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PREFACE

Global Academic Research Institute is proud to present GARI WINTER RESEARCH SYMPOSIUM (05th International Conference on Social Science and Humanities 03rd International Conference on Ayurveda Traditional Medicine and Medicinal Plants 05th International Conference on Health and Medicine 05th International Conference on Engineering and Technology) 2018, which is a series of successful research symposium. The Inaugural Session and the Technical Sessions were conducted on 14th December 2018 @ Galle Face Hotel, Colombo, Sri Lanka. The conference was organized which empirical, conceptual and methodological papers were received from academics, practitioners and public policy makers were accepted paying austere attention to the academic standards of the papers. To maintain consistency, authors were prescribed to follow the academic writing format of the GARI Publishers. The reviewing process was apparently transparent where papers underwent a double blinded review process by eminent subject specialists in respective areas. Thus refereed full papers selected to be presented at the conference were published here. We do not assume any responsibility for any errors or omissions in the research papers which rests solely with the authors.

Special thank goes to Guest Speech - Key note speakers & Co-Chair: Dr. Pathirage Kamal Perera(Department of Dravyaguna Vignana, Institute of Indigenous Medicine, Sri Lanka) Dr. Hemanth Kumar Manikyam (Managing Director, Sanskriti Health Care and Tripura biotech Pvt Ltd, India), Dr. Kamlesh Jha (Asso Prof., Department of Physiology, All India institute of Medical Sciences) Dr. Mathi Kandiah (Deputy Dean, School of Biomedical Science, BMS, Sri Lanka) Dr. Swarna Hapuarachchi (Department of Dravyaguna Vignana, Institute of Indigenous Medicine, Sri Lanka) Dr. Abdul Rehman (Department of Microbiology and Molecular Genetics, University of the Punjab, Pakistan) Dr. V. Jovivek (Professor and Dean (Research), Akshaya College of Engineering and Technology, India), Dr. Abdul Mohammed Ali Jinnah (Asso Prof., Department of English, Jamal Mohamed College, India) Dr. Sivaji.K (English Language Teaching Centre, University of Jaffna), V. Paranthaman (English Language Teaching Centre, University of Jaffna) Dr. Yogesh Kumar (Asso Prof. of Physiology, All India institute of Medical Sciences)

The organizing committee specially thanks to our Journal Publications GARI Publishers and GARI International Journal of Multidisciplinary Research, SAP publisher, Further the support given by GARI Tours as Travel partner, Sri Lankan Air-line as our international Air-line partner, Official Creative Partner Sameera Artco & Sri Lanka Convention Bureau. The conference committee expresses deep gratitude to the panel of reviewers for the priceless service rendered. Finally the committee extends sincere thanks to the presenters and participants for the valuable contribution and active participation.

Conference Committee
GARI WRS 2018

Table of Contents

1. Absorption of e-Government practices in Sri Lanka: Dynamics & Determinants	1
2. Development of the Compliant Mechanisms on the Base Flexible Elastic Thin-Walled El-Elements	2
3. The effects of production process parameter variations for the manufacturing defects of wind turbine blades	3
4. IoT Based Smart Water Metering System for National Water Supply and Drainage Board Sri Lanka	4
5. Review of the applications of additive manufacturing in bio-medical oncology research	5
6. Influence of ICT on Vocational Interests of GCE A/L Students in Kurunegala District	6
7. Analysis of the opportunity of using geo-cooling concept for the green buildings	7
8. The Formation of A Mathematical model of Motion of Particles in Suspension and Inertial Vibrating Conveyors	8
9. Assessment of fire risk management systems established in industrial buildings in Sri Lanka	9
10. Balancing of asymmetrical rhomboid mechanism of external heat source engine	10
11. Accuracy research of working mechanism power shovel actuator with considering dynamic characteristics	11
12. Development of the algorithm for automation of pump insulin therapy	12
13. The formation of adequate samples for the long-term assessment of the level of glycemia in patients with diabetes mellitus	13
14. Effective Communication Strategies for Sustainable Development	14
15. The International Rule of Law and the Elimination of Racial Discrimination	15
16. Creative Communication in English through First Language influence and Socio-cultural Awareness: A Study based on the literary works of Contemporary Jaffna Tamil L1 speakers	16
17. How to Protect Rural Women Rights in China	17
18. Falling masks: An analysis of the relationship between actors' self-interest and escalation of conflict of Syria. (2011 - 2017 March)	18
19. Examining the Impact of Entrepreneurial Competencies and Knowledge base on Entrepreneurial Motivations: A Quantitative study of Student Entrepreneurs in Pakistan	19
20. A Stylistic Analysis: Warsan Shire's "Home" and Jean Arasanayagam's "Now We Are Strangers"	20
21. 'Like Father, Like Son': Male Contents in Instructional Materials for Young Learners	21

22. The healing power of culinary spices and herbs in triple negative breast cancer	22
23. Efficacy of adopting Four stage skills teaching method in nursing skills teaching for nursing Undergraduates	23
24. Advances in molecular approaches in the diagnosis of hepatitis-B virus (HBV)	24
25. Knowledge of small Scale Dairy Farmers on Clean Milk Production practices in Lankapura Area	25
26. Isolation, characterization, and multiple heavy metal-resistant and hexavalent chromium-reducing Microbacterium testaceum B-HS2 from tannery effluent	26
27. Quantitative Estimation Of Quercetin And Rutin In Draksharistam By Rp-Hplc	27
28. Optimization of a micropropagation protocol for Solanum xanthocarpum Schrad & Wendl using CSUP technique	28
29. Ayurvedic management of Psychosomatic disorders	29
30. Quantitative Determination of Ascorbic Acid and Piperine in Dhathryaristam - An Ayurvedic Formulation By Rp-Hplc	30
31. Preliminary Screening of Telegraph (Codariocalyx motorius) Plant Extract for Skin Whitening Property and Cytotoxicity Activity	31
32. Amelioration of Diabetes Mellitus Type II with Costus speciosus in the tropical regions of Asia	32
33. Evaluation and clinical applications of Autonomic Function testing	33
34. Intracellular trafficking of bovine adenovirus-3 (BAdV-3) protein VII (pVII)	34
35. The identification of Lactobacillus in commercial yogurt products and determination of their antibiotic resistant genes	35
36. Synergistic effect of AM (Arbuscular Mycorrhizal) Fungi alone and in combination with other microbes on growth & floral traits of Lilium asiaticum	36
37. Evaluation of compositional quality of raw cow's milk in Lankapura, Polonnaruwa district, 2018	37
38. Are we familiar with decision making at hospital? Effect of education on informed consent	38
39. Identification of Bifidobacterium in yogurt drink and determination of their antibiotic resistant genes	39
40. Neurological and Intra Cranial Lesions, Haematomas and Fractures - A Study Done In A Trauma Care Hospital	40
41. Musculoskeletal Disorders Among Dental Professionals - A Study	41
42. Leading Organizational Virtual Effectiveness: Going beyond Maslow's Hierarchy of Needs Model	42

ABSORPTION OF E-GOVERNMENT PRACTICES IN SRI LANKA: DYNAMICS AND DETERMINANTS

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ABSTRACT

The Information Technology (IT) must be successfully absorbed into the organization in order to exploit its potential value and benefit for their target adopter. The impact of new technologies in the government sector has not only helped in improving service delivery and increasing democratization but has also helped in reducing corruption and increasing national business competitiveness. However, there has been little research and empirical studies exploring factors that determine absorption of e-Government in Sri Lanka. Therefore, these gaps become the prime motivator for this research. Objective of this paper is to scrutinize the factors affecting absorption of e-Government in Sri Lanka. A conceptual framework was developed for analyzing the absorption of e-government, in the context of IT innovation, which developed based on Technological-Organizational-Environmental (TOE) Framework, Innovation and Diffusion Theory. Plan of this research is to analyze absorption as single stage technology diffusion process. An Innovation diffusion theory is coined with TOE framework to explain how absorption process affected by ICT expertise, ICT infrastructure, TOP management support, organizational compatibility, extend coordination, regulatory environment, and competition. To test the conceptual model and the constructed 7 hypotheses, researcher has used the survey methodology to test and analyze the model. A survey instrument was developed for identifying appropriate measurement factors. Based on this framework and by utilizing data from questioner, the determinants and mechanisms of this process are identified and process of e-Government absorption is reconstructed. Questionnaires were distributed among ICT Students of newly established, University of Vocational Technology (UNIVOTEC) as the main respondent. The profile of the sample respondents consists of data set 28 respondents from 16 districts. The respondents selected from Government Officers to response the absorption process and condition occurred in their respective area. The data analysis in this study was performed using the Partial Least Square (PLS) and SPSS. Researcher employed the Partial Least Squares (PLS) as it allows for constructs to be modeled as either formative or reflective indicators. The findings of this study provide a preliminary insight of the possibility this research model is consistent with the proposed theoretical foundation within the context of Sri Lanka. Specifically, there are that 5 constructs : ICT expertise, Top Management Support, Organization Compatibility, Regulatory and Competition, had a positive influence on absorption of e-Government and two were not supported. Furthermore, 62.9% of the variance in e-Government absorption is explained its independent variables. At the end, this research revealed TOE framework can be used as a method to analyze absorption of e-Government and contribute a new understanding and model enhancement for academics as well as practitioners and policy maker.

Keywords: e-Government, Technological-Organizational-Environmental Framework, innovation, absorption, PLS

DEVELOPMENT OF THE COMPLIANT MECHANISMS ON THE BASE FLEXIBLE ELASTIC THIN-WALLED EL-ELEMENTS

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ABSTRACT

The mechanism is considered, in which as a working element the flexible elastic thin-walled element with the any form of an axis is used. The moving of an element is carried out at submission of pressure in a cavity of an element. The given task is nonlinear and are reduced to the second regional task Koshee. For the decision the method of discrete continuation on parameter in a combination to a method multisegment shooting is used. The technique allows to pick up under the given law of moving geometrical parameters of a flexible element.

Key words: a flexible elastic thin-walled element, working characteristic, discrete moving, working body

THE EFFECTS OF PRODUCTION PROCESS PARAMETER VARIATIONS FOR THE MANUFACTURING DEFECTS OF WIND TURBINE BLADES

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ABSTRACT

Manufacturing defects are one of the main reasons for premature failure of wind turbine blades. Based on the published data, ply waviness, voids, delamination, adhesive failure and thickness difference are identified as the key manufacturing defects in composite wind turbine blades. These defects are attributed to poor quality of raw materials and inadequate production process parameter control. The current study focuses to identify the effect of process parameter variations for the manufacturing defects of wind turbine blades manufactured from Wet-layup, Prepreg and Vacuum Assisted Resin Transfer Moulding (VARTM) processes. The information gathered from the literature and the discussions with experienced composite engineers were used to analyse the effect of process parameter variations in the Wet-Lay-up and Prepreg processes. Three small scale wind turbine blades were manufactured and a case study was conducted to determine the influence of VARTM process parameter variations to originate manufacturing defects. It was identified that the tooling quality, resin flow, permeability, viscosity variations of the resins within the curing cycles, human errors and tooling friction induced compression along the fibre direction are the main parameters which influence the origination of manufacturing defects in VARTM based wind turbine blade manufacture. Consequently, implementations of quality management strategies, resin flow rate control, automated tooling and close controlling of ply/tool interface friction is important to reduce the defects in wind turbine blade manufacture.

Keywords: manufacturing defects, composite wind turbines, manufacturing process parameter control

IOT BASED SMART WATER METERING SYSTEM FOR NATIONAL WATER SUPPLY AND DRAINAGE BOARD SRI LANKA

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ABSTRACT

Conventional method of measuring water consumption in Sri Lanka involve manual procedures. Data collection, recording and billing are some examples. The aforementioned method which is the current practice, is time wasting and not economical. Human errors and increasing cost of manpower make the process more inefficient. In this paper, we propose an improved approach to overcome the inefficiencies of current process. The proposed system is more efficient, time saving and reliable. It also propose possible additional features such as smart leakage detection, remote disconnection and the responsive metering that users will benefit more.

Keywords— Smart metering, home automation, IoT

REVIEW OF THE APPLICATIONS OF ADDITIVE MANUFACTURING IN BIO-MEDICAL ONCOLOGY RESEARCH

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ABSTRACT

One of the most difficult problems in developing a treatment or a drug for cancer is, it requires to collect living tissues from human samples and it also requires extensive human trials and testing to approve these drugs. This is due to extreme risks associated with these drug usage and may create complications. In this context, the use of animal test models is very famous and counted more than hundred million for the medical stream in each year. This scenario raises number of concerns, which includes effectiveness, poor extrapolation for human diseases and treatments, suffering of animals, authenticity of conduct, reliability and the expenditure for infrastructure. The tumor tissues that has been taken from a patient and implanted into animal for research purposes or patient-derived xenograft (PDX) models can be avoided by using culture models. In this context, two-dimensional (2D) culture models are widely employed to observe and study the cancer microenvironments over the past years. However the 2D models still demonstrate lack of progress due to its two-dimensional limitations. In this context, most of the outcomes of studies supports that the three-dimensional (3D) and physiologically relevant culture models are required to study and understand the cancer progression. This research study is aimed to review the advent of additive manufacturing 3D bioprinting for developing three-dimensional culture models. A special focus will be stipulated to review the opportunity of implanting the primary breast cancer in the 3D bio-printed microenvironments to observe initial signals out for migration or proliferation of cancer cells.

Keywords: Additive manufacturing, 3D bioprinting, Oncology, Breast cancer, Microenvironments

INFLUENCE OF ICT ON VOCATIONAL INTERESTS OF GCE A/L STUDENTS IN KURUNEGALA DISTRICT

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ABSTRACT

The aim of this study was to investigate the influence of ICT on vocational interests of GCE A/L students of Kurunegala district. A sample of one thousand GCE A/L students was considered by using simple random sampling technique. For the purpose of data collection, researchers developed two scales – Vocational Interests Scale and the Scale on Influence of ICT for vocations. Before administering these tools, researchers made check the reliability and validity of these Scales. In order to test the hypothesis of the study, the data were analyzed by using statistical methods like Product Moment Coefficient of Correlation and Regression Analysis. The study revealed that – positive and significant relation was found between ICT and Vocational Interests of GCE A/L students. 30.6 percent of the variance of Vocational Interests was contributed by ICT.

Keywords: ICT, Vocational Interest, School Education

ANALYSIS OF THE OPPORTUNITY OF USING GEO-COOLING CONCEPT FOR THE GREEN BUILDINGS

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ABSTRACT

This research work is aimed to investigate the opportunity of using geo-cooling concept for the green building applications. The first phase of the research was aimed to critically evaluate the status of the current research in the area of geo-cooling concept applications and the second phase was to design and develop a laboratory scale geo-cooling system. The results of the initial phase of the study suggest that there are number of research studies were conducted to use the temperature gradient of “ambient air and the ground” for designing geo-heating and geo-cooling systems. However, there were number of issues identified in the geo-cooling concept application due to limited availability of ground water, higher maintenance cost due to corrosion of pipelines and frequently changeable temperature gradient. The current study provides review of these obstacles for using geo-cooling system for green building applications and presents the preliminary results of the laboratory scale geo-cooling system developed under the current research study. The second phase results were gathered by conducting series of experiments and according to the results, the geo-cooling system can make approximately 3-4°C temperature drop from the atmospheric temperature of the inlet air. Furthermore, this temperature drop can be used as an advantage for reducing temperature of the fresh air inlet of air handling units of the central air conditioning systems. Furthermore, it was identified that scope of the current research can be extended to explore different type of soils, condenser arrangements and background environment preparations to achieve higher temperature gradient with a suitably designed dehumidifier.

Keywords: geo-cooling, green buildings, laboratory scale geo-cooling system

THE FORMATION OF A MATHEMATICAL MODEL OF MOTION OF PARTICLES IN SUSPENSION AND INERTIAL VIBRATING CONVEYORS

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ABSTRACT

The modes of movement of a material point on vibrating inclined surface, characteristic for oscillating vibratory and inertial conveyors are considered. The mathematical model of movement is developed, taking into account both the influence of inertial forces and forces of gravity, and aerodynamic forces. The stated algorithm of determination of parameters of movement of a material point allows to analyze its peculiarities, to detect optimum parameters of movement.

Key words: Oscillating inertial conveyors, oscillating vibrating conveyors, continuous movement of the point, harmonic oscillations, friction force

ASSESSMENT OF FIRE RISK MANAGEMENT SYSTEMS ESTABLISHED IN INDUSTRIAL BUILDINGS IN SRI LANKA

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ABSTRACT

In Sri Lankan newspapers, there were a number of accidents reported with regards to fire related accidents in the recent past. Consequently, it is evident that there are considerable gaps in the application of fire risk management systems in the Sri Lankan industry. The main objective of this study is to assess the fire risk management systems established in the Sri Lankan industry and to compare them with international standards. A case study was performed for selected ten manufacturing plants which has spread around county. A structured questioner based survey was conducted to gather necessary information for the evaluation. The standards of the fire safety risk management of buildings depend on number of factors, which mainly include the overall functions of the buildings, risk profile of the building usage, staff-occupant ratio, fire training, work control, communications procedures, maintenance and testing of fire safety systems, co-operation with fire & rescue service and contingency planning. Thus, the survey was focused to gather information under above factors. According to the results, it was evident that, most of the industries have paid minimum attention in setting up fire risk management systems and they have failed to accomplish international standards in their fire risk management strategy implementation. The authors believe the results of this study will contribute to the industrial community for reconsidering their fire safety management plan and take necessary actions to fulfil the gaps, thereby ensuring life safety of employees and business community.

Keywords: International fire safety standards, Fire risk management, Risk profile

BALANCING OF ASYMMETRICAL RHOMBOID MECHANISM OF EXTERNAL HEAT SOURCE ENGINE

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ABSTRACT

Balancing of asymmetrical rhomboid mechanism with forked crank which is used in engines with external heat sources is considered. The main equations for correcting masses (counterweights) and their coordinates calculations are given. The conditions of full static balancing of rhomboid mechanism with forked crank are obtained.

Key words: external combustion engine, asymmetrical rhomboid mechanism, balancing, correcting masses

ACCURACY RESEARCH OF WORKING MECHANISM POWER SHOVEL ACTUATOR WITH CONSIDERING DYNAMIC CHARACTERISTICS

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ABSTRACT

When performing works on improvement in the city line, a variety of road and construction machines are used, however, in case of inaccurate operation of such machines, previously laid communications can be damaged, which leads to disturbances in the operation of urban systems affecting thousands of people. In this article estimation of the accuracy of the position of the cutting edge of the bucket is given taking into account the temperature expansion of the links, the variable cutting forces, the delay of the hydraulic drive, gaps and elastic deformations in kinematic pairs. Based on the calculations carried out, recommendations are proposed for developing methods to improve the accuracy of digging.

Keywords: shovel excavator, mathematical model, automatic control system, temperature expansion, resistivity to cutting, precision

DEVELOPMENT OF THE ALGORITHM FOR AUTOMATION OF PUMP INSULIN THERAPY

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ABSTRACT

The paper describes a method for monitoring and correcting diabetic glycemia, intended for use in automated closed-loop therapy systems, also called artificial pancreas. The presented algorithms allow to increase the accuracy of the Continuous Glucose Monitoring and to reduce fluctuations of the glycemia and amount of hypo and hyperglycemias. The effectiveness of the application of various control algorithms in the course of adjustments is considered.

Key words: Diabetic glycemia, Closed-loop systems, artificial pancreas, Continuous Glucose Monitoring, fluctuations of the glycemia, control algorithm

**THE FORMATION OF ADEQUATE SAMPLES FOR THE LONG-TERM
ASSESSMENT OF THE LEVEL OF GLYCEMIA IN PATIENTS WITH DIABETES
MELLITUS**

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ABSTRACT

An inaccurate value of blood glucose concentration in patients with diabetes mellitus can lead to mistakes in treatment. To determine the right treatment, you need to improve accuracy. Authors of the article proposes to use adaptive statistical methods for increasing accuracy, which work well for a small number of repeated measurements under conditions of uncertainty of external factors.

Keywords: glucose control, accuracy, diabetes, moving average

EFFECTIVE COMMUNICATION STRATEGIES FOR SUSTAINABLE DEVELOPMENT

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ABSTRACT

The Report of the World Commission on Environment and Development (<http://www.undocuments.net/our-common-future.pdf>), also known as Our Common Future defines sustainable development as “the development that meets the needs of the present without compromising on the ability of future generations to meet their own needs.” In other words it is sustainable development which ensures that the natural resources are not depleted or overly exhausted such that the next generations will also have an earth and its resources to live and enjoy. Environmental Scientists and environmentalists have been attempting to draw attention of the people to take care of their surroundings, namely air, water, soil, plants and animals. Unless people understand the value of the environment and are willing to act for environmental protection, the natural resources cannot be protected. Communication or knowledge transmission through education at primary, secondary or tertiary level and awareness creation at grass root level therefore plays a vital role. Fiji and other small island nations of the Pacific are at present facing loss of land due to sea erosion. This paper will critically analyze the different communication methods used for environmental protection work in the Fiji Islands and will highlight on the best effective methods. The paper will also provide guidance on how the communication methods are adapted to relate to cultures within the communities, while taking into consideration also the gender and the age groups. Case studies will be taken from Fiji Islands and other small island nations of the Pacific (Perera A., 2014, Perera A., 2016).

Keywords: Sustainable Development, Environment, Communication, Pacific Islands

THE INTERNATIONAL RULE OF LAW AND THE ELIMINATION OF RACIAL DISCRIMINATION

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ABSTRACT

The International Rule of Law and the Elimination of Racial Discrimination This paper analyses the reception of “minority” rights in the UN Human Rights protection system, checking the concept of the “rule of law” included in the UN Charter and in International Law, giving particular attention to the procedures of the Committee on the Elimination of Racial Discrimination (CERD). As the first treaty-based body created in 1966 by the UN, it monitors implementation of the core international human rights as race discrimination. It is particularly essential to the rule of law, since many scholars have considered already it to be an example of *ius cogens*. In this sense, the rule of law is a basic principle in which the State is liable to laws. As the Secretary General has described “is a principle of governance in which all persons, institution and entities (...) are accountable to laws that are publicly promulgated, equally enforced and independently adjudicated, and which are consistent with international human rights”. The treaty monitoring bodies are conventional mechanisms that may have an important role in the development of International Law in its commitment to protect humanity from atrocities perpetrated under the sovereignty of States or under its responsibility. In the 21st century “hate crimes” and other “restrictions” or “exclusions” based on race, colour, national or ethnic origin are in the middle of continuous threats to human rights worldwide, and the works of CERD are central to prevent them from being an unwilling expression of the violation of the international rule of law.

Keywords: Race Discrimination, Human Rights, International Rule of Law

**CREATIVE COMMUNICATION IN ENGLISH THROUGH FIRST LANGUAGE
INFLUENCE AND SOCIO-CULTURAL AWARENESS: A STUDY BASED ON THE
LITERARY WORKS OF CONTEMPORARY JAFFNA TAMIL L1 SPEAKERS**

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ABSTRACT

This study identifies the role of first language influence and the socio-cultural awareness in the creative writing of English as a second language in the contemporary Jaffna Tamil community. The words and phrases which provide creative communication in the literary works of the writers were collected and analyzed using a mixed method of content analysis. The findings reveal that the writers communicate creatively by making unique patterns in the use of English Language due to the influence of first language and their socio-cultural awareness. Thus this study contributes to the broader literature of language varieties.

Keywords: Creative communication, first language influence, socio-cultural awareness

HOW TO PROTECT RURAL WOMEN RIGHTS IN CHINA

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ABSTRACT

In China, the women in rural area suffer from rights violation because of their marriage. To be specific, both property rights and personal rights are violated. The violation of property rights mainly appeared that rights and interests of land contracting and land use rights. There are two reasons for the property violation. The first one is conflict between legal system and village regulation. The other one is neither the village committee nor collective economic organization play the role of coordination and protection. The violation of personal rights mainly appeared that violate women reproductive rights and domestic violence. There are three reasons for the personal rights violation. They are lack of effective protection both in law and village regulation, village's committee pay less attention to women rights and violation. To solve the problem, three measures should be take into account, they are build member rights system, coordinate the conflict between law and village regulation, the village committee and collective economic organization should be regard as legal person.

Keywords: rural women property rights, rural women personal rights, member rights, village regulation

**FALLING MASKS: AN ANALYSIS OF THE RELATIONSHIP BETWEEN
ACTORS' SELF-INTEREST AND ESCALATION OF CONFLICT OF SYRIA. (2011
- 2017 MARCH)**

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ABSTRACT

As one of the states in the Middle East and North African region, Syria has to work with an enduring protracted conflict throughout last decade. Despite several attempts which have been taken by the United Nations led international community, the intensity of the conflict increases gradually without having a long lasting solution to it. The main objective of this research, therefore, is to find out why Syrian conflict still remains at unresolved and escalated position in a context of different peace efforts have already been taken. The model of 'greed and grievances in civil war' devised by Paul Collier and Anke Hoefler applied as the theoretical point of departure to the present study. As the main reason to the escalation of Syrian crisis; by hiding to the war, assaying to achieve self-interests of different actors of conflict is hypothesized by using constructivism methodology. The main finding of the research is that; though the internal actors started their protest against Bashar al-Assad regime, due to war economy the situation has not been changed despite the intensity is being escalated. While grievant actors are searching the ways for sustain, greedy actors are originated due to these financial sources. Otherwise as externals, greedy world powers have interests in Syria, for the potential of oil and gas and its transportation routes. Then each and every actor in Syrian crisis endeavours to prepare Syrian conflict as a ground that support to fulfil their self-interests. Thus the conflict is now identified as a trans-nationalized, internationalized and multifaceted conflict.

Keywords: Actors, Conflict, Escalation, Greed vs. Grievances, Self-Interests

**EXAMINING THE IMPACT OF ENTREPRENEURIAL COMPETENCIES AND
KNOWLEDGE BASE ON ENTREPRENEURIAL MOTIVATIONS: A
QUANTITATIVE STUDY OF STUDENT ENTREPRENEURS IN PAKISTAN**

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ABSTRACT

Entrepreneurship is an emerging and vast field and has been remained the focus of many researchers. Entrepreneurship is imperative for the economic growth of any country and it is important to develop the entrepreneurial intentions among the students by educating them about skills and knowledge. The chief goal of this study is to examine the impact of entrepreneurial competencies and knowledge base on entrepreneurial motivation among the University students in Pakistan. This study aims to create a better understanding that whether entrepreneurial education increases the motivation of students to become entrepreneurs or not. The previous literature in the Pakistani context has some contradictions in theory and to clarify these ambiguities and contradictions, this study is made. Quantitative approach has been used by this study by taking sample size of 400 students from four Universities of Islamabad. Questionnaires were used to collect data. The questionnaire used was adopted from the previous researches. After applying all the tests and analyses, the findings show that knowledge base doesn't increase the motivation of students to become entrepreneurs while entrepreneurial competencies that include skills and abilities significantly increase the motivation and intentions of students to become entrepreneurs. Furthermore, it was found that the students who have not studied entrepreneurs are more likely to become entrepreneurs as compared to those who have studied it as a subject. This is because of the reason that students who have studied entrepreneurship as a subject have undergone through the process of business generation and are well aware of the hardships and risks involved in entrepreneurship. The findings of the study are aligned with the findings of various researchers but also contradict few of researchers. This study makes implications to the theory and practice and suggests education policy makers to develop psychological and social skills in the students by developing critical thinking in the students and by educating them about entrepreneurial skills instead of teaching them about business development process. The study also provides direction for further research.

Keywords: Knowledge base, entrepreneurial competencies, entrepreneurial education, entrepreneurial motivations, Islamabad, Pakistan

A STYLISTIC ANALYSIS: WARSAN SHIRE’S “HOME” AND JEAN ARASANAYAGAM’S “NOW WE ARE STRANGERS”

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ABSTRACT

The poems, “Home” and “Now We Are Strangers” by Warsan Shire and Jean Arasanayagam respectively encapsulate the theme of displacement, focusing specifically on refugees’ predicaments. Although these two poems are written more than two decades apart, they tread on similar grounds in which refugees’ displacement is foregrounded. This paper uses stylistic analysis to uncover the central theme. We argue that graphological deviation and parallelism are employed for similar purposes while discursal, semantic and lexical deviations are utilized differently. We focus on the poets’ use of irregular stanzas alongside syntactic and semantic parallelism to discuss the similar ways in which they delineated their thematic concerns. Through the lens of stylistic devices, both poems unveil the disjointed state of the refugees while shedding light on the hardships that they had experienced. We posit that the ways these issues are depicted by poets from two different eras are noteworthy and thought-provoking, especially in a context where the predicament of refugees are widely discussed in today’s global context.

Keywords: Stylistic analysis, displacement, refugee

‘LIKE FATHER, LIKE SON’: MALE CONTENTS IN INSTRUCTIONAL MATERIALS FOR YOUNG LEARNERS

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ABSTRACT

The study aims to investigate the nature and extent of gender representation in five sets of English textbooks for students in government-run primary schools in one of the southern states of India. Through content and linguistic analysis the status and the role of females in the five textbooks was determined, along with the ratio of male to female characters, the portrayal of females and males in the social and domestic settings, the use of gender-inclusive expressions, and the ordering of female/male symmetrical conclusions. The findings suggest that the textbooks are gender-biased with female invisibility in the illustrations, gender-stereotypes in occupational and domestic roles, domestic- and school activities, and inequalities in utterances and instances of female and male characters.

Key words: South India, primary schools, textbooks, gender-stereotypes

THE HEALING POWER OF CULINARY SPICES AND HERBS IN TRIPLE NEGATIVE BREAST CANCER

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ABSTRACT

Breast cancer remains as a major cause of cancer related deaths in women worldwide which accounts for about 25% of all cancers. Gradual increment in mortality rates of breast cancer can be seen due to high metastatic potential. Triple-negative breast cancer (TNBC) is a highly aggressive and metastatic group of breast cancers which lack the expression of estrogen, progesterone and human epidermal growth factor-2 receptors. Due to the lack of therapeutic targets and due to the drawbacks of available treatment methods, treating TNBC has become challenging. Hence, to overcome these drawbacks new treatment strategies are experimenting with the use of natural products such as culinary spices & herbs and their bioactive agents. The bioactive agents in natural compounds like Rosemary (*Rosmarinus officinalis*), Curcumin (*Curcuma longa*), Ginger (*Zingiber officinale*), Garlic (*Allium sativum*) and Red onion (*Allium cepa*) found to have pro-apoptotic, anti-proliferative, anti-angiogenic, anti-metastatic and anti-migration effects in triple negative breast cancer cells. Moreover, certain bioactive agents shown to have synergistic effects with other bioactive agents and with conventional chemotherapeutics. The effectiveness of bioactive agents such as betulinic acid, curmin, gingerols, shogaol, diallyl sulfides and quercetin was discussed showing that they are efficacious in triple negative breast cancer cell line MDA-MB-231. Thereby, concluding that the bioactive agents in natural spices and herbs may be potential therapeutic agents in treatment of TNBC and in order to develop novel treatment strategies, it is important to experiment more about their therapeutic effects, mechanism of action, synergistic effects and side effects.

Key words: Triple negative breast cancer, spices & herbs, bioactive agents

EFFICACY OF ADOPTING FOUR STAGE SKILLS TEACHING METHOD IN NURSING SKILLS TEACHING FOR NURSING UNDERGRADUATES

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ABSTRACT

Nursing graduates are expected to embrace with knowledge, attitudes, and skills. Procedural skills become an inimitable, deserving special focus in undergraduate nursing curriculum. Learners perceive skills by observation and develop capacity to perform the skill as a guided response and achieve mastery by practice until it becomes autonomy. At present teaching skills in the Faculty of Allied Health Sciences, University of Peradeniya follow a non-structured traditional approach of demonstrating and delivering feedback which explaining and supporting to practice. Peyton's four-step skill teaching method adopted for teaching clinical skills, widely used in many skills teaching programs. Four stages include demonstration, deconstruction, comprehension and performance. Efficacy of the traditional teaching method has been questioned in skills teaching sessions based on passive role of student in teaching and learning process. Therefore evaluation of this method of teaching in comparison with the ongoing traditional method was beneficial to develop logical conclusions which support establishing the student centred method in skills teaching. Objective of the research was to evaluate efficacy of the four stage clinical teaching method by learners and teacher's perceptions, and introducing the techniques of the peer assessment to classroom teaching sessions. Second year nursing undergraduates of Faculty of Allied Health Sciences were invited without sampling and six nursing procedures were identified for intervention.

Two focused group discussion which consisted randomly selected five students in each, were carried out regarding the efficacy of the traditional and four stage skills teaching methods and field notes were obtained. One group discussion was carried out among nursing teachers regarding the identify the efficacy of two methods. Content analysis was carried out by two individual researches separately and agreed upon. Improve the clarity and understandability with active participating of the clinical skills learning, improving the techniques of peer assessment and accepting and delivering feedback were highlighted themes in four stage methods among students. Implementing student centered skills teaching class room sessions with active involvement of the study group and effective communication techniques were identified by teachers' focus groups. Efficacy of implementing the four stage skills teaching sessions in undergraduate nursing education is highly effective and it's recommended to conduct and compare students' level of skills with objective structured assessment methods as OSCE.

ADVANCES IN MOLECULAR APPROACHES IN THE DIAGNOSIS OF HEPATITIS-B VIRUS (HBV)

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ABSTRACT

Hepatitis B virus (HBV) is a globally spread, public health concern with increasing rates of morbidity and fatality. The infection could progress into acute or chronic phases, eventually causing life-threatening complications. Virological diagnosis depends on immunoassays and molecular approaches, which analyze peripheral blood to detect HBV-specific antigens and HBV-DNA respectively. With the arising need for early diagnosis, a rapid evolution is observed in the utilization of advanced molecular tools like polymerase chain reaction (PCR) and isothermal amplification methods. This review emphasizes on the advantages and limitations of contemporary PCR and isothermal assays, their advancements and their diagnostic role in future applications. Different variants of conventional PCR including nested and real-time PCR, and isothermal assays such as rolling circle amplification (RCA) and loop-mediated isothermal amplification (LAMP) have been compared and evaluated. Accordingly, conventional PCR is the most extensively adopted technique as its variants support automation and multiplexing. Of the multiple variants available, real-time PCR has been commonly exploited for HBV detection, due to its augmented specificity and sensitivity, broad detection capability and reproducibility. This is crucial in therapeutic decision-making, in monitoring drug responses and in point-of-care treatment. Among the isothermal amplification techniques, LAMP attested to be more efficient in HBV detection due to its tolerance to biological inhibitors, which becomes convenient during off-lab situations. Yet, one of the highest advancements achieved so far in this regard is the integration of these assays to portable, miniaturized biosensing devices, which represent a pragmatic alternative for early diagnosis and prompt management of the infection.

Keywords: Molecular tools, hepatitis-B virus, loop-mediated isothermal amplification, rolling circle amplification, biosensors

KNOWLEDGE OF SMALL SCALE DAIRY FARMERS ON CLEAN MILK PRODUCTION PRACTICES IN LANKAPURA AREA

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ABSTRACT

Small scale dairy farmers are primary sources of milk production in Lankapura, Polonnaruwa district. Cow milk is a highly nutritious food. It is also a good growth medium for microorganisms and prone to microbial contamination easily. So, clean milk production practices by small scale farmers are very essential for food security. The purpose of this study was to collect data about knowledge of small scale farmers on clean milk production practices and educate them on hygienic practices and effective farm management systems. A semi structured questionnaire was used to collect data through a single visit survey between 01.07.2018 to 15.09.2018. 200 dairy farmers were selected randomly with a sample size of 10 farmers by 20 gramaniadhari divisions. The data collected was analyzed using SPSS version 22. The findings showed that most of those who practice dairy farming are male (80%) of age 20-40 years (75%). 90% are married. 75% have completed their education up to Ordinary Level. 90% farmers were washing their hands before milking and 84% farmers washing the udder of the cow before milking. But, 48% water sources are opened sources like tanks and rivers while 8% farmers got water from protected wells. Only 10% farmers used disinfectant solutions to disinfect udder before milking and 90% farmers did not disinfect the udder. Only 38% farmers cleaned the milking place. 54% people used plastic containers to carry milk and 46% used aluminum cans. Only 28% maintained proper records and 72% didn't have. In conclusion, it was clear that the farmers were not adequately aware on the clean milk production practices. So, as long term solutionS farmer education programmes and incentive based milk quality systems can be recommended.

Keywords: milk, knowledge, udder, small -scale, farmers, clean

**ISOLATION, CHARACTERIZATION, AND MULTIPLE HEAVY METAL-
RESISTANT AND HEXAVALENT CHROMIUM-REDUCING
MICROBACTERIUM TESTACEUM B-HS2 FROM TANNERY EFFLUENT**

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ABSTRACT

A Cr⁶⁺ resistant *Microbacterium testaceum* B-HS2, was isolated indigenously from tannery wastewater, showed maximum growth at 37°C and pH 7. *M. testaceum* B-HS2 could resist to Cr⁶⁺ (48 mM) and heavy metals upto 2 mM (As²⁺, Zn²⁺, Cu²⁺), 7 mM (Pb²⁺) and 1 mM (Cd²⁺, Ni²⁺). Maximum activity of chromate reductase enzyme was achieved at 40°C at pH 7 and was inhibited in presence of all the heavy metals tested. *M. testaceum* B-HS2 biosorption efficiency (q) for Cr⁶⁺ was 31, 38, 66 and 47 mM/g after 2, 4, 6 and 8 days, respectively. Electron micrographs confirmed further surface adsorption and increased cell size due to intracellular Cr⁶⁺ accumulation. FTIR analysis revealed the active participation of amide and carbonyl moieties in Cr⁶⁺ adsorption confirmed by EDX and SEM analysis. Cr⁶⁺ presence triggers significant production of antioxidant enzymes (APOX, SOD, POX, GST, and CAT). Moreover, elevated levels of glutathione and other non-protein thiols substantially neutralize Cr⁶⁺ generated oxidative stress. Pilot scale study revealed that *M. testaceum* B-HS2 was helpful in removing up to 96% Cr⁶⁺ from tannery effluent within 6 days and this microbial purified water is safe for the plant growth. Multiple metal tolerance and high Cr⁶⁺ reduction potential make *M. testaceum* B-HS2 an impending foundation for green chemistry to exterminate environmental Cr⁶⁺.

QUANTITATIVE ESTIMATION OF QUERCETIN AND RUTIN IN DRAKSHARISTAM BY RP-HPLC

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ABSTRACT

Draksharistam is an herbal formulation contains main ingredient as dried fruit of *Vitis vinifera* belong to family Vitaceae, has been used in the treatment of blood purifier. It contains large amount of polyphenols catechin, epicatechin, gallic acid, quercetin, rutin etc. A present research study was to develop a simple and accurate RP-HPLC method and too validated in terms of ICH guidelines. The analytical method was carried out using column Phenomenex-Luna 5 μ C-18(2), mobile phase consisted of acetonitrile and water by gradient elution with a flow rate of 1.0ml/min. The detection was effected at 268nm and 280nm. Quercetin and rutin were eluted at 6.8min and 15.6min for respectively. The peak area response is linear within 5-25 μ g/ml and correlation coefficient was observed at 0.998. Detection limit and quantitation limit of quercetin and rutin were 1.02 μ g/ml & 4.18 μ g/ml and 3.18 μ g/ml & 9.64 18 μ g/ml. The precision studies were satisfactory, and %RSD of sample analysis were in the range. The accuracy showed recoveries are within 98-102%. The developed method can be applied quantification and quality control of draksharistam.

Keywords: Draksharistam, *Vitis vinifera*, Rutin, Quercetin

OPTIMIZATION OF A MICROPROPAGATION PROTOCOL FOR SOLANUM XANTHOCARPUM SCHRAD & WENDL USING CSUP TECHNIQUE

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ABSTRACT

Solanum xanthocarpum (vernacular name: Katuwelbatu) is a medicinal plant used as an ayurvedic medicinal herb for treating fever, asthma, lung diseases and kidney disorders. Due to overexploitation, required quantity of *S. xanthocarpum* must be imported to Sri Lanka. Hence, this study was focused to optimize a protocol of micropropagation of *S. xanthocarpum* using seesap (CSUP) low cost media sterilization technique to facilitate commercial cultivation. Seeds of *S. xanthocarpum* were established on in vitro water agar medium and the resulting healthy shoots were cultured on growth regulator free medium for further experiments. The 100% seed germination was observed with 70% ethanol in 10 minutes in contrast to 10% Clorox for 15 minutes in seed sterilization. The highest mean number of shoots (9 shoots/shoot) from the nodal explants was observed on the Murashige & Skoog (MS) medium containing 3% sugar and growth regulator combination of 2.0 mg/L BAP with 2.0mg/L Kinetin. The highest mean number of roots (8.11/plant) was obtained in the full MS medium without any growth regulators. The highest root length (9.33cm) was obtained at 0.05mg/L IBA on half MS medium. There was no effect on root regeneration for different sugar levels (3, 4 and 5%) in the medium. The highest survival numbers of 2% plants were observed in potting media containing gravel, coir dust and sand 1:1:2 ratio mix.

Keywords: *Solanum xanthocarpum* , Micropropagation, CSUP technique

AYURVEDIC MANAGEMENT OF PSYCHOSOMATIC DISORDERS

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ABSTRACT

“Psychosomatic disorder is used for a physical disease that is thought to be caused or made worse by mental factors. Psychosomatic word is basically made up of two words, one is “Psyche” which refers to the mind and other term is “somatic” (body) which refers to the physical signs and symptoms that are observed for the disease. Since Psychosomatic disorder involves both mind and body, so your current mental status can predict how bad a physical disease, is, at any given time. As we all of us know that both mind and body are a single identity, so the involvement of one is definitely going to affect the other. These disorders are basically the outcome of the modern way of life and changing value systems and hence their incidence is rapidly increasing. Some reports even conclude that increased nerve impulse activity when you are anxious, depressed, or stressed can be one of the contributing factors for the physical symptoms. Sometimes adrenaline and epinephrine releases can also trigger physical symptoms when you are anxious. There have been many studies and a recent one on how stress causes illness among nurses concluded that burnout is one of the main cause of psychosomatic disorder symptoms like acidity, back pain, neck pain, forgetfulness and anger. The fast growing incidence of Psychosomatic diseases and the increasing scientific knowledge on their aetiopathogenesis in recent years have led to the emergence of Psychosomatic Medicine as a major specialty in Modern medicine. However, the current thinking on this issue is to develop a comprehensive Psychosomatic Medicine in restricted sense. There is a need of making a psychosomatic approach to the study and care of health and every disease, without restricting it to few so called psychosomatic diseases. Because every life event is a psychosomatic process and every disease is associated with varying degrees of Psychosomatic diathesis. In Ayurveda detailed description is given about psychic(*manasika*), somatic (*sharirka*) and psychosomatic disorders(*manodaihika vyadhi*) and their mode of treatment. These disorders may be prevented by necessary environmental correction in its physical as well as psychosocial dimensions and personality transformation. This approach to health care where the state of health and or disease i.e. *arogya* and *Vyadhi* are described in relation to this four- dimensional life process – ‘*Sarirendriya Sattvatma Samyoga*’ and hence everything is psychosomatic. It may be pointed out that the significance of the relationship of Man and his environment has been identified in modern age very recently, but a study of ancient texts would reveal that this idea was conceived thousands of years back in this land. The concept of *Atma* and *Paramatma*, the need of their union or harmony i.e. *Yoga* refer nothing but to the issue of Man and Environment. In the great Vedic statement – ‘*Sarvam Khalvidam Brahma*’, *Sarvam* refers to ‘Environment’ which has been considered the most important even more than the ‘Man’ i.e. individual, the *Atma* and has been designated as the ‘*Brahma*’. Hence, based on the root cause of the stress and how it is characterising itself, the scope of the practice of the *sadvritta*, *yoga*, *medhya rasayana* therapy and similar other ancient positive health measures in the prevention and treatment of stress and psychosomatic disorders may be fruitfully explored.

QUANTITATIVE DETERMINATION OF ASCORBIC ACID AND PIPERINE IN DHATHRYARISTAM-AN AYURVEDIC FORMULATION BY RP-HPLC

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ABSTRACT

Dhathryaristam is an ayurvedic medicine described in Charaka samhita chikit sasthana. The preparation consists of Phyllanthus emblica and Piper longam. The aim of this research was to determine a finger print methods for ascorbic acid and piperine using simple mobile phase in raw material as well as formulation. The efficient separation of chemical marker was carried out using reverse phase C18 eluted with gradient mobile phase, phosphate buffer and acetonitrile. The separation occurs at 4.1min ascorbic acid and 5.6min piperine. Method validation was demonstrated by system suitability, accuracy, precision, repeatability and recovery. The calibration curve was found within the tested ranges. The recoveries were between 98-102%. The quantification of ascorbic acid in raw material was 1.917 µg/ml in Phyllanthus emblica and marketed formulation D-I and D-II were 1.877 µg/ml and 1.871 µg/ml. The quantification of piperine in raw material was found to be 10.106 µg/ml in Piper longam in two marketed formulation D-I and D-II were 10.845 µg/ml and 10.106 µg/ml. The developed and validated method can be effectively applied to the quantitative determination of herbal formulation containing ascorbic acid and piperine.

Keywords: Dhathryaristam, Phyllanthus emblica, Piper longam, Quantification

**PRELIMINARY SCREENING OF TELEGRAPH (CODARIOCALYX MOTORIUS)
PLANT EXTRACT FOR SKIN WHITENING PROPERTY AND CYTOTOXICITY
ACTIVITY**

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ABSTRACT

A perfect skin can be remained as a dream therefore most of the young women are tempting to skin whitening products that can be composed of harmful chemicals that cause dullness, uneven skin tone or acne breakout instead of making skin healthy and blooming. Natural products are safe for consumption and will work on skin naturally and effectively by balancing skin tone and eliminating harmful effects. This study was carried out to determine skin whitening property and cytotoxicity activity of Codariocalyx motorius. C.motorius is commonly known as “Pranajeewa” in Sinhala or “Telegraph Plant”. It is widely consumed as an antidote, cardiac-tonic and for wound healing. The antityrosinase activity and cytotoxicity activity of the methanolic extract of leaves of Telegraph plant have been studied on in-vitro models. The antityrosinase activity was evaluated based on inhibition of mushroom tyrosinase and cytotoxicity activity was evaluated based on brine shrimp lethality bioassay. The IC₅₀ value of antityrosinase activity for methanolic extract of leaves of Telegraph plant was 282.2907299 ± 4.521 µg/ml and SASAKI Whitening Body Skin Serum as positive control was 478.800757 ± 3.1567 µg/ml. Value of inhibition of tyrosinase was significantly higher than to positive control. The IC₅₀ value of cytotoxicity activity for methanolic extract of leaves of Telegraph plant was 1516.0538 ± 2.407 µg/ml. This analysis was revealed IC₅₀ value of methanolic extract is nontoxic toxic to brine shrimps. Therefore, it can be concluded that Codariocalyx motorius leaves possess highly active antityrosinase substances which can be consumed for remedy of healthy and brighten skin.

Keywords: Telegraph (Codariocalyx motorius), Antityrosinase activity, Cytotoxicity activity, Mushroom tyrosinase

AMELIORATION OF DIABETES MELLITUS TYPE II WITH COSTUS SPECIOSUS IN THE TROPICAL REGIONS OF ASIA

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ABSTRACT

Type 2 Diabetes Mellitus poses a global health threat in this era with an increased rate of morbidity and mortality accompanied by numerous clinical manifestations. However, the currently available hypoglycaemic drugs have certain limitations on long term use. Thus, herbs have become an alternative remedy for diabetes especially in developing countries where resources are inadequate. Medicinal plants play an important role in the management of diabetes mellitus due to reduced toxicity, safe drug dynamics, effectiveness and negligible side effects. *Costus speciosus* is an efficacious herb that possesses anti-diabetic and pharmacological properties in abundance. It has been extensively utilised by Ayurvedic practitioners in Sri Lanka and India since ancient periods without a proper scientific scrutiny. Presently, researchers have discovered certain phytochemicals like Diosgenin, Eremanthin and Costunolide which are mainly responsible for this plant's antidiabetic effect. However, ongoing researches on this herb to be developed as a drug is yet under slow progression due to further studies on its safety profile, protective effects, toxicological responses if any and implementation on humans. This review discusses the herb's morphology, traditional medicinal features, isolated bioactive compounds and the possible anti-diabetic mechanisms indicated by current research studies.

Keywords: Diabetes Mellitus Type 2, antidiabetic effect, *Costus speciosus*, Bioactive compounds

EVALUATION AND CLINICAL APPLICATIONS OF AUTONOMIC FUNCTION TESTING

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ABSTRACT

The autonomic nervous system play a very important role as it regulate many important functions such as heart rate, blood pressure (BP), respiration, temperature regulation, gastrointestinal, bladder, and sexual function. If Autonomic nervous system is not working properly than an individual is bound to suffer from many diseases. A Physician mainly concentrate on symptoms of dysautonomia, but it is then necessary to determine if these symptoms are really due to involvement of autonomic systems. Previously methods to evaluate autonomic function were either unavailable or too invasive. Tests which non-invasively evaluate the severity and distribution of autonomic failure. They have sufficient sensitivity to detect even subclinical dysautonomia. Standard laboratory testing evaluates cardiovagal, sudomotor and adrenergic autonomic functions. Cardiovagal function can be evaluated by a number of methods. Commonly used and most reliable approach is to quantify heart rate response to deep breathing and to the Valsalva manoeuvre. Cardiovagal function can also be quantified in the frequency domain. The highest frequency peak (>0.15 Hz) reflects oscillations of heart rate due to respiratory sinus arrhythmia and is considered to be a measure of cardiovagal function. Sudomotor function can be evaluated with the quantitative sudomotor axon reflex test and the thermoregulatory sweat test. Adrenergic function is evaluated by the blood pressure and heart rate responses Valsalva manoeuvre and to head-up tilt. Tests are useful in defining the presence of autonomic failure, their natural history, and response to treatment. They can also define patterns of dysautonomia that are useful in helping the clinician diagnose certain autonomic conditions. Some clinical uses of autonomic function testing are 1) Distal small fibre neuropathy: Common causes are diabetic and inherited neuropathy, but the most common cause is idiopathic. QSART will show abnormalities at the feet and normal sweating more proximally in about 3 out of 4 patients tested. 2) Generalized autonomic failure: For a clinician symptoms of generalized failure include orthostatic light-headedness, syncope, erectile dysfunction, and symptoms suggestive of neurogenic bladder and bowel. Examples of generalized autonomic failure are the autonomic neuropathies and multiple system atrophy. 3) Selective autonomic failure: Autonomic tests can confirm that a specific autonomic function is affected and that other systems are intact. 4) Synucleinopathies: these are neuro-degenerative disorders characterized by fibrillary aggregates of alpha-synuclein protein in oligodendroglia and in selective population of neurons. eg: Parkinson's Disease and Multiple system atrophy. 5) Orthostatic intolerance: It refers to development of symptoms after assuming the standing posture that clears on sitting or lying down. Specific examples are orthostatic hypotension, postural tachycardia syndrome, and neurocardiogenic syncope. Clinical management of the dysautonomias depends on good clinical judgement. Autonomic testing increases sensitivity and specificity in the detection of autonomic failure. There are limitations of clinical autonomic testing. The non-invasive approach is appropriate but imperfect. Autonomic testing is a growing and evolving field so it is important that we should keep on updating guidelines. Keywords: Dysautonomia, Sudomotor, Cardiovagal

INTRACELLULAR TRAFFICKING OF BOVINE ADENOVIRUS-3 (BADV-3) PROTEIN VII (PVII)

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ABSTRACT

Adenovirus protein VII is a basic abundant core protein and appears to be involved in viral DNA transport to the nucleus with the help of nuclear localization signals (NLSs) of pVII. However, most of the details based on the structure and function of pVII are still unrevealed. We are investigating the role of BAdV-3 protein VII in modulating the viral life cycle. BAdV-3 pVII is expressed as 26 kDa protein between 12 to 24 hours post BAdV-3 infection and localizes to the nucleus. Bioinformatics analysis of pVII protein sequence predicted 4 potential nuclear localization signals. Additionally, identified NLS of pVII were able to direct the nuclear import of a cytoplasmic GFP-βgal fusion protein in transfected cells. However, deletion of individual NLS motif or substitution of each arginine of individual NLS of BAdV-3 pVII did not impede the nuclear localization of pVII. Further experiments are in progress to determine the role of each NLS motif in directing the pVII to the nucleus of infected cells and its role in BAdV-3 replication.

Key words: BAdV-3, pVII, NLS

THE IDENTIFICATION OF LACTOBACILLUS IN COMMERCIAL YOGURT PRODUCTS AND DETERMINATION OF THEIR ANTIBIOTIC RESISTANT GENES

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ABSTRACT

Probiotic bacteria confer numerous health advantages to humans when consumed in adequate amounts, and are widely used in starter cultures of fermented dairy products such as yogurt. The main probiotic for yogurt starter cultures consists of Lactobacillus, which eventually colonise the human gastrointestinal tract (GIT) after their consumption. Although Lactobacilli are 'generally regarded as safe' (GRAS) to humans, they can transfer antibiotic resistance genes to pathogens in the GIT. Antibiotic resistance transmitted by food rather than antibiotic selective pressure itself, raises serious public health concerns. The purpose of this study was to identify Lactobacillus in 5 brands of commercial yogurt products and assess their antibiotic resistance. Identification of Lactobacillus was performed by colony morphology, Gram staining and polymerase chain reaction (PCR). Deoxyribose nucleic acid (DNA) extraction was performed by boiled cell and Cetyl trimethylammonium bromide (CTAB) methods. The DNA extracts were quantified by spectrophotometry and their concentration and yields were compared. Detection of tet(M) and erm(B) resistance genes were performed by PCR. The results of this study revealed all 5 samples contained Lactobacillus, and its DNA yield depended on the brand and method of extraction. Overall, boiled cell method yielded higher concentrations of DNA. The tet(M) resistance gene was contained in 40% of the isolates, while no isolates tested positive for the erm(B) gene. This study highlights that Lactobacilli in yogurt contain antibiotic resistance determinants. Therefore, pre-production screening of Lactobacilli is necessary to minimise the risk of transmission of these determinants to pathogens.

Keywords: Yogurt, Lactobacillus, antibiotic resistance, PCR, tet(M)

**SYNERGISTIC EFFECT OF AM (ARBUSCULAR MYCORRHIZAL) FUNGI
ALONE AND IN COMBINATION WITH OTHER MICROBES ON GROWTH AND
FLORAL TRAITS OF LILIUM ASIATICUM**

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ABSTRACT

There is increasing curiosity in the eminence of floral crops concerning economic values of the nation. Here we tested whether the two foremost AMF (Arbuscular Mycorrhizal Fungi) - *Glomus mosseae* and *Acaulospora laevis* independently is better choice or a mixture of AMF with *Trichoderma viride* and/or *Pseudomonas fluorescens* in conditioning the growth and floral traits of *Lilium asiaticum*. The experimental design was incorporated in a complete randomized blocks with 1 plant per pot and 5 replicates per treatment. The results suggest that amalgamation of *G. mosseae*, *A. laevis* and *P. fluorescens* proved to be the best treatment for number of morpho-physiological parameters viz. shoot and root fresh and dry weight; flower number and age; flower size and weight; corm size and weight; total chlorophyll, carotenoid and anthocyanin content; total sugar; total phosphatase and total phosphate. Using microbial approach is far better, sustainable, and cheaper that can replace harmful costlier chemical fertilizers. Therefore it is highly recommended that use of these microbes instead of harmful inorganic fertilizers should be adopted for the betterment of plant as well as soil ecosystem.

Keywords: AM fungi, growth, floral parameters, *Pseudomonas fluorescens*, *Trichoderma viride*

EVALUATION OF COMPOSITIONAL QUALITY OF RAW COW'S MILK IN LANKAPURA, POLONNARUWA DISTRICT, 2018

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ABSTRACT

Dairy farming is an important source of subsidiary income to farmers in Lankapura. Milk payment system is mainly based on quantity measures and compositional qualities (fat and solid non fat). Quality raw milk is demanded by milk processors to produce high quality dairy products. Increasing compositional quality of milk is a critical step in ensuring sustainable food security. The purpose of this study was to evaluate the compositional quality of cow's raw milk. Fifty milk samples were collected from eleven households (25 samples) and eleven bulk milk tanks (25 samples) in the collection centers in Lankapura during March to May in 2018. Fat, lactose, solid non fat (SNF) and protein content were measured by the milk analyzer. Specific gravity was measured by lactometer. Statistical analysis were done by using SPSS version 22. The mean percentage of protein, fat, lactose, SNF and specific gravity for bulk milk samples were $2.740\% \pm 0.0866$, $4.128\% \pm 0.80649$, $4.032\% \pm 0.1973$, $7.5716\% \pm 0.33726$ and 1.028g/ml . The mean percentage of protein, fat, lactose, SNF and specific gravity for household's samples were $2.792\% \pm 0.1706$, $4.360\% \pm 0.7314$, $4.040\% \pm 0.1581$, $7.6476\% \pm 0.34219$, and 1.029g/ml . There was no significant difference between compositional characters of bulk and household samples. According to European Union quality standards, compositional qualities of milk (except fat) in the study area were significantly lesser than the standard values. Composition of milk could be affected by breed, health and age of the cow, season, feeding practices, milking interval, lactation period and addition of extraneous substances. The most important remedy to improve milk quality is the farmer education on compositional qualities and its implications on food security, processing industry and milk payment systems.

Keywords: raw cow's milk, households, bulk milk, composition, food security

ARE WE FAMILIAR WITH DECISION MAKING AT HOSPITAL? EFFECT OF EDUCATION ON INFORMED CONSENT

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ABSTRACT

Informed consent is a patient centralized decision making process. During the “Informed consent process” a detailed explanation regarding the medical procedure is given to the patient. This is more than simply signing a written consent form. If communication between the medical staff and the patient take place satisfactorily, then the patient can also participate in making decisions relating to his/her medical care. Patients’ interest in participating during the decision making process differ according to various factors such as gender, age and education level. Hence, the objectives of this study were to assess the awareness regarding informed consent in the community and to find out whether the awareness varied depending on gender, age group, and educational level. A sample of 200 was selected using a random sampling method from the Bogahakumbura Division of Kandy District and a pretested questionnaire was administered. The extracted data based on variables were tabulated using “Microsoft Excel spread sheets” (Microsoft office 2007 package) and analyzed using “JMP Soft Ware (SAS Institute version 6). Chi square test was performed and $P < 0.05$ was considered as level of significant. All the participants were aware informed consent is obtained prior to an invasive procedure (100%). But significant difference can be identified ($P < 0.05$) level of understanding it as a patient right. The level of awareness varied depending on variables. According to this study the difference in the level of awareness between males and females was statistically not significant ($P > 0.05$). However, the level of awareness increased with the level of education ($P < 0.05$). Also results revealed that young participants were more aware of the informed consent process than the older participants. Awareness declined with participants aged over 58 years ($P < 0.05$). In conclusion it can be summarized level of awareness on informed consent can affect by education and age. The results of this study can be used to improve the quality of the informed consent process, to deliver better quality health care with the aim of enhancing patients’ safety.

IDENTIFICATION OF BIFIDOBACTERIUM IN YOGURT DRINK AND DETERMINATION OF THEIR ANTIBIOTIC RESISTANT GENES

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ABSTRACT

Throughout the years, there has been a vast evidence highlighting the benefits of probiotics in daily food products. Which confer potential health benefits by maintaining a proper balance in gut microbiota as well as treating specific pathological conditions. Numerous studies has shown the importance of manual and molecular methods for the identification of probiotics. Hereby, this study focuses on the identification of the probiotic, Bifidobacterium and the determining of its antibiotic resistance genes. Initially five yogurt drink samples were cultured in Bifidobacteria selective media. Phenotypic and Gram staining morphologies were observed, followed by spectrophotometric quantification and DNA extraction using boiled cell and CTAB methods. Boiled cell method surpassed CTAB method in terms of yield and purity of the DNA obtained. The extracted DNA was then subjected to PCR where the products were observed for sample C and D from boiled cell method and not CTAB method. Subsequently, the Bifidobacterium positive samples (C and D) from boiled cell method were evaluated for antibiotic resistance genes through PCR based-detection respectively. The antibiotic resistant genes of tet(M) and erm(B) were determined, as they are prominently found in Bifidobacteria. Sample C displayed a band for erm(B) but not for tet(M). Nevertheless, Sample D displayed no bands for either tet(M) or erm(B) indicating susceptibility. The availability of these methods for identification, enumeration and detection of Bifidobacterium is therefore, vital in the fields of environmental and food microbiology.

Keywords: Daily food products, probiotic, yogurt drink, PCR, antibiotic resistance genes

NEUROLOGICAL AND INTRA CRANIAL LESIONS, HAEMATOMAS AND FRACTURES - A STUDY DONE IN A TRAUMA CARE HOSPITAL

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ABSTRACT

Facial fractures and concomitant cranial injuries carry the significant potential for mortality and neurological morbidity mainly in young adults. This retrospective review was performed in a private hospital, Mysore. Following hospital charts and radiographs of 85 consecutive patients of cranio-facial trauma managed at the Department of Oral and Maxillofacial Surgery and Neurosurgery between January 2018 to June 2018 and records from March 2016 to December 2017 were reviewed. Results: Among 85 patients, In Majority of the cases, Road traffic accidents was the common cause of craniofacial trauma with (65%), Occupational hazards with [15%], habits with [20%]. And Among Road traffic accidents, Motorcycle crash cases with [65%] and Car crash cases with [35%]. Clinical symptoms included, loss of consciousness, headache, bleeding from nose. Majority of patients had mild head injury and managed conservatively in present series. Causes of surgical intervention for intracranial lesions were compound depressed fracture, contusion and intracranial hematoma. Operative indications for facial fractures were displaced facial bone fractures. Major causes of mortality were associated systemic injuries. It is universally agreed that the primary cause of fracture is road collisions and, although car crashes prevail in all other age groups, motorcycle crashes are more frequent in adolescents. It is necessary to emphasize the need for protective devices capable of avoiding not only neurosurgical complications but also maxillofacial fractures (full-face helmet). Most of the patients sustained mild head injuries and were managed conservatively. Open reduction and internal fixation with miniplates was used for displaced facial bone fractures.

Keywords: Craniofacial trauma, Intracranial lesions, Open reduction, Internal fixation.

MUSCULOSKELETAL DISORDERS AMONG DENTAL PROFESSIONALS - A STUDY

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ABSTRACT

Introduction Ergonomics can be defined as ‘an applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely’. Occupational hazard refers to a risk or danger as a consequence of the nature or working conditions of a particular job. Occupational health should aim at the promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupations; the prevention of deviation from health among workers caused by their working conditions; their protection from risks resulting from factors adverse to health. Healthy practitioners are particularly important for a successful dental practice and well-being of the patient. work related disability in different professions involving practice of lifting, twisting, prolonged sitting or standing. The dental profession is one such profession. Our aim was to determine the prevalence of work related musculoskeletal disorders among dental professionals. Methods: A cross-sectional survey was conducted using a self-administered questionnaire that included demographic and professional characteristics, general medical history and history of work related MSDS. The study showed that age, gender, speciality of work, sitting, number of contact hours with patients were found to be related to work related position. Study was done among 150 dentists in Farooqia Dental college and hospital, Mysore, Results: 50% of dentists in department of Surgery had neck pain during sitting and lower back pain during standing position. In periodontics female students reported a higher significant number of symptoms compared to male students. Pain in the neck region was found to be associated more in sitting position and lower back due to standing position. In Periodontics and Endodontics tingling sensations were commonly reported (70% each), while 30% of students from orthodontics also complained of tingling. A majority of dental students were unfamiliar with ergonomic measures of prevention and remedies available. We need to emphasize the role of ergonomics, counseling, proper technique of patient-handling etc. during the training of dental professionals, so they can work efficiently. Physical therapist, neuromuscular therapist should be consulted for musculoskeletal disorders.

LEADING ORGANIZATIONAL VIRTUAL EFFECTIVENESS: GOING BEYOND MASLOW'S HIERARCHY OF NEEDS MODEL

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ABSTRACT

What is virtual effectiveness as it relates to leading organizational team and work-groups, as a connecting link between cultures, across space and time via technological devices? There has been a somewhat steady stream of research on team development, e-commerce, knowledge sharing opportunities in virtual communities, but when it comes to the needs of our co-worker, geographically dispersed team members or even a collocated work-group member – how can managers/leaders acknowledge members needs through virtual connectivity? This research attempts to go beyond Maslow's Hierarchy of Needs Model to tests a basic axiom – if Maslow's Needs Theory applied to the virtuality of organizational work environments, or if the model better applies to the face-to-face work environment. Each step of Maslow's model will be accessed relative to virtual effectiveness dimensions explaining where we are in accessing worker needs through virtual connectivity.

Keywords: Virtual effectiveness, virtual culture, Maslow Hierarchy of Needs Model, leadership

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