LIST OF APPLICANTS

2019 – 28th International Conference on Research in Life-Sciences & Healthcare (ICRLSH), 30-31 December, Kuala Lumpur

30-31 December 2019

CONFERENCE VENUE

The Regency Scholar's Hotel, Universiti Teknologi Malaysia (UTM), Kuala Lumpur, Malaysia

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Preface:

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KEYNOTE SPEAKER

Dr. Abdulrasheed Olatunji Abdussalam
Associate Professor, Education from Al Azhar University, Egypt
Topic: The Problem of Healthcare in Nigeria and Its Implications On Education

Dr. Abdulrasheed Olatunji Abdussalam is a lecturer of Islamic University of Perlis, Malaysia. He holds a Doctor of Philosophy (PhD) and Master in curriculum education and instruction from **Al Madinah International University,** ***Malaysia. He had a diploma in computer studies from*** **Cairo Centre for Electronics Studies** ***and*** **Mini Masters in Business Administration** ***from*** **Al-Naser Training Academy.**

KEYNOTE SPEAKER

Kristina Francis
Lecturer, Department of Language and Linguistics, Faculty of Arts & Social Science, Universiti Tunku Abdul Rahman, Kampar, Perak, Malaysia

Topic: IR 4.0: Meeting Challenges in Educational Technology

Kristina Francis is a lecturer at Universiti Tunku Abdul Rahman (UTAR) and also certified trainer. Her core interests are in Educational Technology. She has an inborn and professional competency in Identifying Language Training Arenas, Designing Syllabus and Training Curriculum, Developing Teaching and Learning Methodologies, Designing Simple Web 2.0 technological tools for Effective Teaching and Learning, and Conducting E-Learning and Blended Learning workshops. Her expertise includes learning the techniques in creating or developing meaningful and useful E-Learning using Web 2.0 technological tools. Her contribution to her current job profile includes providing teaching support and guidance to students, evaluating courses when requested by the Faculty and also involving and collaborating actively in research.

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PRESENTERS

Mukhtar Aliyu **ERCICRLSH1929051**	**Extraction, Characterization, Fatty Acids Profile and Evaluation of Antioxidant Potential of Nymphaea Lotus and Nymphaea Pubescens Seed Oils** **Mukhtar Aliyu** **Department of Biochemistry & Molecular Biology, Federal University, Dutsin-ma, Katsina state-Nigeria** **Nura Lawal** **Department of Biochemistry & Molecular Biology, Federal University, Dutsin-ma, Katsina state-Nigeria** **Idris Aliyu Kankara** **Department of Science Laboratory Technology, Federal Polytechnic, Kauran-Namoda, Zamfara State-Nigeria** **Imam Abdullahi Abdulkadir** **Department of Biochemistry, Bayero University, Kano State-Nigeria** **Abstract** **The research work is aimed at evaluating nutritional qualities and economic significance of wild and underutilized plant seeds. Nymphaea lotus and Nymphaea pubescens seed oils were extracted using soxhlet extraction with hexane. The physicochemical properties (pH, density, acid value, iodine value, peroxide value and saponification value) showed that N. pubescens seed oil is of high quality. Gas chromatography coupled mass spectrometry analysis of the N. lotus seed oil showed that linoleic (13.01%), palmitoleic (4.46), arachidic (9.01%) and stearic (12.45%) acids were the major fatty acids whereas oleic (37.85), palmitic (23.57%) and stearic (5.71%) were the major fatty acids detected in N. pubescens seed oil. The order of the effectiveness of free radical scavenging and reducing capabilities of the oils were found to be N. lotus seed oil > ascorbic acid> palm oil > N. pubescens seed oil > groundnut oil. Compared with commonly consumed vegetable oils (palm oil and groundnut oil), the results showed that N. pubescens seed oils have qualities comparable to those of commonly consumed oils (palm oil and groundnut oil) and may therefore have great nutritional and industrial potentials whereas N. lotus seed oil is not suitable for human consumption due to its saturated nature but may find other applications in industries.** **Keywords: Nymphaea Lotus, Nymphaea Pubescens, Seed Oils, Physicochemical Properties, Fatty Acid**
 **Fransiscus Buwana** **ERCICRLSH1929052**	**Potential Therapeutic Effects of Curcuma longa extract in Patients with Osteoarthritis: A Randomized Controlled Trial** **Fransiscus Buwana** **Faculty of Medicine Duta Wacana Christian University/ Departement of Neurology Bethesda Hospital, Yogyakarta, Indonesia** **Rizaldy Taslim Pinzon** **Faculty of Medicine Duta Wacana Christian University/ Departement of Neurology Bethesda Hospital, Yogyakarta, Indonesia** **Abstract** **Research Objectives: Osteoarthritis (OA) is the most common degenerative joint disorder in the elderly and a major public health problem in worldwide. Non-steroidal anti-inflammatory drug (NSAID) is a common medication given in OA patients, but its use was limited due to many side effects. Previous studies showed that Curcuma Longa extracts may exhibit benefic effects in the treatment of OA. To determine the efficacy and safety of Curcuma Longa extracts for reducting pain in patients with osteoarthritis. Methodology: A randomized controlled trial (RCT) in OA patients. Subjects were randomized to 3 different group. Group I: CB extract (350 mg of**

	Curcuma longa and 150 mg Boswellia serrata) and NSAID (400 mg ibuprofen or 50 mg diclofenac sodium), group II: CB extract, group III: NSAID. Each subject would be followed up 3 times: baseline (visit I), second weeks (visit II), fourth weeks after baseline (visite III). The pain severity was measured using visual analogue scale (VAS). The analysis is intention to treat based. Findings: There were 105 subjects enrolled at the study. Subjects were dominated by female (80%) with mean aged 63 years. Ninety-five subjects (group I: 36; group II: 29, group III: 30) remained for complete analysis. Research Outcomes: Group I showed the greatest reduction of VAS score after the second and fourth weeks of treatment (more than 50%). Group III has the least VAS score reduction after fourth weeks (less than 30%) from baseline. The most frequent AE were reported from subjects in group III. Future Scope: CB extract is efficacy and safe for reducting pain in OA patients. Further clinical studies are warranted to determine the efficacy of curcumin and its combination products for OA patients. **Keywords: Curcuma Longa, Boswellia Serrata, Osteoarthritis, Pain**
Emmanuel Abayomi, ROTIMI **ERCICRLSH1929053**	**Principal Component Analysis of Body Weight and Morphometric Traits of New Zealand Rabbits Raised under Semi-Arid Condition in Nigeria** **Emmanuel Abayomi, ROTIMI** **Department of Animal Science, Faculty of Agriculture and Agricultural Technology, Federal University Dutsin-ma. Katsina state Nigeria** **Abstract** **Rabbits production plays important role in increasing animal protein supply in Nigeria. Rabbit production provides a cheap, affordable and healthy source of meat. The growth of animals involves an increase in body weight, which can change the conformation of various parts of the body. Live weight and linear measurements are indicators of growth rate in rabbits and other farm animals. This study aimed to define the body dimensions of New zealand rabbits and also to investigate the morphometric traits variables that contribute to body conformation by the use of principal component analysis (PCA). Data were obtained from 80 New zealand rabbits (40 bucks and 40 does) raised in Livestock Teaching and Research Farm, Federal University Dutsinma. Data were taken on body weight (BWT), body length (BL), ear length (EL), tail length (TL), heart girth (HG) and abdominal circumference (AC). Data collected were subjected to multivariate analysis using SPSS 20.0 statistical package. The descriptive statistics showed that the mean BWT, BL, EL, TL, HG and AC were 0.91kg, 27.34cm, 10.24cm, 8.35cm, 19.55cm and 21.30cm respectively. Sex showed significant ($P<0.05$) effect on all the variables examined, with higher values recorded for does. The phenotypic correlation coefficient values (r) between the morphometric traits were all positive and ranged from r = 0.406 (between EL and BL) to r = 0.909 (between AC and HG). HG being the most correlated with BWT (r = 0.786). The principal component analysis with variance maximizing orthogonal rotation was used to extract the components. Two principal components (PCs) from the factor analysis of morphometric traits explained about 80.42% of the total variance. PC1 accounted for 64.46% while PC2 accounted for 15.97% of the total variances. Three variables, representing body conformation, loaded highest in PC1. PC1 had the highest contribution (64.46%) to the total variance and it is regarded as body conformation traits. This component could be used as selection criteria for improving body weight of rabbits.** **Keywords: Conformation, Multicollinearity, Multivariate, Rabbits and Principal Component Analysis**
Abubakar, M. **ERCICRLSH1929056**	**Prevalence of Cassava Mosaic Disease in Bauchi State, North Eastern Nigeria** **Abubakar, M.** **Department of Plant Science and Biotechnology, Kebbi State University of Science and Technology, Aliero** **Mohammed, I.U.** **Department of Crop Science, Faculty of Agriculture Kebbi State University of Science and Technology, Aliero** **Keta, J.N.**

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Abstract

Cassava mosaic disease is one of the most important biotic constraint affecting Cassava, limiting the production potential of the crop in Northern Nigeria. This study was carried out to evaluate the current status of Cassava mosaic disease incidence, severity, infection type, whitefly abundance in the farmers' field as well as to determine the virus strains causing the disease in Bauchi State, Nigeria. A total thirty three (33) farmers' fields were surveyed and in each field, thirty plants were assessed along the two diagonals and leaf sample samples were collected from the fields surveyed for laboratory analysis. The results of the study revealed that Cassava mosaic disease incidence was highest in Ganjuwa (88.66%) and lowest in Darazo (43.33%). The disease symptom severity was generally mild. It was also highest in Ganjuwa (2.85) and lowest in Darazo (1.34). Whitefly infection is most prevalent (59.73%) than cutting borne infection (2.67%) in the Districts. Adult whitefly (Bemisia tabaci) population was highest Ganjuwa (56.33) followed by Kirfi(40.93 and lowest in Toro (27.63). Polymerase chain reaction (PCR) results using specific primers for African Cassava mosaic virus (ACMV) and East African Cassava mosaic virus (EACMV) detected single infections of ACMV and EACMV in 62.4% and 12.9% of the positive samples respectively. Co-infections of ACMV and EACMV were detected in 10.6% of the tested samples. Continuous monitoring of Cassava Mosaic Viruses and whiteflies population is required to provide appropriate management strategies of the disease in Nigeria.

Keywords: Bauchi, Severity, Whitefly, ACMV, Polymerase Chain Reaction

Anas. H
ERCICRLSH1929058

Morphological Characterisation of Soybeans (Glycine max L.) Treated with Gamma Rays for Induction of Mutation

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Abstract

Farmers have adopted new soybeans varieties developed by research institutes that have early maturity, high grain yielding, as well as other good agronomic traits. However, there is limited variability among the soybeans in germplasm cultivated in Nigeria. The aim of this study was to determine the morphological characters of soybeans (Glycine max L.) treatment with gamma radiation as a means of inducing beneficial mutations. This was performed by exposing two

	varieties of soybeans (TGX 1835 and TGX 1987) to gamma rays at doses of 0 (control), 5, 10, 15 and 20 Gy. The parameters measured include establishment count, plant height, number of branches per plant, number of leaves per plant, number of pods per plant, days to 50% podding, 100 – seeds weight and total grain yielded. The results showed a symmetric reduction in plant establishment count in all the mutagenic treatments compared to the control (O Dose Gy). Comparison of the plant height showed that TGX 1987 and 1835 at 10 Gy produced the highest plant height at 8 and 10 WAS. While there were no significant differences in all the treatments at 6 WAS in chlorophyll content but there was significant difference at 10 WAS. The results showed that at 10 WAS TGX 1835 at 10 Gy produce highest branch numbers. The result also showed that there was a significant difference in number of leaves per plant at 10 WAS with highest leaves number (183.33 leaves). The data on the days to 50% flowering showed that TGX 1835 gives the shorter days (38.66a) to 50% flowering at 20 Gy. The highest number of pods per plant was observed in control treatments in all the varieties. The result showed that the highest total grain yield was observed in TGX 1835 at 20 Gy and the lowest yield was observed in TGX 1987 at 5Gy. It can be recommended from this work that 20 Gy and 15Gy could be used to create variability in soybeans. **Keywords: Soybeans, Characterization, Gamma rays and Mutation**
Sule Sahabi Manga **ERCICRLSH1929059**	**Assessment of Bacterial Profile from Hydrocarbon Contaminated Soil** **Sule Sahabi Manga** **Department of Microbiology, Kebbi State University of Science and Technology, Aliero, Kebbi State, Nigeria** **Abdullahi Umar Gummi** **Department of Microbiology, Kebbi State University of Science and Technology, Aliero, Kebbi State, Nigeria** **Regina Doro Jabaka** **Department of Microbiology, Kebbi State University of Science and Technology, Aliero, Kebbi State, Nigeria** **Abstract** **Some specie of bacteria are known to have the ability to degrade hydrocarbon compounds. Thus, the identification of such bacteria could be step forward in actualization of bioremediation of toxic compounds in our natural environment. This study analysis 20 samples collected from engine oil contaminated soil in Jega Mechanic workshop in Kebbi state of Nigeria. Total Heterotrophic Bacterial Count (THBC) was carried out and counts ranged from 4.5x104 to 6.2x 106cfu/g. Hydrocarbon utilizing bacterial count was also determined and counts ranged from 1.2x103 to 5.0x103cfu/g. The bacterial species identified includes Micrococcus spp, Pseudomonas aeruginosa, Flavobacterium, Alcaligenes, Bacillus spp and Staphylococcus aureus. The study therefore reveals that these indigenous bacterial populations could be capable of mineralizing these pollutants in the environment to safe and acceptable levels if properly harness.** **Key words: Hydrocarbon, Degrading, bacteria, Mineralizing, Bioremediation**
Idris Zakariyya Kiri **ERCICRLSH1929061**	**Effects of Single Super Phosphate (SSP) and Zinc Levels on Leaf Area (LA), Leaf Area Ratio (LAR) and Leaf Area Index (LAI) of Cowpea Varieties (Vignaunguiculata(L.)) in Bauchi, Nigeria** **Idris Zakariyya Kiri (PhD)** **Department of Biological Sciences, Sule Lamido University, Kafin Hausa, PMB 048 Kafin Hausa, Jigawa State, Nigeria** **Haruna Usman Baita** **Department of Biological Sciences, Sule Lamido University, Kafin Hausa, PMB 048 Kafin Hausa, Jigawa State, Nigeria** **Abstract** **Effects of single super phosphate (SSP) and Zinc levels on leaf Area (LA), leaf area ratio (LAR) and leaf area index (LAI) of cowpea varieties (Vignaunguiculata(L.)) in Bauchi, Nigeria**

Rajeshwari Bangalore Sathyananda **ERCICRLSH1929064**	**Performance of PHC and Provider Wellbeing: A Quantitative Analysis of Centre, Patient and Provider Related Measures** **Bangalore Sathyananda, Rajeshwari** **CAPHRI, FHML, Maastricht University, Maastricht, Bangalore, India** **de Rijk, Angelique** **Maastricht University, Maastricht, The Netherlands** **Manjunath, Usha** **Maastricht University, Maastricht, The Netherlands** **Krumeich, Anja** **Maastricht University, Maastricht, The Netherlands** **van Schayck, C P Onno** **Maastricht University, Maastricht, The Netherlands** **Abstract** **Background: Primary healthcare comprises of health promotion and preventive health intervention at the population level which are rendered at dedicated centres called the Primary Healthcare Centres (PHC). The performance of these centres is vital for overall improvement in the general health of the population, specifically in developing countries. It is unknown whether performance indicators at centre level are also expressed by performance from a provider and patient perspective. The aim of this study is to explore patterns in the performance of PHCs with respect to (1) the availability of infrastructure and services; (2) providers' wellbeing; and (3) the patients' view.** **Methodology: Three PHCs with high, medium and low health care delivery in the urban district of Bangalore, Karnataka, India, were selected. Classical indicators of the availability of infrastructure and services at PHCs (e.g. number of deliveries) were collected by observation and from secondary data respectively. Two questionnaire studies were done: on the wellbeing of the providers (n=36=11+13+12) (Quality of Life and Engagement), and the PHC performance from the patient perspective (n=301=100+100+101) with the newly developed tool 'Questionnaire for Patient's Perspective on Performance of Primary Healthcare Centres' (Q4PHC). The data from the centre, provider and patient level were analysed to identify patterns in performance indicators across the centres.** **Results: The data showed that while a PHC with better infrastructure and utmost service delivery had providers with least wellbeing, the centre with least infrastructure and service delivery had better patient scores.** **Conclusion: It can be concluded that the high PHC performance in terms of increased patient care services comes with a price of lower provider wellbeing, while patients are more satisfied in low performing centres. Though the increase in services/output is important for assessing the performance one should consider the sustainability of the providers for increased performance. While considering the centre, provider and patient indicators (input-infrastructure; process-patient's assessment and the provider wellbeing; output-services delivered) would lead to a holistic and comprehensive PHC performance assessment it does not facilitate judgement on which centre performance can be improved, which denotes further research should be conducted in the area.** **Keywords: Primary Healthcare Centres, PHC Performance Assessment, Work Engagement, Quality of Life**
	**Effects of Different Soils on Seedling Growth of Cassia Fistula L. under Natural Field Conditions** **Muhammad Kabir** **Department of Biological Sciences, University of Sargodha, Sub-Campus Bhakkar, Bhakkar, Pakistan** **Um e Habiba**

Muhammad Kabir **ERCICRLSH1929067**	**Department of Physics, Riphah International University, Faisalabad, Pakistan** **Muhammad Zafar Iqbal** **Department of Botany, University of Karachi, Karachi, 75270, Pakistan** **Muhammad Shafiq** **Department of Botany, University of Karachi, Karachi, 75270, Pakistan** **Zia-Ur-Rehman Farooqi** **Department of Botany, University of Karachi, Karachi, 75270, Pakistan** **Abstract** **The present study reveals the effects of different industrial soils (Indus Battery, Dalda Ltd., Pakistan metal industry & Shafi tannery) on seedling growth variables / health of Cassia fistula L. as compared to control (Karachi University) under natural field conditions. Growth considerations includes seedling length, plant cover, number of leaves, leaf area, seedling fresh weight, total plant dry weight and some others growth parameters were recorded. Seedling length, plant cover, number of leaves, leaf area and seedling fresh weight were significantly ($p<0.05$) high for Shafi tannery soil as compared to control as well as other polluted soil of industrial site. The Indus battery and Dalda Ltd. soils showed significantly ($p<0.05$) reduction in growth of C. fistula.** **Seedlings of C. fistula grown in Indus battery soil indicated that plant specie is less tolerant to some of the soil characteristics. Finally it was concluded that relatively low biomass is produced by seedlings of Indus battery and Dalda Ltd. soil as compared to seedlings raised from other industrial soil as well as University Campus. The seedlings of C. fistula showed great tolerance to Shafi tannery and Pakistan metal industrial soil as compared to that grew from of Dalda Ltd. and Indus Battery soil.**
Habibu Kabiru **ERCICRLSH1929068**	**Microbiological analysis of Environmental Bacteria from Surface and Drinking Water in Bakura, Bakura Local Government of Zamfara State Nigeria, and classification Using Their Antibiotic Resistance Profiles** **Habibu Kabiru** **Department of Applied Science, Abdu Gusau Polytechnic Talata Mafara, Zamfara State, Nigeria** **Abstract** **The aim of this reseach was to isolate and identify environmental bacteria from various raw water sources as well as the drinking water distributions system in Bakura, Zamfara State, Nigeria and to determine their antibiotic resistance profiles. Water samples from five different sites (raw and drinking water) were tested for the presence of faecal indicator bacteria as well as Aeromonas and Pseudomonas species. Faecal and total Coliforms were detected in the treated water samples from the Bakura's dam and in the mixed water samples, with Pseudomonas spp. being the most prevalent organism. The most prevalent multiple antibiotic resistance phenotype observed was KF-AP-C-E-OT-K-TM-A. All organisms tested were resistant to erythromycin, trimethoprim, and amoxicillin. All isolates were susceptible to ciprofloxacin and faecal Coliforms and Pseudomonas spp. to neomycin and slightly streptomycin. Cluster analysis based on the zone of inhibition diameter data shows that the isolates had similar chemical exposure histories. Isolates were identified using gyrB, toxA, ecfX, arA, and hylH gene fragments and gyrB,ecfX,and hylH fragments were amplified. These results demonstrate that (i) the drinking water from Bakura contain various bacterial species and at times faecal and total Coliforms. (ii)The various bacteria are resistant to various classes of antibiotics.**

Tri Damayanty Syamsul
ERCICRLSH1929069

Effects of Honey Trigona Reduce Blood Glucose Levels in Mice Diabetes Mellitus

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S3 Program in Medical Science Medical Faculty of Hasanuddin University, Makassar, Indonesia

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Abstract

Diabetes mellitus is a metabolic disease multisystem characterized by hyperglycemia due to abnormal insulin secretion, insulin action or both. Abnormalities in insulin secretion or action cause abnormalities in the metabolism of carbohydrates, fats and proteins. Type II DM is characterized by the occurrence of insulin resistance in body tissues. Trigona honey is rich in phenolic compounds because it is a food collected by bees from plants. The total phenolic content in honey is highly correlated with antioxidant activity. Objective To compare the effect of administration before and after trigona honey (Tetragonula sp) on blood glucose levels in diabetes mellitus mice.

The study used a random sampling experimental design with 4 treatment groups, namely the negative control group, the positive control group with metformin at a dose of 0.13 ml / KgBB, the treatment group with trigona honey dose 0.2 ml / KgBB, and the treatment group with trigona honey dose 0 4 ml / kg for 21 days. In previous studies, mice were made Diabetes mellitus by induction of Streptozotocin 40 mg / KgBB intraperitoneally. After the male mice became Diabetes mellitus, blood glucose levels, body weight and plasma insulin levels were measured for all test groups.

The results showed the administration of trigona honey can reduce blood sugar levels than before with a dose of 0.2 ml and 0.4 ml dose more significantly compared with the administration of metformin drugs. This is caused because honey contains high antioxidants and contains bioactive compounds such as alkaloids, flavonoids, triterpenoids, and phenol compounds.

Keywords: Diabetes Mellitus, Trigona Honey (Tetragonula biroi), Blood Glucose Level

Hotimah Masdan Salim
ERCICRLSH1929070

The Effect of Syzygium Polyanthum (Wight) Extract in Cardiac Muscle and Kidney in Diabetic Mice

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Abstract

Background; Diabetes Mellitus (DM) is a metabolic disease characterized by elevated blood glucose levels above normal due to disruption of insulin secretion and insulin work in the body. The complication of diabetes mellitus is cardiomyopathy and diabetic nephropathy. Bay leaves (Syzigium polyanthum) is one of the plant that can lower blood glucose levels, this leaves contains antioxidant that can overcome hyperglycemia and hyperlipidemia conditions. Therefore, our aim was to investigate whether extract Syzygium polyanthum (Wight) Walp decreased the glucose levels to alterations inflammation in cardiac muscle and kidney of alloxan-induced diabetic mice. Methods and Results; We administrated extract Syzygium polyanthum (Wight) Walp for 2-weeks to alloxan-induced diabetic mice. Treatment with extract Syzygium polyanthum reduced blood glucose levels without affecting body weight in dose dependency (2,62mg, 5,24mg, and 7,86mg).

	Histologycal analysis showed that bay leaf significantly ($p<0.05$) decreased the mean precentage of cardiac cell inflammation ($P<0.05$), and did not show a significant difference in cardiac muscle diameter ($p>0.05$). Furthermore, the extract administration also improved the tubulus proximal dan tubulus distal lesions significantly. **Conclusion; Glucose lowering effects of extract Syzygium polyanthum (Wight) were associated with the reduction of inflammation cells in cardiac muscle and improvement of glomerulus, tubulus distal and tubulus proximal lesions. These results may provide a possible mechanism for cardioprotective and kidney protective effects of extract of Syzygium polyanthum (Wight).** **Keyword: Diabetes Mellitus, Cardioprotective, Diabetic Nephropathy, Syzygium Polyanthum (Wight)**
Amit K. Gupta **ERCICRLSH1929071**	**Regulation of RyeA/SraC Expression by Ribonuclease BN in Escherichia Coli** **Amit K. Gupta** **Chemistry, Indian Institute of Technology, Delhi, India** **Tanmay Dutta** **RNA Biology Laboratory, Department of Chemistry, Indian Institute of Technology Delhi, Hauz Khas, New Delhi-110016** **Abstract** **Small RNAs (sRNA) plays a pivotal role in controlling majority of the physiological functions in prokaryotes. Majority of the physiological processes in bacteria are modulated by these regulatory sRNAs primarily by base pairing with their target mRNAs. RyeA is a ~270 nucleotide long sRNA, a part of which (~104 nucleotide) is complementary to RyeB. RyeA and RyeB in the stationary phase constitute a toxin-antitoxin system and function antagonistically to each other where RyeA normalizes accumulation of RyeB toxin by acting as RNA sponge. Apart from that no additional information is known about the regulation of RyeA expression in bacteria. In this current study, we comprehensively investigate how RyeA expression is regulated at different growth phases. Based on our current observations, it was elucidated that RyeA expression is regulated neither by stationary phase-specific σ-factor nor by RNA chaperon Hfq. However, Ribonuclease BN was identified as an important regulator, which modulates the expression of RyeA during exponential phase. As a consequence, stability of RyeA improves in the exponential phase upon deletion of rbn gene. Conversely, abundance of RyeB in the stationary phase leads to RyeA degradation by acting as RNA trap. The regulatory mechanisms deciphered in the present study throw more light on the role of RyeA in E.coli.** **Reference: Amit K.Gupta, Namra Siddiqui, Divya Yadav, Laxmi Arora and Tanmay Dutta. (2019). Regulation of RyeA/SraC expression in Escherichia coli. Biochem. Biophys. Res.commum Volume 516, Issue 3, 27 August 2019, Pages 661-665.**
Siti Yusrina Nadihah Jamaludin **ERCICRLSH1929055**	**The Role of Transient Receptor Potential Cation Channel subfamily V member 4 (TRPV4) in Colorectal Cancer** **Siti Yusrina Nadihah Jamaludin** **Faculty of Medicine, Universiti Sultan Zainal Abidin, Medical Campus, 20400 Kuala Terengganu, Terengganu, Malaysia** **Nurul Nadiah Bahari** **Faculty of Medicine, Universiti Sultan Zainal Abidin, Medical Campus, 20400 Kuala Terengganu, Terengganu, Malaysia** **Aisyah Hasyila Jahidin** **Faculty of Pharmacy, Universiti Teknologi MARA, Puncak Alam Campus, 42300 Bandar Puncak Alam, Selangor, Malaysia** **Mohd Nizam Zahary** **Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Gong Badak Campus, 21300 Kuala Terengganu, Terengganu, Malaysia** **Mohd Hilmi Abu Bakar**

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Abstract

The transient receptor potential cation channel subfamily V member 4 (TRPV4) is a non-selective calcium (Ca2+)-permeable channel which is expressed in many types of tissues. In addition to its roles in various physiological processes such as osmoregulation and mechanosensation, growing evidence suggests that TRPV4 is also involved in several aspects of tumourigenesis. Despite the reported roles of TRPV4 in several types of cancers, the role of TRPV4 in colorectal cancer has not been extensively assessed. This study aimed at exploring the potential role of TRPV4 in colorectal cancer cells. Quantitative real-time PCR analysis showed that TRPV4 mRNA levels were lower in HT-29 colorectal cancer cells than normal colon CCD-18Co cells. In contrast, TRPV4 mRNA was undetected in HCT-116 colorectal cancer cells. Pharmacological activation of TRPV4 using GSK1016790A promoted the proliferation of HT-29 cells while TRPV4 inhibition using RN 1734 decreased their proliferation, as assessed by the MTT cell proliferation assay. Co-treatment with RN 1734 attenuated GSK1016790A-induced increases in proliferation in HT-29 cells. Cell cycle analysis by flow cytometry revealed that pharmacological modulation of TRPV4 had no pronounced effect on the cell cycle progression in HT-29 cells. Analysis from the Annexin-V/PI double-staining assay demonstrated that both activation and inhibition of TRPV4 channel could promote the death of HT-29 cells, despite at different degrees of cell death induction. Altogether, these findings suggest divergent TRPV4 mRNA expression levels between human colorectal cancer cells and normal colon cells. Pharmacological modulation of TRPV4 appears to alter the proliferation of HT-29 cells and induces cell death in this cell line. TRPV4 may represent a promising drug target for the treatment of colorectal cancer.

Keywords: TRPV4; Colorectal Cancer; Proliferation; Cell Cycle; Cell Death

Dr. Priscilla Suresh
ERCICRLSH1929060

Evaluation of Antiurolithiatic Potential of Methanolic Fruit Extract of Terminalia Chebula Retz. on the Kidney Stone Struvite Crystals

Dr. Priscilla Suresh
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Abstract

Kidney stone disease is a common urinary stone disorder in humans. Urolithiasis is the formation of stones in the urinary tract that prominently cause variable degree of pain, bleeding, and further may lead to secondary infection. Kidney stones form upon the supersaturation of the urine with calcium and other salts especially oxalate. The size of the stone can increase and obstruct in the urinary system. Although the most effective treatment of kidney stone is extracorporeal shock wave lithotripsy, the side effects of this method are grave and can lead to recurrence of kidney stones. Therefore alternative treatments are of high interest means by using medicinal plants.

Terminalia chebula is a medium to large deciduous tree. The fruits are smooth ellipsoid to ovoid drupes, yellow to orange-brown in colour, with a single angled stone. The fruits of T. chebula were collected from Pachamalai, Tamilnadu, India. The growth characteristics of the most common types of urinary stones struvite crystals and the effect of methanol extracts of fruit of T. chebula has been studied.

Phytochemical compounds such as terpenoids, flavonoids, saponins, tannins, glycosides, coumarins, leucoanthocyanin, xanthoprotein are present in methanol extracts of fruits of T.chebula. With an increase in the concentration of the fruits of T. chebula from 1% to 5% (v/v), the weight of the formed struvite crystals were gradually reduced from 1.205gm to 0.25gm due to the inhibitory effect of the fruits of T. chebula under in vitro conditions. T.chebula fruits extract contained 2.1 g of alkaloids, 0.3 g of flavonoids, 1.24 g of terpenoids. Crystallization characteristics of struvite crystals in the fruits of T. chebula have reported using FTIR techniques. In Control the band at 1679 cm-1 is due to C=O group. The peak at 1436 cm-1 is due to Methyl C-H Asymmetric and Symmetric bend and the peak at 891 cm-1 is due to Silicate ion and the peak at 459 cm-1 is due to Ary sulfides (S-S) stretch. As there is increase in the inhibitory effect of struvite crystals when treated with the fruits of T. chebula at 5% methanolic extract the band at 1679cm-1is shifted to 1681 cm-1 is due to C=O group. The peak at 891cm-1 is shifted to 967cm-1 is due to silicate ion and the peak at 459 cm-1 is shifted to 439 cm-1 is due to Ary sulfides (S-S)

	stretch. The shifting further supports that the fruit extract of T.chebula can reduce the nucleation rate of struvite crystals (Ammonium magnesium phosphate hexahydrate). Thus T.chebula fruits have beneficial effects for the treatment of kidney stone formation. **Keywords: Urolithiasis, Terminalia Chebula, Struvite Crystals, FTIR**
Vilailak Klompong **ERCICRLSH1929063**	**Product Development of Crispy Dried Baegu Vegetable for Health** **Vilailak Klompong** **Department of Food Science and Technology, Thaksin University, Thailand** **Abstract** **Baegu vegetable (Gnetum gnemon) is originated in Singapore and become a local southern vegetable of Thailand. Later, it is more popular for consumption. This research aims to develop crispy Baegu vegetable product by studying drying and frying conditions suitable for the product and also analyzing the quality of finished product. After study on the effect of maturity of leaves on the smelly smell by categorizing Baegu vegetables into 3 types, including old leaves (L* = 110.26, a* = -10.90, b* = 27.66), medium leaves (L* = 115.26, a* = -5.93, b* = 36.33). Young leaves (L* = 115.36, a* = 3.36, b* = 35.10), the result showed that the medium leaves got the highest score of smell preference, followed by old leaves and young leaves ($p<0.05$), respectively. Thereafter, study on the effect of drying temperature on sensory quality was conducted. The result exhibited that at 70 ºC the product obtained have earned the highest hedonic scores in terms of texture, color, smell and overall liking ($p<0.05$) from sensory evaluation. In addition, the temperature of frying at 60 ºC was appropriated for production of crispy Baegu vegetable, when the sensory evaluation including texture, color, smell, crispness and overall liking was tested ($p<0.05$). The hardness of the finished product was 301.79 g when measuring with texture analyser. Aw and yeasts and mold of finished product were 0.47 and 2.2 cfu/g, respectively. The crispy dried Baegu vegetable product also possessed antioxidant activity (DPPH radical scavenging activity) 55.06%. Therefore, the quality of crispy Baegu vegetable was designated by drying and frying conditions. Additionally, the crispy dried Baegu vegetable product obtained possessed antioxidant activity suitable for consumption for health.**
Kasturi Arumugam **ERCICRLSH1929073**	**Effects of Aquaculture Sludge Extracts on the Growth of Targeted Microalgae Species** **Kasturi Arumugam** **Faculty of Engineering & Life Sciences, Department of Science & Biotechnology, University Selangor, 45600 Bestari Jaya, Selangor, Malaysia** **Mohd Fadzli Ahmad** **Faculty of Engineering & Life Sciences, Department of Science & Biotechnology, University Selangor, 45600 Bestari Jaya, Selangor, Malaysia** **Nor Shuhaila binti Yaacob** **Institute BioIT Selangor, Universiti Selangor, 40000 Shah Alam,** **Centre for Foundation and General Studies, Universiti Selangor, 45600 Bestari Jaya, Selangor, Malaysia** **Maegala Nallapan Maniyam** **Institute BioIT Selangor, Universiti Selangor, 40000 Shah Alam,** **Centre for Foundation and General Studies, Universiti Selangor, 45600 Bestari Jaya, Selangor, Malaysia** **Abstract** **Natural growth promoting nutrients from aquaculture sludge wastes can be used to maximize the microalgae growth rather than as pollutants that may degrade the ecosystem. This study identified the influence of aquaculture sludge extract (SE) on four microalgae species. Conway or bold's basal media (BBM) was supplemented with SE collected from Sabak Bernam shrimp pond (SB) and Kota Puteri fish pond (KP), and tested using a microplate-incubation technique. Five different extraction methods were carried out for both SE collected such as 105 °C, 105 °C twice, 121 °C, 121 °C twice and 24-hour natural extraction. Microalgae culture in the microplates containing control (media) and enriched (media + SE) samples were incubated for 9-days, at 25**

	°C with light intensity of 33.75 µmol photons m-2 s-1 at 12 hours' light and dark cycle. The total dissolved nitrogen (TDN) and total dissolved phosphorus (TDP) in KP SE were 44.0 – 82.0 mg L-1 and 0.96 – 8.60 mg L-1 where it was higher compared to SB SE. The growth of Nannochloropsis ocenica, Chlorella vulgaris, Neochloris conjuncta and Nephroclamys subsolitaria in 5 extraction methods of SB did not show any significant differences ($p > 0.05$) between the extraction methods and control. However, in KP, N. ocenica shows significant differences ($p < 0.05$) between control and 121 °C twice; and N. subsolitaria also show significant differences ($p < 0.05$) between control and all 5 extraction methods. The specific growth rate (SGR) in exponential phase of C. vulgaris and N. conjuncta were higher in KP SE as compared to the rest. In SE, media + KP SE influences the microalgae more than control and with SB SE. This study shows that media + KP SE was the best sludge treatment for all microalgae tested due to the higher concentration of organic matter content in KP SE. **Keywords: Sludge Extracts, Extraction Methods, N. Ocenica, C. Vulgaris, N. Conjuncta, N. Subsolitaria**

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