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02nd International Conference on Ayurveda Traditional Medicine and Medicinal Plants

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PREFACE

Global Academic Research Institute is proud to present 03rd International Conference on Engineering and Technology, 06th International Conference on Business Management & Economics, 02nd International Conference on Ayurveda & Traditional Medicine, 04th International Conference on Health & Medicine as GARI WINTER RESEARCH SYMPOSIUM 2017 which is a series of successful research symposium. The Inaugural Session and the Technical Sessions were conducted on 22nd December 2017 @ Gall Face Hotel, Colombo, Sri Lanka. The conference was organized into main 04 disciplines 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. Academic affiliation with Department of Community Medicine at the prestigious Mysore Medical College and Research Institute.

Special thank goes to an enlightening key note addresses & Co-chairs made by Mr. Malraj B. Kiriella (Director General, Sri Lanka Tourism Development Authority) Dr. Nalin Abeysekera (Department of Management Studies, Open University of Sri Lanka), Dr. Pathirage Kamal Perera (Head of the Department of Dravyaguna Vignana, Institute of Indigenous Medicine, University of Colombo, Consultant, National Ayurveda Teaching Hospital), Dr. M. Hemanth Kumar (Managing Director, Sanskriti Ayurveda and Tripura Biotech Pvt Ltd, India & Sri Lanka), Dr. Subha Fernando (Department of Computational Mathematics, University of Moratuwa, Sri Lanka), Dr. G. Thizhendhi (PG Department of Mathematics, Vellalar College for Women, India), Dr. D. Jude Hemanth (Associate Professor, ECE Department, Karunya University), Dr. Mathi Kandiah (BMS, Sri Lanka), Dr. Deepa N Devadiga (Associate Professor, Department of Speech and Hearing, Manipal University), Dr. Kuldeep Kumar (Professor, Department of Economics and Statistics, Bond University, Australia) Dr. P. Karthikeyan (School of Management Studies, Kongu Engineering College, India) and Dr. Bhavik Swadia (S.M.Patel Institute of commerce, GLS University). The organizing committee specially thanks to our Journal Publications GARI Publishers and International Journal of Economics & Sustainable Development, International Journal of Social Science and Humanities, International Journal of Management, International Journal of Engineering Science, International Journal of Technological Advancement and Research, International Journal of Health and Medicine, International Journal of Food Science, International Journal of Ayurveda, Siddha, Unani and Traditional Medicine.

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
WRS 2017

ABOUT SRI LANKA

This is an island of magical proportions, once known as Serendib, Taprobane, the Pearl of the Indian Ocean, and Ceylon. Set in the Indian Ocean in South Asia, the tropical island nation of Sri Lanka has a history dating back to the birth of time. It is a place where the original soul of Buddhism still flourishes and where nature's beauty remains abundant and un-spoilt. Few places in the world can offer the traveler such a remarkable combination of stunning landscapes, pristine beaches, captivating cultural heritage and unique experiences within such a compact location. Within a mere area of 65,610 kilometers lie 8 UNESCO World Heritage Sites, 1,330 kilometers of coastline - much of it pristine beach - 15 national parks showcasing an abundance of wildlife, nearly 500,000 acres of lush tea estates, 250 acres of botanical gardens, 350 waterfalls, 25,000 water bodies, to a culture that extends back to over 2,500 years. Sri Lankan cinnamon, ivory and gems had been the main cause for invasion of two nations, Portuguese and Dutch, who followed the Moor traders to the country in search of the world's best spices and riches. According to the Dutch, who reorganized the cultivation and marketing of cinnamon in Sri Lanka, the 'shores of Sri Lanka had been full of it, that you can smell it eight leagues out to sea'. Even today the country produces the world best cinnamon and one of the world's top cinnamon exporters. With Endless beaches, timeless ruins, welcoming people, herds of elephants, killer surf, cheap prices, fun trains, famous tea, flavorful food, newly gained peace and improved infrastructure Sri Lanka had been repeatedly named the next tourist destination worth all the investments. Meanwhile Sri Lanka is fast gaining popularity in the MICE tourism industry, with 11% of the total visitors coming into the country representing the segment, while the industry anticipates the arrival of 240,000 MICE tourists by 2016, which is nearly 10% of the 2.5 million tourist target. With more than one million tourist arrivals in 2012 the Sri Lankan tourism service providers has set a target of 22,500 rooms in the next five years when tourist arrivals are expected to reach 2.5 million.

Discover Refreshingly Sri Lanka!

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03rd INTERNATIONAL CONFERENCE ON ENGINEERING AND
TECHNOLOGY



AN APPLICATION OF INTUITIONISTIC FUZZY GRAPHS IN NEURAL NETWORKS

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ABSTRACT

Neural networks are simplified models of the biological nervous system and therefore have drawn their motivation from the kind of computing performed by a human brain. Neural networks exhibit characteristic such as mapping capabilities or pattern association, generalization, robustness, fault tolerance, and parallel and high speed information processing. Intuitionistic fuzzy neural networks and neural intuitionistic fuzzy systems are powerful techniques for various computational and control applications. Intuitionistic fuzzy sets can be used to describe various aspects of Neural Computing. That is, intuitionistic fuzzification may be introduced at the input output signals, synaptic weights, aggregation operation and activation function of individual neurons to make it fuzzy neuron. A feed forward neural network using intuitionistic fuzzy graph model is proposed. The parameters of these nets use intuitionistic fuzzy characteristics. It has been illustrated through this study that intuitionistic fuzzy graph can be used as a modeling a neural network for some applications. Intuitionistic fuzzy models give more precision, flexibility, and compatibility to the system as compared to the fuzzy models. Intuitionistic fuzzy graph is more convenient to designing intuitionistic fuzzy neural network model. Some experimental results are shown to validate the proposed learning algorithm, and to demonstrate its generalization capabilities. This paper discussed about the intuitionistic fuzzy graphs in neural networks. It is observed that, the intuitionistic fuzzy neural network architecture is isomorphic to the intuitionistic fuzzy graph model and the output of a intuitionistic fuzzy neural network with OR intuitionistic fuzzy neuron is equal to the strength of strongest path between the input layer (particular input neuron/neurons) and the output layer (particular output neuron). This result is explained through an example, which describes the marketability of text books of kindergarten classes. Finally, the application of intuitionistic fuzzy graph neural network model in gas pipeline is illustrate using strength of the connectedness concept.

UNCONVENTIONAL ARTIFICIAL NEURAL NETWORKS FOR MEDICAL IMAGE ANALYSIS

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ABSTRACT

Soft Computing techniques have gained significant importance in practical applications. Among the soft computing approaches, Artificial Neural Networks have attracted most of the researchers around the globe. State of the art neural approaches such as deep learning neural networks have proved to be much efficient in solving the problems in real life situations. However, a series of questions arises such as:

What happened to the conventional neural networks?

Have they reached a saturation state?

Can we do something with the conventional neural networks?

The purpose of this talk is to provide a deeper insight into the conventional neural networks for possible application in the medical field. Few modifications are made in the conventional neural networks which proved to work well for pattern recognition in medical images. These approaches are named as “unconventional approaches”. The modifications are either made in the training algorithm or architecture of neural networks. The efficiency of the proposed unconventional techniques is explored in the context of abnormality detection in brain tumor images. Experimental results show promising results for the proposed approaches.

REVIEW ON POTENTIAL APPLICATIONS OF NANOTECHNOLOGY IN AVIATION

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Abstract

Aviation has been considered as a real initiator of research and development for a huge number of technological advances. The objective of this paper is to highlight the novel technological advances in the field of nanotechnology with relates to aviation. Nanotechnology is considered as one of the most sophisticated technologies in the world as it deals with manipulating matter on atomic and molecular scale ranging from 1 nm to 100 nm. Nanotechnology and its applications to aviation can be categorized as reducing weight of aircraft by using lighter materials which lead to improve the fuel efficiencies and improvement of aerodynamic performance in order to enhance efficiency of the aircraft. Due to the higher strength and flexibility of nano materials there are potentials of making canopies with transparent material and also the hydrophobic properties of nanomaterials will enhance better performance in windshields which leads to give better visibility during rainy and misty weather conditions even without wipers. A part from all above facts, there are several nano modified composites which have the potential of reducing vibrations in aircraft which leads to reduce the noise of aircraft. Further, there are a lot of modifications can be done for the airframe structures using these advanced materials. There are unique set of characteristics for some nanomaterials which included ballistic electron transport and high current carrying capacity, which has a tendency to do a revolution in future electronic systems. In summary, the novel technologies provide a platform to modify the existing systems in aircraft.

Keywords— Asymmetric, Aircraft, Military, Nanotechnology

VISION BASED MICRO AIR BUBBLE DETECTION METHOD FOR HEMODIALYSIS PROCESS

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ABSTRACT

This paper presents micro air bubble detection method for hemodialysis process. The air bubbles are monitored and evaluated in case of flowing in to the patient's body in the hemodialysis. Optical or ultrasonic devices were detected air bubbles in the extracorporeal blood circuit. Air bubble diameter that can be detected from present sensors are 1/3 times of inner diameter of the intravenous tube (IV), which is approximately 1.02 mm. Therefore, micro air bubbles could be passed through the air sensor without causing a system alarm. Illumination controllable back lighting method with special mechanism has been used as the image acquisition system. Image collected by camera will inevitably introduce some random noise. Therefore before targeting enhancement it had to smooth its original image frame by using morphological operations, dilation and erosion with morphological opening and closing. For more accuracy red, green, blue (RGB) color space was converted in to hue, saturated and value (HSV) color space. Contrast of the edges were enhanced by using the top-hat transformation. Background subtraction and color based segmentation based develop algorithm were used to detect air bubbles. Air bubbles which had a diameter less than 0.22 mm at 300 ml/min flow rate were detected as the results in test stage, and it is possible to detect blood stream variation by using this method, which is impossible by the present available methods. Developed electronic module is capable of generating relevant signal, which notifies the state of the air bubble detection.

Keywords: Hemodialysis, IV tube, illumination, morphological operations, sensitivity, image acquisition

SPEECUR: INTELLIGENT PC CONTROLLER FOR HAND DISABLED PEOPLE USING NLP AND IMAGE PROCESSING

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ABSTRACT

Today computers play a major role in human lives. Even though there are very sophisticated interfaces, differently abled people find it challenging to interact with the computer. There are some applications for disabled people, but people who have disabilities in hands do not have a proper application to interact with new technologies. The aim of this project is to develop software that act as an intelligent controller to facilitate hand disabled people when interacting with a computer. Proposed intelligent solution is based on speech recognition, image processing and human computer interaction. This application is capable of moving mouse cursor with face detections, activities based on voice commands, provide user authentication by voice recognitions and give suggestions using facial emotions. The solution will be using various high end techniques in Natural Language Processing, Machine Learning and Image Processing in order to improve the computer interaction. The proposed solution will be a great solution for the hand disabled people to interact with the computers like a normal user does.

Key Words: Natural Language Processing, Facial point detection, Voice based Authentication

DETERMINANTS OF STUDENTS' MATHEMATICS PERFORMANCE IN THE UNIVERSITY OF MINDANAO, PHILIPPINES

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ABSTRACT

Mathematics education fundamentally develops students' knowledge and skills. The facets of a student which are developed during a mathematics course are easily extended to other situations and areas. Hence, there is a need to study students' mathematics incompetence while they are still in the academe to properly guide them as they strive towards the future. The purpose of the study was to establish the determinants of students' mathematics performance in the University of Mindanao (Main), Philippines. The independent variables of the study were the cognitive and non-cognitive factors (i.e. mathematics achievement, study time self-efficacy, test preparation self-efficacy, enabling mastery self-efficacy, descriptive self-concept and evaluative self-concept for learning mathematics). The dependent variables were the at-risk of failure (AF) and tendency to be proficient (TBP) group of students. The researcher generated predictive models capable of identifying students who were at-risk of failure (AF) and tendency to be proficient (TBP) in mathematics, taking into account the cognitive and non-cognitive factors. Discriminant analysis was used to answer this problem. Results revealed that the participants of this study were moderately competent in knowledge and skills in mathematics. They had moderate self-efficacy capability belief to correctly perform the mathematics tasks. More so, they were highly confident in self-concept towards learning mathematics. From both groups of students categorized, 98.1% of the data was correctly classified as at-risk of failure (AF) and 92.2% of the data was correctly classified as tendency to be proficient (TBP). The two mathematical models had the coefficients along with the independent variables (X_i 's) which were considered as the determinants consisting of cognitive and non-cognitive factors. It can be gleaned that in the first model, the evaluative of self-concept for learning mathematics held negative values. In the second model, the Basic Mathematical Operations grade and the evaluative of self-concept for learning Mathematics variable held values which were negative. Using the models, results yielded a discriminant score that would predict students' at-risk of failure in mathematics. These would serve as basis to improve the quality of decision making about students' mathematics performance. Intervention is proposed and the models will serve as tools to identify learners in mathematics who are probable at-risk of failure (AF) freshmen students in Mathematics.

Keywords: mathematics performance, discriminant analysis, University of Mindanao freshmen students, Davao City, Philippines

THE PERFORMANCE OF OPTIMIZED SPDK-MEANS ALGORITHM OVER SPDKMEANS ALGORITHM FOR CLUSTERING DATA POINTS

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ABSTRACT

The Speedup k-means (SpdK-means) algorithm was developed in the parallel environment to reduce the cluster building time of k-means clustering algorithm to classify a data set into clusters for a given value of k (number of clusters). But the main drawback of this algorithm was that the cumulative cluster density of the created clusters was different from the initial population. After a careful study on this algorithm, it was identified that there were some elements (data points) that were missed out in the clustering process which reduces the cluster quality. This identification led to optimize the SpdK-means algorithm. The aim of this paper is to discuss the performance of the proposed optimized SpdK-means algorithm over SpdK-means algorithm in terms of density of clusters, number of iterations and cluster building time. The SpdK-means algorithm was implemented on a distributed computer system and its performance was analyzed applying to three large real time datasets. Here, the cluster building time, cluster densities and number of iteration in cluster building process were recorded. It was identified that 1% of total elements population was missing in cumulative density of all clusters formed. Then the SpdK-means clustering algorithm was optimized by changing the SpdK-means algorithm to overcome the above identified drawback. To measure the performance of new algorithm the same datasets were used and the above experiment was repeated. According to the results the percentage of missing elements were reduced from 1% to 0.01%. The number of iterations of cluster building process was reduced by 20% in optimized SpdKmeans algorithm than the SpdK-means algorithm. The cluster building time was reduced by 10% to 12% in the new algorithm. According to the result of the experiment, the overall performance of Optimized SpdK-means algorithm was higher than SpdK-means algorithm. Keywords: SpdK-means, k-means

QUANTITATIVE ANALYSIS OF EEG SIGNAL PATTERNS WITH RESPECT TO AGE AND GENDER

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ABSTRACT

The human brain consists of millions of neurons that utilize electro-chemical signals to transmit information to other parts of the body. Whenever a neuron triggers an electrical impulse to another neuron, it will generate electricity which is referred to as an EEG wave which can be measured by a sensitive device. In this study, we analyze such brainwaves obtained from individuals within same environmental conditions to uncover hidden relationships in age and gender. We conducted the study in three main steps, namely data gathering, data cleaning & processing, and result observation. During data collection, the electrodes were placed in accordance with the international 10-20 system which is a widely accepted standard for electrode placement in EEG related studies. For this research, we used FP1 and F7 channel data. Our sample data set contained EEG data gathered from four subjects with nine data samples from each. Raw EEG data usually contains a certain amount of noise added to the signal during eye movement, vibrations, etc. As such we used the Butterworth filter to pass frequencies in between lower and upper bound frequencies for filtering purpose. We measured standard deviation of EEG signal patterns from young male and female subjects who were between 6 to 22 years of age. Using the analysis, we identified that more active brain signal patterns occurring from the frontal left area of the brain in young male subjects than in female subjects. Hence, it can be concluded that young male subjects are more active in logical subjects and linguistic activities than female subjects in their age.

Keywords: Brain waves, EEG signals, human brain, neurological studies

**ENGLISH BUDDY – AN APPROACH FOR STRUCTURED ANSWER
EVALUATION AND FEEDBACK FOR O/L ENGLISH LANGUAGE
EXAMINATIONS IN SRI LANKA**

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ABSTRACT

At present, English has become a universal language. It may not be the most spoken language in the world, but it is the official language in a large number of countries. Proficiency in English both spoken and written has become a basic and a crucial requirement to get a decent white collar job and also to pursue higher studies or career development. Therefore, passing O/L with a good grade for English has become critical. But due to the busy life styles of students, teachers as well as parents, do not see this as a major problem and pay less attention to English compared to the other subjects. Since there is a limited time available for each subject at school, teachers might not be paying their full attention to the students who need teachers' help. Sometimes parents also feel it is difficult to attend to the parents meetings and they might not know the actual grades of their children until the final results are given. This research provides a solution to the above problems by developing an automated system called "English Buddy" which will mark student's structure based answers in English and help the students to learn and evaluate their knowledge alone. This web solution will be useful for teachers to upload material and check progress of the students and for students to learn and practice exercises and get feedback. It'll be helpful for parents to be alert and follow the progress of their children. The systems is mainly build using techniques in Natural Language Processing and checked for accuracy with manual marking.

Keywords: Natural Language Processing, Context Free Grammar, Word Tokenizing

DESIGN AND DEVELOP AN INTELLIGENT CONTROLLER FOR DUAL-AXIS LIGHT TRACKING SYSTEM

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ABSTRACT

In this Paper present fuzzy logic controller to control dual-axis intelligent light tracking system. The system has been designed to make decisions for which direction to rotate the solar panel where the light intensity is greatest. The aim was to increase the energy obtained from solar panels by providing the specular reflection of the sun's rays to a solar panel and increase the harvesting time throughout the day. Present solar tracking system has been able to increase the solar output by 18% than fixed solar panel (in 2015 Azwaan Zakariah et al). This dual-axis intelligent light tracking system was tested for 5W solar panel and has been able to increase the solar output power efficiency by 25% than fixed solar panel throughout the day. The dual-axis intelligent light tracking system is designed and fuzzy control algorithm implement in Atmel microcontroller.

Keywords: Classical control algorithms, fuzzy controller, Solar tracking system.

A NEW METHOD OF TEXT SUMMARIZATION

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ABSTRACT

Today, the tremendous information is available on the internet, is difficult to get the information fast and most efficiently. Text summarization technique deals with the compression of large document into shorter version. it is a process that reduces the size of the text document and extract significant sentences from a text document. This is a novel technique for text summarization. The technique based on local and global properties of words and identifying significant words. The local property of word can be considered the sum of normalized term frequency multiplied by normalized number of sentences containing that word. Global property can be thought of as maximum semantic similarity between a word and title words. Extraction based text summarization involves selecting sentences of high rank from document based on word and sentence features and put them together to generate summary.

SPELL AND GRAMMAR CHECKING TOOL FOR SINHALESE

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ABSTRACT

Sinhala, as a natural language is a complex and a rich language derived from Pali and Sanskrit. According to the historical linguistics Sinhalese belongs to the IndoAryan family. When the language comes to the usage there are two forms/ varieties as written and spoken. According to the linguistics this phenomenon is called “diglossia”. When considering about the written context, it is a complex language that comprises of many spelling and grammar rules where the correctness of the formal writing totally depends on these well-defined rules. A word phrase, a sentence or a paragraph will perceive different meanings according to the syntaxes and semantics used. Therefore it is very important to ensure the spelling and grammatical correctness to deliver the desired meaning to the audience. Due to this high complexity, it takes a considerable time to manually proof read the content of a written context. The requirement of an automated mechanism to perform this task has been emerged for the Sinhala language many years back, with the technological advancement. Well-developed spell checking applications are available for the languages like English Tamil and Chinese. But, due to the morphological richness of the language, the applications implemented to process the Sinhala language is in its infant stage and also there is no evidence for the existence of grammar checking applications for the Sinhala language. Major drawback of the existing applications developed for the spell checking functionality of the Sinhala language is, they lack with resources to explore all the misspelled words provided to the application. Although there are predefined spelling rules in the Sinhala language, it has been difficult to come up with a rule based solution for the Sinhala spell checking. Therefore this research is intended to implement a web based real time system to check the spelling and grammatical correctness of a context written in Sinhala language. The spell checking component will follow up a data driven approach to eliminate the difficulties faced in existing spell checking applications and follows a rule based lexicon analysis methodology to come up with a novel approach to check the grammatical correctness. This novel application will facilitate the end users to check the spelling and grammatical correctness of the inputs they provide to the system and it will also provide suggestions to correct the mistakes appearing in the input. The spell checking component follows a three stepped implementation approach as data gathering, spell checking and at the last phase the output is subjected to several optimizations to enhance the result. Since the grammar checking component is following a rule based approach, a corpus has been implemented by collecting different sentence types. The lexicons has been implemented based on these sentence types. It has been identified 6 types of noun phrases, 11 types of verb phrases, 4 types of adjective phrases and 9 adverb phrases to develop the lexicon. In order to compare the performance of implemented system with the existing spell checking applications, several test cases were used. Other experiments were performed to analyze the functionalities of the application after integrating with the grammar checking component. All the test cases were executed in several operating systems to ensure the compatibility of the application. Also it was founded that the time taken to process the input and to provide the

output varies according to the usage of optimization techniques. As it is planned to implement the system that it can be easily understandable and usable to the end users, the market value of the outcome will increase. The comprehensiveness, reliability and the novelty of the outcome is planned to be monitored throughout the project. Beyond that, our target audience has been identified as newspapers, government sectors including all the ministries departments and authorities, banking sector of Sri Lanka, Schoolchildren and teachers and all people who wishes to deal with Sinhala language. The ultimate goal of the research will be protecting the mother language to the betterment of the future generation.

PROBABILITY FUNCTION BASED THREE DIMENSIONAL NEURAL NETWORK

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ABSTRACT

This paper presents the 3-D (Three Dimensional) neural network system, each layer has neurons in 2-D space ($n \times m$). In the 3D neural networks, probability function has been used to pass signals between two neurons. The existing neural network systems are required specific weights to fire. In this case, we propose an energy function instead of weights. The energy function means the energy between two neurons. The energy function has been determined by the first training session of the neural network system. The neuron has a specific function and that can be processed which signal is come inside and which signal is to pass forward. The proposed neural processing function is a function of time. The energy function has been calculated the difference between input of a neuron and output of the next neuron by using the feedback signal of the every neuron.

Keywords: Three Dimensional Neural Network, Energy Function, Probability Function

PREPARATION OF PHOSPHATE SEQUESTRATION AGENT FROM WASTE PAPER SLUDGE USING GRANULATION AND CALCINATION

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ABSTRACT

Paper sludge (PS) is generated as an industrial waste during the manufacture of recycled paper products, and amounts discharged globally are increasing annually. On the other hands, phosphate is usually considered the limiting nutrient with respect to the eutrophication of natural bodies. In this study, paper sludge was converted into an effective phosphate sequestration agent through granulation and calcination. PS was granulated with distilled water using pan granulator (40 rpm) at 25 – 50 oC with the angle of 30 – 45 o, and the sludge can be granulated at 40 - 50 oC with the angle of 37.5 – 45 o for less than 10 min. The particle shapes of granulated sludge can be kept after calcination at 800 oC, and the product, which was granulated at 40 – 50 oC with the angle of 45 o, indicates strong porous structure. The product has phosphate removal ability for water purification of fish aquarium.

Keywords: Paper sludge, Phosphate removal, Granulation, Calcination, Recycle

MATERIAL CONVERSION OF WASTE ALUMINOBOROSILICATE GLASS INTO FAUJASITE-TYPE ZEOLITE USING ALKALI FUSION

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ABSTRACT

A large amount of liquid crystal display (LCD) television becomes popular for the last decades, and the amount of waste LCD panels will increase soon. LCD panels mainly consist of aluminoborosilicate glass, and it is difficult to recycle aluminoborosilicate glass using the same recycling method of soda-lime glass, due to the high strain point. Therefore, a novel recycling method for aluminoborosilicate is desired. In this study, we attempted to convert waste aluminoborosilicate glass powder into faujasite-type zeolite using alkali fusion method. Waste aluminoborosilicate glass powder (< 300 μm) were mixed with NaOH powder (the weight ratio of NaOH / aluminoborosilicate = 1.0 - 2.0), and then heated at 100 – 800 oC for 0.5 - 7 h to make a fused material with high solubility. This fused material was agitated in distilled water for one day, then heated at 80 oC for 24 hours to synthesize zeolite product. Most of the aluminoborosilicate glass were converted into soluble phases by alkali fusion with NaOH (NaOH / sample = 1.5) at 400 oC for 0.5 h, and could be transformed into faujasite-type zeolite. The cation exchange capacity (CEC) of the zeolite product is 1.9 mmol/g, which is 31 times higher than that of raw glass powder, while 59% of CEC for commercial faujasite-type zeolite 13X (3.2 mmol/g). Zeolitization process from agitated material can be explained by the concentrations of Si, Al and B in the solution and the crystallinity of faujasite-type zeolite in the product.

Keywords: Waste aluminoborosilicate glass, Faujasite-type zeolite, Alkali fusion, Recycle

DESALINATION PROPERTY OF VARIOUS CALCINED LAYERED DOUBLE HYDROXIDES FROM SEAWATER

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ABSTRACT

Now, approximately 20% of farmland in the world becomes salt damage soil with unsuitable properties for agriculture. In general, salt was removed from soil by flushing out with rain water due to the improvement of soil permeability using gypsum, etc.. However, there are arid and semi arid areas which an insufficient supply amount of rain water to remove salts from soil. In this study, a novel method to capture salt in soil using various calcined layered double hydroxides (LDHs) as a desalination agent was attempted. 4 kinds of LDH are prepared with the different M^{2+} / M^{3+} ratios using 2 kinds of Mg^{2+} , Ca^{2+} as M^{2+} and 2 kinds of Al^{3+} and Fe^{3+} as M^{3+} . The desalination ability of these calcined LDHs were investigated using seawater collected from an Imari bay in Saga prefecture, Japan. As a result, the decrease of salinity was confirmed using all samples. Among these samples, the calcined MgAl LDH with $Mg/Al = 3.45$ and CaFe LDH with $Ca/Fe=2.35$ indicated the highest desalination property, due to the decrease of Cl^- and SO_4^{2-} from seawater, by reconstruction reaction after seawater desalination. MgAl - LDH and CaFe - LDH were calcined at various temperatures, and the desalination ability at different calcined temperatures was also evaluated. It was found that the desalination ability of calcined LDH depends on the calcination temperatures.

Keywords: Seawater, Desalination agent, Calcined LDH, M^{2+}/M^{3+} composition

GENERATING ER, CLASS DIAGRAMS AND DDL SCRIPTS FROM A GIVEN SCENARIO IN FREE TEXT USING NATURAL LANGUAGE PROCESSING

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ABSTRACT

Entity Relationship diagrams and Class diagrams are two main vital designs for a proper implementation of a computer system. However generating entity relationship diagrams and class diagrams has become a tedious task for software development as there is a unique rule set to identify each element and development of the diagrams are different from each other. In order to develop an accurate database it is very critical to identify the attributes from a scenario. Also it's important to identify the relationships which can be association, aggregation, composition and generalization. When we are evaluating good database structures it can be based on specific user requirements. In modern world there are mainly three types of database architectures such as object relational, relational and non-relational databases which have very critical and complex data structures. Because of those issues, if there's an automated process that can convert scenarios in natural language into diagrams and databases that would be a dream come true for the developers. So this proposed system aims to provide a fully automated process for database scripts as well as entity relationship diagrams and class diagrams using natural language processing techniques. The goal of this project is to provide the facility to improve the knowledge of the students and also enhance the efficiency of employees who are dealing with database structures.

Keywords: Natural Language Processing, POS tagging, DDL script, ER diagram, Class diagram, ORDB, RDB, NO-SQL

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MANAGEMENT & ECONOMICS



**IMPACT OF FOREIGN DIRECT INVESTMENT ON STOCKMARKET
DEVELOPMENT: A STUDY WITH REFERENCE TO SAARC COUNTRIES**

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ABSTRACT

Globalization is the process in which countries have become integrated through trade, transportation and communication by the exchange of economies, societies and culture. Such integration through trade and investment, in form of export-import, portfolio investment or foreign direct investment (FDI) are very much crucial for the developing countries. Foreign Direct investment (FDI) has become a very common feature in almost every countries of the world. But, there is a trend of these FDI flows to be directed towards the developing nations because of emerging opportunities and huge market potentials. This keynote address is intended to measure the macroeconomic impact of FDI in SAARC countries. This study has selected six macroeconomic variables: Gross domestic product, inflation, current account balance, government revenue, total foreign exchange reserve and gross capital formation to test the impact of FDI on them. This study has set the objective to analyze the macroeconomic impact of FDI on the economies of SAARC countries. It has in fact attempted to examine the impact of FDI on Gross Domestic Product (GDP), inflation, current account balance, government revenue, total foreign exchange reserve and gross capital formation. SAARC stands for South Asian Association for Regional Cooperation. Established on 1985 and having Secretariat is based in Kathmandu, Nepal, it is an economic and geopolitical organization of eight countries that are primarily located in South Asia. The countries are: Bangladesh, Pakistan, Bhutan, India, Maldives, Nepal, and Sri Lanka and recently Afghanistan (Wikipedia, 2014). All of these countries are just developing towards their paths of progress. Therefore this study can help these countries to identify the actual impact FDI is causing to their different macroeconomic factors. Moreover, these countries will be able to adjust their positions regarding the vulnerabilities and also to exploit the newly identified opportunities and strengths.

AN EMPIRICAL STUDY ON QUALITY OF SERVICE DELIVERY BY RURAL HEALTH CARE CENTRES IN COIMBATORE DISTRICT

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ABSTRACT

A majority of 700 million people live in rural areas where the condition of medical facilities is appalling. Considering the picture of dismal facts there is a urging need of new practices and procedures to ensure that quality and timely healthcare reaches the deprived corners of the villages in India. The government has implemented scores of policies and programs but the success and effectiveness of these programs is questionable due to disparity in the implementation. The government of India has promoted primary and community health centres in all the states and Union territories. In the recent development private health centres also play a major role in rural health. Coimbatore district caters its rural population with primary, community and private health centres. The study aims at the perception of quality of services provided by these health care centres in Coimbatore district. The research data were collected through survey and total of 256 participants completed the questionnaire. The study is descriptive in nature with the sampling method being simple random sampling. T-test, factor analysis, Mean and SD was applied to compare the different health care centres. The result of this empirical study proved that overall quality of services provided by both primary and private health care centres is higher compare to community health care centre.

Keywords: Health care centres, Rural, Services, Quality

THE EMERGING NANOMARKET WITH NEW BUSINESS ENVIRONMENT

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ABSTRACT

The study of nanotechnology and its advancement is an enquiry into the future wealth of nations. Nanotechnology has many hidden things in its store for human welfare. Nanotechnology is a field of science and engineering that deals with structures having less than 100 nanometers. A nanometer is one billionth of a meter (10^{-9} meter) which is equal to hundred thousand less than the width of human hair. The advancement in nanotechnology is bringing about second industrial revolution. The world is going digital with an inflow and outflow of electronic devices. There is a lot of focus on digital continent activities and marketing. A substance is considered a nano-material if it ranges between 1 to 100 nanometers. Nanotechnology can change the production function embodying all known techniques. Nanoproduction is the functional relationship between smart materials as raw materials and nanoproducts as output paving the way for emerging nano-market and new business environment. The examination of nanoproduction function explores the serendipitous values beneath the nanotechnology. Time has come to examine economic and business principles under lying the development and deployment of nano scale know-how, nanoproducts and nanosystem. This study is explorative in nature to identify the business issues by reviewing the materials of nanotechnology and map the emerging nano-business environment with nano-production function. It examines business environment in the light of advancement in nanotechnology and maps the nanomarket. It also examines the bottom up approach and its influence on present production system besides identifying the key business issues in the emerging nanobusiness environment. Nanotechnology is bringing about changes in products, services, life styles and living conditions involving the formulation of new scientific business principles for commercial exploitation. In due course, this technology will be consolidated as an industry and consumers will enjoy a wide range of nano products. Nanotechnology may become embedded in every industry, every product, essential to every job and enterprise. This technology develops billions of tiny factories model paving way for new companies, new jobs and products. It is characterized not only by nano-products but also by other nano related issues such as nano-infrastructure, convergence technology with IT and BT, financial markets with nanobonds, intellectual property, venture capital, transfer of technology, opportunity cost, national and international policies towards nanotechnology. Commercial exploitation of nanotechnology creates products and services enabling buyers and sellers to transact and conduct trade in new nanobusiness environment. There is competition for investment and thereby to secure a market share. Economists, Industrialists, Businessmen and Scientists know too little about each others fields and this has become major constraint for policy formulation to exploit nanotechnology for achieving millennium development goals. The study of new business and economic environment with nanoproduction function is expected to yield useful insights to find better ways to manage the system through optimal interventions.

Keywords: Nano-material, Nanoproduction function, nano-infrastructure, convergence technology

**PHYSICAL ASSET MANAGEMENT IN SRI LANKAN ORGANISATIONS:
FINDINGS OF EXPERT INTERVIEWS**

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ABSTRACT

Physical Asset Management (PAM) is one of the most important disciplines which positively affects the profitability of an organisation. It helps to optimize the performance of assets and reduce cost and risk which can be associated with assets. In the modern world, PAM has received an increasing attention due to the enormous benefits it provides towards business success. Asset lifecycle planning, effective asset utilization and maintenance, asset risk management, asset information management and asset performance measurement are the most popular PAM practices in the world. Though PAM has received increasing attention in the global context, it has not been adequately researched in the Sri Lanka. However, understanding the current practices is important to take improvement measures and therefore, the aim of this research paper is to review the current PAM practices in Sri Lankan organisations. A comprehensive literature was conducted to review the literature on different PAM practices and an expert survey was conducted to study the current practices of PAM specifically in the Sri Lankan context. As the findings revealed, though the maintenance of assets are at an acceptable level, the application of asset performance assessments, risk assessments, use of analysis techniques and life cycle evaluations are at a very less level of practice. Hence, the research revealed that PAM practices in Sri Lanka is not at a satisfactory level and measures should be taken to enhance the current practices as the contribution of effective PAM is immense in terms of optimizing the balance between risk, cost and performance aspects of assets and ultimately supporting positively for the business success.

Keywords: Physical Asset Management (PAM), Current Practices, Sri Lanka

THE INFLUENCE OF GREEN MARKETING ON CONSUMER PURCHASE DECISIONS: A DEVELOPING ECONOMY PERSPECTIVE

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ABSTRACT

In recent years, global warming, pollution and climate change are some of the key challenges facing the world's population. The seriousness of environmental degradation has resulted in a shift in the way in which business is being conducted. One of the consequences has been a greater focus on green marketing. Past research on green marketing and its influence on consumers has focused mainly on developed nations. There is a noticeable absence of research into green marketing in developing economies such as South Africa. Thus, the primary objective of this study is to examine the influence of green marketing on the purchasing behaviour of South African consumers. The study is exploratory in nature and is of a quantitative, descriptive and cross-sectional type. A survey was conducted on a sample of 100 consumers in the city of Durban, South Africa. The results indicate that respondents have a fairly high degree of knowledge on the issues facing the environment and elements of the green marketing mix. Specifically green promotion was found to raise awareness and encourage positive change in consumption behaviour. A large proportion of respondents preferred to purchase from socially responsible retailers. Furthermore, respondents preferred green products over standard alternatives. However, respondents were found to be price sensitive which affected their purchasing decisions. It was found that there was no significant difference between low and high end income earners in terms of price sensitivity.

Keywords: green marketing, green marketing mix, consumer purchase decisions

IMPACT OF SINGLE STOCK FUTURES ON FEEDBACK TRADING, TRADING VOLUME AND VOLATILITY: A MODIFIED APPROACH

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ABSTRACT

While an extensive amount of literature exists on the role of futures markets in influencing various dynamics of spot markets, the question whether they stabilize or destabilize the underlying spot market is unresolved. This study addresses this concern and investigates the impact of SSFs (particularly in terms of their destabilizing ability) on the underlying stocks. This study contributes to the literature of financial economics by modifying the famous Sentanan & Wadhvani (1992) model by adding trading volume as a control variable along with Generalized Error Distribution (GED) to capture leptokurtic nature of financial time series data for introduction episode of SSFs in Pakistan. The results of CAPM augmented GJR-GARCH process suggest an insignificant change in coefficients used to gauge market inefficiencies, feedback trading, trading volume and volatility. The findings do not support the hypothesis that the introduction of futures markets significantly impacts positive feedback trading and volatility dynamics of underlying stocks. The results are consistent with some of the earlier studies that futures markets have, at least, no destabilizing effect on the underlying stock market.

Keywords: Feedback Trading; SSFs, dynamic CAPM, GJR-GARCH, GED
JEL Classification Code: G1; G13; G14; G17

STUDENTS CAREER ATTITUDES TOWARDS ENTREPRENEURSHIP

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ABSTRACT

Entrepreneurship plays a vital role in current business arena. Starting from the top government officials to the bottom level people importance of these concept coming to the stage from the various aspects. Even within the universities degree programs related to the entrepreneurship are offered to develop the Entrepreneurial attitudes within the students. Although all these effort are done to enhance the Entrepreneurship culture among the University students still these students are within the confusing mind to start up an Entrepreneurial career within their life. Therefore this study was conducted to identify the problem associated with students' Entrepreneurial career and what are the factors affecting to change the mindset of the Entrepreneurial students towards their career aspirations. To identify this problem sample were collected through the entrepreneurial graduates of Sri Lankan Universities. Sample size were 100. A structured questionnaire was used for data collection. The questionnaire employed a 5-point Likert scale. According to the findings majority of the students emphasized that they are not willing to take the risk associated with the new ventures. 89% students have proven that through statistics. Moreover, Majority of the students explain that they are having negative attitudes towards Entrepreneurship due to lack of Practical awareness about business, Experiences received through Parents Business, Career aspirations of friends and relatives made them to rethink about starting up the Entrepreneurial career. To overcome these issues associated with Entrepreneurial mindset of student, universities should address these issues in prominent manner.

Key Words: Entrepreneurship, Attitudes, Undergraduates, Career Aspiration

RELATIONSHIP BETWEEN TECHNOLOGICAL INNOVATION, CORPORATE SOCIAL PERFORMANCE AND CORPORATE FINANCIAL PERFORMANCE

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ABSTRACT

This study investigates the relationship between technological innovation, corporate social performance, and corporate financial performance of Japanese manufacturing firms. Firms that aggressively focus on research and development have to establish credibility with investors and manage financial and social risks, since most such firms need to steadily raise capital. To achieve this risk reduction, managers of firms with technological competitiveness use activities related to their corporate social responsibility as one of the instruments to manage firm risk. Empirical evidence from this study shows that both firm-level innovation and corporate social performance are negatively associated with this risk, which is evaluated in the stock market. Furthermore, results from the mediation analysis suggest that corporate social responsibility works as a mediator to explain the negative association between firm-level innovation and firm risk. This finding implies that managers of firms with aggressive corporate innovative activities should be more conscious of the corporate social performance of their firms.

Keywords: Corporate Innovation, Patents, Corporate Social Performance, Corporate Financial Performance, Moderated Mediation

AN INTRODUCTION TO CSR REPORTING IN INDIA

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ABSTRACT

Sustainability Report A sustainability report, comparable in a way with financial reporting is a type of corporate or organizational report which conveys sustainability-related information. Today, however, CSR reports are seen as increasingly strategic documents that should offer a balanced, objective and reasonable assessment of almost every aspect of a firm's non-financial performance. This new data, in addition to creating greater transparency about firm performance, can provide firms with knowledge necessary to reduce their use of natural resources, increase efficiency and improve their operational performance. This paper examines the importance of sustainability reporting, the actual need and scope for such reporting and the operational effectiveness of reporting. Scope of CSR reporting CSR/sustainability reports serve as a tool to change external perceptions and to instigate dialogue with stakeholders both inside and outside the company. Open and honest, relevant and well-targeted CSR/sustainability communications can contribute to increasing employee motivation, improving company or brand reputation, strengthening credibility, and building trust and long-term competitive advantage. CSR reports are seen as increasingly strategic documents that should offer a balanced, objective and reasonable assessment of almost every aspect of a firm's non-financial performance The future of CSR/sustainability reporting arguably lies in a shift from 'informing' to 'communicating, engaging and learning' and in further integration of CSR communications into mainstream corporate communications. As a result, companies are increasingly employing a range of different communication channels to cater to diverse stakeholder needs. Corporate Social Responsibility (CSR) has three major dimensions, namely, green practices, social welfare and ethical behavior. Fortunately, most CSR dimensions are measurable so as to facilitate CSR ratings in order to compare or highlight the different corporate sectors on a common platform. Guha, Lokaranjan , (2012) In their paper, had scanned particularly those companies who have crossed the various milestones of standard, namely, ISO 9000, ISO 14000, ISO 18000 and SA 8000, to satisfy quality, environmental trustworthiness, safety and social accountability, respectively. CSR reporting standards One of the main challenges of CR reporting is determining what issues to report on and what issues to exclude, as well as prioritising those issues that are included. Though there are a plethora of alternative reporting methods followed by companies, there is no universally accepted framework. The Sustainability reporting guidelines from Global Reporting Initiative provide an excellent basis for reporting. The GRI reporting framework is explained in this paper. GRI is a multi stake holder process and independent Institution whose mission is to develop and disseminate globally applicable Sustainability Reporting Guidelines. These guidelines are for voluntary use by organizations for reporting on the economic, environmental, and social dimensions of their activities, products and services. In addition, as stated in GRI (2002), the initiative has enjoyed the active support and engagement of representatives of key constituencies, and in the GRI's view, its guidelines provide the most updated consensus on a reporting framework at this point.

Keyword: CSR, Guha, Lokaranjan, Sustainability-related information

SUCCESS FACTORS IN PHARMACEUTICAL AND BIOTECHNOLOGY FIRM ALLIANCES

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ABSTRACT

An examination of the key factors in choosing alliances between biotechnology start-ups and pharmaceutical firms. The Recap Alliances database is utilized to determine the successful combinations of factors for alliance-forming decision making. An ordinary least-squares (OLS) model is implemented to determine the most critical success factors and a constrained regression model is implemented in determining which resulting factors of interest are complements and which are substitutes in terms of profit of the alliance venture. The results shed light on what factors biotechnology startups and pharmaceutical firms should be looking for in potential partners in order to give themselves the greatest chance of success in terms of profit and profit growth, respectively.

Keywords: Biotechnology, Complementarity, Constrained Regression

CORPORATE SOCIAL RESPONSIBILITY PERFORMANCES OF INDIAN FORTUNE GLOBAL 500 COMPANIES

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ABSTRACT

Indian Corporates have been successfully performing and marking their presence in the Fortune 500 list of world's biggest corporations. Seven Indian companies have been successful in making their entry into the 62nd Annual Fortune Global 500 Companies list. This paper critically analyses the performances of these seven Indian companies in the areas of CSR corporate social responsibility, which is mandatory in India for certain companies under the revised Indian Companies Act 2013, which replaces the erstwhile companies act 1956. With the insertion of section 135, revisions in section 198 and with the introduction of schedule VII of the Indian companies' act 2013, there has been a significant shift in the focus of Indian Corporates towards the performance of their CSR – Corporate Social Responsibility in India. Every such qualifying companies are required to mandatorily spend at least 2% of their annual average net profit of the immediately preceding three financial years on such CSR corporate social responsibility activities as specified under schedule VII of the Companies act 2013. Companies are required to constitute a committee (CSR Committee) of the Board of Directors consisting of 3 or more directors. The corporate social responsibility Committee shall formulate and recommend to the Board, a policy which shall indicate the activities that they are going to undertake (CSR Policy); it shall then recommend to the board the amount of expenditure to be incurred on the selected activities with reference to schedule VII of the Companies act 2013. The Board shall take into account the recommendations made by the corporate social responsibility Committee and approve the corporate social responsibility CSR Policy of the company for its execution, which shall be appropriately monitored by the corporate social responsibility CSR Committee of the company.

Key Words: CSR – Corporate Social Responsibility, Sustainable Development, Society, Indian Companies Act 2013, (CSR Policy) Rules 2014, 62nd Annual Fortune Global 500 Companies.

FACTORS AFFECTING BRAIN DRAIN OF SRI LANKAN ENGINEERS

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ABSTRACT

Migration has been a feature of mankind, from the dawn of civilization. In the modern day migration, skilled migration that referred to as brain drain has become a prime topic of discussion. In the context of Sri Lanka, under skilled migration, migration of engineers can be identified as a major problem to the country. The main objective of the paper is to identify the factors affecting brain drain of engineers graduated from 2006 to 2016 based on 3 main areas, holding (factors holding engineers from migrating), leaving (factors affecting leaving decision for migrating) and returning factors (factors affecting migrant engineers to return back to the country) under endogenous and exogenous sub categorization. The factor identification was done by a pilot survey via interviews, using qualitative analysis, with a sample of 12 engineers, selected with convenient and snowball sampling techniques. The dominance of each factor is ascertained by an online questionnaire, from a sample of 264 engineers, selected through simple random sampling, using mixed analyzing techniques. It was revealed that 49% of the participants are in the process of migration. Further in results, 47 factors were identified under the 3 main areas of migration decisions. Out of decision to stay (holding factors), exogenous factors were dominant over endogenous factors. Out of the decision to leave (leaving factors), endogenous factors were dominant over exogenous factors. Out of the decision to return (returning factors), exogenous factors were comprehensively dominant over endogenous factors.

Keywords; brain drain, skilled migration, engineers, Sri Lanka

ANALYSIS OF THE ENTREPRENEUR ECOSYSTEM IN INDIA

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ABSTRACT

Entrepreneurship plays an important role in the growth and development of national economies. This study aims at developing country India and entrepreneurial ecosystem activity. Six characteristics are analyzed which contribute to the differences that impact entrepreneurial ecosystem. These include culture, finance, R & D transfer, business support, policy, Human capital, infrastructure and markets. For the analysis of data descriptive statistics, SPSS tools are used in the current study to generate results for interpretation

Keywords: Entrepreneur Ecosystem, India, Descriptive statistics.

KNOWLEDGE MANAGEMENT PRACTICES AMONG INDIGENOUS DOCTORS IN SRI LANKA

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ABSTRACT

Indigenous Medicine represent a considerable segment of Sri Lankan health sector, which is mainly based on indigenous knowledge. The existence and the development of this sector mainly depend on the indigenous knowledge management among the indigenous doctors. Therefore the aim of this study was to investigate the present level of knowledge management among indigenous doctors in Sri Lanka. A conceptual model developed based on the prevailing literature, which the knowledge creation, knowledge exchange and Knowledge usage as independent variables. The knowledge management represented the dependent variable. A sample of 31 indigenous doctors selected for the study based on non-probability sampling method. A questionnaire with five liker scale was used to collect data. This study confirmed that the present level of knowledge creation, knowledge exchange and knowledge usage levels are above the average among the indigenous doctors in Sri Lanka. Further this study found that there is a positive and significant relationship between knowledge exchange to knowledge management and knowledge usage to knowledge management. However, the relationship between knowledge creation and knowledge management was poor among the indigenous doctors in Sri Lanka. Future research could be expand to selecting large samples also and cover Ayurvedic Medicine sector as a leading component of eastern medicine.

Keywords: Knowledge Creation, Knowledge exchange, knowledge usage, knowledge Management, indigenous medicine.

KNOWLEDGE SHARING IN INDIAN BIOTECHNOLOGY INDUSTRY

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ABSTRACT

Globally knowledge management is a unique phenomenon. Knowledge is the theoretical or practical understanding of a subject. Knowledge management is a process of knowledge creation, adoption, sharing and retention. Knowledge sharing is expected activity in every business organization. Generally knowledge sharing is a communication between persons or groups. Knowledge sharing happens at different levels such as individual and organizational level. Knowledge sharing has greater motives such as motivation to share, probability to share and work culture. Biotechnology is an industry growing at a faster pace in India. The rich natural resources like cattle population, abundant resources and good climatic conditions prevailing in Indian scenario will help the growth of the biotechnology sector in India. Biotechnology deals with creating new products of biomedical importance and obtaining a commercial value for the products. Knowledge sharing among employees of a Biotechnology company was found to be quite important in knowledge management practices in Indian biotechnology sector. The present work highlights the importance of knowledge sharing in Biotechnology industry in India.

Keywords: Knowledge, Sharing, Biotechnology, India

MANAGERIAL PERCEPTIONS OF WEALTH: EVIDENCE FROM THE CUMULATIVE PROSPECT THEORY

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ABSTRACT

We analyze the wealth perception bias of financial firms' directors across demographic profiles and under different political regimes (Republican and Democratic) in three political settings (the presidency, Senate, and House of Representatives) in the United States. We find that managerial wealth perception varies greatly across regimes and that these perceptions are related to demographic characteristics. The impact of Republican dominance on wealth perception is on average 82.04% higher relative to that of Democratic dominance. We provide further evidence of this disparity at the state level, using the well-established cumulative prospect theory to uncover new findings on managerial beliefs and preferences.

Keywords: Cumulative prospect theory; managerial wealth perception; financial institutions
JEL Codes: G02; G39; M12

FEASIBILITY STUDY OF GUJARAT TOURISM SCENARIO

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ABSTRACT

Tourism is a vital industry anywhere in the world. It is a basic and most desirable human activity deserving the praise and encouragement of all people and all government across the world. Tourism varies from local and general to international and customized. Today, when all the states of India promote their tourism by using different unique selling propositions, it is important to understand how one time Tourism department has now become an organized tourism industry. Gujarat is no exception to this. For past few years, the Tourism Corporation of Gujarat Limited (TCGL) has become highly aggressive in promoting various tourist destinations of Gujarat by introducing Mr. Amitabh Bachchan as a brand ambassador of Gujarat Tourism. This study paper is an honest attempt of researcher to thoroughly justifying the realistic scenario of Gujarat Tourism by quoting useful statistics based on secondary data available.

Key Words

Tourism, Instrument to Economic Growth, Culture, GDP, Foreign Tourists

**CAPITAL ADEQUACY: A FINANCIAL SOUNDNESS INDICATOR FOR
LENDING ACTIVITY OF SELECTED PUBLIC SECTOR BANKS OF INDIA**

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ABSTRACT

Along with profitability and safety, banks also have to focus on solvency, solvency refers to the situation where assets are equal to or more than liabilities. A Bank should select its assets in such a way that the shareholders and depositors' interest are protected. Capital acts as a buffer in times of crisis or poor performance by a bank. Sufficiency of capital also instils depositors' confidence. As such, adequacy of capital is one of the pre-conditions for licensing of a new bank as well as its continuance in business.

Key words: Profitability and safety, Solvency, Depositors' confidence

COMPARISON BETWEEN HDFC BANK AND AXIS BANK

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ABSTRACT

The objective of this study was comparison of HDFC and AXIS banks in India based on the performances of profitability ratios like interest spread, net profit margin, and return on long term fund, return on net worth & return on asset. Profitability is a measure of proficiency and control it shows the proficiency or adequacy with which the operations of the business are gone ahead. Recording profitability for the past period or anticipating profitability for the coming time frame, measuring benefit is the most essential measure of the achievement of the business. For this study past 5 years data used for ratio calculation and analysis done with the help of ANOVA. The findings revealed that in every aspects performance of HDFC bank was better than Axis bank. A solid financial framework advances venture by financing gainful business opportunities, activating reserve funds, effectively distributing assets and makes simple the exchange of merchandise and services and if we compare both bank HDFC bank have little strong financial system.

Keyword: Profitability, Interest spread, Net profit margin, financial system.

STUDY OF LIQUIDITY RATIOS OF BANKS OPERATING IN INDIA

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ABSTRACT

The major role of banks is to collect money from the public in the form of deposits and then along with its own funds to serve the demands of the customers quickly, paying interest for the deposits and to meet out the expenses to carry out its activities. For this purpose, banks maintain adequate liquidity and earn profits from its activities. Profit is the main reason for the continued existence of every commercial organization and profitability depicts the relationship of the absolute amount of profit with various other factors. In any case, compared to other business concerns, banks in general have to pay much more attention for balancing liquidity. Liquidity is required to meet out the prompt demands of customers. In the present study an attempt has been made to evaluate the liquidity of different categories of banks lie public, private bank groups in India.

Keyword: paying interest, Liquidity, Public, private bank groups in India

**RE-THINKING ABOUT AN IMPORTANCE OF ENVIRONMENTAL
ACCOUNTING AS A MANAGEMENT PRACTICE ENSURING INDUSTRIAL
GROWTH WITH ENVIRONMENTAL SUSTAINABILITY**

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ABSTRACT

Today, all the countries in the world are facing many environmental issues such as greenhouse gas effect, ozone depletion, acid rain, deforestation and pollution. To minimise these effects, every country has to focus on Sustainable Economic development or growth rather than merely economic development or growth. Government of India was started five year plan with a view to develop the country Economically, Socially, and Environmentally. Last five year plan is 12th five year plan which is in the last stage of completing in the year 2017. Govt. of India has initiated the 12th plan on the theme of Faster, Sustainable and more Inclusive Growth. The Govt. of India has agreed that swelling in Environmental degradation and Ecological imbalance will lead to severe loss of habitat due to fast paced industrialisation and human interventions. It is also in need that corporate enterprises have to act and to be responsible like a citizen of India. As they are earning the profit from manufacturing a product by using natural resources. They have to pay attention toward environment and need to take some serious actions to improve the environmental performance by framing policies, strategies and maintaining and assessing the accounts.

Keywords: Environmental Accounting, Corporate Responsibility, Business Sustainability, Environmental Laws, Environmental Performance Index.

02nd INTERNATIONAL CONFERENCE ON AYURVEDA
TRADITIONAL MEDICINE AND MEDICINAL PLANTS



**THE FOLIAR SECRETORY STRUCTURES OF *HIBISCUS SABDARIFFA* LINN
(MALVACEAE)**

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ABSTRACT

In recent decades, trichomes and other secretory structures of medicinal plant species have been studied for their role in the production of useful secondary metabolites. This research has advanced techniques in the drug discovery process. The present study identified and characterised the secreting trichomes and mucilage ducts found in the leaves of *Hibiscus sabdariffa*. This species is a well-known Chinese medicinal herb and the leaves have been found to possess anticancer and anti-lipidemic properties. The leaves are dark green to deep red in colour and were covered in glandular trichomes on both the upper and lower leaf surfaces. These trichomes were clavate or club shaped, characterised by a large multicellular head and a short stalk. Trichome density decreased between the emergent and mature leaf developmental stages, probably owing to leaf expansion. It appears, however, that trichome maturity is reached at the emergent stage of leaf development prior to expansion. Within trichomes, numerous groups of phytochemical compounds were detected using histochemical assays. Phenolics, alkaloids, acidic polysaccharides, acidic lipids and lipid oils occurred in different localities within the trichome. Phytochemical assays on methanolic, hexane and chloroform whole leaf extracts confirmed the presence of phenolic and alkaloid compounds, as well as the flavone and flavanone compound groups. Ultrastructural investigations of trichomes revealed that the ventral surface of the trichome had formed a subcuticular space into which secretion was deposited. Investigations on the production of useful compounds is necessary in furthering the research on alternative drug sources.

Keywords: *Hibiscus*; clavate; mucilage duct; phenolics; ultrastructure

CYCLOTIDES FROM *GEOPHILA HERBACEAE* – ISOLATION, SEQUENCE ANALYSIS, BIOLOGICAL ACTIVITIES AND DISTRIBUTION IN PLANT TISSUES

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ABSTRACT

The features that characterize cyclotides are the 28-37 amino acid, head-to-tail cyclic peptide backbone and three disulphide bonds arranged in a knotted configuration. These polypeptides are produced by plants and so far have been described in species from six plant families, including Rubiaceae. Cyclotides attract much interest because of their ultra stable molecular structure and biological activities, e.g. antimicrobial, cytotoxic, anti-HIV and anti-insecticidal activities. A close examination of plants used in the Ayurvedic medical system in Sri Lanka indicated candidate plants belonging to Rubiaceae. Most of these plants species are commonly found in the Indian subcontinent and were not previously screened for cyclotides. Based on the previous studies, the endemic plant species found within Rubiaceae genera such as *Hedyotis* and *Psychotria* and *Geophila* presumably have high likelihood to contain cyclotides. *Geophila* is a genus of Rubiaceae family containing about 30 species, mostly found in tropical Asia and Africa. In ethnopharmacological practice, the leaves of *Geophila herbaceae* are chewed or a decoction is prepared and used to remedy coughs. The fruits of *G. herbaceae* are considered to contain antifungal agents. We identified the presence of cyclotides in *G. herbaceae* using LCMS techniques. The cyclotides were extracted, sequenced and assayed for biological activities. The cycloviolacin O2-like (cyO2-like) cyclotides distribution in plant cells, tissue, and organs were studied using immunohistochemistry techniques developed previously, employing anti-cyO2 antibodies with confirmed affinity and specificity. Fluorometric Microculture Cytotoxic Assay (FMCA) bioassay indicated the *G. herbaceae* cyclotides are potent against Lymphoma U937 cancer cell line with IC50 of 2.0-11.6 μ M. The peptides also showed anti-microbial properties against pathogen bacteria *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and a fungal strain *Candida albicans* with MIC values below 100 μ g/ml. The large quantities of the cyclotides were observed employing indirect epifluorescent microscopy in the leaf and petiole epidermis and vascular bundles. The presence in tissues vulnerable to pathogen attack supports a functional role for the peptides as defense molecules.

Keywords: Immunohistochemistry, cyclotides, cytotoxic assay, antimicrobial assay, LCMS

PHYTOSOMES AS NOVEL BIOMEDICINE – A REVIEW

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ABSTRACT

In recent days, most of the prevailing diseases and nutritional disorders are treated with herbal medicines. Several plant extracts and phytoconstituents, despite having excellent bioactivity *in vitro* demonstrate less or no *in vivo* actions due to their poor lipid solubility or improper molecular size or both, resulting in poor absorption and bioavailability. Phytosome is a novel emerging technique which contains phytoconstituents of herbal extract surrounds and bound by lipid. Phytosomes are often known as herbosomes. The term- “phyto” means plant while “some” means cell-like. Phytosomes are little cell like structure. Phytosome is composed of phospholipids, mainly phosphatidylcholine, producing a lipid compatible molecular complex with other constituents. Most of bioactive constituents of phytomedicine are water soluble compounds like flavonoids. Because of water solubility and lipophilic outer layer, phytosome shows better absorption, hence produces better bioavailability than the conventional herbal extracts. Development of phytosomes is at the budding stages in India and abroad. It has a lot of potential in the field of medicine, pharmaceuticals and cosmetics. The current review highlights key findings of recent research work conducted on phytosomes which can give the new directions and advancements to herbal dosage forms and the technical aspects of phyto-phospholipid formulations to face the future challenge.

Keywords: Herbal extracts, Phosphatidylcholine, Phytosomes, Bioavailability

EFFICACY OF HEART FAILURE REVERSAL TREATMENT FOLLOWED BY 90 DAYS FOLLOW UP IN CHRONIC HEART FAILURE PATIENTS WITH LOW EJECTION FRACTION

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ABSTRACT

The present study was designed to evaluate efficacy of heart failure reversal therapy (HFRT) that uses herbal procedure (panchakarma) and allied therapies, in chronic heart failure (CHF) patients with low ejection fraction. Methods: This efficacy study was conducted in CHF patients (aged: 25-65 years, ejection fraction (EF) <30%) wherein HFRT (60-75 minutes) consisting of snehana(external oleation), swedana(passive heat therapy), hrudaydhara(concoction dripping treatment) and basti(enema) was administered twice daily for 7 days. During this therapy and next 30 days, patients followed the study dinarcharya and were prescribed ARJ kadha in addition to their conventional treatment. The primary endpoint of this study was evaluation of maximum aerobic capacity uptake (MAC) as assessed by 6 minute walk distance (6MWD) using Cahalins equation from baseline, at end of 7 day treatment, follow-up after 30 days and 90 days. EF was assessed by 2D Echo at baseline and after 30 days of follow-up. Results: CHF patients with <30% EF (N=52, mean [SD] age: 58.8 [10.8], 85% men) were enrolled in the study. There was a 100% compliance to study therapy. A significant improvement was observed in MAC levels (7.11%, p =0.029), at end of 7 day therapy as compared to baseline. This improvement was maintained at two follow-up visits. Moreover ejection fraction was observed to be increased by 6.38%, p=0.012 as compared to baseline at day 7 of the therapy. Conclusions: This 90 day follow up study highlights benefit of HFRT, as a part of maintenance treatment for CHF patients with reduced ejection fraction.

Keywords: chronic heart failure, heart failure reversal therapy, oxygen uptake, functional capacity, panchakarma

EXPERIMENTAL EVALUATION OF RAJATA (SILVER) BHASMA FOR ITS MEDHYA (MEMORY AND LEARNING) ACTIVITY

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ABSTRACT

In the present era, memory loss is a common problem faced by all age groups, one of the common cause for memory loss is stress and strain. In Ayurveda, Medhya activity refers to one which enhances Medha (the power of perception and retention of knowledge) i.e. memory power and drugs which increases Medha are known as Medhya dravyas. Properties of Rajata Bhasma like Medhya (memory enhancer), Vrishya (aphrodisiac) etc can be traced in classical texts like Rasa Tarangini, Rasa Ratna Samuchaya etc. This current paper aims at the experimental evaluation for nootropic effect of Rajata bhasma investigated for learning and memory in Wister albino rats. A quality Rajata Bhasma was prepared in Rasashastra and Bhaishajya Kalpana Department of SDMACH Hassan, according to the standard operative procedure following the classical guidelines. Methodology consists of three group of rats, test group was administered with Rajata Bhasma (11.25mg/kg per day p.o.) for 15 days, standard group was administered piracetam (100mg/kg per day i.p.) and control group was fed with food and water, to assess the Medhya activity in Wistar albino rats followed by the Morris water maze test. This test represents a more specific test of spatial learning based memory. The acquisition memory, reference memory, retention memory, escape latency were recorded. Results are analysed statistically with the help of parameters to assess the memory. These results indicate that Rajata Bhasma has facilitatory effect on learning acquisition and retention of acquired learning.

Key words: *Medhya, Rajata Bhasma, Memory and Learning, Morris water maze test, Piracetam*

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ABSTRACT

In the present era, memory loss is a common problem faced by all age groups, one of the common cause for memory loss is stress and strain. In Ayurveda, Medhya activity refers to one which enhances Medha (the power of perception and retention of knowledge) i.e. memory power and drugs which increases Medha are known as Medhya dravyas. Properties of Rajata Bhasma like Medhya (memory enhancer), Vrishya (aphrodisiac) etc can be traced in classical texts like Rasa Tarangini, Rasa Ratna Samuchaya etc. This current paper aims at the experimental evaluation for nootropic effect of Rajata bhasma investigated for learning and memory in Wister albino rats. A quality Rajata Bhasma was prepared in Rasashastra and Bhaishajya Kalpana Department of SDMACH Hassan, according to the standard operative procedure following the classical guidelines. Methodology consists of three group of rats, test group was administered with Rajata Bhasma (11.25mg/kg per day p.o.) for 15 days, standard group was administered piracetam (100mg/kg per day i.p.) and control group was fed with food and water, to assess the Medhya activity in Wistar albino rats followed by the Morris water maze test. This test represents a more specific test of spatial learning based memory. The acquisition memory, reference memory, retention memory, escape latency were recorded. Results are analysed statistically with the help of parameters to assess the memory. These results indicate that Rajata Bhasma has facilitatory effect on learning acquisition and retention of acquired learning.

Key words: Medhya, Rajata Bhasma, Memory and Learning, Morris water maze test, Piracetam

INVITRO & INVIVO STUDY OF THROMBOLYTIC ACTIVITY OF ANDROGRAPHIS PANICULATA AND ARBUTUS UNEDO

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ABSTRACT

The present study aimed to investigate in-vitro and in vivo thrombolytic activity of extracts of *Andrographis paniculata* (APE) and *Arbutus unedo* (AUE). Methods: Thrombolytic activity of hydroalcoholic extracts of APE and AUE was evaluated against thrombin-, collagen-, arachidonic acid-, ADP-, and epinephrine-mediated platelet aggregation and clot lysis method at different doses. Then APE (100 & 200 mg/kg) and AUE (20 & 40 mg/kg) were evaluated for thrombolytic activity in FeCl₃-induced thrombosis model in rats. Results: APE was able to inhibit platelet aggregation by 58% at 50 µg/mL and 100% at 75 µg/mL whereas AUE by 83% at 100 µg/mL only in thrombin-induced platelet aggregation. Further, APE lysed 45% of the formed clot while AUE lysed 35% of formed clot. Both, APE and AUE showed dose dependent antithrombolytic activity as evidenced by significant reduction size and weight of thrombus in FeCl₃-induced thrombosis model. APE and AUE remarkably attenuated plate aggregation, clot formation in vitro along with reduction in thrombus formation in vivo which confirms their thrombolytic activity. Conclusions: Obtained thrombolytic activity with APE and AUE could be attributed to the flavonoids and total phenols present in both the plants.

Keywords: Thrombolytic activity, clot lysis, platelet aggregation, thrombus

A SCIENTIFIC EVALUATION OF HIRANYAPRAASH™ AN AYURVEDIC NANOMEDICINE AS ANTURAL IMMUNE BOOSTER IN CHILDREN

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ABSTRACT

In the present day protecting child from endless germs and viruses is the need of hour. Some pediatricians consider in a year six to seven bouts of flu or ear infections in children are normal. But there are healthy habits by which the child's immunity can be boosted and reduction in episodes of illness can be achieved. Adequate sleep, nutrition, regular exercise, hygiene maintenance, being away from allergens and germs are the good practices which can reduce the morbidity and boost the immune system. One such practice is Swarna Prashana explained in ancient literatures of Ayurveda which enhances the healthy status of child. Hiranya Praash™ is a patented, research product designed and developed by Dr. Krishna Life Science Ltd., Manipal. It is safe, natural rejuvenative with the power of gold. Pure gold is processed with selected organic, bio-active herbs by using patented techniques. Material and Methods: An assessment of Cell mediated immune function by delayed type hypersensitivity (DTH) test. Survey was carried out in various centres related the institution and hospital. 104 children randomly assessed for clinical study. 2 drops of Hiranyaprash™ administered to the children below the age group of 5years and 4 drops administered above the age group of 5 years. The survey and clinical assessment was done and data obtained was analyzed statistically. Conclusion: Study has proved immune stimulant activity of Hiranyapraash. It is found to be Hiranyaprash™ is beneficial in preventing the respiratory manifestations and beneficial in increasing the appetite of children. Analysis of data on behavioural assessments shows high statistical significance in parameter school work performance and subject understanding ability.

Key words: Hiranyaprash™, Swarna Prashana, Ayurveda, Immunity

**ANTIMICROBIAL SCREENING OF AERIAL PARTS OF
CISSUS QUADRANGULARIS LINN**

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ABSTRACT

Cissus quadrangularis (Vitaceae), is a succulent vine native to India, also found in Sri Lanka, Africa, Arabia, and Southeast Asia. It is commonly known as devil's backbone. The plant is prescribed in the ancient Ayurvedic literature as a general tonic and analgesic, with specific bone fracture healing properties. The fleshy quadrangular stem and leaves are claimed to possess anti microbial properties. With this consideration, the present study has been aimed to screen the aerial parts of *Cissus quadrangularis* for its antimicrobial property by disc diffusion method. Coarsely powdered drug was extracted with five solvents (Petroleum ether, chloroform, ethyl acetate, ethanol and aqueous extract) and tested for antimicrobial activity against *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Bacillus sp.*, *Aspergillus niger* and *Candida albicans*. Among the five extracts, alcoholic and aqueous extracts showed significant antibacterial and antifungal activity. Also phytochemical screening disclosed the presence of alkaloids, flavonoids, saponins, terpenoids, steroids, tannins, glycosides and proteins. The results of the study have implications in the use of *C. quadrangularis* as an antimicrobial agent. Further pursuit on the isolation of bioactive compounds would enable more potential and natural antibiotics against several pathogens.

Key words: *Cissus quadrangularis*, Antimicrobial activity and Phytochemical Screening

CASE STUDIES ON PANCHAKARMA THERAPY: SUCCESS STORIES

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ABSTRACT

Panchakarma therapy is an integral part of Ayurveda. The word Panchakarma symbolizes 5 procedures for internal purification of the body. Thus, it is a bio-cleansing regimen, which facilitate better bio-availability of the pharmacological therapies, it helps to bring about homeostasis of body humors and eliminate disease from its root. Panchakarma is an effective therapy in managing autoimmune, neurological, psychiatric and musculo-skeletal diseases of chronic and metabolic origin. Diseases such as Hypothyroidism and Psoriasis are considered to be an autoimmune conditions that needs attention with respect to management, as these conditions can't be cured completely, one must manage it with panchakarma therapies in order have a healthy life. Hypothyroidism is a clinical syndrome resulting from deficiency of thyroid hormones due to their insufficient synthesis which results in generalized slowing down of metabolic process. In Ayurveda, there is no exact mentioning of the disease. In the case study, Hypothyroidism managed with Dwipanchamooladi niruha basti in the yoga basti schedule, where the ingredients of this basti does kaphamedho hara, agnideepana and lekhana action on the body. And the second case, Psoriasis is a long-lasting autoimmune disease which is characterized by patches of abnormal skin. In ayurveda, it is correlated to Kushta. And in the case study, it is managed with yastimadhu bhavita kutaja gulika Vamana karma after Snehapana with Murchita gritha. The results of these two case studies were significant with marked reduction in the signs and symptoms. A considerable improvement were seen in both the cases.

Keywords: Panchakarma, Hypothyroidism, Psoriasis, Basti, Vamana

**EFFICACY OF COMPREHENSIVE DIABETIC CARE PROGRAM WITH THE
REDUCTION OF HBA1C IN OVERWEIGHT TYPE II DIABETES MELLITUS
PATIENTS: A RETROSPECTIVE STUDY**

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Abstract

To evaluate the efficacy of Comprehensive Diabetic Care Program with the reduction of HbA1c in overweight Diabetes Mellitus Type II patients retrospectively. **Methods:** Retrospective study was carried out on 34 overweight type II diabetic patients (Mean Age = 54.58 ± 11.38 yrs). A total of 34 patients were enrolled after screening of 68 patients (HbA1c 7-10%). The patients were on concomitant drugs namely insulin (11.76%), DPP-4 inhibitor (17.64%), Biguanide (55.88%), Sulfonylurea (52.94%), thiazolidinedione (11.76%), other medications (20.58%) and no allopathic medications (14.70%). The patients were given Comprehensive Diabetic Care Program consisting of panchkarma procedures namely snehana (external oleation), swedana (passive heat therapy) and basti (enema), which was completed in 15 sittings. During the therapy and next 90 days, the patients followed low carbohydrate and moderate protein & fat diet. The primary endpoint of this study was the evaluation of reduction in HbA1c at the end of the follow-up after 90 days. **Results:** Thirty-four overweight type II diabetic patients (mean age: 54.58 [± 11.38], HbA1c [7-10%], 67.64% male and 32.35% female) were enrolled in the study. A significant reduction was observed in HbA1c levels (14.30%, $p < 0.05$) at the end of the 90 days follow-up as compared to baseline. Also, BMI was reduced by 5.87%. There was reduction in the usage of the concomitant drugs namely insulin (2.94%), DPP-4 inhibitor (2.94%), Biguanide (32.35%), Sulfonylurea (35.29%), thiazolidinedione (5.88%), other medications (17.64%) and no allopathic medications (32.35%). **Conclusion:** The results of the study highlights not only in the reduction of HbA1c, but also in BMI and drug tapering of the CDC program in the overweight type II diabetic patients with HbA1c (7-10%).

Keywords: Panchakarma therapy, HbA1c, Type II Diabetes and low carb diet

ANALYSIS OF AFTER EFFECTS OF HORMONES (KRITRIMA VISHA) ON THE BASIS OF DOSHA DHATU MALA SIDDHANT

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ABSTRACT

Rational : Agada Tantra is a branch of Ayurveda which deals with identification, prevention, diagnosis and treatment of various **Visha** conditions. There are two types of poisons i.e. Natural poisons and Artificial poisons. Artificial poisons are the invented poisons which are prepared by combining different kinds of animate and inanimate poisons. The one which pervades the whole body immediately after ingestion is called visha. The substance immediately after entering the body causes vitiation of the healthy dhatus or killing of the healthy person is called as visha. Although not fatal, this too causes several immediate or late symptoms. Concept : There is a concept in modern science as Side effect or After effect of drugs. Side effects of the drugs can be interpreted as per the Dosha Dhatu Mala concept. This conceptual study is concentrated on analysis of side effects of various hormonal therapies used in women for treating conditions like un ovulation, polycystic ovaries, family planning. Analyzing these side effect will be useful to treat a patient. Commonly used hormonal preparations for family planning and menstrual irregularities are –estrogen & progestin, Levonorgestrel, Medroxyprogesterone, Mifepristone, Mestranol & Norethindrone , Norelgestromine & Ethinyl Estradiol. Interpretation of the common side effects to these drugs based upon dosha dhatu mala kshaya vrudhhi lakshana is need of an hour to achieve health. It is observed closely that hormonal prescriptions do have side effects that are vishakar on the woman undergoing the hormone treatment.

Keywords - side effects of hormonal analysis on Dosh Dhatu Mala Siddhant

**CONTESTING MEANINGS IN GOVERNMENT DISCOURSE AND PUBLIC
OPINION: THE STIGMATIZATION AND DESTIGMATIZATION OF BETEL
PEPPER**

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ABSTRACT

Betel pepper is a common medicinal and food plant. In Taiwan, betel pepper is mainly consumed with betel nut. In public health statistics, betel nut consumers constitute a high-risk population for oral cancer. The government implemented the “3-No’s” policy for betel nut of “no support, no encouragement, and no guidance” through medical care, public health, education, laws, and other methods. This policy actively encourages the nonconsumption of betel nut through the government’s public health education system on the one hand, and silently neglect the development of the betel nut industry on the other hand. In Taiwan, betel pepper is mainly consumed with betel nut. Although the government cannot prove that betel is a carcinogen, the government included betel pepper on an official stigmatization list nevertheless. Betel pepper is a labor-intensive industry with very high output value, and that industry is paramount to Taiwan’s rural regions in terms of employment opportunities and economic resources. Confronted with the government’s active and negative policies, the people are currently launching destigmatization undertakings. Destigmatization must confront the long-term, systematized distortion of public consensus about betel pepper, and search for the construction of a new concept that can counteract the long-term stigmatization. As such, people are actively launching a concrete course of action for the destigmatization of betel through practical pluralistic values of the betel pepper.

Keywords: betel pepper, betel nut, stigmatization, destigmatization

**CHEMICAL COMPOSITION OF ESSENTIAL OIL FROM *VEPRIS LANCEOLATA*
LEAF (LAM.G.DON)**

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ABSTRACT

In this study, the chemical composition of the volatile oil from the leaves of *Vepris lanceolata* (Lam.G.Don) was investigated. The composition of oils obtained by hydrodistillation followed by Gas Chromatography and Mass Spectrometry (GC-MS), yielded 46 compounds representing 97.6% of the oil. The major compounds Tritetracontane (26.77%), 1,6-Octadien-3-ol, 3,7-dimethyl- (6.95%), Octadecane (5.92%), Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)- (4.15%), Bicyclo [4.4.0]dec-1-ene, 2-isopropyl-5-methyl-9-methylene-(3.86%), Heptadecane (2.34%), tau.-Cadinol (2.71%), Copaene (2.04%).

Key words: *Vepris lanceolata*, GCMS, essential oils, Phenol

A CRITICAL ANALYSIS OF SIMPLE REMEDIES USED IN THE TREATMENT OF SHWASA (BRONCHIAL ASTHMA) IN CLINICAL PRACTICE

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ABSTRACT

The global incidence of Tamaka Shwasa (correlated to Bronchial Asthma) is estimated to be around 334 million according to the World Health Organisation. Also, contrary to popular belief, the same study states that it is most prevalent, not in developed countries, but in second and third world countries where its incidence is also increasing at an alarming rate. Tamak Shwasa is seen as one of the leading causes of death in rural India with an estimated 15-20 million people affected each year. Hence, it is of utmost importance to come up with effective ways to combat this disease. In this regard, my proposed topic consists of the following parts: a. An observational study of 30 subjects (from over 3,000 subjects screened) admitted for Shwasa at Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital between the months of January and June 2017. An analysis of their management was done with specific focus on a holistic approach to treatment - diet, lifestyle, and medicine. b. A survey study with 50 practitioners of Ayurveda – to understand clinical presentations and rationale of treatment in a clinical setup. c. A controlled clinical study to demonstrate the effect of a single drug formulation used in the treatment of Shwasa in subjects between the age of 16-60 years.

Keywords: Bronchial Asthma, Shwasa, Tamaka, Observational, Survey, Clinical

CONSUMER PERCEPTION, PURCHASE INTENTION AND BARRIERS TO PROMOTE ORGANIC FOOD PRODUCTS IN SRI LANKA

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ABSTRACT

Organic food consumption is increasing day by day among world population, although it is still in infant stage in Sri Lanka. Increasing health hazards occurred by agro chemicals, environmental issues and developing awareness on harmful effect on conventional food act as main reasons for popularizing organic food products. Therefore this study attempts to examine consumer perception and purchase intention on organic food products among supermarket consumers based on the theory of planned behavior, the five steps of consumer decision making process based on previous researches on organic foods, eighteen items of four dimensions were constructed to measure the consumer's perception towards organic food, six items were used to measure their purchase intention and six items were engaged to determine purchasing behavior on organic food products among super market consumers. Data was collected in supermarkets and surrounding areas in the district of Galle, Kaluthara and Colombo in Sri Lanka. A total of 288 completed questionnaires were gathered, representing 96% response rate, using convenient sampling method and analyzed by using SPSS package. The results indicated that intention to purchase organic food was significantly influenced by the consumer's perception of safety, health, environmental factors and animal welfare of the product. 70% agree with all statements relating to safety section, means safety factor depend on purchase intention and perception on organic food products positively. 43% of the respondents agree with all three statements of environmental and animal welfare factor and further 31% agree to at least two statements which stand positively for consumer perception and purchase intention on organic food products. 87% respondents stand on health factor which influence positively for perception and purchase intention on organic food products. Only 47% respondents stand that quality factor depend on perception and purchase intention on organic food products, so it is not support the comments directly. Differences were observed in the purchase intention of organic food products according to respondent gender, age, income level, education level. Theoretically, this study supported the view of consumer's perception towards organic food products will influence their purchase intention. Poor awareness, poor availability and lack of confidence were act as significant barriers to promote organic food products. The findings proposed useful information to organic marketers help them to develop marketing strategies to convince organic food products to enhance purchase intention in Sri Lankan super market sector.

Key words: Organic food products, purchase intention, consumer perception, barriers to promote

FUNCTIONAL PROPERTIES OF GARLIC ON CARDIO- VASCULAR DISEASES IN AYURVEDA & MODERN MEDICAL SYSTEM - A LITERARY REVIEW

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ABSTRACT

Garlic (*Allium sativum*) and its preparations have been widely recognized as agents for prevention and treatment of cardiovascular and other metabolic diseases, atherosclerosis, hyperlipidemia, thrombosis, hypertension and diabetes both in Ayurvedic & modern medicine. Effectiveness of garlic in Ayurvedic medicine for cardiovascular diseases was more encouraging in experimental studies, which prompted several clinical trials. In platelet rich plasma (PRP) most of the anti-aggregatory activity of garlic clove homogenates was due to adenosine; however, in whole blood neither adenosine nor the polar fraction had any effect and all of the anti-aggregatory activity was due to allicin and other thiosulfinates. Allicin was equally active in whole blood and PRP. It is a great challenge for scientists all over the world to make a proper use of garlic and get its maximum beneficial effect to prevent cardiovascular disease. This review has attempted to make a bridge the gap between experimental and clinical study and to discuss the possible mechanisms of such therapeutic actions of garlic. Classical text books, Samhitha books in Ayurvedic Medicine and Scientific articles from accepted web sites were used as sources of materials. Therapeutic functions of Garlic found out from Classical Ayurvedic books and chemical components and their functional activities collected from research articles. Finally all collected data analysed and understand how its functional activity on Cardio vascular diseases.

Key words: Garlic, Cardio- vascular diseases, Platelet aggregation

REVIEW ON GHEE AND IT'S AYURVEDIC USES

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ABSTRACT

It is well known that removal of the water phase from milk extends the keeping quality of milk fat substantially, and that dairy products such as ghee have been known by various names in Asia, the Middle East, and Africa for several thousand years. Ghee is obtained by a high-temperature process that leaves part of the nonfat milk solids in the product, giving a typical flavor. Flavour is greatly influenced by the fermentation of the cream or butter and the heating processes. Ghee has long shelf life because of its low moisture content and possible antioxidative properties. Ghee may contain high amounts of conjugated linoleic acid, a newly reported anticarcinogen. However, it is also reported that, under certain circumstances, it may contain certain amounts of cholesterol oxidation compounds (COPS) which may cause adverse health effects. This study help to fill the gap on ghee in Ayurvedic aspect on ghee by referring ancient text books in Ayurveda, research articles in science direct, schlorly google web sites. Ghee is primarily used for cooking and frying and as dressing or toppings for various foods. It is also used in the manufacture of snacks and sweets. But in Ayurveda Ghee plays very important role internaly & externaly when doing treatments. It has special action called as 'yogawahi'. Also it is anti toxic, anti biotic, energetic & good nutrition supplement.

Keywords Anhydrous milk fat (AMF); Application of AMF; Fractionation; Ghee; anti toxic activity, 'yogawahi' action

LITERARY REVIEW ON WOUND HEALING AND ANTI-INFLAMMATORY ACTIVITY OF ALOE VERA

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ABSTRACT

Aloe vera is one of the most important medicinal plant in the world with applications in the cosmetic industry in tonic and herbal applications or health drink product in current market, which is grown in Sri Lanka perfectly. Different varieties of Aloe vera are available in Sri Lanka. Different parts of Aloe ferox and Aloe marlothii are used as traditional medicines for different applications. Although wound healing has been shown for certain aloe gel materials. Here gathered data from ancient Ayurvedic text books, Science Direct and Scholar Google articles on Aloe vera on its wound healing and anti-inflammatory activity. In vitro wound healing assay suggested that all the aloe gel and whole-leaf materials examined, exhibited faster wound healing activity than the untreated control group. After 48 h, all the aloe gel and whole-leaf materials almost completely caused full wound closure, displaying 98.07% (A. marlothii whole-leaf), 98.00% (A. vera gel), 97.20% (A. marlothii gel), 96.00% (A. vera whole-leaf), 94.00% (A. ferox gel) and 81.30% (A. ferox whole-leaf) wound closure, respectively. It was noteworthy that the gel materials of all the three aloe species exhibited significantly faster ($p < 0.05$) wound healing actions when compared to their respective whole-leaf materials at 32 h. So, this article will help to fill the gap of knowledge on Aloe vera, about its contribution in wound healing & anti-inflammatory action not only on superficial skin but also in Gastric mucosa, specially on Gastric ulcers.

Key words: Aloe vera, Wound healing, Gastric ulcers, Anti-Inflammatory action

04th INTERNATIONAL CONFERENCE ON HEALTH & MEDICINE



AWARENESS ABOUT THE PATIENTS' RIGHTS AMONG RESIDENTS OF KANDY DISTRICT

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ABSTRACT

Patient rights encompass legal and ethical issues in the provider-patient relationship. Charter of the patients' rights promulgated by the American Hospital Association (AHA) offers guidance and protection to patients with the statements describing the responsibilities that hospital and its staff are bounded toward patients and their families during hospitalization. Communication plays the key role in the process of functioning of the patients' rights. Quality of care can be delivered to the patients with the effective communication. Patient can also participate in shared decisions making relating to his/her medical care based on socio cultural environment and level of education. Hence, objectives of this research are to assess the awareness about patients' rights among the citizens of the Kandy. Sample of 200 was selected representing urban and rural areas in Kandy district and a self-administered questionnaire was used for data collection. Simple random sampling method was obtained. Questionnaire was pre validated for the content with experts' opinion. Responding percentage was 89 %. The extracted data were tabulated using "Microsoft Excel spread sheets" - 2007 package and analyzed through SPSS version 20. Chi square test was adopted. $\chi^2 = 3.84$ was considered as absolute value in $\alpha = 0.05$. Only 35.19% (Chi square value 15.69) were aware on of patients' rights, but they were not aware about the specific charter. The findings highlighted key areas of deficiencies in knowledge as "identify documents which are stated on patient right", "obtaining medical records and medical insurances", and ask about "secondary health opinions. Study results can be used to improve the quality of health care through the protection of patients' rights, with the aim of enhancing patients' satisfactions.

Key Words: Patient rights, Legal

RESISTANCE AND UPTAKE OF CADMIUM BY YEAST, PICHIA HAMPSHIRENSIS 4AER, ISOLATED FROM INDUSTRIAL EFFLUENT AND ITS POTENTIAL USE IN DECONTAMINATION OF WASTEWATER

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ABSTRACT

Pichia hampshirensis 4Aer is first ever used yeast for the bioremediation of environmental cadmium (Cd²⁺) which could maximally remove 22 mM/g and 28 mM/g Cd²⁺ from aqueous medium at lab and large scales, respectively. The biosorption was found to be the function of temperature, pH of solution, initial Cd²⁺ concentration and biomass dosage. Competitive biosorption was investigated in binary and multi-metal system which indicated the decrease in Cd²⁺ biosorption with increasing the competitive metal ions attributed to their higher electronegativity and larger radius. FTIR analysis revealed the active participation of amide and carbonyl moieties in Cd²⁺ adsorption confirmed by EDX analysis. Electron micrographs summoned further surface adsorption and increased cell size due to intracellular Cd²⁺ accumulation. Cd²⁺ was the causative agent of some metal binding proteins as well as prodigious increase in glutathione and other non-protein thiols levels which is the crucial for the yeast to thrive oxidative stress generated by Cd²⁺. Our experimental data were consistent with Langmuir as well as Freundlich isotherm models. The yeast obeyed pseudo second order kinetic model which makes it an effective biosorbent for Cd²⁺. High bioremediation potential and spontaneity and feasibility of the process make *P. hampshirensis* 4Aer an impending foundation for green chemistry to exterminate environmental Cd²⁺.

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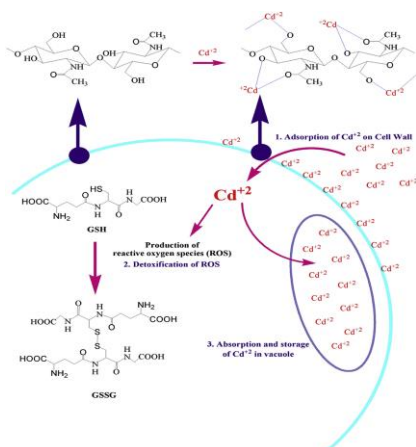


Figure 1: Proposed Cd²⁺ biosorption and resistance mechanism in *P. hampshirensis* 4Aer. (1) Chitin is the primary site on yeast surface that binds Cd²⁺ in monolayer. (2) Cd²⁺ enter the cells via metal ions transport channel proteins and are known to cause oxidative stress which is combated by glutathione (GSH) dependent antioxidant system. (3) Cd²⁺ are stored in vacuole minimizing its interference with cellular metabolism.

DEVELOPMENT OF “SPICY OIL” WITH ENHANCED HEALTH BENEFITS, TO SUIT SRI LANKAN CUISINE

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ABSTRACT

Sri Lanka is a tropical country where almost all the spices are grown rich and naturally. Coconut oil is another commodity which could not be neglected in cooking. Spicy oil is an edible oil product which incorporates flavor and aroma compounds of commonly used six spices (Chillie, Garlic, Onion, Clove, Cinnamon and Cardamom) in Sri Lanka, to the Refined, Bleached, and Deodorized coconut oil or Virgin coconut oil. Solvent extraction method was used in extracting flavor and aroma compounds. The extracted compounds from the six different spices and the coconut oil were mixed together to the most preferred and accepted ratio by 32 members of Semi –trained sensory panel in order to make a composite spice and cooking oil mixture. The shelf life of the product was determined by the tests of Moisture Content (MC - %) at 105 0C, Peroxide Value (PV - meq/kg), Free Fatty Acid (FFA - mg/g 0.1N KOH) , and Microbial tests E.coli ; MPN/ml, Coliform Count (MPN/ml) , Yeast and Mould Count ; (CFU/ml). Saponification Value (SV – mg/g 0.1N KOH), Iodine value (IV), Specific gravity (SG) at 300C/300C, Refractive index (RI) at 40 0C and Relative percentages of fatty acids profile (Gas Chromatography method) were determined to confirm whether the specifications of the spicy oil complies with SLS 32:2002 standard (specifications for coconut oil). Parameter values were MC 0.24, PV 0.9221, FFA 0.2799, SV 263, IV 11.7981, SG 0.918, RI 1.4554. E. coli & Coliform were not detected. Yeast and Mould count increased up to <4 within 4 months of time period. Relative percentages of fatty acids profile; C6:0 - 4.249 %, C8:0 - 1.791 %, C10:0 - 4.793 %, C12:0 - 49.793 %, C14:0 - 19.006 %, C16:0 - 8.192 % , C18:2 - 0.911 %, C18:1 - 6.656%, C18:0 - 4.606 % .Laboratory experimented shelf life of spicy oil was about 6 months according to the determined physical, chemical and sensory properties. The Spicy oil was highly preferred by a semi trained sensory panel.

Key words: Cooking oil, Spices, Solvent Extraction, Sri Lankan Cuisine, Shelf Life

YOGA AS AN ADJUNCT TO VOICE THERAPY IN VOCAL CORD PARALYSIS SECONDARY TO ORGANOPHOSPHATE POISONING – A CASE REPORT

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ABSTRACT

In India Yoga is being practiced for various systematic conditions either as an alternative or adjunct remedy. It helps the body to release the constrained energy smoothly. It connects the body and mind and relaxes the tensed muscles. They also help in smooth functioning of the lungs and diaphragm. Research has also evidenced its effect on voice improvement especially among the singers. Pranayama brings balance in breathing and releases the trapped energy (Saraswati). It clears the congestion in the voice box. It helps in pitch control and range of the voice. The vital capacity of the lungs is increased when the breath is held after inhalation and exhalation. More air rushes in. There are different practices of pranayama. Anuloma viloma (alternate nostril breathing) being one of them, brings balance in breathing (Saraswati, p. 388). There are numerous studies done on yoga practices among singers to improve their endurance. But till date there is no study focused on implementing yoga as an adjunct with voice therapy technique in individual with vocal fold paralysis. Method Aim of the Study: The aim of the study was to determine the effect of yoga as an adjunct to voice therapy in vocal cord paralysis post OP poisoning Case history A 20 year old male patient alleged of Organophosphate poisoning (Malathion- 50%) was taken to casualty at his residence. The patient was reported to be conscious but irritable. He was treated with Atropine in 500 ml normal saline. He was brought with Intubated state to our Hospital with no history of salivation, urination and defecation. On examination, pupils were bilaterally dilated. Pulse rate was 114B/min, Blood pressure was 120/80 mm of Hg. Respiratory Rate was 36c/min. The patient was admitted in ICU and atropine infusion was initiated and monitored for atropinisation and was reduced accordingly till he developed neck holding. The client exhibited dysphonia post prolonged intubation. Voice Evaluation A detailed voice assessment was carried out by otorhinolaryngologist and speech-language pathologist. Stroboscope examination revealed unilateral right vocal cord paralysis. On voice evaluation, the maximum phonation duration was restricted to 2 seconds. Perceptual evaluation revealed pitch breaks, reduced loudness and predominantly breathy voice. On GRBAS, G3R2B3A2S2. Instrumental evaluation could not be done as the patient was unable to sustain the voice for 3 seconds. The patient was diagnosed as severe breathy voice secondary to Vocal cord palsy. Voice Management The therapeutic management was initiated with pranayama and closure enhancement technique for 4 sessions and was asked to practice regularly at home. The patient was reviewed after 2 week post discharge. On Reevaluation, voice was found to be better. In order to avoid bias, the sample was analyzed by other two trained clinicians. The maximum phonation duration was increased to 7-seconds. Perceptually, the voice was found to be louder and breathiness was reduced. No pitch breaks was observed. On GRBAS, G2R1B1A1S1. Discussion In India from the ancient time, the voice production is related to yoga. Yoga is considered to works on the voice in a faster, better and holistic way than the general, traditional and the modern techniques of voice

culture. In the present case, yoga was used in adjunct with the behavioral voice therapy technique. This case demonstrated the benefit of yoga as an adjunct in vocal cord paralysis. The session was initiated with pranayama sessions in order to enhance smooth airflow required for voice production. This is also consensus with the previous study where they have reported that yoga and pranayama are integrated in the voice training methods in order to increase the breathing capacity as incorrect breathing can lead to deviant voice production. Simultaneously, followed by the pranayama, closure enhancement technique was used to facilitate vocal fold closure. The session was taken for 30 minutes duration with a gap of 5 minutes post 10 minutes of the session. It was ensured that the client is well hydrated in the gap period in order to avoid any trauma to the larynx. It was observed that followed with regular 6 sessions of therapy and follow up at home with the same exercise, there was significant improvement observed in the client. The maximum phonation duration was found to be increased reflecting improved coordination between the respiratory and the phonatory system, which is essential for smooth voice production. This was also reflected in the perceptual analysis which was done using GRBAS rating scale. Conclusion Vocal cord paralysis is most often treated with closure enhancement technique. This technique helps in reducing the breathiness component. But in the present scenario when the same technique was used with pranayama, the results was found to be much better than individuals when treated with voice therapy technique alone. The loudness was increased drastically and the breathiness was masked.

**COMPARATIVE ANALYSIS OF DELIVERY PATTERN AND PREGNANCY
OUTCOME IN RURAL AREA OF LUDHIANA DISTRICT IN INDIA**

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ABSTRACT

Introduction: As per 2011 census, in India 2,61,08,944 live births occur annually out of which 5,11,058 (1.96%) occur in the state of Punjab. Effectiveness of any health care system can be determined by maternal and neonatal health which in turn is dependent upon many factors like availability of medical services, trained staff, medicines and strong referral system. Objective: This study has been conducted to compare the changes occurring in delivery pattern and pregnancy outcome over 5 years from 2011 to 2016. Methodology: A retrospective, record based study was conducted and data for the year 2011 and 2016 were collected from all the fifteen villages falling under field practice area of Rural Health Centre, Pohir situated in district Ludhiana, Punjab. Result: A total of 659 deliveries were analyzed (385 in 2011 and 274 in 2016). The average age of women at pregnancy was 24.98 and 26.48 for year 2011 and 2016 respectively ($p < 0.001$). There has been a significant decrease in home deliveries from 12% to 1% over the five years ($p < 0.001$). Incidence of still birth has also decreased to 1% in 2016 from 4% in 2011. Conclusion: There is increase in institutional deliveries and improvement in pregnancy outcome due to government schemes like Janani Suraksha Yojna coupled with ASHA initiative.

Keywords: Home delivery, pregnancy, outcome.

VOCAL DEMANDS, VOCAL SYMPTOMS AND RISK FACTORS FOR VOICE PROBLEMS IN CALL CENTER OPERATORS

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ABSTRACT

Call center operators (CCOs) are widely recognized at higher risk of developing voice problems and other health related problems. Hence, understanding the vocal symptoms and associated risk factors is essential for developing safety and preventive vocal hygiene measures. Purpose of the study (1) To investigate the vocal demands and voice symptoms experienced by CCOs in India; and (2) to investigate the risk factors associated with reporting of voice problems among these CCOs. Method: This cross sectional study collected data from 1093 CCOs using self-reported questionnaires working at 11 different call centers in and around Bengaluru, Karnataka. Results: CCOs exhibited higher vocal demands by exclusively involving in answering 80-100 calls/shift for an average of 8.7 hours working/shift. Most of the CCOs (59%) exhibited multiple vocal symptoms with dry mouth and throat and constant clearing throat as most prevalent symptoms. Working in other jobs, raising voice due to noise, experiencing stressful calls, hearing difficulty, acid reflux, coaching, throat clearing, water intake and rate of speech were the variables found to have significant influence on CCOs experiencing the vocal symptoms. Conclusion: CCOs experience higher vocal demands and report multiple vocal attrition symptoms. Voice problems in CCOs may appear due to multiple risk factors. Educating the CCOs about vocal hygiene techniques during their training period may help them to protect their voice and improve their productivity.

Key words: CCOs, voice problems, risk factors for voice problems

TEA CULTURE IN GREEN TOURISM: SUSTAINABILITY OF FOOD SYSTEMS IN THE TEA CULTIVATED COMMUNITIES OF JAPAN AND THAILAND

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ABSTRACT

Tea producing in different varieties and locations creates the uniqueness of tea culture. The comparative study is the cases of *C. sinensis* var. *sinensis* in Japan and *C. sinensis* var. *assamica* in Thailand. Due to the decline of tea consumption demand affecting the small tea producers, the commodification of tea culture in tourism plays the significant role in sustaining tea productions and their related food systems in both countries. This study aims to find out different ideas of utilizing the tea culture for developing green tourism and promoting the sustainability of food systems in the tea cultivated communities of Japan and Thailand. Cases are focused on the Japan's Tawara area of Nara Prefecture and Huey Nam Guen village in Chiang Rai Province of Thailand by the farmer exchange program. Four representatives of tea producers from Huey Nam Guen shared knowledge and experiences regarding tea culture with Japanese tea farmers in Tawara. They included growing and producing the organic tea, making Japanese and Thai beverage from tea products, and cooking tea food from local grown organic vegetables and the unique material such as "miang," a kind of pickled Thai tea for eating. Creative ideas can apply to green tourism development and support the food systems in both cases. Examples are adding the traditional Thai and Japanese tea drinking and tea cuisine in the menu of farmer restaurant and homestay, developing the cycling routes for learning tea culture, and gentrifying the abandoned farmhouse and tea factory to be served as accommodations or tea museums. These tourism products increase demand in not only a new trend of tea consumption but stimulate efforts in sustaining other agricultural commodities used in tea culture and tourism.

Key words: tea culture, green tourism, sustainable food system, commodification

LARVICIDAL EFFECTS OF CURCUMA LONGA ETHANOL RHIZOME EXTRACT ON ANOPHELES TESSELLATUS

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ABSTRACT

Adult *Anopheles tessellatus* is a vector of Malaria, which is responsible for increase morbidity and mortality in many tropical and subtropical countries. During epidemics, the emphasis is given to the use of insecticides as a control measure against mosquitoes. As an alternative to synthetic insecticides, the use of bio-degradable phytochemicals against mosquito larvae is considered to be one of the safest approaches to control mosquito-borne diseases. This project was carried out to monitor the effect of ethanolic rhizome extract of *Curcuma longa* on second larval instar of *Anopheles tessellatus*. Bio-assay was performed to determine the percentage mortality of Anopheline larvae following exposure to different concentrations of plant extract. The study indicated that the mortality rate following exposure increases in a time and dose-dependent manner. The plant demonstrated its strongest larvicidal activity as it caused 100% mortality by its rhizome extract at 500 ppm following 48 hours of exposure. *Anopheles tessellatus* larvae were subjected to histological analysis after 48 hours of exposure to 300 ppm of the extract. The histology revealed a disruption in the cuticle and midgut epithelium of the larvae. Additionally, a DNA fragmentation analysis was also performed to detect possible induction of apoptosis and the results indicated no significant DNA degradation. The results of this study suggest a potential utilization of the rhizome extract of *Curcuma longa* for the control of *Anopheles tessellatus* larvae.

Keywords: *Anopheles tessellatus*, Larvae, *Curcuma longa*, Rhizome, Ethanol

**EVALUATION OF NEPHROPROTECTIVE EFFECT OF AQUEOUS EXTRACT
OF TERMINALIA CHEBULA RETZ. FRUITS IN GENTAMICIN INDUCED
ACUTE KIDNEY INJURY IN WISTAR ALBINO RATS**

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ABSTRACT

Generation of free radicals play important role in gentamicin induced acute kidney injury. Terminalia chebula Retz. (T.C.) has been found to have anti-oxidant properties. The aim of the present study was to evaluate nephroprotective effect of aqueous extract of Terminalia chebula Retz. fruits in gentamicin induced AKI in Wistar albino rats. Total 72 Wistar albino rats were randomly divided into 9 groups. AKI was produced with 80 mg/kg intraperitoneally (i.p.) injection of gentamicin for 7 days. α -lipoic acid 100 mg/kg i.p. served as the active control, while the test drug (T.C.) was given in two doses (200 mg/kg and 400 mg/kg orally) for 10 days as preventive and curative groups before and after the induction of AKI respectively. Distilled water, 1 ml/day orally for 10 days as the vehicle control. The effects of T.C. on AKI were assessed by serological, antioxidant and histopathological parameters. i.p. administration of gentamicin produced renal dysfunction as evidenced by increased urine creatinine, serum creatinine, blood urea, serum potassium, SOD, glutathione levels and decreased urine output, serum sodium, MDA levels and histopathological alteration of kidney architectures. Preventive and curative administration of 200 mg/kg and 400 mg/kg of test T.C. resulted into a significant restoration of renal function markers, antioxidant parameters and histopathological architecture of kidney as compared to disease control group. The present study shows that because of antioxidant properties, T.C. can be use to prevent and treat free radical mediated acute kidney injury.

Keywords: Terminalia chebula Retz., gentamicin, acute kidney injury, oxidative stress, nephroprotective

DOES THE GENDER INFLUENCE SEMANTIC MEMORY?

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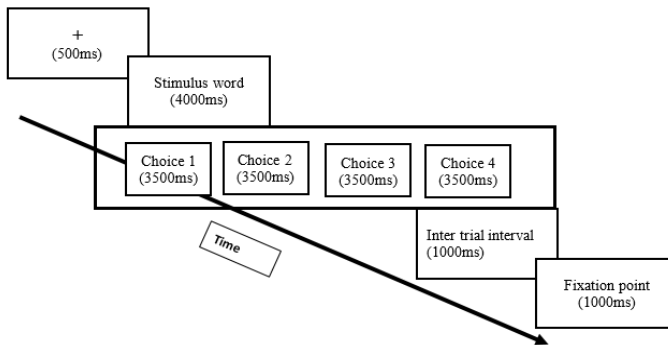
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ABSTRACT

Background The influence of gender on cognitive and other higher mental functions remains debatable. While several investigations provide evidence in support of a gender difference (e.g., Xu et al., 2014) others refute such an influence. Thus, the influence of gender on semantic processing remains equivocal. **Aim** The aim of the study was to investigate the difference in semantic memory retrieval scores between males and females. **Objectives** To compare the performance of males and females on a semantic memory task. **Method** A group of 251 normal adults (females = 128) in the age range of 30-60 years with a minimum 8 years of schooling. All had normal visual acuity. A list of 30 familiar concrete words served as the stimuli. For each stimulus item, a list of 4 words, of which one item was semantically related to the stimulus (i.e., the target), was selected. The stimuli and response choices were presented one at a time through PsychoPy (Jonathan Pierce, 2003) after a 500ms fixation ('+'). The scheme of the stimulus presentation is presented in Figure 1. The position of target item was equally distributed among all four position for both groups of participants. The reaction time of the accurate responses were analyzed using independent sample t-test with SPSS (version 15).

Figure 1: Schematic representation of the experimental paradigm



Result: The response times of the female participants (3011ms) did not significantly differ from that of the male participants (3111ms), $t(249) = 0.239$, $p > 0.05$. This study did not support the earlier arguments that gender influences the semantic processing.

LARVICIDAL EFFECTS OF *LANTANA CAMARA* ETHANOL LEAF EXTRACT ON *ANOPHELES TESSELLATUS*

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ABSTRACT

Mosquitoes transmit thoughtful human diseases, causing millions of deaths every year and the development of resistance to chemical insecticides resultant in recovering vectorial capacity. Plants can alternative sources of mosquito control agents. The present study assessed the role of natural products of plant origin with insecticidal properties for control of insect vectors. The resistance to chemical insecticides among mosquito species have been considered as a setback in vector control. Botanical larvicides are including conspicuously as alternative to synthetic chemical insecticides which are less degradable and toxic to non-target organisms. The aim of this study was larvicidal effects of *Lantana camara* plant extract on *Anopheles tessellatus*. The larvicidal activity and phytochemical showing of ethanol extract of leaves of *Lantana camara* were investigated in the laboratory against third instar larvae of *Anopheles tessellatus* for 24 and 48 hours and *Lantana camara* extracted were prepared and four different concentrations. Statistical analysis showed significant differences between the higher mortality for larvae. The highest (100%) mortality in the larvae occurred on treatment with 2000 ppm extract of *L.camara*. The maximum adult mortality was detected in the leaf extract (LC50 1000 ppm for 24 hours and LC50 199.526 ppm for 48 hours) while no mortality was noticed in the control groups. The *L.camara* plant extracts effect on larvae with introduction of apoptosis or effect of larvae DNA. Therefore, done in a DNA fragment analysis and observed histological changes in tissue of larvae. The extracts of *Lantana camara* plant showed potent larvicidal efficacy. This study suggests that, the leaf extracts of the *Lantana camara* can considered as promising larvicide against *Anopheles tessellates* third stage larvae.

**VERBAL COMPREHENSION, PRODUCTION AND USE OF GESTURES IN
CHILDREN WITH LANGUAGE IMPAIRMENT USING ADAPTED KANNADA
VERSION OF MAC ARTHUR DEVELOPMENT COMMUNICATIVE INVENTORY**

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ABSTRACT

Language Impairment is defined as a disorder in comprehension and or use of spoken, written and or the symbol system (ASHA, 1993). The MacArthur-Bates Communicative Development Inventory (MCDI) is a parent-reported measure designed to evaluate the communicative skills in children. Aim The aim of this study was to compare the verbal comprehension, production and use of gesture in children with language Impairment using the adapted Kannada version of MCDI. The data was obtained from 15 children aged between 1-3 years who visited the speech and Hearing department, Kasturba Hospital and were diagnosed as having Receptive and Expressive language delay. The Verbal comprehension, production and use of gesture was assessed using Kannada version of the MCDI which was given to the parents in order to report the current level of verbal comprehension, expression and gestural skills of their child. Results The data collected was analysed and the verbal comprehension, production and use of gestures was scored by determining the children's percentage on each section. A total CDI percentage score was calculated by adding the three section scores. Conclusion This study contributes to the accumulating evidence on using MCDI for valid inferences that may be used for diagnostic and intervention purposes in the Indian scenario.

Key Words: Language Impairment, Verbal comprehension, Verbal productions, Gestures

ANTIOXIDANT AND TOTAL PHENOL CONTENTS OF SELECTED ACIDIC FRUITS CONSUMED IN JAFFNA PENINSULA

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ABSTRACT

The aim of the study was to determine the antioxidant content and total phenol content of acidic fruits such as sour orange (*Citrus spp*), lime (*Citrus latifolia*), sweet orange (*Citrus sinensis*), pineapple (*Ananascomosus*), pomegranate (*Purnica granatum*), strawberry (*Fragaria spp*), kiwi fruit (*Actinidia deliciosa*), gooseberry (*Phyllanthus emblica*) and wood apple (*Feronia elephantum*) available in Jaffna. Total phenolics were measured by using the Folin Cio-calteu reagent with gallic acid as standard. The antioxidant contents of leafy vegetables were assayed by both phosphomolybdenum assay and reducing power assay with standards of ascorbic acid and butylated hydroxyl toluene respectively. Based on the phosphomolybdenum assay among the acidic fruits, highest antioxidant content was observed in straw berry [1875.88 ($\pm 0.30a$) mg/100g Dry Weight], and the lowest antioxidant content was detected in lime [69.843 ($\pm 0.42i$) mg/100g Dry Weight]. Based on the reducing power assay, highest antioxidant content was found in strawberry [175.16 ($\pm 0.23a$) mg/100g dry sample], and lowest antioxidant content was found in lime [7.948($\pm 0.78i$) mg/100g Dry Weight]. Highest total phenol content was found in gooseberry [925.29 ($\pm 0.5a$) mg/100g Dry Weight] and lowest total phenol content was detected in lime [21.388 ($\pm 0.26i$) mg/100g Dry Weight]. From this study, highest antioxidant content and total phenol contents were found in strawberry and gooseberry while lowest amounts were found in lime. The present study shows that acidic fruits contain a lot of antioxidants and total phenols to support human health.

Key words: Antioxidant, total phenol, ascorbic acid, gallic acid, butylated hydroxyl toluene

DETERMINATION OF ANTIBACTERIAL ACTIVITY OF RAW AND RIPE JACK FRUIT (*ARTOCARPUS HETEROPHYLLUS*) IN SRI LANKA

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ABSTRACT

Jackfruit (*Artocarpus heterophyllus*) which belongs to the family of Moraceae, grows in tropical and subtropical regions in the world. It is used as a vegetable in its raw state and a fruit in its ripe. It is considered as an underutilized fruit where most of the fruits get wasted due to ignorance. Studies have identified its significant nutrition value, antioxidant activity and antibacterial capacity. However, in Sri Lanka, the antibacterial properties of Jack fruit is less studied. Therefore, the objective of the study was to analyze the antibacterial activity of the pulp and seed of the raw and ripe stages of the Jack fruit present locally. The samples were extracted using ethanol:acetone and the antibacterial activity was determined using the disc diffusion method against *Staphylococcus aureus* and *Escherichia coli*. The antibacterial activity against *S. aureus* was observed to be high for the raw and ripe pulp and seed compared to *E. coli*. Further, the ripe pulp and seed demonstrated a high antibacterial activity against *S. aureus* compared to *E. coli*. The seed of *Artocarpus heterophyllus* contained the highest antibacterial effect than the pulp against *S. aureus*. A significant positive correlation was observed between the concentrations and the antibacterial activity against both the bacterial strains for the raw and ripe pulp and seed. The study concluded that the Jack fruit seed to contain the highest antibacterial activity against *S. aurea* and *E. coli*.

Key words: Jackfruit, Antibacterial, *Staphylococcus aureus*, *Escherichia coli*

TEXTURE DEPENDENT VOLUNTARY COUGH – WHAT DOES IT TELL ABOUT QUALITY OF SWALLOW

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ABSTRACT

Individuals with suspected swallowing disorders, especially who show a change in voice quality, are often described as demonstrating a wet or “gurgly” voice (Logemann 1998, Murray et al., 1996, Warms and Richards, 2000). This phenomenon is often associated with risk of aspiration. Material in the larynx during phonation may result in multiple voice quality perceptions, and even experienced clinicians may not be adept at identifying the perceptual consequences of this. There are several studies that have attempted to address these phenomena objectively. Observation of laryngeal physiology during voicing when material is in the larynx using imaging techniques can improve reliability in the identification of wet vocal quality (Wright, Boyce & Kelchner, 2010). Groves Wright (2007) evidenced that foreign materials in the lungs can also induce acoustical changes in the phonation. Further, stated that the acoustical characteristics of phonation may provide a clinical marker of swallowing dysfunction. Santos et al. (2015) conducted a study to verify the use of perceptual analysis of voice using phonation sample to detect oropharyngeal dysphagia. The sample was recorded post swallow with different consistencies (pasty, liquid and solid). The voice was evaluated using GRBAS rating scale. The results showed individuals with dysphagia showed significant decrease in grade of voice and asthenia and increase in strain after swallowing pasty substances, differing from individuals without dysphagia who showed no modification of the parameters after swallowing. The study concluded that decrease in grade and asthenia and increased strain are indicative of a swallowing disorder, indicating increased vocal strain to clean the vocal tract of food. The variation of voice production post swallowing proved to be a reliable source in detection of swallowing problems. However, in real, it might be difficult sometimes to obtain speech or phonation sample especially from individuals suffering stroke and could be replaced from other vocal behaviours such as throat clearing or cough. Cough has been of recent interest in evaluating and management of Dysphagia (Plowman, et al; 2016). Recent Research highlights that cough airflow measures may serve as a valuable physiologic metric to index airway defense capabilities in at risk individuals. It is equally important for us to objectively quantify in order to avoid bias. Testing with both liquids and foods with different consistencies would provide useful information about the swallowing adaptation and could better guide the successful introduction of oral nutrition during this phase even in patients with dysphagia. Need of the Study Typically, the bedside swallow evaluation includes the water swallow test which assesses the voice quality and is considered as diagnostic indicator for aspiration. Noticeable change in phonation or speech post swallow has long been considered as evidence for aspiration. However the wet voice quality may not be reliably perceived by clinicians and there could be a high degree of interrater variability for perceptual judgments of wetness. Also, eliciting speech or phonation may not be possible always especially among the disordered. Hence the present study focuses on adding objectivity with perceptual in analysing the quality of swallow using cough with varying texture in normal’s. Aim of the Study: The aim of the study was to determine the effect of texture on voluntary cough in normal adults Objective of the study To investigate the effect

of texture on voluntary cough Secondary Objectives To correlate between perceptual and objective analysis of cough To compare the cough pattern between the different textures

Participants 30 female participants aged between 18 to 25 years were enrolled in the study. Participants enrolled were normal healthy individuals with no vocal complaint and without past history of any vocal, respiratory and neurological problems. The participants were explained about the purpose and the procedure involved in the study. Informed consent was obtained from all the participants. Instrumentation The sample was recorded using AHUJA UTP-30 microphone using PRAAT software installed in Sony Vaio Laptop. Procedure The participants were made to sit in upright posture. They were instructed as “You will be given three different textures to swallow at a time. The first one would be liquid consistency (water), followed by semisolid consistency (biscuit dipped in water) and lastly solid consistency (biscuit). You have to cough voluntarily post swallow for three different textures”. The cough was recorded using microphone at a distance of 10cm from the participant’s mouth in a quiet room. Analysis: The perceptual analysis was done by two experienced speech pathologist using GRBAS. The cough was analysed using Mel-Frequency Cepstral Coefficients (MFCC). Results and Discussions In the present study, the perceptual analysis was done using GRBAS. The results revealed no deviation in GRBAS parameters for liquid and semisolid consistency except for increased strain post swallowing solid consistency in normals. This could be attributed to the increased strain to clear the food in the airway. This is also in consonance with the objective evaluation of cough, wherein the differences was observed between liquid and semisolid/ solid consistencies using Mel frequency Cepstral Coefficients (MFCC) plots. The bolus volume and viscosity have been found to systematically vary some measures of oropharyngeal swallow physiology in normal individuals (Jacob, Kahrilas, Logemann, 1989; Cook, & Lang, 1990). The variations in consistencies are hypothesized to lead to physiological changes in swallowing including changes in lingual, submental and hyolaryngeal activity and duration of hyolaryngeal closure (Robbins 2008) Summary & Conclusion The present study infers the need to consider the texture modification in evaluation of dysphagia, as it elicits different patterns in quality of swallow based on the texture. The different response pattern observed for the varied texture can further probe information on the location and extent of residue in the airway. This would also guide the clinician to necessitate for further investigations if required. From the present study, it can be concluded that cough can be used objectively as a quick screening tool in the evaluation of dysphagia. It also concludes the cough to be analysed varying textures as it could serve as a confounding variable on voluntary cough analysis.

VALIDATION OF THE SINHALA VERSION OF SHORT FORM MCGILL PAIN QUESTIONNAIRE-2 (SF MPQ-2): PRELIMINARY FINDINGS AMONG PATIENTS WITH CANCER PAIN ATTENDING AT APEKSHA HOSPITAL, MAHARAGAMA, SRI LANKA

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ABSTRACT

Cancer is a major health problem and pain is the most common and unpleasant effect distressing well-being of patients with cancer. SF-MPQ-2, is the most widely used measure of pain qualities. There is much evidence supporting it's' validity and reliability in people with cancer still not been validated in Sri Lanka. Our aim was to translate, culturally adapt, and validate the SF MPQ-2 among the patients with cancer pain in Sri Lanka. Method: Translation has been done according to the guideline given by Mapi Research Trust. Forward, back translation and proof reading was done by professional translators and consultant anesthetists. Cognitive debriefing was done with 10 patients and the resulting questionnaire was administered among 76 patients with cancer pain attending to the Apeksha Hospital, Maharagama. Reliability was tested using internal consistency and the validity by assessing concurrent validity (associations between SF-MPQ 2, and EORTC QLQ C30) and face validity. Results: A total of 76 participants (33 men, 43 women) age between 20 to 85 years, were included in the study. The most frequent pain descriptors were 'Aching pain' and 'throbbing pain'. The most used affective descriptor was 'Tiring-Exhausting'. The analysis of the results indicated that an internally consistent (Cronbach's α was 0.79) and Pearson's correlation coefficient (r) was $r=0.465$ and considered as moderate association. Conclusion: Our results indicate that the SF-MPQ -2 seems to be a suitable, valid and reliable measure for assessing the pain of patients with cancer pain.

Key Words: SF-MPQ-2, Sinhala, validity, reliability

INK DETECTION IN FORGED DOCUMENTS WITH THE USE OF ADVANCEMENT OF MASS SPECTROMETRY

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ABSTRACT

Analysing ink on forged documents is usually used in order to check if the document is genuine or illegal, whether the formula of the ink is the same and the ages of the ink. This chemically has two goals which is to classify the various inks which are available on the market and to determine if there is more than one type of ink available on suspected medical documents. However, the presence of one or more can lead to suspicion. Therefore, ink detection has been an active research topic in the field of medical ethics. Since early years several methods like high-performance liquid chromatography and capillary electrophoresis was introduced where these methods were considered to be slow compared to the other methods. However, among several methods, ambient mass spectrometry was found to be one of the best methods to be used in ink detection. Ambient mass spectrometry rapidly developed in the year 2000 where desorption electrospray ionisation, paper-spray mass spectrometry, direct analysis in real-time mass spectrometry and desorption atmospheric pressure chemical ionisation mass spectrometry were the several methods used in ink detection where desorption atmospheric pressure chemical ionisation mass spectrometry was one of the best methods to be used due to its high sensitivity compared to the other methods. Moreover, researchers found that following DAPCI, Raman Mass Spectrometry and MALDI- mass spectrometry were some of the current methods used in the ink detection. Thereby, this review highlights on the development of mass spectrometry in ink detection in medical ethics.

Keywords: Mass Spectrometry, Ink Detection, Ethics, Illegal documents, Real time analysis

DIABETES AND ITS NATURAL TREATMENT ANTIDIABETIC EFFECT OF PERSIMMON PEEL ON ALLOXAN INDUCED DIABETIC RABBITS

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ABSTRACT

Diabetes, a condition when body fails to normalize the blood glucose level properly and the level goes beyond the normal range. Natural treatments particularly through bioactive components from fruit and vegetable sources are becoming popular worldwide and are broadly accepted because of no side effects and cost effectiveness. Persimmon belongs to family Ebenaceae having several bioactive compounds with potential antidiabetic activity. However, information on the antidiabetic effect of persimmon is scanty. The present study was planned to investigate the antidiabetic potential of persimmon peel powder by using alloxan induced diabetic rabbits as an animal model. Fifteen rabbits were induced diabetes mellitus by alloxan and divided into three groups. Persimmon peel powder supplemented diets (0%, 10% and 20%) were given to the diabetic rabbits for the duration of 21 days. The blood samples of rabbits were examined for glucose, serum creatinine and urea levels on weekly basis. The results indicated that there was a significant decline in glucose level in the blood of diabetic. The reduction of blood glucose level was from 357.66 mg/dl to 256.45 mg/dl when feed was supplemented with 20% persimmon peel powder. Similarly, serum creatinine and urea levels were also significantly reduced because of supplementation of persimmon peel powder. It is concluded from the results that persimmon pulp powder might be a potential natural antidiabetic treatment of diabetic complications.

Keywords: Diabetes, Antidiabetic potential, Persimmon peel

LARVICIDAL EFFECTS OF *MOMORDICA CHARANTIA* METHANOL LEAF EXTRACT ON *ANOPHELES TESSELLATUS*

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ABSTRACT

Mosquito borne diseases contribute to the major disease burden around the world. The use of botanicals as an alternative to synthetic compounds have been explored due to its multifarious advantages. The present study investigated the larvicidal activity of *Momordica charantia* methanol leaf extracts against the second instar larvae of the laboratory reared, *Anopheles tessellatus* larvae. *Momordica charantia* is a medical herb, belonging to the Cucurbitaceae family. The bioassay test was carried out by using the WHO procedure. The mean percentage mortality of *Anopheles tessellatus* was shown to increase with increasing concentration and increased time of exposure to the *Momordica charantia* methanol leaf extract. 100% larval mortality was observed at 48 hours following the exposure to plant extract at the highest concentration of 1000 ppm. The study revealed an LC₅₀ value which decreased with time (251 ppm at 24 hours and 126 ppm at 48 hours). Additionally, behavioural changes during the larvicidal assay were observed in response to tactile stimuli. In order to identify histological changes in the cuticle and mid-gut upon exposure to *Momordica charantia* plant chemicals, the tissue was processed and sections were stained with Hematoxylin and Eosin. The most commonly observed characteristic changes in treated *Anopheles tessellatus* larvae include damage to cuticle and shrinkage of cells. Therefore, the present investigation revealed that *Momordica charantia* methanol extract demonstrated effective larvicidal properties against *Anopheles tessallatus* larvae which can be attributed to the phytochemicals present in the plant. Hence, the formulation of *Momordica charantia* methanol extracts may potentially be used as an effective and eco-friendly larvicide, which could be an alternative to malaria control.

Keywords: Mosquito, *Anopheles tessellatus*, *Momordica charantia*, larvicidal effect, mortality

EFFECT OF BOILING ON THE ANTIOXIDANT ACTIVITY AND ANTI-MICROBIAL ACTIVITY OF MILK NATIVE TO SRI LANKA

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ABSTRACT

Milk is a fluid rich in nutritional value possessing immunological and anti-inflammatory properties. It also contains various antioxidant compounds and antimicrobial effects. Compounds with recognized antioxidant activity include phenols, flavonoids and carotenoids. Major role of antioxidants is to scavenge free radicals and reactive oxygen species (ROS) which cause damage of cellular macromolecules such as, lipids, proteins and DNA resulting in apoptosis and tissue damage. Antimicrobial property of the milk will either inhibit the growth of microorganism or kills the pathogenic microorganism. In this research, antioxidant activity and antimicrobial property of milk before boiling and after boiling was measured for five different varieties (raw, pasteurized short expiry date, pasteurized long expiry date, sterilized, sterilized fat free) of milk of the same company (native to Sri Lanka). To assess the antioxidant ferric reducing antioxidant power (FRAP), 2,2-azino-bis 3 ethylbenzothiazoline-6-sulphoric acid (ABTS), total phenolic content (TPC), total flavonoid content (TFC) and total antioxidant content (TAC) tests were performed. Antimicrobial property against *Staphylococcus aureus* (*S. aureus*) and *Escherichia coli* (*E. coli*) was conducted through well diffusion method. All-inconclusive milk samples after boiling indicated considerably high levels of antioxidant ($P < 0.05$ for total antioxidant content), raw boiled milk indicating the highest concentration. In addition to it, boiled milk samples revealed antimicrobial effect for *S. aureus* and *E. coli*. Whereas, effect of boiling is significantly proven in *S. aureus*.

Key words: Phenolic content, ABTS, Anti-microbial, Antioxidant activity, Public health, Nutrition

EVALUATION OF BRONCHODILATORY ACTIVITY OF ZINGIBER OFFICINALE ROSCOE (GINGER) IN GUINEA PIGS

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ABSTRACT

Asthma is a serious global health problem affecting all age groups. Zingiber officinale roscove (Ginger) has various gingerols and shaogols as their active ingredients, which are responsible for various pharmacological actions. Ginger is also a useful remedy for respiratory ailments like cough, cold and other respiratory infections. 36 Guinea pigs (weight 400-700 gm) of either sex were randomly divided into 6 groups. Group 1: Distilled water, Group 2: 1.55 µg/kg Formoterol + 0.02 mg/kg Budesonide, Group 3 & 4: 350 mg/kg & 700 mg/kg Ginger, Group 5 & 6: 350 mg/kg & 700 mg/kg Ginger + 1.55 µg/kg Formoterol and 0.02 mg/kg Budesonide. Preconvulsion time before and 14 days after administration of standard drug/extract was noted. Percentage protection in each group was also noted. Statistically significant improvement in preconvulsion time in formoterol and budesonide control group ($p < 0.01$), low dose ginger + formoterol and budesonide control group ($p < 0.01$) and high dose ginger + formoterol and budesonide control group ($p < 0.01$) was noted between day 0 to day 14. Statistically significant percentage protection obtained in low dose ginger + formoterol and budesonide control group ($p < 0.01$) and high dose ginger + formoterol and budesonide control group ($p < 0.01$) as compared to normal control group. Rhizomes aqueous extract of ginger improves preconvulsion time and percentage protection. Ginger has shown promising results to be used as an add on remedy for additional bronchodilatory effect.

Keywords: Zingiber Officinale Roscoe (Ginger), Histamine, Asthma, Preconvulsion time, Percentage protection

EFFECT OF COOKING METHODS ON ANTIOXIDANT LEVELS OF RED ONION VARIETIES IN SRI LANKA

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ABSTRACT

The neutralization via antioxidants of reactive oxygen species (ROS) formed due to exogenous factors and endogenous metabolic activities are imperative in order to maintain healthy cellular conditions within the body. This study is focused on analysing the effects of home-like cooking techniques on the antioxidant levels of onions. Commercially bought big and small red onion varieties in Sri Lanka were subjected to the effects of the three cooking techniques; boiling, baking and frying, attested at varied time intervals 5, 10 and 15 minutes. To compare and contrast the effect of the cooking treatments; total phenolic content (TPC), total flavonoid content (TFC), total antioxidant capacity (TAC), the 2, 2'-Azino-bis-3-ethylbenzothiazoline-6-sulfonic acid (ABTS•+) and ferric reducing antioxidant power (FRAP) assay were utilized. The findings between TFC, TPC and TAC quantification of three different cooking treatments were significant due to statistical evidence of $p < 0.05$ by single factor ANOVA. The results were suggestive of the antioxidant capacity of small onion varieties as being affected the least by cooking. For both onion varieties in terms of cooking methods, antioxidant loss can be seen as boiling > frying > baking and the optimum time for highest antioxidant activity of cooked onions was mostly at 10 minutes.

Keywords: Total antioxidant capacity, total phenolic content of onions, total reducing power, percentage inhibition, cooking-methods

OPTIMIZATION OF HOT WATER EXTRACT OF BLUE PEA FLOWER (*CLITORIA TERNATEA* L.) BY RESPONSE SURFACE METHODOLOGY

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ABSTRACT

The optimum conditions for the hot water extraction of phenolic compounds from *Clitoria ternatea* L. flowers were determined using response surface methodology (RSM) to obtain a beverage base rich in antioxidants. Box Behnken design was used to determine the effects of three independent variables namely extraction temperature (°C), extraction time (min) and flower: water ratio (F:W ratio) (g/L of extract) on the extraction of total phenolic content (TPC) (mg gallic acid equivalents (GAE)/ L of extract) where independent variables were coded at three levels. Processed powder of blue pea flower obtained by drying, grinding and sieving of fresh flowers was extracted using different conditions as suggested by Box Behnken design which consisted of 15 experimental points, including three replicates of the center point. A quadratic polynomial regression model was fitted to determine the responses and regression analysis in which desirability function method was used to predict the optimum extraction conditions. Predicted value by the model was compared with the experimental TPC obtained following the optimized extraction conditions. Regression analysis showed that 92.53 % of the variation was explained by the model. The optimum conditions to get a maximum TPC by desirability function method were 36.91 min, 59.59 °C, and 3 g/1000 mL of F:W ratio at desirability level of 0.95. The TPC extracted under optimum conditions was 80.17 ± 6.51 mg GAE/ L (26.72 ± 2.17 mg GAE/ g) of extract which showed no significant difference ($p > 0.05$) to the predicted value of 78.37 mg GAE/ L of extract.

Keywords: Blue pea flower extract, Response surface methodology, Box Bhenken Design, TPC

COMPARISON OF ANTIOXIDANT AND ANTIMICROBIAL ACTIVITIES OF RAW AND COOKED RICE OF IMPORTED AND NATIVE TO SRI LANKA

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ABSTRACT

The emerging need for natural antioxidants has become a top priority in the field of research. With research articles emphasizing on the harmful side effects caused by synthetic antioxidants, scientists have focused on consumables which are used daily, in normal life and the importance of finding natural antioxidants in them. This study focuses on the evaluation of antioxidant and antimicrobial effects of five types of native Sri Lankan rice and five types of imported rice along with the cooking effect on rice. To assess the antioxidant capabilities of rice, total phenolic content (using Folin-Ciocalteu method), total flavonoid content (using Aluminium chloride method), total antioxidant capacity (using Ammonium molybdate), ABTS radical scavenging activity and Ferric Reducing Antioxidant Power (FRAP) methods were used. To assess the antimicrobial activity well diffusion technique was used. Significant differences were observed in total antioxidant capacity for both Sri Lankan (raw) against imported (raw) and Sri Lankan (cooked) against imported (cooked). ANOVA P values (raw rice - 0.027562 and cooked rice - 0.03931) were obtained showing the importance of traditional Sri Lankan rice. Furthermore traditional rice types like Heenati rice (HSR2) showed 100% inhibition of ABTS at 10 minutes and highest concentration of FRAP at 15 minutes (0.18381 mg/mL) showing exemplary results compared to other rice types. Antimicrobial activity of imported rice were lost after cooking and therefore a significant difference among native Sri Lankan cooked rice and imported rice was observed (P value - 0.049). Therefore with the obtained results in the study it can be concluded that Sri Lankan native rice had high antioxidant capacities and high antimicrobial activity when compared with the five imported rice types.

Keywords: Antioxidants, Imported rice, Sri Lankan rice, Cooking effect, Antimicrobial activity

ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF CASHEW APPLES AND CASHEW NUTS IN SRI LANKA

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ABSTRACT

Fruits are known to be rich sources of antioxidants that aid in the inhibition of radical mediated pathologic conditions while acting in the defense mechanisms against pathogenic microorganisms. The study was conducted to determine the antioxidant and antimicrobial potential of cashew apples and cashew nuts in Sri Lanka. Six samples of cashew including two cashew apple (early stage and late stage) extracts and four cashew nut (early stage, late stage, roasted and raw) extracts were subjected to five assays, total antioxidant capacity assay (TAC), total phenol content (TPC), total flavonoid content (TFC), Ferric Reducing Antioxidant Power (FRAP) assay and ABTS free radical scavenging assay in order to determine the antioxidant capacity. Hence the samples were introduced to two bacteria, *Staphylococcus aureus* and *Escherichia coli* in order to analyze the zone of inhibitions using well diffusion technique. Results from the five antioxidant assays exhibited high values for early and late cashew apple extracts when low values were obtained for cashew nut extracts. Both of bacteria strains displayed zone of inhibitions to all samples thus large zone of inhibitions were observed when the bacteria exposed to cashew apple extracts. All the results from antioxidant assays and antibacterial experiment were analyzed using single factor ANOVA to determine the significant differences between the results. Based on the results of the antioxidant and antimicrobial experiments it was concluded that cashew apples are more effective as antimicrobial activities consisting a higher antioxidant potential which can be used as a therapeutic component in the radically induced pathogenesis.

Keywords: Cashew, Antioxidant, Antimicrobial, Nuts, Reducing Power

CLIENT CENTERED APPROACH FOR PEOPLE LIVING WITH HIV/AIDS

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ABSTRACT

Person-centered approach is based on Humanistic Psychology, which views humans positively, people's faith in humans' qualities and their ability communicate to themselves that they are valued for their goodness, potential and abilities. The ability of people to grow with this constant support their inherent potential could make them more actualized in the life. People living with HIV/AIDS in world are affected doubly; by the severe physical constraints to function healthy as an individual and on the other hand by being stigmatized from the society. This study mainly focus on the theme of inherent worth and value of people living with HIV/AIDS and the main aim is to explore their own beliefs about them with regard to their past behavior and characteristics. Qualitative Research Methodology was adopted with the focus on case studies and content analysis was used as the method of data interpretation. Lack of trust and confident about themselves make people living with HIV/AIDS more vulnerable and get themselves isolated by the society which ultimately affects the sustainability and growth of the country. In order to make them more productive and innovative to themselves and to the nation the Psycho-social well-being of them should be addressed by allowing them to trust on their innate potential and to accept and love them as how they are in present. Client-centered approach plays a vital role in making them more aware about themselves and mainly about their opportunity to change and grow as how they want to be in the society.

Key Words; Client-Centered Approach, HIV/AIDS, Sustainability

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