dagvadorj.Ya et al 2005) in Mongolia. As researchers noted that hepatitis C genotype 1 and 3 enable to be triglyceride accumulation for liver because it often occurs simultaneously fatty liver disease. Although many types of traditional medicine have been used for for hundreds years, their effectiveness of the therapy is relatively small with inadequate use of poorly understood in practice. These types of medicine's storage, form, flavor are to improve which are prepared based on scientific studying, is to make the clinical trial of drug acts as easily use, emerged as one of the need for market. Therefore, our research team has made the clinical trial based on the chemical and pharmacological study of hepatoprotective effect for lonicera altaica pall fruit, an established clinical studies and producing new drugs.

Aim: The aim of the clinical trial was to determine hepatoprotective effect of the new lonal drug in patient with fatty liver disease with chronic hepatitis C.

Material and Method: The research was considered such as clinical trial guideline for new drug issued by the WHO's "Good Clinical Practice". Based on permission given by biomedical ethical community of the health ministry of Mongolia approved diagnosis patient with fatty liver disease associated with chronic hepatitis C. Research design is randomized placebo-controlled, double blind clinical trial. We studied 3 groups of participants that was given the following treatment for 21 days: (I) Treatment group: Lonal drug 1.4 gr ×3 times, (II) Control group: Silymarin drug 67.5 mg ×3 times, (III) Placebo group: Placebo drug 1.4 gr ×3 times. We used on histo-morphometric analysis of liver biopsy DISKUS ver 4.80, Olympus BX microscopy.

Results: Lonal drug decreases activation of syndrome hepatic cell cytolysis ALT (p=0.023), AST (p=0.037). Also decreases criteria of cholestasic syndrome such as indirect bilirubin (p=0.611), ALP (p=0.04), GGT (p=0.445). The Lonal medicine was taken during 21 days and comparing the results of lipid metabolism exchange before and after treatment, reduces TG (p=0,402), increases HDL (p=0.047). The participants have taken the Fibroscan analysis and liver biopsy. That was compared to determine before and after treatment such as steatosis and fibrosis degree. Before treatment degree of steatosis was S2: 278.4±75.3 dB/m and after treatment it was dropped from S1: 238.6±70.4 dB/m (p < 0.05). And before treatment, such as fibrosis degree F2-3: 8.84 ± 2.2 kPa, after treatment it was decreased in F1-2: 7.18 ± 3.87 (p<0.01). In liver histology, comparing before and after treatment the results of liver cell inflammation-fibrosis area was reduced by 1,75 times and decreases hepatic steatosis degree (strong fatty change was improved mild fatty change).

Conclusion: New Ional medicine is reducing activation syndrome hepatic cell cytolysis, cholestatic and some criteria of the metabolic syndrome in patient with fatty liver disease associated with chronic hepatitis C. Also new lonal medicine reduces the degree of liver steatosis and fibrosis by the analysis of fibroscan and liver biopsy.

Key Words: Fibroscan, liver biopsy, Lonicera Altaica Pall, Lonal.

# **BIOGRAPHY**

Buyanjargal Darkhijav is currently working at Bayangol Districts Health Center, Ulaanbaatar city, Mongolia.

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Beatrice Nyanchama Kiage Mokua, Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019

# POTENTIAL BENEFITS OF CHIA SEEDS IN PREVENTION OF CARDIOVASCULAR **DISEASES**

### **Beatrice Nyanchama Kiage Mokua**

Jomokenyatta University of Agriculture and Technology, Kenya

ardiovascular diseases (CVDs) are mainly caused by atherosclerosis of fatty deposits, smooth muscle cells and fibrous connective tissues collectively termed plaque. Plaque may promote thrombosis within the artery which in turn narrows the lumen of arteries obstructing blood flow leading to heart attack and stroke. Low density lipoprotein cholesterol, decreased high density lipoprotein cholesterol, elevated triglycerides and excess calories are among of the risk factors that can promote atherosclerosis in the body. Modern diets are mostly low in omega-3 fatty acids and high in omega-6 fatty acids and saturated fatty acids (SFA). Such imbalance is associated with increased risks of heart disease and support chronic inflammation. Chia seed (Salvia hispanica L.) is becoming among the popular foods of plant origin that contains the greatest amount of omega-3 fatty acid, α-linolenic acid. Omega-3 fatty acids have been associated with potential physiological functions in human body. Additionally the seeds are rich in proteins, dietary fiber, minerals and phytochemicals such as myricetin, quercetin, kaempferol, chlorogenic acid and caffeic acid which exhibit cardio-protective, antioxidant and lipid-lowering properties. This review expounds the prevalence of cardiovascular diseases and the importance of chia seed in counteracting CVDs risk factors as evidenced by various in vivo and animal studies.

Key words: Cardiovascular disease, chia seed, omega-3 fatty acids, risk factor and phytochemicals

# **BIOGRAPHY**

Beatrice Nyanchama Kiage Mokua has completed her PhD at the age of 37 years from Christian Albrechts University (CAU), Kiel, Germany. She is a lecturer at Jomokenyatta University of Agriculture and Technology at the department of food science and technology. She has papers in reputed journals.

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James L DeBoy, Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019

# ENTRENCHED OBESITY DETERRENTS **DEMAND RADICAL MEASURES**

**James L DeBoy** 

Lincoln University of Pennsylvania, USA

espite multiple, well-intentioned individual-based strategies to reverse America's obesity epidemic for the past 30 years, obesity rates continue to climb: almost 40 percent of adults were obese in 2016 with another 27 percent classified as pre-diabetic (CDC, 2018). Missing from this battle of the bulge is a population-based approach that would model the one deployed during the anti-smoking campaign of the 1980s and beyond. Societal/legislative actions, while perceived by many as draconian and "un-American", must be implemented if we are ruly serious about addressing this national health crisis. A 15 powerpoint slide presentation will identify obesity prevention deterrents, limitations of individual-based approaches, the nutritional shift in today's food supply, and suggested societal, legislative interventions as well as the rationale that accompanies them.

# **BIOGRAPHY**

James L DeBoy earned a PhD in human development (with minor concentrations in special education and history of education) at the University of Delaware. He was appointed to the Lincoln University faculty in 1975 and achieved academic rank of professor in 2000. As chair of the HPER department from 1989 to 2011, he has served on virtually all major academic committees, assumed the lead role in assessment of student learning outcomes for 20 years, served key roles in the university's re-accreditation process for three decades, and successfully taught more than 10 different health-focused courses over a 35 year career in higher education.

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James Minor, Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019

# MOTIVATIONAL SELF MONITORING AND DIGITAL HEALTHCARE TECHNOLOGY

### **James Minor**

LLC Diabetes Care by Designs, USA

Background: Diabetes and consequent complications are creating a global epidemic costing billions of dollars in healthcare expenses. Our biofeedback concept can improve patient healthcare and avoid such complications. This talk introduces simple diagnostic images of the daily impact of diabetes on blood sugar that will encourage and motivate patients toward more effective self monitoring and improved blood glucose control. Recent publications reported these patterns hidden within the multiday profiles of blood glucose fluctuations. The studies support clinical benefits such as an accurate 24hour advanced alert for incident extreme glycemia, such as hypoglycemia. The patterns measure healthcare effectiveness and indicate actions necessary to control expected glycemic conditions. This talk reports the benefit of these diagnostic images in a clinical case spanning multiple months.

Methods: For seven months daily finger-stick samples of a patient were used to create the glycemic patterns. The patient used the patterns as biofeedback to guide changes in diet and life style habits toward improving glycemic

Results: The patient achieved significant reduction in the average and volatility of blood glucose levels. A1c was lowered from diabetic status to normal subject levels.

Conclusions: The images provide robust accurate biofeedback and visualization of one's impact on glycemia that motivates and encourages vigilant blood sugar monitoring and consequent lifestyle actions to improve glycemic control and avoid expensive healthcare complications.

# **BIOGRAPHY**

James Minor earned PhD's in both physics and data sciences before age 32. He has multiple publications and patents in physics, drug discovery, and genomics. His cognitive computer programs have been useful in healthcare applications to identify important gene sets establishing useful expression databases, e.g., toxicology. He was a managing consultant for Dupont, Chiron, Novartis, Bayer, Incyte, Iconix, and Agilent to successfully advance their research programs.

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Rafia Rahman, Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019

# IMPACT OF PROVIDING WORKING LUNCH ON HEALTH: A CASE STUDY IN STICH RIGHT LIMITED FIRM AT TONGI IN DHAKA

### Rafia Rahman

University of Dhaka, Bangladesh

his study was designed to determine the impact of working lunch on employees health in terms of BMI and identify the employees were at risk to develop different disease, with the vision to assist employer and/or authority to take necessary intervention for improvement of health status and reduce risk to develop disease among the employees. It was a cross sectional mixed method study. The study period was from October'10 to October'11 and the intervention was given in a factory with name 'Stich Right Limited (SRL)'which was been selected purposively. All the workers (total of 742) of that factory received the intervention were surveyed. Body Mass Index (BMI) of each worker was calculated both in the base line (October'10) and end line (October'11). The study revealed that during baseline 13.6 percent workers had under-nutrition (according to WHO which classified as workers with BMI less than 18.5) as compared to that of 8.6 percent at the end year. Hence, under-nutrition statuses of the workers were corrected by 4.9 percent. Standard nutritional status (BMI is 18 to 25) improved by 1.5percent. Percent of workers with 'overweight' (BMI is 26 to 30) and 'obese' (BMI greater than 30) status also proportionately increase by 3.2 and 0.3 percentage point respectively thought he increases were not statistically significant. Further, it was found that, among male employees under nutrition correct by 2.66percent and among female employees under nutrition correct by 6.26. Successful and effective implementation of any intervention through service center (work place) is possible. Employee's positive health, well-being could ensure in work place by the intervention of employer that actually takes a role for increase the productivity of work and employees were able to lead a socially and economically productive life.

# **BIOGRAPHY**

Rafia Rahman working as an assistant professor at University of Dhaka, Bangladesh. After completion of medical graduation, she started profession with national NGO operating 25 districts of Bangladesh. Then worked for different National and international NGO in different position for about seven years. Where her task was mainly to monitoring, supervision, implementation and evaluation of different programs of USAIDs. Also maintained liaison with different government bodies and compliance accordingly donor, government and organization. She organized and provided training for employees and develop manual. Beside compliance with different task provided from institute also she works with UNICEF, SURCH and KOIKA in different research. She has published around 09 papers in reputed journals.

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# DAY 2 Special Session



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# **Khushdeep Bandesh**

<sup>1</sup>National Institute of Diabetes and Digestive and Kidney Diseases, USA <sup>2</sup>CSIR-Institute of Genomics and Integrative Biology, India

### **Biography**

Khushdeep Bandesh obtained her PhD early this year in functional genomics from CSIR-Institute of Genomics and Integrative Biology, India. She is currently a post-doctoral fellow at NIDDK. She received the 'Young Scientist Award' in human genetics for the year 2018 in India. She has worked for nearly a decade in T2D genetics in diverse human populations. Her research largely focuses mechanistic understanding of observed genetic associations on biological grounds.

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# **FUNCTIONAL POTENTIAL OF A sub-GWAS** NONCODING VARIANT IN MODULATING THE TRAIT PHENOTYPE

ecades of rigorous genetic efforts have established type 2 diabetes (T2D) as apparently an outcome of altered metabolic traits. In this regard, C-peptide, a byproduct of insulin synthesis has been largely neglected. Owing to a higher plasma half-life (~30mins) than insulin (~4 mins), C-peptide is a precise measure for insulin secretion and presents independent functional activity.

We performed a two-staged Genome Wide Association Study (GWAS) for plasma C-peptide in Indians (N = 2.706) and identified a novel variant rs4454083 at sub-GWAS significance residing in intron of a GABA receptor-subunit gene - GABRA6 and simultaneously, in exon of a novel antisense IncRNA, which we named ARBAG. Expression of GABRA6 triggers fast inhibitory neurotransmission in human cerebellum and its recruitment to postsynaptic sites is administered by C-peptide. Imputation and targeted sequencing of associated region ensured that rs4454083 is a 'stand-alone' SNP. The variant allele (G) which is a minor allele across all world populations, was seen to be associated with remarkably higher ARBAG expression in cerebellum. A strong correlation was detected in expression of GABRA6 and ARBAG in human cerebellar cell-line. Presence of G allele was observed to stabilize IncRNA transcripts therefore leading to cellular abundance of ARBAG. Overexpression of ARBAG led to cleavage of full-length GABRA6 mRNA at/ around the site of complementarity between both RNAs and ended up in a dissociated GABRA6 protein which is rendered non-functional owing to separation of its ligand binding domain from trans-membrane domain. The findings demonstrate role of a sub-GWAS intronic variant in regulating functional mRNA isoforms of associated protein gene.





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# DAY 2

Scientific Tracks & Abstracts

# Day 2 SESSIONS

November 06, 2018

Obesity and diet | Maternal Obesity | Weight Management | Diabetes Pathophysiology | Diabetes Complications | Diabetic Nutrition | Diabetes Science and Technology | Diabetes: Research

# Session Introduction

The study has examined the effect of age, diabetes related perceived and actual knowledge on body mass index (BMI) amongst type 2 diabetic Nepalese immigrants of Rushmoor in Hampshire County, England Ramji Tiwari, University of Southampton, UK Title: Anti-diabetic and anti-obesity efficacy of selected Kenyan plant extracts on rats fed a High fat and fructose diet Beatrice Nyanchama Kiage Mokua, Jomokenyatta University of Agriculture and Technology, Kenya Title: Anti-hyperglycemic action of Gynura procumbens is partly mediated by inhibition of carbohydrate digestion and absorption in the gut Kazi Ishtiaq Ahmad, Independent University, Bangladesh Title: Maternal risk factors associated with retinopathy of prematurity among patients in **Session Chair** east avenue medical center from 2010 to 2015 **Stanley Schwartz** Ida Fidelis E Denosta, East Avenue Medical Center, Philippines University Title: Hollow-core optical fibers: A road map to multifunctional fibers of Pennsylvania, USA Jonathan Hu, Baylor University, USA **Session Co-chair** Title: From weight management via diabetes control to cardiovascular risk reduction Sushil Ranjan Howlader Gerald C Hsu, EclaireMD Foundation, USA University of Title: Quantum mechanics as a Fourier representation of a particle relativistic dynamics Dhaka, Bangladesh Eliade Stefanescu, Romanian Academy, Romania Title: **Probing of Photonic states in 1D space** V N Antonov, University of London, UK Title: From energy and food nutrition via metabolism to diabetes control and risk reduction of complications Gerald C Hsu, EclaireMD Foundation, USA Title: Projective coordinate construction for energies

Gudrun Kalmbach H E, MINT publication, Germany

Praveena D, Valliammai Engineering College, India

Surface enhancement of card cutting in textile industry by laser shock peening

Title:



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# THE STUDY HAS EXAMINED THE EFFECT OF AGE, DIABETES RELATED PERCEIVED AND ACTUAL KNOWLEDGE ON BODY MASS **INDEX (BMI) AMONGST TYPE 2 DIABETIC** NEPALESE IMMIGRANTS OF RUSHMOOR IN HAMPSHIRE COUNTY, ENGLAND

### Ramji Tiwari

University of Southampton, UK

Methods: A cross-sectional questionnaire survey was carried out among type 2 diabetic patients from 30 September to 7 November 2017. A total of 43 (male 29, female 14) individuals with diabetes were recruited through purposive convenient sampling. They were consented, completed a questionnaire and self-reported HbA1c and cholesterol. Blood pressure, height, and weight were measured. Data were collected at local community centres using the translated version of study materials including the questionnaire.

Result: The participant's age range was 43-79 years (mean 62 ±11.05). The diabetes total knowledge score (DTKS) was found to be inversely correlated with body mass index (r (41) = -0.46, p< 0.002) and perceived knowledge was found to be positively correlated with actual knowledge (r (41) = 0.71, p<0.001). Multiple linear regression analysis shows a significant effect (F (3,39) = 7.78, p<0.001) with R2 of 0,37. The 37% variation in Body Mass Index (BMI) is accounted for by perceived knowledge, actual knowledge, and age. The predicted body mass index according to regression modelling is equal to 22.53 + 0.47 (VAS) - 0.64(DTKS) + 0.26 (Age). The results suggest that diabetic patients body mass index is significantly related to age, perceived and actual diabetes-related knowledge.

Conclusion: The study found a significant effect of age, perceived and actual diabetes-related knowledge on BMI of type 2 diabetic Nepalese immigrants. Most type 2 diabetic Nepalese immigrants had a low level of diabetes-related knowledge as other studies around the world.

# **BIOGRAPHY**

Ramji Tiwari is a PhD Student from Centre for Innovation and Leadership in Health Sciences, University of Southampton. His focused his research on diabetes self-management and different factors that effect diabetes especially in Nepalese immigrants in England.

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# ANTI-DIABETIC AND ANTI-OBESITY **EFFICACY OF SELECTED KENYAN PLANT EXTRACTS ON RATS FED A HIGH FAT AND FRUCTOSE DIET**

### **Beatrice Nyanchama Kiage Mokua**

Jomokenyatta University of Agriculture and Technology, Kenya

Plants are reported to have anti-diabetic and anti-obesity effects hence can be explored in the treatment of these disorders. In this study, ethanolic and aqueous extracts were prepared from Mangifera indica L, Lonchocarpus eriocalyx (Harms), Urtica massaica Mildbr., Schkuhria pinnata (Lam) and Launaea cornuta. Ethanolic extracts of all plants (1:100 dilutions), in vitro, showed at least 29% inhibition of pancreatic lipase, but no effect on  $\alpha$ -glucosidase activity. The administration of the extracts for 74 days caused a significant reduction of liver triglycerides in male Wistar rats that had been fed on a high fat and fructose diet (HFFD). There was also a tendency by the extracts to prevent liver steatosis by reducing ALT and AST levels. Additionally, glycemia and atherogenicity improved but hyperinsulinemia and insulin resistance did not decrease. Conversely, there were inconsistencies on the effects of the extracts on the evaluated parameters evaluated. However, Urtica massaica was consistent in reducing glycaemia (fasting blood glucose, urinary glucose, % HbA1c) and markers of hepatic steatosis (ALT and AST), which were lower than the control. Hence, findings of this exploratory study imply that these plants inhibit pancreatic lipase and therefore may be beneficial in obesity treatment. Moreover, Urtica massaica could be further investigated for anti-diabetic properties.

Keywords: Diabetes, Plant extracts, Triglycerides, High fat high fructose, Liver steatosis, Obesity.

### **BIOGRAPHY**

Beatrice Nyanchama Kiage Mokua has completed her PhD at the age of 37 years from Christian Albrechts University (CAU), Kiel, Germany. She is a lecturer at Jomokenyatta University of agriculture and technology at the department of food science and technology. She has papers in reputed journals.

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Kazi Ishtiaq Ahmad et al., Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019

# ANTI-HYPERGLYCEMIC ACTION OF GYNURA **PROCUMBENS IS PARTLY MEDIATED BY** INHIBITION OF CARBOHYDRATE DIGESTION AND ABSORPTION IN THE GUT

### Kazi Ishtiaq Ahmad, Mahbub Hasan, Limu Parvin, Afra Haque, Kamol Krishna Nandy and JMA Hannan

Independent University, Bangladesh

ynura procumbens leaf has been widely used as a traditional therapy for diabetes all over the world. Present study aims to investigate effects of G. procumbens in sucrose digestion and absorption in the gut to explore the anti-hyperglycemic activity of this plant. The dried-powder-leaves of G. procumbens were extracted with methanol. Sucrose malabsorption in GI Tract was evaluated in 20-hrs-fasted Long Evan rats by determining the amount of sucrose remaining in six different parts of gastrointestinal tract after sucrose load (2.5 g/kg b.wt), with or without 500 mg/kg dose of G procumbens extract. For evaluation of disaccharides activity, the extract was fed to 20-h-fasted rats. After 60 min, the rats were sacrificed, and the small intestines were isolated and homogenized. The homogenate (20µI) was incubated for 60 min at 37 °C with 40 mmol sucrose. Disaccharides activity was calculated by glucose converted from sucrose as mol-mg glucose/protein/h. When the extract of G procumbens was administered simultaneously with the sucrose load, the residual sucrose content in the gastrointestinal tract was increased significantly (p<0.01), especially in the upper intestine at 30 min, in the whole intestine as well as cecum at 1 and 2 h. At 4 h, sucrose was not detected in the aut in both groups. When extract was supplemented with the glucose solution, the percentage absorption of glucose was decreased by 13-19% during whole perfusion period (p<0.05). It inhibited disaccharides (sucrose) activity significantly (p<0.05) in rats. The anti-hyperglycemic activities of G procumbens in rats are partly mediated via delaying intestinal carbohydrate digestion and absorption.

# **BIOGRAPHY**

Kazi Ishtiaq Ahmad has recently completed masters of pharmacy, major in clinical pharmacy and molecular pharmacology from East West University, Dhaka, Bangladesh and completed bachelor of pharmacy from BGC Trust University, Bangladesh. He has completed his M Pharm research under the active supervision of JMA Hannan in the field of diabetes.

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# **DIABETES, NUTRITION, METABOLISM & MEDICARE**

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# MATERNAL RISK FACTORS ASSOCIATED WITH RETINOPATHY OF PREMATURITY AMONG PATIENTS IN EAST AVENUE **MEDICAL CENTER FROM 2010 TO 2015**

### Ida Fidelis E Denosta and Carina Cruz-Quimbo

East Avenue Medical Center, Philippines

Objectives: This study aims to determine the maternal risk factors associated with the development of retinopathy of prematurity (ROP).

Design: A retrospective cohort study.

**Setting:** The study was done in a tertiary government hospital.

Patients: This study included admitted premature neonates in neonatal intensive care unit (NICU) who underwent ROP screening. All patients with congenital abnormality of the eyes were excluded in the study.

Methodology: List of admitted premature patients who underwent ROP screening was collected within the study period. Demographic data was collected from the patient's medical records.

Statistical Analysis: Descriptive statistics were presented for categorical outcome measures. Wilcoxon rank sum test was used to compare two averages. Chi-square test, Yates' chi-square test and Fisher's exact test were used to compare proportions. Univariate and multivariate regression analyses were used to estimate crude and adjusted odds-ratios, corresponding 95% CI and based on p-value ≤ 0.05 statistical significance.

Result: This study showed 57% cases of ROP, majority with Stage 1 (66%), mostly female infants (53.4%; p<0.001), mildly asphyxiated (51.2%, p=0.290; 77.2%, p=0.117) and were small for gestational age (57.3%; p<0.001). On the average, these infants underwent 1 day of either invasive or non-invasive mechanical ventilation, 2 days with FiO2 of >0.5 liters per minute, had two blood transfusions, and with shorter hospital stay (17 vs 26 days; p<0.001). The average age of mothers who delivered infants with ROP was 26 years old, multipara (59.2%), and underwent normal spontaneous delivery (67%). About half reported adequate prenatal check-ups (53.8%), and diagnosed with urinary tract infection (40.1%).

Conclusion: Data showed that mothers with urinary tract infection and preeclampsia are more likely to deliver infants with retinopathy of prematurity thus significant maternal risk factors of ROP.

Keywords: Retinopathy of Prematurity, Neonates, Prematurity

### **BIOGRAPHY**

Ida Fidelis E Denosta has completed her degree of bachelor of science major in psychology at the age of 20 in Far Eastern University. She graduated as doctor of medicine at Fatima University Medical Center. She completed her residency training in pediatrics at east avenue medical center last December 2016 as an assistant chief resident. She is an active member of the Philippine Medical Association, Manila Medical Society and currently affiliated with Allied Care Experts (ACE) Medical Center-Quezon City and Caloocan City North Medical Center (CCNMC) as a junior consultant in the department of pediatrics.

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# HOLLOW-CORE OPTICAL FIBERS: A ROAD MAP TO MULTIFUNCTIONAL FIBERS

### **Jonathan Hu**

Baylor University, USA

his presentation describes the history, guiding mechanism, recent advances, applications, and future prospects for hollow-core negative curvature fibers. One-dimensional slab waveguides, two-dimensional annular core fibers, and negative curvature tube lattice fibers are used to illustrate the inhibited coupling guiding mechanism. Antiresonance in the glass at the core boundary and a wavenumber mismatch between the core and cladding modes inhibit coupling between the modes and have led to remarkably low loss in negative curvature fibers. This presentation will explain recent advances in negative curvature fibers that improve the performance of the fibers, including negative curvature that increases confinement, gaps between tubes that increase confinement and bandwidth, additional tubes that decrease mode coupling, tube structures that suppress higher-order modes, nested tubes that increase guidance, and tube parameters that decrease bend loss. Recent applications of hollow-core fibers are also presented, including mid-infrared fiber lasers, micromachining, and surgical procedures. Future prospects for hollow-core fibers will be given at the end.

### **BIOGRAPHY**

Jonathan Hu is an associate professor in the department of electrical and computer engineering at Baylor University. He received his PhD. degree from the University of Maryland, Baltimore. Before he joined Baylor University in august 2011, he spent two years as a research associate at Princeton University. He has many years of research experience in optical sciences and engineering with expertise in the areas of chalcogenide glass fibers photonic crystal fibers, nanophotonics, 2D materials, and surface plasmons. He has served as referee for 20 journals in optics, physics, and materials. He has also been session chairs for multiple international conferences. He served as a topic co-chair for Mid Infrared Photonics (MIP) in the IEEE summer topical meetings (2015) and a committee member in NOMA Conference in OSA advanced photonics (2018). He received Baylor Young Investigator Development Award in 2015. He also serves as a Baylor Fellow in 2018.

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# FROM WEIGHT MANAGEMENT VIA DIABETES CONTROL TO CARDIOVASCULAR **RISK REDUCTION**

### **Gerald C Hsu**

EclaireMD Foundation, USA

Introduction: Since 1997, the author has been diagnosed with obesity, type 2 diabetes (T2D), hypertension, hyperlipidemia, and suffered five cardiac episodes. He spent 20,000 hours since 2010 to study and research his chronic diseases in order to save his own life. This abstract tells his story.

Method: He created a math-physical medicine approach, instead of using the traditional biochemical method, to conduct his research. Initially, he defined inter-relationships among 11 categories and 500 elements of a human metabolism system. He collected and processed 1.5 million data of his lifestyle details and medical conditions. Furthermore, utilizing physics, mathematics, engineering modeling, and artificial intelligence (AI), he developed four prediction models with 99% accuracy, including weight, fasting plasma glucose, post prandial glucose, and hemoglobin A1C. Finally, he developed a risk probability calculation model of having heart attack or stroke.

Results: From the period of 2013-2018, he has reduced his weight from 220 lbs. to 167 lbs., waistline from 44" to 32", and BMI from 33.1 (obese) to 24.7 (normal). Based on his acquired knowledge, he developed AI-based prediction tools to reduce his average glucose value from 279 mg/dL to 116 mg/dL, A1C from 10% to 6.5%. Since 2016, his hypertension and hyperlipidemia are no longer health concerns along with dropping his cardiovascular risk from 74% to 31%.

Conclusion: Over eight years, the author was able to control his weight and T2D along with greatly reducing his cardiovascular risk. In addition to his willpower and persistence, his diligence in acquiring medical knowledge from reading hundreds of textbooks and medical papers has assisted him. More importantly, his knowledge from other disciplines in mathematics, physics, engineering, statistics, computer science, and technology have provided him the necessary tools.

# **BIOGRAPHY**

Gerald C Hsu received an honorary PhD in mathematics and majored in engineering at MIT. He attended different universities over 17 years and studied seven academic disciplines. He has spent 20,000 hours in T2D research, initially studying six metabolic diseases and food nutrition during 2010-2013, then conducting his own diabetes research during 2014-2018. His approach is a "quantitative medicine" based on mathematics, physics, optical and electronics physics, engineering modeling, signal processing, computer science, big data analytics, statistics, machine learning, and artificial intelligence. He named it "math-physical medicine". His main focus is on preventive medicine using prediction tools.

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# **QUANTUM MECHANICS AS A FOURIER** REPRESENTATION OF A PARTICLE **RELATIVISTIC DYNAMICS**

### Eliade Stefanescu

Romanian Academy, Romania

he starting point of this research was a representation of a quantum particle according to the Schrodinger equation of the conventional quantum mechanics. In this representation, a quantum particle is described by a wave packet in the coordinate space and the conjugated wave packet in the momentum space. The problem was that while in the coordinate space the group velocity was in agreement with one of the Hamilton equations, the group velocity in the momentum space was in contradiction with the other Hamilton equation - a minus sign was missing. Group velocities in agreement with the Hamilton equations are obtained only when in the time dependent phase of a quantum particle wave packet, instead of the Hamiltonian coming from the conventional Schrodinger equation, the Lagrangian is considered. This suggests us to consider the relativistic Lagrangian in the time dependent phase. In this way, the conventional relativistic principle of invariance of the time-space interval gets the more physically understandable form of the invariance of the time dependent phase of a quantum particle – the time dependent phase of a quantum particle is the same in any system of coordinates. Based on the relativistic of the time dependent phase invariance of a quantum particle, from the group velocities of this particle the relativistic kinematics and dynamics are obtained. The interaction with an electromagnetic field is described by a modification of the time dependent phase with a scalar potential conjugated to time and a vector potential conjugated to the space coordinates. According to the formalism of the general relativity any matter element in a field of forces is accelerated only perpendicularly to its velocity. This means that the matter propagation of a quantum particle can be conceived in planes perpendicular to velocity, while the mater distribution can be considered in a Fourier representation - quantum waves.

# **BIOGRAPHY**

Eliade Stefanescu graduated from faculty of electronics, Section of physicist engineers, in 1970, and obtained a PhD in theoretical physics in 1990. As a scientist from 1976, a senior scientist III from 1978, he worked in technology of semiconductor devices. From 1978, he worked in physics of optoelectronic devices. From 1987, and from 1990 as a senior scientist II, he worked in the field of open quantum physics. In 1991 he discovered that the penetrability of a potential barrier can be increased by coupling to a dissipative system, and described the decay spectrum of some cold fission modes. As a senior scientist I, from 1997 he developed a microscopic theory of open quantum systems, and discovered a physical principle for the heat conversion into usable energy. In 2014, he produced a unitary relativistic quantum theory. In the years 1995-2000, he held a course called dissipative systems for the master degree.

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# PROBING OF PHOTONIC STATES IN 1D **SPACE**

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<sup>3</sup>University of London, UK

he wave mixing is well revealed and theoretically described phenomenon of a nonlinear optics. It has applications in phase conjugation, generation of squeezed states, parametric frequency conversion, signal regeneration schemes and exploited significantly for spectroscopic study of various systems. The wave mixing was thoroughly investigated in a medium such as fiber, atomic beams and vapors, with various numbers of mixed waves, exploiting two or more levels of a system. However, any medium represents a huge ensemble of atoms, so one needs many photons to drive the medium efficiently. Also, energy levels are broadened in homogeneously and hence what is accessible in wave mixing experiment is collective response of an ensemble of atoms. Quantum Wave Mixing (QWM) reveals itself as an elastic scattering of coherent classical and non-classical photonic states of electromagnetic waves on a single atom. We show a spectrum, corresponding to four-wave mixing of non-classical photonic states with a fingerprint of interacting photon states: the number of frequency peaks due to stimulated emission

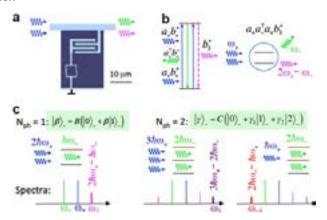


Fig1. a) A false colored SEM image of the device: a superconducting loop with four Josephson junctions, behaving as an artificial atom is embedded into a transmission line and strongly interacts with propagating electromagnetic waves.

b) Four-wave mixing processes resulting in the single-photon field creation at  $\omega_3 = 2 \omega_+ - \omega_-$ . In classical mixing, the process operators a = a + b comes in pair with the symmetric one a a a b. . In the mixing with non-classical states, time symmetry is broken resulting in the asymmetric spectrum. c) Schematic representation of QWM with non classical coherent states and sensing of the coherent quantum states. Two sequential pulses @\_ and then are appliedbreaking time symmetry and, therefore, spectrum symmetry. Coherent photonic states are created in the atom by the first pulse at a and then mixed with the second pulse of  $^{O}$ . Single-photon,  $N_{nh}=1$ , state  $\beta$ can only create a peak at @1 = 2 d1 - d1 because only one photon at @\_ can be emitted from the atom. Two photon,  $N_{nh}$ =2, coherent state  $\gamma$  results in creation of an additional peak at 3a - 2a, because not more than two photons @\_ can be emitted. Also one photon of can be absorbed, N<sub>nb</sub>-1, creating additional left-hand-side peak at 2 m - m. Always exceeds by one the ones due to absorption, see Fig.1. We also study four- and higher-orderwave mixing of classical coherent waves. In this case the time dynamics of the peaks exhibits a series of Bessel-function quantum oscillations with orders determined by the number of interacting photons. In our study we operate in the microwave range of electromagnetic radiation. The two level superconducting circuit, qubit, serves as the artificial atom which scatter the microwave radiation, see Fig. 1. In a wider context these artificial atoms may be a building blocks of novel on-chip quantum electronics, which utilize the quantum nature of electromagnetic waves.

# **BIOGRAPHY**

V N Antonov has his expertise in solid state nanophysics. He is one of scientists who made a breakthrough in experiments on quantum phenomena in low dimensional hybrid nanostructures, like Andreev interferometer, ferromagnetic/superconducting systems. A single photon terahertz detector based on semiconductors quantum dot developed in collaboration with Komiyama and Astafiev keeps a record sensitivity and it is used in a number of applications. A recent activity in superconducting quantum circuitry, superconducting resonators of high quality factors, and nanomagnetics is a subject of a number of publications in high ranked journals. He is also involved in development of the technology of high power diode laser for communications as an expert in nanofabrication.

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# FROM ENERGY AND FOOD NUTRITION VIA METABOLISM TO DIABETES CONTROL AND RISK REDUCTION OF COMPLICATIONS

### **Gerald C Hsu**

EclaireMD Foundation, USA

Introduction: The author uses "math-physics medicine" instead of the traditional biochemical medicine to study the situation of energy imbalance transmitting into metabolic disorders, resulting in chronic diseases and their complications.

Methods: He applied energy theory to study the disequilibrium between energy infusion, as in food nutrition intake, and energy consumption, such as exercise, work, and activities. These energy imbalances are caused by poor lifestyle management and shown as metabolic disorders, involving weight, glucose, blood pressure, and lipids. In 2014, he developed a metabolism equation using structural engineering modeling and various mathematics techniques. During 2015 to 2017, he developed a postprandial glucose (PPG) prediction model by applying optical physics and signal processing techniques. During 2015 to 2016, he developed a fasting plasma glucose (FPG) prediction model by applying energy theory and spatial analysis techniques. Finally, he used big data analytics, machine learning, and artificial intelligence to process and analyze ~1.5 million data associated with four chronic diseases, especially type 2 diabetes and its complications.

Results: The energy theory and spatial analysis identified >80% correlation between FPG and weight (physical representation of human body's internal energy exchange). Both FPG and PPG prediction models have achieved 99.9% linear accuracy. He also identified weight contributing 85% of FPG formation and the combination of carbs/sugar intake and post-meal exercise contributing 80% of PPG formation. Furthermore, by applying hemodynamics with solid mechanics and fluid dynamic, he calculated his risk probability of having a heart attack or stroke reducing from 74% to 26%.

Conclusion: The author has quantitatively proven that, as one of the major energy infusion factors, excessive "left-over" food nutrition combined with inactive lifestyle can cause metabolic disorders which further induce chronic diseases and their complications.

# **BIOGRAPHY**

Gerald C Hsu received an honorary PhD in mathematics and majored in engineering at MIT. He attended different universities over 17 years and studied seven academic disciplines. He has spent 20,000 hours in T2D research, initially studying six metabolic diseases and food nutrition during 2010-2013, then conducting his own diabetes research during 2014-2018. His approach is a "quantitative medicine" based on mathematics, physics, optical and electronics physics, engineering modeling, signal processing, computer science, big data analytics, statistics, machine learning, and artificial intelligence. He named it "math-physical medicine". His main focus is on preventive medicine using prediction tools. He believes that the better the prediction, the more control you have.

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# PROJECTIVE COORDINATE CONSTRUCTION **FOR ENERGIES**

### **Gudrun Kalmbach H E**

MINT publication, Germany

or the dynamical deuteron model MW of the author it is necessary to use Ta projective version constructing coordinates. The six color charges of quarks are set on the complex multivalued function of cross ratios. Needed are three reference points 0,1,00 which come from the orthogonal hidding of two frequences on a Lissajous circle. The variable z is taken on a 2-dimensional Riemannian sphere with symmetry the Moebius transformations MT. To the six permutations of the four projective points in the cross ratio as MT invariant are added through a Higgs compass energy carrying force vectors with polar caps for the energy exchanges of a deuteron with its environment. It is postulated that the weak WI u-quark decay generates Euclidean spin coordinates for MW and the strong SI gluon exchange between quarks barycentrical coordinates for gravity GR. They are synchronized with the spherical SI coordinates. For getting a common group speed of the MW parts, the two WI, SI+GR are in special relativistic motion, a reason why Minkowski metric is used in physics. The general relativistic factor of the Einstein/Schwarzschild metric is included in the model as a six valued compass for dynamical measured energies changing rotors in SI, WI time cycles.

### **BIOGRAPHY**

Gudrun Kalmbach H E got her PhD 1966 in Mathematics at the University of Goettingen and worked until 1975 as research assistant, lecturer and assistant professor at the Universities of Illinois, Massachusetts and Pennsylvania State University USA. Her research is on Quantum Structures for which she published many articles and also books. From 1975-2002 she worked as mathematics professor at the University of Ulm Germany where she founded the educational program MINT.

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# SURFACE ENHANCEMENT OF CARD **CUTTING IN TEXTILE INDUSTRY BY LASER SHOCK PEENING**

### Praveena D

Valliammai Engineering College, India

aser finds its wide application in surface modification due to its peculiar properties such as high intensity, small spot size etc. Among which Laser shock peening (LSP) is an effective surface treatment process which enhances the service life of engineering components operating under dynamic loading. The process involves in generation of shock waves that induces surface compressive stresses into the substrate. Variations in the processing parameters alter the depth and magnitude of the residual stresses. These deep compressive residual stresses increase the resistance of materials to surface-related failures and enhance its hardness.

It was reported that the initial applications of laser shock peening have been for gas turbine engine blades and components used in the aerospace industry, because of the critical need for better fatigue performance and damage tolerance. The laser shock peening Technology also shows great potential in the automotive/truck, medical device/orthopedic implant, and industrial machinery industries. My current research is focused on applying laser shock peening (LSP) technique to card cutting in textile industry. The card cutting wire is similar to that of saw blades so my current presentation focuses on the commercially available saw tooth blades.

### **BIOGRAPHY**

Praveena D has completed her Postgraduate degree in 2000 from Anna University, Chennai, India. She is assistant Professor in Department of Physics, Valliammai Engineering College, Tamilnadu, India. She has over 10 years of experience in teaching, pursuing PhD in laser peening.

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