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## **PREFACE**

Global Academic Research Institute is proud to present GARI WINTER MULTIDISCIPLINARY SYMPOSIUM 2020 / 2021 which is a series of successful research symposium. The Inaugural Session and the Technical Sessions were conducted at Gall Face Hotel, Colombo, Sri Lanka. The conference was organized into different 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.

Special thank goes to Guest of Honor Snr. Prof. B.N.F. Warnakulasooriya (Faculty of Management Studies and Commerce, University of Sri Jayawardenepura) and Mr. Sonala Gunawardana (Chairman, National Library of Sri Lanka), Key note addresses & Co-chairs made by Dr. Namali Suraweera (Head in Library & Information Science, University of Kelaniya), Dr. Kalaivani Vivehananthan (Head, Department of Basic Sciences, The Open University of Sri Lanka), Dr. Mathi Kandiah (Associate Dean, School of Science, BMS), Ms. Padma Bandaranayake (Director/National Library, National Library and Documentation Services Board), Dr. A.W.S. Chandana (Department of Sports Sciences and Physical Education, Sabaragamuwa University), Dr. P.G.R.N.I. Pussella (Department of Remote Sensing and GIS, Sabaragamuwa University), Dr. Thesara V.P. Jayawardane (Department of Industrial Management, University of Moratuwa), Dr. Dilina Herath (Dean, School of Business Management, ESOFT Metro Campus), Mr. Manoharan Kesavan (Faculty of Technology, Wayamba University), Dr. Vijitha Paheerathan (Senior Lecturer and Head, Unit of Siddha Medicine, Trincomalee Campus Eastern University), Dr. S.D Happuarchchi (Senior Lecturer, Institute of Indigenous Medicine, University of Colombo), Dr. Jeevani Dahanayake (Institute of Indigenous Medicine, University of Colombo)

The organizing committee special Appreciation Online Research Publications Partner NLSL's National Digital Library and Repository in Sri Lanka, an International Academic Affiliation with Jagadguru Kripalu University - India, Department of Community Medicine, Mysore Medical College and Research Institute - India, International Federation for Fitness Health, Physical Education & Iron Games - Saudi Arabia, Australasian Institute of Ayurvedic Studies - Australia, Kathmandu School of Law – Nepal.

Journal Partner as GARI Publishers and GARI International Journal of Multidisciplinary Research, SAP publisher, all other GARI affiliated academic partners, Further the support given by GARI Tours as Travel partner, Official Creative Partner Sameera Artco, Siththam Advertising & 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.

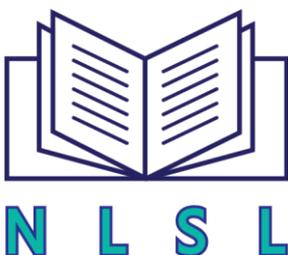
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## About GARI

Global Academic Research Institute (GARI) is an International Scientific Research Conference Organizer in collaboration with International Universities & Institutions. GARI has brought together leading academic and industry experts from the global community who process diverse experience and expertise in verity of scholarly or scientific disciplines. We established on 2010 as independent service provider then wider range of experience GARI became a powerful arm of scientific research conference organizer in the industry.

## GARI AFFILIATIONS

National Digital Library and Repository – Sri Lanka



The National Library is mainly a research and a reference library and it is the main library and information centre in Sri Lanka. It intends to provide library resources as well as information to all Sri Lankans through the National Library. Powers and responsibilities of the National Library were clearly spelled out for the first time and this was a fulfillment of a long felt need. It has become a herculean task to organize and introduce this new institution to the country and to the general public.

Jagadguru Kripalu University - India



Jagadguru Shree Kripaluji Maharaj envisioned a University that not only provides quality education but also aims at all-round personality development of the students, turning them into leaders in their chosen fields. The faculty at JKU are experts in their respective fields, with an intense desire to teach and guide the students to success. Regular interactions with industry leaders and opportunities to be part of various conferences and seminars broaden the students' horizons.

## Kathmandu School of Law – Nepal



Kathmandu School of Law, established in 2000 AD as an affiliate of Purbanchal University, is a community-based, non-profit academic institution that upholds its unrestrained commitment for a pragmatic, research-based and community responsive legal education in the country. It was conceptualized within the ambit of non-profit movement dedicated to serve the need of an academically sound and functionally feasible legal education in Nepal.

## Australasian Institute of Ayurvedic Studies – Australia



The Australasian Institute of Ayurvedic Studies is synonymous with quality and authentic education in Ayurveda. The Institute was founded in 1999 in Auckland, New Zealand and is proud to be the only training Institute in Australasia offering recognised Ayurvedic qualifications in both Australia and New Zealand.

## International Federation for Fitness Health, Physical Education & Iron Games - Saudi Arabia



IFFPHPEIG was established in year 1995. It is one of the largest upcoming federation around the world. The Federation was established by the Honorary President Dr. Kaukab Azeem

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**ASSESSMENT AS/FOR/OF LEARNING: AUTHENTIC ALTERNATIVE  
METHODS OF ONLINE ASSESSMENT FOR QUALITY ONLINE LEARNING  
DURING COVID-19 PANDEMIC AND BEYOND**

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**ABSTRACT**

In response to the ongoing concerns in relation to the COVID – 19 virus, the Sri Lankan government has encourage all Universities, Campuses, Higher Education Institutes to promote e-learning to ensure uninterrupted university education during this prevailing situation. This timely valuable decision should be highly appreciated because e-learning has power to move towards more effective and efficient teaching and learning process in any situation if we use it correctly with clear understanding. However, in the Sri Lankan higher education sector, E-learning is still at the initial stage of adopting technologies in learning and teaching, most of the universities have just started exploring how to implement and facilitate online teaching. University teachers require technical and pedagogical support and guidelines to ensure the quality of online learning and teaching. Assessment is an important part of the teaching and learning process to measure students' learning outcomes, so it is necessary to conduct online assessment to understand what students have learnt and how they can improve. However, with the limited experience of online teaching, designing online assessment seems a challenging task for university teachers in Sri Lanka. It is crucial to build the capacity of university teachers to conduct online assessment for quality online learning. Therefore, to help academics and professionals to understand more on online assessment, this paper aims to identify and adopt different online assessment tools to evaluate student learning online, and how to assess students at different points of the learning process and provide feedback. This understanding will help academics to use online assessment As/For/Of learning thereby to measure student's progress in the learning process. This paper further discuss benefits and challenges of online assessment to help academics to rethink how to conduct online assessment and some online assessment approaches and tools which might be helpful for academics to adopt in their online courses.

Keywords: Online Assessment, Online Learning, Covid-19, Assessment as Learning, Assessment for Learning, Assessment of Learning, Sri Lanka, Universities

## **DETERMINANTS OF UNIVERSITY CHOICE FOR THE ACADEMIC DISCIPLINES IN THE TERTIARY EDUCATION IN SRI LANKA**

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### **ABSTRACT**

Tertiary education in Sri Lanka is a discretionary level of auxiliary education thus, primary and secondary education are compulsory in Sri Lanka. The tertiary education in Sri Lanka essentially stood up to with two crucial challenges, where among the students passing the G.C.E. Advanced Level Examination, only 15% would be accounted to enter university system while 85% are cleared out behind. In expansion, roughly over dozens of millions of students yearly lose the opportunity to continue higher education. Out of 20,000 students, who are selected to for universities are left with zero option to make a university choice based on their qualification and skills. Hence, there is a much demand from the students for a suitable academic discipline such as appropriate degree programs aiming for a sustainable carrier path after holding the degree title. Presently, Sri Lanka do not have a framework or mechanism to identify the student's university selection based on their qualifications, skills or willingness to select a suitable degree program. Hence, this study aims to identify the determinants of university choice for the academic disciplines in the tertiary education in Sri Lanka to develop a suitable mechanism for a physiological paradigm shift of higher education in Sri Lanka. The methodology of the study is based on the Dimensional factors of student selection Hossler (1999), Kotler and Fox (1995), Marketing Mix model for higher education and Combined Complex Decision model, (Holdsworth and Nind, 2005) to measure the University choices in various disciplines. The study used both qualitative and quantitative approaches and the sample was drawn based on convenient sampling technique as 139 participated in the study out of the population of 150 students. The study used both descriptive and essential inferential statistics tools to derive the analysis to meet the objectives of the study. The key findings of the study indicate that students are less likely to select the HEM programs when they concern the employability factor. Availability of flexible payment methods of the degree programs are more influential that the students are more likely to select HEM programmes as their undergraduate choice. Aside from that, female students are more likely to select HEM programmes as their undergraduate choice, yet they remain unemployed. Hence, the results are somewhat argumentative; therefore, it is much evident that Sri Lanka needs a phycological paradigm shift in the higher education system to develop a suitable mechanism for the university choices among the students.

Key words: University Choice, Developing a Mechanism, Demand of the Students, Academic disciplines

## STUDENTS' DATA CLUSTERING IN EDUCATION SCIENCE

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### **ABSTRACT**

Modern education uses many technological applications like Information Technology. In modern educational environments which are empowered by Information Technology generate huge data sets. Such data sets contain millions of individual records. With the explosive growth of the educational data sets, it is required to utilize sophisticated analysis tools and methods to work with these mega data sets. Therefore, various computer based clustering algorithms play an important role in such analysis. But in a computer system, it is better to perform the analysis with minimum human interactions in order to get results faster. So, in such cases, unsupervised clustering algorithms are very important as they lead the system to be autonomous. This paper describes how to use a newly designed unsupervised clustering algorithm to cluster students' marks for the best number of clusters. The newly designed unsupervised clustering algorithm estimates the best suited number of clusters for the data set and cluster automatically the data set. Also, the new algorithm was tested using a real data set which contains students' examination marks and results are also shown in the paper.

Keywords: Modern education, Educational data sets, Unsupervised clustering algorithm

# DEMATERIALIZATION AND YOUNG VISUAL ARTISTS' ART PRACTICES IN SRI LANKA

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## **ABSTRACT**

In the contemporary context, artists have the freedom to use different materials and methods relating their work to common issues in their region. They are able to create supportive networks that encourage them to explore materiality and different visual experience across the world in their practices. Therefore, artists whose artworks are inspired by conceptual learning now confidently choose non-traditional materials expressing their ideas, and they expand the borders of traditional art forms such as sculpture, drawing, and painting to create unique artworks. Nevertheless, some different art forms are not suitable for selling or buying, and some artists business strategies in the art market and deliberately make non-saleable artworks. In Sri Lanka, many of our prominent artists (Jagath Weerasinghe, Chandraguptha Thenuwara, T.Sanathanan, and H.A.Karunarathne) have studied art in schools in different countries such as the US, Russia, India and Japan. And based on their knowledge, they have experimented and expressed themselves in various art forms beyond the traditional, such as: land art, installation art, and performance art based on experiences of conflict, violence, and displacement in the region. Moreover, I observed that young artists are deeply influenced by these senior artists in Sri Lanka, and they too represent the post-war condition and its effects using different non-traditional methods and materials. Therefore, I am interested in researching the connection between concept, material, and contemporary issues, and the influence of established Sri Lankan artists' works on the art of younger artists including myself, T.Vinoja, M.T.F.Rukshana, and Chathuri Nissansala, who come from various regional and religious backgrounds.

Keywords: dematerialization, materiality, land art, installation art, performance art

## GREEN ROADS AND NEW GLOBAL TRENDS

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### **ABSTRACT**

This paper discusses the concept of green roads, and how it serves communities and environment by encouraging sustainable transport schemes through green transportation systems. A green road is a part of a transportation scheme that is designed and constructed to a level of sustainability, which substantially higher than commonly adopted practices in helping ecology. Green road concept could be equally effected to all types and sizes of transportation projects including any newly constructed or existing transport corridors from minor to mass transport. With ever increasing demand for transportation of people and goods the threats on environment & ecology is outrageous. Hence the worldwide attention on protecting the environment and ecology is gaining great momentum; therefore the green road concepts. This is also a discussion on green approaches and green road systems surround sustainable buildings to obtain the maximum benefits to the communities living in these buildings and residing along these approach roads. This paper looks at some new global trends towards what green roads are, green road rating systems, how green roads are different from common road systems, how green rating could be incorporated to road designs, benefits and beneficiaries of green roads, and finally how to make existing roads greener. The final objective of this paper is to increase the awareness of local public about green road concept and generate an interest and discussion on green roads.

Keywords: Green Roads, Green Road Concept, Green Road Rating

## KNOWLEDGE AND PRACTICE REGARDING USAGE OF SUBLINGUAL GLYCERYL TRINITRATE

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### **ABSTRACT**

Cardio vascular diseases are foremost in causing death globally. Sublingual Glyceryl Trinitrate (GTN) tablets are usually taken on an as needed basis for self-management of angina. A dearth of knowledge on usage of GTN tablets and the ignorance on calling for help may cause deleterious effects due to delay in receiving treatment. The objective of this study was to assess the knowledge and practices on usage of GTN tablet and the influence of socio-demographic factors among the patients attending Cardiology clinic at Teaching Hospital, Jaffna. It was a descriptive cross-sectional study, using a validated interviewer administered questionnaire. The study was conducted among statistically recruited sample of 256 patients. The total score of 0-10 was considered as 'Poor Knowledge' while 11-20 as 'Good Knowledge'. Majority (n=172) were males and the mean patients' age (SD) was 66(±9) years. Almost 94.1% of the participants were known about the indication of the medicine. More than three fourth 77.3% (n=198) of the participants were presented with poor knowledge while 22.7% were found with good knowledge. Educational level was statistically associated with the level of knowledge (p<0.05). Although, 81.2% carried their GTN tablets all the times, only 48% (n=123) of the participants were aware that the tablets should be replaced every eight weeks. All female participants carried their tablets properly in a way of protecting from direct light and body heat. Over all, knowledge was poor and there is a need for frequent reinforcement of patient education during prescribing and dispensing.

Key words: Knowledge, Practice, Nitroglycerin, Sublingual Glyceryl Trinitrate

**BACTERIAL CONTAMINATION OF USED EYE DROPS AND KNOWLEDGE ON  
SAFE USAGE AMONG GLAUCOMA PATIENTS AT TEACHING HOSPITAL,  
JAFFNA**

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**ABSTRACT**

When ophthalmic solutions are used repeatedly, then it is more chances of occurrence of infections which may lead to permanent vision loss or blindness. This was a descriptive cross-sectional laboratory-based study. Study was carried out to determine the bacterial contamination of multi dose eye drops and impact of patients' knowledge and influence of sociodemographic factors, among glaucoma patients, who were attending eye clinic, Teaching Hospital, Jaffna. 35 patients who were from Nallur and Jaffna area DS division were included in this study. Used eye drop bottles of glaucoma patients were collected by visiting to their homes. Interviewer administered questionnaire was used to collect the sociodemographic factors and to assess the level of knowledge on safe usage of eye drops. The study was done between July and August 2017. Data were analyzed using SPSS version 21. Overall contamination rate of used eye drops was 22.9% (n=8). In the level of knowledge on safe usage of eye drops, 34.3% (n=12) of participants had good knowledge and 54.3% (n=19) participants had average knowledge. Level of knowledge on safe usage of eye drops showed statistically significant association with contaminated eye drops. Sociodemographic factors did not show significant association on patients with contaminated eye drops. bacterial contaminated eye drops were identified among glaucoma patients. Patients should be trained on proper handling of eye drops and educate them about the serious problems due to improper handling.

Key words: Bacterial contamination, glaucoma patients, eye drops, knowledge, safe usage

**CHANGING GENDER CONTOURS IN THE MANAGEMENT OF IRRIGATED  
AGRICULTURE: REEXAMINING THE PATRIARCHAL CLICHE AND WOMEN  
PARTICIPATION IN WATER GOVERNANCE IN RURAL SRI LANKA**

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**ABSTRACT**

Significance of gender participation is widely acknowledged in terms of its relevance for agricultural production, improved irrigation management and governance of irrigation systems in the world over. Gender is a crucial factor in attaining sustainable development goals, this paper attempted at examining the impact of neoliberal institutional reforms on gender participation in the post-bureaucratic governance in water and irrigation of Sri Lanka. Although review of literature reaffirms women as farmers and irrigators in hydraulic society, evidence indicate the challenges and predicaments experienced by women in water governance in agrarian communities pervasively across Sri Lanka. In the backdrop of international enunciation of gender mainstreaming and gender development, based on primary data as well as secondary sources of information, this paper inquires into the inclusion of women in the traditional irrigation institution examines women participation under the customary practices, it upraises the institutional initiative effected under the influence of globalization incorporating water institutions for the governance of irrigation systems in Sri Lanka. Based on ideas and evidences gathered from research studies, this article while articulating that the traditional irrigation institutions due to their patriarchal character engaged the female labor force in agriculture prohibiting their participation in governance in water and irrigation, and argues that the neoliberal water institutions have been instrumental in creating space for women membership, participation, and representation in farmer organization for the governance of irrigation systems in Sri Lanka.

Key Words: Gender Participation, Water Governance, Participatory Irrigation Management (PIM), Farmers Organization (FOs), Patriarchal Cliché

**IMPACT OF THE CHANGING RELATIONSHIP BETWEEN MAN AND  
TRADITIONAL HYDRAULIC SYSTEMS: IN TERMS OF THE  
BELLANKADAWALA CASCADE SYSTEM IN SRI LANKA**

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**ABSTRACT**

A 'cascade' is a connected series of village irrigation tanks organized for storing, conveying, and utilizing water. They developed in Sri Lanka to collect rainwater for agricultural and other purposes during the rainy season. Economic Anthropology is human economic behaviour depends on cultural scope. Tanks have integrated with self-sufficient social and economic system in the rural community. The rural social structure, beliefs, and customs were closely integrated with the system of paddy cultivation. The research problem of the study was the impact of the changing relationship between man and traditional hydraulic systems: in terms of the Bellankadawala cascade system in Sri Lanka. The main objective was to identify the pattern of changing relationship between man and the traditional irrigation systems. The research was carried out in the Gramaniladhari Division of 593-Kelawa of Palugaswewa Divisional Secretariat, Anuradhapura. The table of Krejcie & Morgan used to select 196 out of 404 households. The purposive sample consists of informative villagers and irrigation officials in the area. Unwritten primary data collection carried out by using general observation and semi-structured interviews. Further, both publications and e- sources were used as secondary data collection methods. Data were analyzed using narrative analysis and its focused experiences shared by people to answer the research problem. The rural economic system has been collapsed due to the gap between man and tank. Traditional farming, fishery, medicine, beliefs, and Eco human relationship have been declined. Hence, the society has been failed to reach the optimal production level.

Keywords: Cascade, Economic Anthropology, Bellankadawala, Tank

## THE IMPACT OF EASTER SUNDAY ATTACK ON CULTURAL TOURISM IN SIGIRIYA AREA

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### **ABSTRACT**

Tourism flourished in Sigiriya area, after declaring a world heritage site in 1982. Unfortunately, Easter Sunday Attacks that took place in Sri Lanka on 21 Sunday 2019, Sri Lanka faced a massive fall in the tourism industry. The main objective of the present study is to examine how the Easter Attacks affected the tourism industry in Sigiriya, including the economies of the villages. Other objectives are identifying strategies and steps to re-establish and reforms the tourism industry in the area. According to the Dambulla Divisional Secretariat Reports, the Inamaluwa Korala Division has 15 villages around the Sigiriya rock. Among them three villages where the main occupation is tourism were selected for the study namely; Sigiriya, Kayimwala, and Kalapuraya. A semi-structured questionnaire (130) was employed for the data collection based on a convenient sampling method. Furthermore, 5 key informants and 25 tourists were interviewed respectively based on purposive and random sampling methods. The data analysis was carried out using Microsoft Excel. Prior to the Easter Attacks, many of the villagers who involved in tourism had earned a monthly income of Rs.30,000/- or more. In comparison, after the Easter Attacks, the villagers have experienced a massive drop in their monthly income. Establishing national security is important to re-establish tourism. Additionally, by strengthening and developing infrastructure facilities, promoting culture elements, renovating Sigiriya tank, increasing the insurance cover for the foreign tourists, reducing the ticket price, facilitating the villagers to obtain interest free loans could be restore the present recession.

Key Words: Easter attack, Income, Security, Sigiriya, Tourism

**CULTURE IN TRANSLATION-FRENCH TRANSLATION OF MARTIN  
WIKRAMASINGHE'S VIRAGAYA**

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***ABSTRACT***

Martin Wickramasinghe is a well-known Sri Lankan writer. His book *Viragaya* which is an outstanding work in modern Sinhalese fiction was translated into many languages. In 1995, it was translated into French language by Bikku Mandawala Pannawansa and it is considered as the first translation to French language. Wickramasinghe's style of writing is deeply faithful to philosophy of Buddhism. *Viragaya* is based on a rural Sinhalese Buddhist environment and brings out a Buddhist philosophy. Hence, the French reader may be confronted with the cultural words used in Sinhala text and misunderstandings may be occurred due to the differences in cultures. Moreover, it causes for a clash between cultures as the target text reader from French culture reads the text from a different perspective with their own cultural identity. The object of the present study is to examine how the cultural words in the Sinhala text was translated into French. Both the Sinhala text and its French translation were analyzed and strategies used by the translator was categorized according to Davie's proposed taxonomy of preservation, addition, omission, globalisation, localisation, transformation, and creation. The French translator most frequently used the strategy of preservation especially in translating Species of flora and fauna, Food culture, Person names and place names, Social related terms and Employment, Religious terms. The strategies of addition, omission, globalisation, localisation, transformation and creation are used by the French translator to minimize the strangeness of the foreign text.

Keywords: Culture, Strategy, Translation, Sinhala, French

# PRODUCTION OF BIOCHAR FROM LASIA SPINOSA (KOHILA) AND ENHANCED CATIONIC DYE REMOVAL THROUGH ACID PRE-MODIFICATION

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## ABSTRACT

Biochar (BC) is an economical, carbonaceous material resulting from the pyrolysis of biomass. *Lasia spinosa* (Kohila) rhizome, an ample feedstock found in marshy lands, was subjected to slow pyrolysis for BC production. Enhanced adsorption of the cationic dye methylene blue (MB) was attained by acid pre-modification. Raw and pre-modified BC (abbreviated as RBC and PMBC respectively) were produced at three different temperatures (300, 500, and 700 °C). The enhancement of surface porosity upon pyrolysis was confirmed by SEM images. The Brunauer–Emmett–Teller studies indicated that the surface morphology was significantly influenced by pyrolysis temperature. In both RBC and PMBC, the surface area increased with increasing carbonization temperature due to the loss of volatile organic compounds and the formation of more pores. Upon pre-modification, the pore volumes increased and pore sizes decreased. The XPS spectrum indicated an increment in nitrogen and oxygen content upon pre-modification, confirming the effect of nitric acid pre-modification. Batch and column experiments were carried out to evaluate and compare the sorption characteristics of MB onto RBC and PMBC, where the highest adsorption was observed for BC produced at 300 °C. For PMBC at 300 °C, significant differences of adsorption capacities were not observed between pH 2-10, implied pore-filling mechanism. Kinetic studies fitted pseudo-first-order (PFO) for PMBC and pseudo-second-order (PSO) for RBC. The Sips model was the best-fitted isotherm model for both PMBC and RBC. From column regeneration studies, 32% and 45% diminution of adsorption capacity was observed after 5 cycles, for RBC and PMBC respectively.

Key Words: Biochar, Methylene Blue, *Lasia Spinosa*, Sorptive removal

# IDENTIFICATION OF ESCHERICHIA COLI AND DETECTION OF ITS ANTIBIOTIC RESISTANCE IN DRINKING WATER SOURCES FROM RAGAMA, SRI LANKA

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## **ABSTRACT**

Every human should have the access to safe drinking water as contaminated water increase the risk of exposure to different pathogens and the development of antibiotic resistance among these pathogens result in a greatest threat to public health. Escherichia coli (E. coli) is the broadly accepted indicator of pathogenic microorganisms and fecal contamination in water sources, therefore 10 drinking water samples collected from protected/ unprotected wells and a tap-line in different areas of Ragama, Sri Lanka were used to identify E. coli by culturing on HiCrome agar, performing biochemical tests and targeting 16S rRNA, uidA, and lacY genes by PCR. Furthermore, selected E. coli colonies were used to detect E. coli resistance towards tetracycline, sulfonamide and gentamycin antibiotics by performing Kirby-Bauer disk-diffusion test and targeting tetA, tetC and sul1 genes by PCR. Out of 13 coloured colonies (blue, opaque, purple and pink) isolated from HiCrome agar, 07 showed positive results for indole test, 16S rRNA, uidA and lacY PCRs, while 02 isolates were only positive for 16S rRNA and uidA PCRs. Out of 07 selected E. coli isolates tested for antibiotic susceptibility, 06 showed tetracycline resistance whereas 03 showed sulfonamide resistance. Moreover, out of 06 tetracycline-resistant samples, 05 indicated tetA resistant genes with PCR. In conclusion, this study found these drinking water samples supported E. coli growth and the findings confirmed the presence of E. coli as well as the possibilities of other bacteria like Shigella spp. Furthermore, 06 E. coli isolates showed tetracycline-resistance and 05 of these revealed the efflux pump mechanism of E. coli through tetA genes. Additionally, 03 of these showed resistance to both tetracycline and sulfonamide, thereby exhibiting multi-drug resistance.

Keywords: Drinking water, E. coli, Antibiotic resistance

**IDENTIFICATION OF ESCHERICHIA COLI FROM DRINKING WATER  
SAMPLES IN GOTHATUWA NEW TOWN AND DETECTION OF ANTIBIOTIC  
RESISTANT GENES**

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**ABSTRACT**

Gothatuwa New town (GNT) is constantly affected with floods increasing possibility for antibiotic resistant Escherichia coli (E coli) presence. Hence, this study focuses on detecting tetracycline and sulphonamide resistant E coli from 10 drinking water sources of GNT with subsequent biochemical, morphological and molecular confirmation. Water collected from the tap, 3 unprotected wells and 1 protected well produced prominent colonies from the chromogenic media and 11 colonies (S1- S11) were subjected for testings. From this, 7/11 colonies showed high possibility to be E coli, providing expected results from Indole, Simmons' citrate tests as well as 16s rRNA, uidA and lac y genetic confirmations. From the rest (4/11) revealed a possibility to be E coli with TnA or CitT gene mutations. However, the indole negative- citrate positive S4 colony from an unprotected well can be Salmonella species while indole positive- citrate positive S7, S8 and S9 colonies from a protected well can be Klebsiella species as well. Considering both biochemical and molecular identifications, S9 can be a uidA gene mutated K-12 strain E coli or Salmonella enterica with  $\beta$ -glucuronidase activity exerted by mutated  $\beta$ -galactosidase activity while S7 and S8 can be lac y gene acquired Salmonella enterica. Furthermore, S4 can be a CitT gene mutant E coli K-12 BW25113 strain. Significantly, 7/11 colonies were tet A resistant while all were tet C negative with 5/11 colonies providing non-specific amplicons of 550 bp instead of 350 bp. Thereby, the water collected from the tap, 3 unprotected wells and 1 protected well revealed the highest possibility to have E coli with tetracycline efflux pumps coded by the tet A gene.

Key words: E coli, Drinking water, Tetracycline resistance

# IDENTIFICATION OF ESCHERICHIA COLI FROM DRINKING WATER SAMPLES IN GALLE AND THE DETECTION OF ANTIBIOTIC RESISTANT GENES

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## **ABSTRACT**

Development of antibiotic resistant bacteria in drinking water sources is a major threat because it possess harmful effects against human health. The purpose of this study is to identify Escherichia coli (E. coli) from drinking water samples in Galle and the detection of antibiotic resistant genes (ARGs). E. coli were isolated from ten different drinking water sources via membrane filtration and identified using biochemical, morphological and molecular tests. Antibiotic resistance was determined by antibiotic sensitivity test and ARGs were detected using Polymerase Chain Reaction. Bluish-green colonies were observed in membrane-filtered chromogenic plates of five out of ten water samples (Gintota, Walahanduwa, Katugoda, Kaluwella, Fort). Eleven colonies were selected from the five samples for biochemical, morphological and molecular analysis. Indole test was positive and Simmon's citrate test was negative for nine out of eleven colonies. Gram stain illustrated gram-negative pink rods mostly except for two colonies from Walahanduwa and Katugoda, which resulted in gram-negative pink cocci. All colonies were positive for 16S rRNA while ten out of eleven colonies were positive for uidA and lac Y. Thus, all samples were confirmed to have E. coli except for one sample in Kaluwella, which was lac Y negative that was confirmed to be shigella species. E. coli positive colonies were detected against tetracycline and sulfonamide resistance. All ten colonies were sensitive for sulfonamide whereas five out of ten colonies were resistance against tetracycline. Tetracycline resistant colonies were detected for tet(A) and tet(C) genes. All five colonies were negative for tet(C) while four out of five colonies were positive for tet(A). Therefore, water samples collected from Walahanduwa, Katugoda and Fort was confirmed to have E. coli resistant against tet (A).

Keywords: Antibiotic resistant bacteria, Drinking water, E. coli, Antibiotic resistant genes, Polymerase Chain Reaction

**DETECTION AND DETERMINATION OF EFFECT OF ANTIBACTERIAL  
ACTIVITY OF AZADIRACHTA INDICA (NEEM) AGAINST ESCHERICHIA COLI  
AND STAPHYLOCOCCUS AUREUS BACTERIA**

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**ABSTRACT**

Antibiotic resistance is a global crisis threatening the human population. In the past few decades, the number of bacteria that are resistant to multiple antibiotics have increased, making the treatment complicated, costly and leading to increased mortality. Therefore, it is fundamental to discover new drugs that plays an important role in treating bacterial infection. Medicinal plants contain active compounds to treat bacterial infection with novel mechanism of action. This study was aimed to evaluate the antibacterial activity of ethanolic extract of *Azadirachta indica* (Neem) against *Escherichia coli* and *Staphylococcus aureus*. Neem belongs to *Meliaceae* family and the active ingredients in neem play an important role in disease prevention and treatment. The antibacterial activity of neem was determined by well diffusion method against the selected pathogens. Two different concentrations of *Azadirachta indica* (Neem) were used in this study. The results were statistically analyzed by Student's T test. The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were also recorded. Neem extract at 50 mg/ml inhibited the growth of *Escherichia coli* and *Staphylococcus aureus* with zone of inhibition respectively  $11.67 \pm 0.94$  mm and  $12.33 \pm 0.94$  mm. Neem extract at 100 mg/ml inhibited the growth of *Escherichia coli* and *Staphylococcus aureus* with inhibition zones respectively of  $12.33 \pm 0.94$  mm and  $12.67 \pm 1.25$  mm. The MIC and MBC value of neem extract against *Escherichia coli* and *Staphylococcus aureus* was 25 mg/ml and 100 mg/ml. Further studies can be conducted in order to identify the novel compounds that was extracted from this plant sample which could be used to formulate potent antibacterial compounds against bacterial pathogens.

Keywords: *Azadirachta indica* (Neem), Antibacterial activity, Minimum inhibitory concentration (MIC), Minimum bactericidal concentration (MBC), Antibiotic resistance

**DETECTION AND DETERMINATION OF EFFECT OF ANTIBIOTIC ACTIVITY  
OF NYMPHAEA NOUCHALI (WATER LILY) AGAINST ESCHERICHIA COLI  
AND STAPHYLOCOCCUS AUREUS BACTERIA**

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**ABSTRACT**

With the emergence of antibiotic resistance within pathogenic bacteria, treating bacterial illnesses has become challenging. Therefore, a need of natural antimicrobial compounds to work alongside with the conventional antibiotics has arisen. Based on the past evidences on the presence of secondary metabolites responsible for antibacterial properties, the aquatic herb, *Nymphaea nouchali* (Blue water lily) was tested against pathogenic bacteria *Escherichia coli* (ATCC 25922) and *Staphylococcus aureus* (ATCC 25923). The ethanolic extract of the plant sample was assessed for the inhibitory activity both quantitatively and qualitatively using the laboratory techniques including antimicrobial susceptibility testing (ABST), minimum inhibitory concentration determination (MIC) and minimum bactericidal concentration determination (MBC) assays. At 50 mg/ml and 100 mg/ml concentrations, *N. nouchali* exhibited the highest inhibitory activity against *S. aureus* resulting zones of length  $24.667 \pm 0.471$  mm and  $26.334 \pm 0.471$  mm respectively. A significant difference in the inhibitory activity was expressed by the plant against the two bacterial strains at both the concentrations. In determination of MIC, a lower concentration of 12.5 mg/ml, expressed bacteriostatic properties against *E. coli* while, against *S. aureus* 25 mg/ml concentration expressed bacteriostatic properties. When determined the MBC, *Nymphaea nouchali*, expressed bactericidal properties at 50 mg/ml and 100 mg/ml concentrations against *E. coli* and *S. aureus* respectively. The results revealed the presence of phytochemical compounds that contained antimicrobial properties and the potent antibacterial activity of the plant, against pathogenic bacteria. Further analysis will be carried out using different solvent extraction methods.

Key words: Antibiotic resistance, Natural antimicrobial compounds, Inhibitory activity, Bacteriostatic, Bactericidal

**DETECTION AND DETERMINATION OF EFFECT OF ANTIBACTERIAL  
ACTIVITY OF MOMORDICA CHARANTIA L. (BITTER GOURD), ALLIUM  
CEPA L. (ONION) AND CLITORIA TERNATEA (BUTTERFLY PEA) AGAINST  
ESCHERICHIA COLI AND STAPHYLOCOCCUS AUREUS BACTERIA**

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**ABSTRACT**

The study was conducted to detect and determine the antibacterial activity of *Momordica charantia* L. (Bitter gourd) *Allium cepa* L. (Onion), and *Clitoria ternatea* (Butterfly pea) against *Escherichia coli* (ATCC 25922) and *Staphylococcus aureus* (ATCC 25923). The extraction of the plant phytochemicals was carried out using ethanol as the solvent. Well diffusion technique was used to assess the antibiotic susceptibility. The highest zone of inhibition was observed in *Allium Cepa* at 100 mg/ml against *Escherichia coli* ( $17.333 \pm 0.942$  mm). *Momordica charantia* gave an inhibition zone of  $11.33 \pm 0.471$  mm at 50 mg/ml against *Escherichia coli*, which was the lowest value. *Clitoria ternatea* inhibited *Escherichia coli* growth with a highest value of  $15.00 \pm 0.816$  mm at 100 mg/ml concentration. Observed results were statistically analyzed by two-way ANOVA. A significant difference was identified between the increase of concentrations in *Allium cepa* and *Clitoria ternatea*. For *Momordica charantia* significant difference was observed between bacterial strains used. According to minimal inhibitory concentration (MIC) results, all plant samples inhibited the growth of the microorganisms in either 25 mg/ml, 50 mg/ml or 100 mg/ml concentrations. The minimum bactericidal concentration testing showed that all samples inhibited the growth of *Escherichia coli* and *Staphylococcus aureus* in 50 mg/ml and 100 mg/ml concentrations. It was concluded that plant samples used in this study showed potential as antimicrobial compounds. Further studies are required with enhancements in order to derive a full evaluation of all these samples and introduce these plant species as reservoirs of antimicrobial compounds.

Keywords: Antibacterial activity, phytochemicals, *Momordica charantia* L. (Bitter gourd), *Allium cepa* L. (Onion) and *Clitoria ternatea* (Butterfly pea)

**IDENTIFICATION OF THE PRESENCE OF ANTIBIOTIC RESISTANT GENES IN  
ESCHERICHIA COLI IN DRINKING WATER SAMPLES OBTAINED FROM THE  
MALABE REGION**

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**ABSTRACT**

Antibiotic resistance is a threat that has manifested into a global crisis, causing several fatalities yearly. In developing countries, the prevalence of antibiotic resistance is rapidly increasing due to sub-standard disinfection and clearance protocols of hospital and household sewage and waste matter, and inadequate surveillance. Surface and ground waters are hot-spots for the dissemination of antibiotic resistance via horizontal and vertical gene transfer leading to the development of multidrug resistant bacteria capable of causing fatal infections. Escherichia coli is a known vector of antibiotic resistance and a commonly studied waterborne pathogen. For the isolation and differentiation of E. coli from other coliforms, initial membrane filtration and chromogenic culturing was carried to allow a non-specific size-based separation followed by colony colour based selection of potential E. coli isolates. The Simmon's citrate agar test was performed which showed negative results for 9 samples, followed by the indole test which showed positive results for 10 samples. Further, molecular analysis was performed wherein it was found that 10 samples were positive for the 16SrRNA gene, all samples possessed the uidA gene and 9 isolates carried the LacY gene. Disc-diffusion antibiotic sensitivity testing on the 9 isolates revealed samples 2, 5,6, and 11 were resistant to tetracycline, however sulfonamide sensitivity was observed among all samples. Molecular analysis of tetA and tetC genes showed that sample 6, collected from a lake showed positive results for tetA, whereas sample 2, collected from a tube well, and samples 5 and 11 from fishing site possessed the tetC gene.

Keywords: Antibiotic resistance, Escherichia Coli, Tetracycline resistance, Sulfonamide resistance

## ECONOMIC FORECASTING OF DEMOGRAPHIC DIVIDEND OF INDIA

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### **ABSTRACT**

Many social scientists and demographers have analyzed and concluded that the catalyst behind the demographic dividend in the developing countries was sudden fluctuations in the age structure in those countries. This phase opens a window of a demographic opportunity as it results in an increase in the share of young adults in the population leading to a 'youth bulge' together with rapidly declining infant mortality. In this background, this research paper attempts to study how economic growth of India gets influenced by its demographic dividend. India, has been chosen to see this relationship between two variables economic growth and demographic dividend using fixed effect model covering a period of 2000–2011. The results show that a substantial fraction of the growth acceleration that India has experienced since the 1980s—sometimes ascribed exclusively to economic reforms—is attributable to changes in the country's age structure. Moreover, the demographic dividend could add about 2 percentage points per annum to India's per capita GDP growth over the next two decades. The impact of India's dividend will eventually uplift the growth rate of the potential labor force along with the growth of younger population. The results from regression equation exhibit that relationship between GDP growth rate and demographic dividend is positive thus, validating our hypothesis that demographic dividend has a positive impact on economic growth. However India needs to ensure timely implementation of effective policies to realize the dividend.

Keywords: Demographic Dividend; Economic Forecasting; Population Projection

## PREPARATION AND CHARACTERIZATION OF NANOFIBERS EXTRACTED FROM BANANA PSEUDO-STEMS

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### **ABSTRACT**

Banana (*Musa acuminata*) fibers whose major constituent is cellulose can be modified using various chemical agents in order to enhance their properties. Characterization of banana fibers at various stages is important to identify the structural differences in fibers during the process of development into nanofibers. In this study, stem explosion in an alkali medium with high-pressure defibrillation and acid treatment with oxalic acid have been carried out on fibers obtained from the pseudo-stems of the banana plant. The crystalline structure and the chemical composition of extracted cellulose and nanocellulose were characterized by using X-ray diffraction (XRD) and Fourier Transform Infrared spectroscopy (FTIR) respectively. The FTIR analysis is used to determinate the functional groups that are actively interacting within the banana fibers. It verified that the non-cellulosic constituents such as hemicellulose and lignin present in the fiber were removed by steam explosion and acid treatments. The Crystallinity Index (CI) of the raw and modified fibers were calculated by XRD peak height method and it revealed that the nanocellulose prepared by acid hydrolysis has higher crystallinity than raw and NaOH treated fibers. Steam explosion in an alkaline medium and subsequent acidic medium is found to be effective in depolymerizing and defibrillating the fiber to produce banana nano-fibers.

Keywords: Banana fibers, pseudostem, steam explosion

**IDENTIFICATION OF ESCHERICHIA COLI AND SCREENING FOR  
ANTIBIOTIC RESISTANCE IN DRINKING WATER SAMPLES, OBTAINED  
FROM PANADURA, SRI LANKA**

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**ABSTRACT**

The rise and spread of antibiotic resistance promoted by the overuse and misuse of antibiotics is a growing concern with regard to human health in the modern world we live in today. The consumption of water sources contaminated by bacteria, namely *Escherichia coli* (*E. coli*) pose a significant threat to health and to assess the safety for domestic human use by detection of antibiotic resistant *E. coli* in Panadura town, Sri Lanka, 10 drinking water samples were collected from distant locations within the said area. Microbiological techniques comprising membrane filtration, morphological analysis by gram-staining, biochemical tests – both Indole and Simmons’s citrate test, followed by molecular assays; 16S rRNA, *uidA* and *lacY* gene PCRs were carried out for the confirmation of *E. coli*. Further to this, an antibiotic susceptibility test (ABST) was carried out using antibiotics tetracycline and sulfonamide following the Kirby-Baur protocol in accordance with CLSI standards for the determination of antibiotic resistance. Finally, the detection of antibiotic resistant genes for both *tetA* and *tetC* was carried out by PCR. Out of selected 7 samples of interest being subjected to subculturing after isolation by chromogenic media following biochemical, morphological and molecular assays, samples S1, S3, S6, S8, S9 and S11 are suspected to contain *E. coli*. With reference to ABST, all suspected samples had responded with sensitivity to sulfonamide. However, for tetracycline, samples S3 and S11 displayed intermediate resistance. Whereas, the samples S6, S8 and S9 indicated complete resistance. Samples S6, S8, S9 and S11 expressed *tetA* gene whilst the *tetC* gene assay produced non-specific amplicons. It was confirmed that the samples obtained from Keselwatta, expressing the *tetA* gene are *tetA* resistant *E.coli*.

Keywords: *E. coli*, Drinking water samples, Antibiotic resistance, Tetracycline, Sulfonamide

## DEVELOPMENT OF A FINGERPRINT TO IDENTIFY THE DIFFERENT TYPES OF COCONUT OIL

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### **ABSTRACT**

Coconut oil represents the main edible oil use in Sri Lanka. Copra coconut oil (CCO), virgin coconut oil (VCO) and coconut oil extracted from desiccated coconut (DC) are the most widely used, especially because of their aroma and health benefits. Therefore, some efforts were made to identify the compounds which are responsible for their authentic aroma. CCO, VCO and DC oils were prepared in laboratory controlled conditions according to SLS 32:2017 standard. Volatile compounds were analyzed via head space GC-MS analysis (Thermoscientific Trace 1300 model). Compounds were identified using the NIST 11 reference library. Quantification was done by using an internal reference (100 ppm euginol). The identified main compounds were 4-hydroxyhexa-3-ne-2-one, acetonyl acetone, ethyl 3-hydroxybutanoic acid, propanoic acid, ethyl acetone, methylbenzoate, butanoic acid, 2-methyl propanoic acid,  $\gamma$  carpalactone, hexanoic acid,  $\delta$ -octalactone, octanoic acid and 3-hydroxybutanoic acid. Ethyl acetone, methylbenzoate and octanoic acid were only observed in CCO and ethyl 3-hydroxybutanoic acid was only observed in VCO and DC oil. From all the compounds 4-hydroxyhexa-3-ne-2-one recorded the highest concentration in three different coconut oil types. All identified compounds were significantly differed in ANOVA ( $P > 0.05$ ). It was recorded volatile compounds in CCO, VCO & DC oil respectively in the ranges of 1.7-315 ppm, 26-839 ppm and 13-1032 ppm. These differences of volatile constituents between three oils were due to difference on manufacturing processes of oils. In the conclusion comparison of the volatile constituents of these coconut oils is reported for first time and this could be used as the fingerprint to identify coconut oil types.

Keywords: Volatile compounds, Copra coconut oil, Virgin coconut oil, Desiccated coconut oil, Head space GC-MS

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## DETERMINATION OF CHOLESTEROL-LOWERING ABILITY OF LACTOBACILLUS ISOLATED FROM CURD

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### **ABSTRACT**

Probiotics are live bacteria, considered safe and confer beneficial effects to the human when obtained in adequate amounts. Probiotics are common in fermented dairy products, including curd. Curd is a rich source of nutrients and probiotics. Lactobacilli are commonly found probiotics in curd. The current study aims to identify Lactobacillus from curd samples and to determine their cholesterol-lowering ability. To identify Lactobacillus, commercially available five different curd samples were cultured on MRS media specific for Lactobacillus growth. Lactobacillus was identified in all five samples by morphological and biochemical tests. The colony morphology of the isolates was single colonies with smooth, round and creamy white colour. The isolated Lactobacillus characterized using gram stain, catalase test, acid-fast stain, and endospore stain. The isolated bacteria were gram-positive, catalase-negative, acid-fast negative, and non-endospore forming. The isolated pure colony of Lactobacillus was subcultured in MRS broth for the cholesterol-lowering test. The cholesterol-lowering ability of Lactobacillus cell intact and cell free suspensions of all five samples were tested by ferric ammonium sulphate method. The cholesterol removal rate was measured spectrophotometrically at the 560 nm wavelength. The data analysis shows that cell intact suspension has significantly high ( $p < 0.05$ ) cholesterol-lowering ability than cell free suspension. Cholesterol-lowering ability of Lactobacillus found in curd would be a cost-effective alternative treatment with no side effects to reduce serum cholesterol levels compared to commercially available hypocholesterolemic pharmacological drugs that have side effects which could have an impact on the quality of life.

Keywords: Probiotics, Lactobacillus, Curd, Cholesterol-lowering ability

# IDENTIFICATION OF LACTOBACILLUS IN CHEDDAR CHEESE SAMPLES AND THEIR APPLICATION IN THE SYNTHESIS OF SILVER NANOPARTICLES FROM SILVER NITRATE

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## **ABSTRACT**

Probiotics are living microorganisms having more beneficial effects on human health when ingested in adequate amounts. Consequently, probiotics are being applied in the food industry where Lactobacillus species are widely used. Hence, this study was aimed to identify Lactobacillus in five cheddar cheese samples, synthesis of silver nanoparticles (AgNPs) using Lactobacillus and to analyze antibacterial properties of synthesized AgNPs. Five samples were cultured on MRS agar. Lactobacillus was identified by colony morphology and biochemical assays. AgNPs were synthesized using identified Lactobacillus. The absorbance of synthesized AgNPs was measured by UV-Visible spectroscopy and the size of the nanoparticles was evaluated by scanning electron microscope (SEM). Antibacterial activity of synthesized AgNPs and isolated Lactobacillus was evaluated by well diffusion assay. All biochemical assays confirmed the presence of Lactobacillus in four-cheese samples (gram-positive bacilli, catalase-negative, non-acid fast, and non-spore-forming bacteria). UV-Visible spectra showed multiple absorbance peaks at a range of 390-450nm confirming the formation of AgNPs. The SEM analysis indicated well-dispersed agglomerates of spherical shape AgNPs with size range from 50-100nm and the presence of Lactobacillus. A significant difference (P-value < 0.05) was observed in the antibacterial activity of AgNPs and Lactobacillus against Staphylococcus aureus and Escherichia coli. Furthermore, Lactobacillus showed a significantly high inhibitory effect on Staphylococcus aureus while AgNPs showed high inhibitory effect against Escherichia coli (P-value < 0.05). Thus, biosynthesized AgNPs serve as a remarkable antibacterial agent to treat infectious diseases caused by multidrug-resistance pathogens which have become a global crisis and will result in great potential in nanomedical applications.

Keywords: Probiotics, Cheese, Lactobacillus, AgNPs, Antibacterial activity

# GENDER-SPECIFIC INFLUENCES OF BALANCE, SPEED, AND POWER ON AGILITY PERFORMANCE OF KARATE PLAYERS

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## **ABSTRACT**

The quick change of direction is the most important physical quality in Karate. Scholars found that the development of speed, balance, and power is a result of the development of agility performance. This experimental study was aimed to determine the gender-specific influence of balance, speed, and power on the agility performance of Karate players. 25 female and 30 male national level Karate players participated in this study. Three agility tests (a T-Test, Zig Zag test, Illinois test), two balance tests (Flamingo balance test, standing stock- blind test), two power tests (vertical jump test, standing board jump test), two-speed tests (30 m and 60 m sprint) were tested. Data were analyzed using the Spearman correlations analysis. There was a moderate positive relationship between male and female players in speed and agility ( $r = 0.654$ ,  $p = 0.000$ ) while the male and female players showed a weak positive linear relationship between Agility and Balance ( $r = 0.336$ ,  $p = 0.015$ ). Male and female players had a negative linear relationship between Agility and Power ( $r = -0.483$ ,  $p = 0.000$ ). Interestingly, male and female players had a significant difference in Speed and Balance. Female Karate players showed a stronger relationship between Agility and Speed, Agility and Balance than the male Karate players. In this study conclude, there was a significant influence from speed and balance towards the agility performance of both male and female players whereas there was no significant influence on power towards the agility performance of both male and female players.

Keywords: Agility performance, Speed, Balance, Power

**DETECTION OF ESCHERICHIA COLI AND ITS ANTIBIOTIC RESISTANT  
GENES USING POLYMERASE CHAIN REACTION (PCR) IN DRINKING WATER  
SOURCES LOCATED IN KADAWATHA, SRI LANKA**

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**ABSTRACT**

Microbial contamination of ground water has been a major issue pertaining to the access for safe drinking water. Escherichia coli (E. coli) is a gram-negative bacterium that comprises of commensal and pathogenic strains and are frequently associated with fecal contaminations in water. Furthermore, antibiotic resistance of E. coli is an imperative concern at present worldwide. Despite molecular detection of E. coli using polymerase chain reaction (PCR) has enhanced specificity and rapidity, new emerging technologies such as biosensors and microarrays are also being used. In this study, microbial contamination of E. coli in ground water samples and its antibiotic resistant genes were detected using PCR. All the samples were positive for the uidA gene which encodes for the ubiquitous  $\beta$ -D-glucuronidase enzyme. Furthermore, all the samples were positive for the 16srRNA gene which further confirmed the presence of E. coli. Tetracycline resistance was a major concern in the study and its resistant genes were tested. TetA and TetC were the targeted antibiotic resistant genes and were negative in all the samples which shows the possibility of having other Tet resistant genes such as TetD, TetM and TetC. The statistical analysis done using an independent t test revealed that there is no statistically significant variability in the DNA concentrations obtained from the two extraction methods used in the study. This study can be further improved by increasing the sample number and detecting other Tetracycline resistant genes.

Keywords: Water, Escherichia coli, Antibiotic Resistance

# **A WHOLE-CELL RIBOSWITCH-BASED BIOSENSOR AS A NOVEL APPROACH TO DETECT ENVIRONMENTAL FLUORIDE**

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## **ABSTRACT**

Fluoride is an essential component for humans and other organisms. The influence of fluoride may be beneficial or adverse depending on its concentration present in humans and other organisms. In Sri Lanka, fluoride found to be a significant groundwater contaminant that causes various health problems. Therefore, adopting an inexpensive and rapid solution to monitor the presence of fluoride in water is vital to reduce the vulnerability of communities to fluoride dependent diseases. Biosensors are nowadays ubiquitous in a wide range of areas. We have developed whole-cell biosensor of  $\Delta$ crcB *E. coli* carrying a pRS414 plasmid cloned with fluoride responsive riboswitch, coupled to lacZ reporter gene as a novel approach for monitoring fluoride. The quantitative assay was performed using Ortho-Nitrophenyl- $\beta$ -galactoside, which get converted to a yellow colour product Ortho-nitrophenol (ONP), in the presence of fluoride that results in the expression of the downstream lacZ. The fluoride content in the water was quantitatively determined by measuring the absorbance of ONP at 420 nm. The calibration curve showed a linear relationship between fluoride and absorbance (ONP) for the fluoride concentrations ranging from 5 – 100  $\mu$ M. The fluoride content of water samples obtained from various regions of the country was measured using the whole-cell biosensor, and the values are then compared with SPANDS spectrophotometer readings of the same sample. The results indicated that there is a significant correlation between the absorbance (ONP) and fluoride levels in the standards ( $R^2= 0.9905$ ) as well as water samples. Given its high selectivity and sensitivity for fluoride, the riboswitch-based whole-cell biosensor can be used as a promising tool to monitor environmental fluoride accurately.

Key words: Fluoride, LacZ, Riboswitch, Reporter assay

## **A STUDY ON THE PUSH START IN SWIMMING – RELATIONSHIP WITH LOWER BODY ANTHROPOMETRIC MEASUREMENTS**

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### **ABSTRACT**

This study has examined the push start in swimming. Push start means where the swimmers begin a race from inside the pool rather than diving from a block. The motivation behind this was the fact that only one pool which is up to international standards can be found in Sri Lanka. For this study a total of 30 under 19 National level male swimmers were selected at random. The push start was measured by taking the time of 15m underwater swim with butterfly kicking. The timings were broken down in to 3 parts which were 5m, 10m and 15m. The other measurements were vertical jump, standing broad jump, upper limb length, lower limb length, height, weight, body fat percentage, lower body fat percentage and body mass index measurements. In this study, correlation analysis and multiple regression analysis using multilevel modelling for repeated measured have been used for data analysis. Due to positive correlations between some variables, principal component indexes were developed. Principal component 1 for vertical jump and standing broad jump, principal component 2 for upper limb and lower limb length. According to the findings, vertical jump, standing broad jump, upper limb length, lower limb length and body mass index have a significant negative impact on the push start. Furthermore, negative correlations were found between the push start time and vertical jump, standing broad jump, upper limb length, lower limb length, body fat, lower body fat and body mass index.

Keywords – Swimming, push start, principal component

**RELATIONSHIP BETWEEN FOREIGN ACTIVE SPORTS TOURISTS' TRAVEL  
MOTIVATION, PAST TRAVEL EXPERIENCE AND REVISIT INTENTION;  
EMPIRICAL EVIDENCE FROM NUWARA ELIYA TOURIST AREA IN SRI  
LANKA**

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**ABSTRACT**

Tourism which has been diversified and connected with many other industries is recognized as a focal industry in both developed and developing economies due to its growing contribution towards economic development. Over the time, a well-established interconnectedness is observed between sports and tourism due to their several common attributes. As Sri Lanka is an exceptional tourism destination in Asian region, it needs to strategically explore blue oceans of tourism industry through diversification and innovations. The main objective of this cross-sectional study is to examine the relationships between travel motivation, past travel experience and revisit intention of foreign active sports tourists in Nuwara Eliya area which is a highly attractive destination among foreign tourists. Data is collected from 100 active sports foreign tourists, who engaged in popular sporting activities in Nuwara Eliya area such as boat riding, golf, motor racing, horse riding, and cycling using purposive sampling. Based on empirical studies, variables are operationalized and survey instrument was a Likert scale questionnaire. Data was analysed using SPSS 23.0 version. The relationships were hypothesised and tested with Spearman correlation after checking for outliers, internal consistency and normality. Results revealed moderate level of positive relationships among two independent variables and the dependant variable. Accordingly, Nuwara Eliya governmental and private institutions can initiate more strategies to enhance the availability of natural resources based adventure sporting activities/facilities; organizing seasonal sporting tournaments, cultural events and festivals; and develop more logistic choices around city's key sporting facilities to enhance foreign tourist visits and re-visits which results social and economic benefits to city and whole nation.

Keywords: Revisit Intention, Active Sports Tourist, Travel Motivation, Past Travel Experience

**RELATIONSHIP BETWEEN MOTIVATION AND PARTICIPATION LEVEL OF  
SRI LANKAN FOOTBALL PLAYERS; WITH SPECIAL REFERENCE TO  
NORTHERN AND NORTH CENTRAL PROVINCE**

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**ABSTRACT**

Fédération Internationale de Football Association records revealed that, Sri Lanka men's national team is in the 200th position. According to the Football Federation of Sri Lanka (FFSL) records, different provinces of Sri Lanka have significant differences in football participation level. One of the main cause for the provincial level participation differences is an issue with the players' participation level. This study attempts to examine the relationship between motivation and participation level of Sri Lankan football players with special reference to Northern and North Central provinces where outstanding and weak levels of provincial level participation can be observed respectively. Based on the past studies, motivation is operationalized with six dimensions; intrinsic regulation, integrated regulation, identified regulation, introjected regulation, external regulation and amotivation while sport participation is operationalized with level of participation dimension. FFSL registered clubs list was adopted as the sampling frame and such registered players of two selected provinces were considered as units of analysis. To reach study objectives, author used disproportionate stratified sampling method and multi stage sampling method in selecting 240 players. Measurement scales which was developed base on past studies was validated for internal consistency after a pilot test. A descriptive analysis, reliability analysis, normality test and correlation test were performed using SPSS software version 23.0. Scatter Plot and Spearman Correlation coefficient were used to test the hypothesis established in the conceptual framework. Findings showed that, motivation of the players significantly positively correlates with their participation level. Based on the findings, football coaches, managers, and the governing body can implement programs to develop players' self-determination and to develop motivation level of players internally as well as externally to increase the participation level island wide. This will ultimately facilitate Sri Lanka to develop its football global rankings.

Keywords: Football, Motivation, Participation

**UNDERSTANDING HOW MOTIVATION AFFECTS PARTICIPATION IN SPORTS  
AMONG FEMALE UNDERGRADUATES OF THE UNIVERSITY OF SRI  
JAYEWARDENEPURA**

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**ABSTRACT**

In today's context, there is an increasing trend in obesity among students in Sri Lanka. Lack of physical activity and unhealthy food patterns due to busy schedules have been identified as the main causes. A significant amount of researches has been conducted on motivation in sports for the purpose of understanding why some people show an enduring desire to pursue their sport, whereas others quit or lose interest. The purpose of this cross sectional study is to determine how motivation affects sports participation level of female undergraduates in University of Sri Jayewardenepura who have a low level of sports participation compared to male undergraduates. In the perspective on self-determination theory, motivation for sport is a complex occurrence with several regulators, with most people having numerous thought processes in commitment. Accordingly, motivation is considered as the independent variable in this study and operationalized with intrinsic regulation, integrated regulation, identified regulation, introjected regulation, external regulation and amotivated regulation. Sport participation, the dependant variable is operationalized with level of participation. Data was collected from 173 female undergraduates representing all the faculties through a questionnaire which is tested for internal consistency after carrying a pilot test. SPSS 23.0 version was used for descriptive analysis and six hypothesis testing. Spearman Correlation Coefficient showed that, intrinsic regulation, integrated regulation, identified regulation and introjected regulation have strong positive relationships with sports participation. Extrinsic regulation has a weak positive relationship while amotivated regulation has a strong negative relationship. It has been postulated that, motivation does not need a combination of all the variables to occur, as in, a strong motivation can occur through a single variable itself. Therefore, enhancement of motivation towards sports participation through different programmes and strategies by administrators and undergraduates themselves will be beneficial for a healthy and balance career of future graduates.

Keywords: Motivation, Sports Participation, Female Undergraduates

**THE RELATIONSHIP BETWEEN POWER BASES AND PERCEIVED JOB  
SATISFACTION AMONG THE COACHES IN OUTSTANDING SPORT  
PERFORMING STATE UNIVERSITIES IN SRI LANKA**

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**ABSTRACT**

All sport related competitive institutions including universities recruit competent and experienced coaches with the goal of enhancing institutional athletes' performance level. Accordingly, institutional administrators exert power over these coaches to achieve outstanding institutional sports excellence ultimately. Adaptation of different power bases by the administrators influences over coaches' job satisfaction which is also effect on athletes' performance level. This study aims to investigate the relationship between the power bases and perceived job satisfaction among the coaches in Sri Lankan outstanding sport performing state universities in Sri Lanka. There are fourteen state universities in Sri Lanka and ten most outstanding performed universities during the Sri Lanka University Games 2019 were considered for this cross sectional study. Accordingly, all the coaches recruited for above ten universities' Physical Education Divisions in 2019 were considered as the study population. 102 coaches were selected as the study sample by using stratified sampling technique. Data was collected through a Likert scale questionnaire. Power bases were operationalized as reward, coercive, legitimate, expert and referent power bases while perceived job satisfaction was operationalized as intrinsic and extrinsic job satisfaction. A pilot test was conducted and internal consistency of the survey instrument was established. After checking for outliers and normality, the hypothesized relationships between study variables were tested using Spearman correlation coefficient test with SPSS version 23.0 version. As per the results, all hypothesis were accepted and showed moderate level positive correlations. Accordingly, it is recommended to university administrators to consider in expanding career growth opportunities, provide different monetary/fringe incentives and more recognition, facilitate continuous guidance and orientation towards institutional sports goals for institutional coaches as coaches play a predominant role in enhancing university's sport performance which is a key student priority area for all universities in present.

Keywords: Job Satisfaction, Power Bases, University Coaches, Sports Performance

# IDENTIFYING THE EFFECT OF HANDGRIP STRENGTH AND REACTION SPEED TO THE NATIONAL TABLE TENNIS PLAYERS' PERFORMANCE

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## **ABSTRACT**

Table tennis is an individual and asymmetric sport in which a great number of shots are performed at high velocity and power involving the dominant body side. The aim of this study was to identify the effect of handgrip strength and reaction speed to the national table tennis players' performance. A total of 32 players (16 males and 16 females), aged between 14 and 35 years participated in this study. All subjects carried out a handgrip strength test using an isometric handgrip dynamometer and reaction speed test (drop ruler test) using a one-meter ruler. The relationships between national Table Tennis players' handgrip strength, reaction speed and performance were analysed by applying the Pearson correlation method. One-way ANOVA method was used to identify the gender differences impact on handgrip strength and reaction speed. Males showed higher levels of grip strength than females ( $21.13 \pm 3.59$  and  $36.43 \pm 7.33$  kg for female and male players) and the males showed a lower level of reaction speed than females ( $6.06 \pm 2.08$  and  $7.20 \pm 2.45$  cm for male and female players). Furthermore, there was no correlation between handgrip strength and both female and male players' performance ( $P= 0.053$  and  $P= 0.752$  for female and male players). There was a significant correlation between reaction speed and both female and male players' performance ( $P=0.002$  and  $P=0.005$  for female and male players).

Keywords: Table Tennis, Handgrip Strength, Reaction Speed

## SUGGESTION FOR THE CLASSIFICATION URINARY STONES

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### **ABSTRACT**

Urinary stones are classified in to Category I and II, based on the characterizing ions. Category I stones have the composition of three main anions viz Uric acid/Urate, Oxalate and Phosphate. If the Uric acid/Urate is  $\geq 20\%$ , the stone is Uric acid/Urate type; Oxalate is  $\geq 40\%$ , the stone is Oxalate type and Phosphate is  $\geq 10\%$  with Uric acid/Urate  $< 20\%$  and Oxalate  $< 40\%$ , the stone is Phosphate type. Category II stones should have,  $Mg^{2+} \geq 3\%$  as characterizing ion. If the ionic components of the stones match the above, there is no other accepted classification methods available. In this studies 100 urinary stones were collected from Northern Province patients who underwent surgical intervention at Genitourinary Surgical Unit, Teaching Hospital, Jaffna. Among the stones, 51 were classified Uric acid (21 nos.), Oxalate (13 nos.) Phosphate (12 nos.) and five stones were of Category II. Rest of the 49 stones did not comply with the available method and they were classified based on the ratios between the highest anion (characterizing ion) and the second highest anion (indicating ion) present in the stones. In this method the stones which had Oxalate to Urate ratio between 16:1 to 65:1 were considered as Oxalate stones (41 nos.); Urate to Oxalate ratio from 0.5:1 to 100:1 were considered as Urate type (4 nos.) and Phosphate to Oxalate ratio between 0.5:1 to 25:1 as the Non- infection Phosphate stones (4 nos.). The compositions of selected stones fitted well with the analytical report of Fourier Transform infrared spectroscopy (FTIR) method. This study indicated that wherever the classification of stones is not feasible based on the method in practice, the suggested method could be adopted to classify the urinary stones.

Key words-Urinary stone, Characterizing ions, Indicating ions, Oxalate stone, Urate stones

**THE INFLUENCE OF PERSONALITY TRAITS ON PHYSICAL EXERCISE  
MOTIVATION OF REGISTERED FITNESS CENTER USERS IN GAMPAHA  
DISTRICT**

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**ABSTRACT**

Engagement in regular exercise is an important part of a healthy lifestyle for everyone despite of any individual difference. Regular exercises help to prevent non-communicable diseases such as type two diabetes, cancer, hypertension, obesity, etc. The individual personality is closely connected to exercise participation motivation. In this exploration, it is examined the relationship between personality traits and physical exercise motivation of users of registered fitness centres in the twelve Divisional Secretariats in Gampaha District, Sri Lanka. 546 voluntary participants who used registered fitness centres to lose weight were selected as the study sample using proportionate stratified sampling method. Five-factor model Revised NEO Personality Inventory (NEO PI- R) was used to assess the personality traits while Markland and Ingledew's Motivation Questionnaire was used to assess the physical motivation. The exercise motivation questionnaire was given before and during the workout and NEO PI- R was given before 30 minutes of the workout. SPSS 23.0 version is used for data analysis in this cross sectional study. Scatter Plot diagrams and Spearman Correlation Coefficient were used to test hypothesis developed. Results indicated that, there are positive relationships between all five personality traits (Extraversion, Agreeableness, Conscientiousness, Emotional stability, openness), and physical exercise motivation. This study results offer significant indications not only for instructors of fitness centers but also to government officers to promote health and quality of life through stimulating exercise motivation and exercise participation. It would be recommended to develop customized motivational programmes based on the individual differences of fitness centre users to stimulate and sustain physical exercise motivation which will be beneficial to users, fitness centres and also for government in minimizing health cost and maximizing social welfare.

Keywords – Personality traits, Physical exercise motivation, Fitness centre users

**THE EFFECT OF 8 WEEKS SUPRASPINATUS AND SUBSCAPULARIS MUSCLES  
STRENGTHENING PROGRAMME USING RESISTANCE BANDS ON  
THROWING VELOCITY AMONG UNDER NINETEEN SCHOOL BASEBALL  
PLAYERS OF COLOMBO DISTRICT**

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**ABSTRACT**

This is an experimental study which was done to determine the effect of 8 weeks shoulder muscle (supraspinatus and subscapularis muscles) strengthening programme using resistance bands on throwing velocity among under nineteen school baseball players of Colombo district and it was consisted of 40 under 19 players in Colombo district, Sri Lanka. Shoulder muscle is a complex muscle group which contains 4 major rotator cuff muscles that are supraspinatus, subscapularis, infraspinatus and teres minor. 40 baseball players were randomly selected into experimental and control groups 20 each. The effect of strengthen supraspinatus and subscapularis muscle groups on throwing velocity was tested in this study for these divided 2 groups. Both muscles strength and throwing velocity were measured prior to the strengthening programme. The strength of the rotator cuff muscles was measured by 10 repetition maximum (10 RM) and throwing velocity was measured by using a hand held pro speed-professional radar gun. 8 weeks muscles strengthening programme was carried out and measurements were taken after the strengthening programme. Subscapularis muscle strength was ranged from 9.55 to 10.10kg and from 9.45 to 9.63kg. For supraspinatus muscle, it was ranged from 4.55 to 5.18kg and from 4.75 to 5.05kg with respect to the experimental and control groups. The data were analyzed using SPSS 23.0 version and there was a significant effect on throwing velocity which ranged from 78.88 to 80.34mph and from 78.80 to 79.43mph at the end of this strengthening programme. Therefore, it is revealed that, resistance band training has a considerable impact on rotator cuff muscle strength and it can be used as a strengthening method for the shoulder muscle towards the improvement of the throwing velocity.

Keywords: Baseball, Throwing velocity, Rotator cuff muscle strength, Supraspinatus and Subscapularis muscles

**RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND  
DEVELOPMENT GOAL ORIENTATION AMONG SRI LANKAN STATE  
UNIVERSITIES' COACHES**

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**ABSTRACT**

In the field of sports, coaches and athletes play important and essential roles in a competitive environment. Coaches establish development-oriented goals; focus on the wellbeing and development of young athletes who do training under them as a major extra-curricular activity. Coaches' emotional intelligence significantly influences over their decision making relevant to young athletes' sports career. This study aims to investigate the relationship between emotional intelligence and development goal orientation among the coaches in 14 Sri Lankan state universities. All the coaches registered at Physical Education Divisions of 14 universities was considered as the sampling frame and using stratified sampling method, 127 coaches were selected as the study sample. A Likert scale questionnaire was adopted as the measurement scale which was developed based on empirical studies in this study domain and internal consistency is assessed through a pilot test. Emotional intelligence was operationalized with four dimensions namely; self-emotional appraisal, other-emotional appraisal, regulation of emotion and utilization of emotion while development goal orientation was operationalized with three dimensions namely; academic development, citizenship development and career development. Descriptive data analysis, reliability test, normality test, and hypothesis were tested using SPSS 23.0 version. Scatter Plot and Spearman correlation coefficient tests were used to measure the correlation between emotional intelligence and development goal orientation. P value of Spearman correlation coefficient was less than 0.05 and showed a moderate level positive correlation between emotional intelligence and development goal orientation. Accordingly, university sports administrators need to consider in maintaining and developing their coaches' emotional intelligence through more self-reflection programmes as it influences over university athletes' both sport and professional career directly.

Keywords: Emotional intelligence, Development goal orientation, coaches

**THE EFFECT OF UPPER AND LOWER LIMB FAT PERCENTAGES TO THE  
UNDERWATER PERFORMANCE OF BUTTERFLY STROKE IN UNDER-19  
NATIONAL-LEVEL MALE SWIMMERS IN SRI LANKA**

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**ABSTRACT**

Swimming is categorized into four major disciplines; breaststroke, backstroke, butterfly stroke, and front crawl. In Sri Lankan swimming history, butterfly stroke has shown highest performances when comparing the world level. This study has focused on the underwater performance of butterfly stroke with upper and lower limb fat percentages. Since coaches have a secondary objective to decrease the amount of fat this study was carried out to explore the impacts of body fat. In this study, thirty (30) under-19 national swimmers were selected randomly and were asked to perform the 50meter butterfly with a jump-start, data were collected using the observational method. Fat percentages were measured by a bio-impedance analyzer. Pearson correlation, regression analysis, one-way ANOVA, and general linear model were used to analyze the data. According to the analysis, factors affecting performances were distance per stroke, distance per kick (underwater), and stroke frequency. Results showed that underwater performance had a critical impact on overall performances as the subjects who had better overall performance always had better underwater performance. Furthermore, results showed that the variable “distance per kick” had a significant effect on underwater performance as well. Finally, it was concluded that maintaining an upper limb fat percentage between 17- 22 and lower limb fat percentage between 15- 21 was helpful in reaching better performance at underwater.

Keywords: Butterfly stroke, upper limb, lower limb, performance, fat percentage

**THE RELATIONSHIP BETWEEN SPORTS CELEBRITY ENDORSEMENTS AND  
PURCHASING INTENTION OF COLOMBO DISTRICT YOUNGER  
GENERATION, SRI LANKA**

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**ABSTRACT**

Many businesses are not perfectly succeed in communicating effectively with their potential customers due to cluttering in advertisements. Advertising through celebrity endorser has become a trend and a perceived as a winning formula in product marketing. This paper aims to examine the relationship between the sports celebrity endorsements and purchasing intention of Colombo district younger generation in Sri Lanka. Studies have shown celebrity endorsement as a marketing tool which brings many positive effects towards the purchasing intention for a particular brand. Many studies have proved empirically the effectiveness and the positive influence of celebrity endorsements in advertising, particularly on purchase intention. This study considers the three common dimensions (Attractiveness, Expertise and Trustworthiness) of celebrity endorsement. However, there is no common unanimity in literature whether attractiveness, trustworthiness and expertise of the celebrity endorsers have significant impacts on consumers' purchase intention. A questionnaire developed based on past studies was adopted as the survey instrument. For this cross sectional study, data was collected from 247 university undergraduates reside in Colombo district who are between 17-24 age and who are selected through convenience sampling method. Collected data were analyzed descriptively using Microsoft Excel and SPSS 23.0 version. Descriptive analysis, reliability test, normality test and correlation test were performed. Hypothesized relationships of the study were tested using Scatter Plot diagram and Spearman Correlation Coefficient. P values of all correlation coefficients were less than 0.05 and showed moderate positive correlations between each of the independent variables and the dependent variable. Accordingly, it is empirically evident that, sports celebrity endorsements positively correlates with consumers' purchase intention. Accordingly, marketers can adopt more sports celebrity appearances related marketing programmes to stimulate firms' market stand and businesses' performance.

Keywords: Sport celebrity, Celebrity endorsement, purchasing intention

# CHALLENGING ISSUES IN TRANSLATING CONVERSATIONAL IMPLICATURE OF ENGLISH LANGUAGE

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## **ABSTRACT**

Implicature is the act of meaning or implying one thing by saying something else. Conversational implicature define the context of language texts based on social incidents and human activities. The speakers engaged in conversation should be well aware of the implicature in order to make the communication process more successful. In this sense, the objective of this research is analyzing the problems of translating conversational implicature from source language to target language. Translators encounter different types of difficulties which are attributed to vocabulary, culture and idioms. One of the major difficulties translators have to face with is the translation of conversational implicature of a certain language to another language. This research discusses about the issues a translator deals with when translating implicature and the techniques used by translators to overcome that challenge of translating implicature. The study is mainly based on the utterances used by native speakers of English language and the specific phrases they use to define the context of the utterances. Words like “but, even and yet” are used to carry conversational implicature in English language. For instance, the sentence, “Even Warne scored a century” literally means that no one expected a century from Warne. Thus, the translator has to define the exact meaning of the implicature with reference to the situation and the terms used by the speaker. To conclude, the translator has the responsibility in being aware of the types of conversational implicature in the process of translation and moreover, context and conversational implicature are challenging and valuable goals a translator needs to achieve in bringing forward a successive translation.

Keywords: Conversational Implicature, English, Translation, Context, Communication

## **INFLUENCE OF TECHNOLOGY IN CREATING A LINGUISTIC SUBCULTURE**

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### **ABSTRACT**

Technology has been able to change what we can do and how we do things with the help of rapidly developing technologies and as a result, language has also been modernized by the time. Modern technologies have made a huge impact on changing the language use which is mainly speaking. The objective of this research is to identify how technology has aided to create a modern world linguistic subculture. Various types of morphological changes have occurred majorly in English language such as acronyms, word blends, and clipping with the introduction of modern-day technologies. This research is mainly based on qualitative data which will be gathered from interviews and online sources. One of the most common ways where these changes could be seen is when a company name or a name of a technical device become a way of doing something. The most popular example for this is the word ‘google’ which means “search for information about (someone or something) on the Internet using the search engine Google.” This was known as the word of the year in 2002 and later it became the word of the decade in 2009. Thus, technology itself has introduced a subculture of language which is different from the standard varieties of language and this linguistic subculture is widespread all over the world at present. In conclusion, the technology has led the language into a whole new level which has been positively embraced by the language users.

Keywords: Acronyms, Clipping, Language, Linguistic Subculture, Technology

## FEATURES OF THEATRICAL FORMAT OF UVA SHANTIKARMA

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### **ABSTRACT**

Researchers believe that pacifism is an act of exorcism to ward off the dangers of gods, planets, and demons. Shantikarma is spread in various parts of Sri Lanka. Out of these, it has spread in the Uva Province as well. Although this pacifism is presented in a dangerous way, it can be seen that these pacifists show advanced features of theatrical format. The problem with this research is whether Shantikarma manifests features of theatrical format. This research examined the pacification practices prevalent in the Uva Province. Primary and secondary sources were used as a methodology in this research. Under the original sources, palm leaf manuscripts and manuscripts on the Shantikarma performed of dancers in the Uva Province were examined. Information was also collected through library studies under secondary sources. Information was also gathered through Shantikarma observations and interviews. Analysis of that information revealed that there were dramatic features associated with the Uva Shantikarma. Namely, the outdoor theater, the all-night drama, the theatrical performance, the restrictions on the actors only, the sutras, the choir, the orchestra, the poetic tradition were all brought to fruition by these Shantikarma. Accordingly, it can be concluded that Shantikarma in the Uva Province is a feature of theatrical format.

Keywords - Shantikarma, Theatrical format, Uva Province, Source

## INDIAN PERFORMANCES FROM THE UVA DANCING TRADITION

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### **ABSTRACT**

There have been various relations between India and Sri Lanka since ancient times. As a result of these relations, various cultures were gifted from India to Sri Lanka. Performing arts, a part of the culture, were also gifted from India to Sri Lanka. With the arrival of Europeans in Sri Lanka, the advanced theatrical traditions of Sri Lanka faded away. Those academic institutions were destroyed. After the British rule, the ancient performing arts in Sri Lanka were divided into up country, low country and Sabaragamuwa. The basic elements of the performing arts, such as the past, faded away and were limited to mere dancing. The problem with this research is to investigate whether the dancing, which is spread across the Uva Province, is Indian-inspired. Primary and secondary sources were used for the research methodology. Under this primary and secondary sources, palm leaf manuscripts and manuscripts available to Uva dancing were consulted. Librarianship also referred under secondary sources. Data were also collected through interviews and observations. The analysis of the data showed that Uva dancing is characterized by Indian characteristics. It was seen that the deities worshiped in Indian dancing, the basic elements of the dancing, the rhythmic system, the dancing elements, the morphological features and the terminology used in the Uva theatrical traditions are also known. Accordingly, the purpose of this research is to show that Uva dancing art is known for its Indian style.

Keywords – India, Uva, Dancing

**EXPERIENCES AND BENEFITS OF A CAREER AWARENESS WORKSHOP FOR  
DIPLOMA IN LIBRARY AND INFORMATION SCIENCE STUDENTS IN SRI  
LANKA LIBRARY ASSOCIATION: WITH SPECIAL REFERENCE TO  
CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD) PROGRAMME**

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**ABSTRACT**

Career awareness is very significant and it is simply an understanding of the numerous opportunities for long-term employment and the knowledge needed to initiate work in a career field and progress in that job. Everything is moving very fast; on the other side, they are supposed to adopt themselves these rapid changes. Such a variation involves some definite assurance, motivation and planning concerning themselves and their students. The main purpose of this study was to investigate via conducting one day workshop on career awareness programme for the Diploma in Library and Information Science (DIP LIS) students' perceptions of the importance of soft skills for their education and employment. Workshop outlines were exercises on self-knowledge, with an emphasis on personality, values, interests and abilities, guidance on job applications (How to write a Resume/CV, Interview Skills, and Personality Development Skills etc.) Study Skills, Goal-setting and Motivation, Self-Esteem, Time-management, Leadership, Life Skills Series, Leadership, Communication etc. Objectives of the workshop were to educate learners about personal career development and to understand the importance of setting educational and career goals. After a 5-minute introduction, participants were asked to create their vision board next 5 years of time. Appropriate soft skills perform a significant character in an effective career as well as throughout social connections in the society. It was found that a majority of the participants felt that career awareness skills were useful for social interaction as well as for career advancement and contribute considerably to their academic performance. This paper suggests certain measures for improving soft skills of students which may also help improve their employment perspectives.

Keywords: Career Awareness Programme, Continuous Professional Development (CPD)  
DIP LIS Students, Personal Improvement, Soft Skills

# **A STUDY ON LEARNER PERCEPTIONS ON SELECTED SUPPORT SERVICES IN TWO DUAL MODE UNIVERSITIES**

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## **ABSTRACT**

Higher education undergoes fundamental changes as a result of increasing globalization, advances in technology and changing demography of students. In response to these changes. Many higher education institutions are offering distance mode courses in different subjects since 2009. Support services for the self-learners has been given in each institution but those services are not evaluated to identify whether Sri Lankan learners are getting satisfied support services on time to continue their studies. Therefore, purpose of the study was to identify most important and most satisfied service given in dual mode universities for their learners. Purposefully 111 students, who were registered for the blended mode delivery programmes from two dual mode universities, were selected as sample for the study. The main research tool was a questionnaire which included demographic, attitude test and open ended questions. Findings indicated that learners from both universities were satisfied with the orientation, but not satisfied with the counselling service. Further, found that, not satisfied with the online and offline library facilities, technical support, computer lab facilities, and motivation given by the university to continue studies and indicated as those services are important. Time management difficulties, no proper guidance for online courses, many issues faced when submitting assignments were the main problems affected by the learners from both universities. It was suggested to take action to higher authorities at both universities, requesting to improve important support services to create better learning environment at the university as well as to motivate self-learners at both universities.

Key words: Blended learning, learner perception, student support services

# THE MECHANISM OF MULTI-STAKEHOLDER INITIATIVE IN PROMOTING CORPORATE SUSTAINABILITY

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## **ABSTRACT**

The world has moved into an era of global governance in which non-state actors have become important and are heeding their own value. We argue that the mechanism of Multi-Stakeholder Initiative (MSI) is not only shaped by its institutional design but also by the partnership with its participants. This paper develops a constructivist account of global corporate citizenship with the isomorphous efforts of MSI and corporate participants. We map the distribution of identity between MSI and its corporate participants, and we conclude that MSI adopts a comprehensive governance model relating to rules and relations.

Keywords: Multi-Stakeholder Initiative, Corporate Sustainability, Transnational Private Governance

# GAMINI FONSEKA'S DUAL-TASK (ACTING VS. DIRECTING) IN SRI LANKAN CINEMA

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## **ABSTRACT**

In film industry, the Director plays a major role in crafting a film because he performs multiple tasks: directing the actors, the devices, mainly the camera, and other subordinates towards the success of his imagination. Once the same person becomes the actor in the same creative work, it becomes a challenge for himself. In Sri Lankan cinematic history, the only personal who has taken this particular challenge up is Gamini Fonseka who made an immense contribution towards bringing the Sri Lankan identity in his cinematic compositions. Thus, the purpose of the present study is to analyze the dual role of Gamini Fonseka, who performed the main role in the films he directed. The study is carried out based on selected films directed by Fonseka in which he portrayed his matured capacity in both these tasks. The study was carried out on a literature survey and a field study. Whereas the literature survey carried out to examine the global film industry and the role of the Actor and the Director, based on which designed the theoretical framework for the present study, the literary work written on Sri Lankan cinema provided the necessary data on the characteristic of Gamini Fonseka to distinguish and identify him as a unique personal in Sri Lankan cinema. The selected films provided the necessary insights of Gamini Fonseka and his dual role in achieving the expected outcomes of the films. Both content and narrative analysis were used to examine the data, and proved that Fonseka has succeeded in his work to win national and international awards. Therefore, Fonseka's dual task of acting while directing was identified as unique due to his multifaceted skills and vast knowledge to incorporate several skills that were not limited to directing or acting. Thus, the works of Gamini Fonseka can be identified as a peculiar example of handling the dual role of acting while directing in Sri Lankan film industry.

Keywords. Acting, film directing, Gamini Fonseka, dual role, Sri Lankan cinema

**REPRESENTATIVE BUREAUCRACY AND THE RESERVATION SYSTEM: A  
STUDY OF INCLUSIVE POLICY IN THE PUBLIC PERSONNEL MANAGEMENT  
OF INDIA**

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**ABSTRACT**

A democratic government stands for its people's interests, while the bureaucracy represents the government's aspirations and preparations to implement policies following the available administrative make-up. An attempt to make a comprehensive partition between political and administrative functions would be impossible due to their overlapping interrelationship in the policy making process. Even though bureaucracy does not directly represent the people as politicians do, it undoubtedly plays a significant role in the policy making process to maintain accountability: broadly, economic development and nation building. Focus on development goals and managing pluralistic demands became impracticable tasks to a bureaucracy unless it adopted an alternative method to address the interests of a pluralistic society. In this sense, the concept of representative bureaucracy as an alternative to traditional theory of bureaucracy, has shown a remarkable capability in dealing with diversity. The main objective of this study is to examine the applicability of concept of representative bureaucracy to ensure the inclusiveness in the public administration of India. Based on secondary data of qualitative design the study found that representative bureaucracy has been introduced under the term reservation system in India for similar purpose. India follows a rigorous method to guarantee the inclusive policy by reserving a fixed number of positions in the public services for the marginalized or backward groups in proportion to their share in the population. After years of search for inclusive policy in the administration, India has been successful in implementing the reservation system for backward communities in a midst of controversies that question the validity of reservation in a context of immense socio-economic inequality.

Key Words: Bureaucracy, Representation, Reservation, Inclusiveness, Administration

# STUDENTS' SATISFACTION OF E-LEARNING USING AUDIO-VISUAL METHOD

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## **ABSTRACT**

Approximately 1.2 billion students all over the world cannot reach their classrooms due to the COVID-19 pandemic. Online education is a major tool to continue educational activities in distance through the internet without disruptions even during the pandemics such as this. Most of the state universities in Sri Lanka including the Sabaragamuwa University of Sri Lanka (SUSL) are focusing on the audio-visual materials which are useful as one of the online teaching methods. The work presented in this paper is conducted to identify the satisfaction of the undergraduates of SUSL on online education using audio-visual materials. The two-stage cluster sampling procedure was applied to select a sample from 4000 undergraduate students in SUSL. However, only 285 responses were considered in analyzing due to the limited responses to the online questionnaire. The data was analyzed by using 4 multiple linear regression models. According to the results, students are more satisfied with the live video lectures containing either the lecturer or lecture slides as the visual material compared to recorded video lectures. Student satisfaction towards referencing the other relevant videos found on the internet containing similar learning content is a minimum. Male students' satisfaction is 6% lower than females. The identified factors which affect student satisfaction are faculty of studying, occupations of the parents, the strength of the signal coverage, and subjects per semester to study. Students' overall satisfaction of audio-visual materials for distant learning is 57% compared to the face-to-face classroom.

Keywords: Audio-visual, E-Learning, Students' Satisfaction

## THE ENVIRONMENTAL IMPACT OF TOURISM INDUSTRY (THE SPECIAL REFERENCE TO NEGOMBO COASTAL AREA)

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### **ABSTRACT**

This paper examines the environmental impact of tourism industry on coastal area. The tourism industry is mainly based on natural environment and it has been affected to occur the positive or negative environmental impacts. The main objective of this research was to study the environmental impact on coastal area with the growth of tourism industry. It was studied about how to affect local and foreign tourist activities, hotels and restaurants activities and other related human activities to grow the environmental impacts, changing of land use patterns with the tourism sector and provide the solutions to conserve the coastal ecosystem. The methodology of the research was the mixed method under the holistic approach. Data were collected from 30 of random selected sample of local and foreign tourists and 10 of random selected sample of managers of hotels and restaurants by using questioners, interviews and observations. The results of the data analysis have been given; the negative environmental impact has been increased more than the positive environmental impact in this research area. Coastal pollution, increasing hotels and restaurants, changing land use pattern are the major negative environmental impacts that could be identified. The land use pattern of study area has been changed from 1956 to 2018. The tourism industry must be carried on the sustainable approach and the related authorities should pay their attention to tourist sector.

Key words: Tourism industry, Environmental impact, Land use change, Negombo coastal area

## NEEDINESS OF INTEGRATING ANIMAL WELFARE RIGHTS AS A TIMELY CONCERN; A LEGAL ANALYSIS

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### **ABSTRACT**

Many stories in relation to animals' rights still remain shocked and appalled without any concern. Sri Lanka has seen its last amendment to law which addresses cruelty to animals in 1995 and the Prevention of Cruelty to Animal's Ordinance 1907 under which welfare of animals is taken into consideration is over a century old. The society love animals yet simultaneously perpetrate extreme violence against them as well. Global community is moving towards efforts to integrate effective ways and means on behalf of animal welfare and to safeguard those by enacting laws. Despite of that, Sri Lanka has still put the animals as at the receiving end of everything without granting any lawful voice to protect their rights. This research emphasizes the strong necessity of legalizing animals' rights, covering the scope of domestic animals companion animals and captive animals. There are many loopholes to be identified in the existing but out dated law relating to animals as well. The researcher relies on doctrinal method in nature while analysing relevant acts and relevant legislations in Sri Lanka. Articles of scholars, text books, media voices on animal loved communities and their concerns, viewpoints of experts in the field are being considered as secondary sources. Through this research the researcher outlines the harmful scopes in which the rights of the animals are being violated and the neediness of integrating animal welfare laws to forge a better relationship and to minimize the tragedy happens towards animals.

Key words: Animal welfare, legal reforms, animals' rights

**A STUDY OF THE USEFULNESS OF MONOLOGUE THEATRE FOR PERSONAL DEVELOPMENT IN COVID-19**

**කොවිඩ්- 19 තුළ පුද්ගල සංවර්ධනය සඳහා ස්වයංකථන රංගකලාවේ උපයෝගීතාවය පිළිබඳව අධ්‍යයනයක්**

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**Abstract –**

ස්වයංකථන රංගය (Monologue) යනු යම් වර්තයක් විසින් ස්වකීය සිතිවිලි, හැගීම් ප්‍රේක්ෂකයා වෙතට හෝ වෙනයම් වර්තයකට දැනගැනීම පිණිස සලස්වන තරමක් දීර්ඝත්වයකින් යුතු හුදෙකලා නිරූපණයකි. මෙම ස්වභාෂණ හෙවත් ස්වයංකථන ක්‍රමය වේදිකා නාට්‍ය මෙන්ම සිනමාව තුළ ද බහුලව යොදා ගැනෙයි. දෙබස් කථනයකට වඩා මෙහි දී සිදු වන්නේ යම් වර්තයක අභ්‍යන්තරික ක්‍රියාකාරීත්වය සහ අභ්‍යන්තරික වේදිකයන් හුදෙකලාව ප්‍රකාශ කිරීමකි. එම වර්තය විසින් අදෘශ්‍යමාන මානයකට හෝ සෘජුවම ප්‍රේක්ෂකයා වෙතට තම ප්‍රකාශනය සිදු කරයි.

සමාජ ව්‍යයසනයක දී සිදුවිය හැකි ප්‍රධාන ගැටලුව නම් පුද්ගලයා හුදෙකලා වීමයි. යුද්ධය, පාරිසරික ව්‍යයසනයක දී පළමුව සිදුවන්නේ පුද්ගල අභ්‍යන්තරය තුළ රික්තකයක් ඉතුරු වීමයි. එම රික්තකය ඇතිවන්නේ ඔවුන්ට ඇහුකම් දීමට හා ඔවුන්ට අදහස් ප්‍රකාශ කිරීමට අවකාශය අහිමිවීම තුළයි. කොවිඩ්-19 තත්වය තුළ පුද්ගලයාට සමාජ දුරස්ථීකරණයට මුහුණ දීමට සිදුවීම පුද්ගල අවපීඩනයන් නිර්මාණය කිරීම දක්වා වර්ධනය වී තිබේ. එකිනෙකා අතර පැවති ක්‍රියාකාරී සම්බන්ධතාවයන් ගිලිහී හුදෙකලා වීම තුළ පුද්ගලයා තුළ පීඩනයක් නිර්මාණය වී තිබේ.

සමාජ දුරස්ථීතාවය තුළ මිනිසා ජාලගත සංස්කෘතියක් නිර්මාණය කරගනිමින් පවතී. එහි දී එකිනෙකා අතර පැවති සම්බන්ධතාවයන් දුරස්ථ ජාලගත රාමුවකට ලක් වී ඇත. රංගකලා ආකෘතියක් ලෙස පුද්ගල අදහස් ප්‍රකාශ කිරීමේ ජාලගත අවකාශයක් නිර්මාණය කිරීම මඟින් ජාලගත රංගකලා ආකෘතියකින් සිය අදහස් ප්‍රකාශ කිරීමට පුද්ගලයාට අවකාශයක් නිර්මාණය කිරීමට පුළුවන. පුද්ගලයාට මුහුණපෑමට සිදු වූ අත්දැකීම් ජාලගත සංස්කෘතිය තුළින් ම හුවමාරු කරගැනීමට අවකාශයක් නිර්මාණය කිරීම තුළින් කොවිඩ් -19 ව්‍යයසනය තුළ නිර්මාණයවන පුද්ගල අවපීඩන ප්‍රතිශතය අවම කර ගැනීමට හැකි අතර ජාලගත රංගකලා විකිත්සක ක්‍රියාවලියක් ද සමකාලීන සමාජයට හඳුන්වාදීමට ද පුළුවන.

නිගමනයක් ලෙස ස්වයංකථන රංග ආකෘතිය රංගකලා විකිත්සක ක්‍රමයක් ලෙස ජාලගත ක්‍රියාවලිය තුළට හඳුන්වා දීම තුළින් කොවිඩ්-19 ව්‍යයසනය තුළ පුද්ගලයා තුළ ඇතිවන මානසික අවපීඩනය ප්‍රතිශතයක් ලෙස අවම කරගැනීමට හැකිය.

**ප්‍රමුඛ පද -** ස්වයංකථන රංග ආකෘතිය, රංගකලා විකිත්සනය, සමාජ දුරස්ථීකරණය, පුද්ගල සංවර්ධනය

**A STUDY ON THE REPRESENTATION OF LIBERAL WOMEN IN THEATER  
LITERATURE BASED ON JATHAKA TALES**

**ජාතක කතා සහිතය පදනම් කරගත් නාට්‍ය සාහිත්‍යය තුළ  
නිදහස් කාන්තා නියෝජනය පිළිබඳව අධ්‍යයනයක්**

(A Study on the Representation of Liberal Women in Theater Literature Based on Jathaka Tales)

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**Abstract**

ගෞතම බුදුන්වහන්සේ දීපංකර බුදුන්ගෙන් විවරණ ලබාගත් තැන් පවත් වෙස්සන්තර ආත්මභාවය දක්වා ජීවන ස්වභාවය ගෙනහැර පාන්නා වූ කතා එකතුවක් ලෙස ජාතකකතා සාහිත්‍යය හැඳින්වීමට පුළුවන. දීර්ඝ කාලයක් සංස්කරණය වෙමින් නිර්මාණය වී තිබෙන ජාතකකතා සහිතයේ කතා අඥ්‍යාත ය. මෙහි ඇතැම් කතා බුද්ධ භාෂිත අතර ඇතැම් කතා උපමාකතා ලෙස ජාතකකතා සාහිත්‍යයට එකතු වී තිබේ. පුරුෂ මූලික සමාජය තුළ සංස්කරණය වූ මෙම ජාතකකතා සාහිත්‍යය තුළ කාන්තාව ලාමක, අණුවන, අසත්පුරුෂ, වපල දුශ්චරිතයන් දුක්ඛයට වස්තුදායකය යන ආස්තානයකට ලක්කොට තිබේ. කාන්තාව පිළිබඳව වඩාත් ප්‍රජාතාන්ත්‍රික ලිබරල් ආස්තානයකින් කියවනවාට වඩා, පුරුෂමූලික සන්දර්භය තුළ කාන්තාවගේ පීඩනයෙන් නිදහස්වීම සඳහා තම නිවස තුළත් ඉන් පිටතත් තමන්ට රුචි දේ තම මනාපය අනුව තෝරා ගැනීමේ නිදහස හා තම ජීවිත පාලනය කිරීමේ ස්වකීය අයිතිය බොහෝ ජාතකකතා තුළ උල්ලංඝනය කොට ඇත.

මෙරට ජාතක කතා පාදක කරගනිමින් නිර්මාණය වූ නාට්‍ය නිර්මාණයන් තුළ ස්ත්‍රී භූමිකාව ජාතක කතාකරුවාගේ දෘෂ්ටිවාදයෙන් මුදවා වඩාත් සංකීර්ණ වූ ද සානුකම්පිත වූ ද නිදහස් අරගලයක පිහිටුවීමට නිර්මාණකරුවා උත්සහගෙන තිබේ. උදාහරණ වශයෙන් “මනමේ” නාට්‍යය තුළ ජාතක කතාකරුවාගේ පාරම්පරික දෘෂ්ටිය වූ “මාතුගාමයෝ නම් පව්වු සත්ව කෙනෙක” යන්න බිඳ හෙළයි. මනමේ කුමරියගේ සිත තුළ ඇතිවන අනිසි බිය නිසා ජීවිතයේ ප්‍රථමවතාවට ස්වයං තීරණයක් ගැනීමට නාට්‍යකරුවා එම වර්තය මෙහෙයවයි. සිතීමේ නිදහස, අරගලය හා ජීව විද්‍යාත්මකව ඇතිවන සිතිවිලි ප්‍රවාහය තුළ එම වර්තයේ කාරකගුණය ඉස්මතු කරවයි. මනමේ කුමරා මරුමුවට පත්වන්නේ කුමරිය තුළ ඇතිවන එම අරගලය වැදිරිවූ විසින් අවස්ථාවක් බවට පත්කරගන්නා නිසා ය.

නිදහස් ප්‍රේමය, නිදහස් ලිංගිකත්වය, නිදහස් චින්තනය, නිදහස් පරිභෝජනය හා අධ්‍යාපනික නිදහස වැනි ප්‍රජාතාන්ත්‍රික නිදහසක් කාන්තාව කෙරෙහි නිර්මාණය කරමින් නාට්‍ය තුළ කාන්තාව හසුරුවා තිබේ. නිගමනයක් වශයෙන් ජාතක කතා සාහිත්‍ය තුළ කාන්තාවට අහිමි වූ නිදහස ඇති කිරීමට නාට්‍යකරුවා නාට්‍ය සාහිත්‍ය තුළ උත්සහගෙන තිබෙන බව නිගමනය කිරීමට පුළුවන.

ප්‍රමුඛ පද - නාට්‍ය දෘෂ්ටිය, ලිබරල් ස්ත්‍රීවාදය (*Liberal feminism*), ස්ත්‍රී කාරකගුණය (*Feminist Action Quality*), තීරණ ගැනීමේ නිදහස (*Freedom of decision-making*)

## **IMPLEMENTATION OF DIGITAL PRESERVATION USING OPEN SOURCE SOFTWARE AT RAJARATA UNIVERSITY LIBRARY**

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### **ABSTRACT**

In Sri Lanka, some elite educational and research institutes already started their initiatives in Digital Preservation using Open Source Software. University Grants Commission has an idea develop this digital preservation system in the Sri Lankan University library System. The library system of the Rajarata University is the main vehicle of disseminates information via academics. Digital Preservation is the Process for maintenance of digital resources over the long-term with a view to ensuring sustained accessibility. The scope of the Digital Preservation, which started with university of Rajarata research papers, has been enhanced to accommodate research papers, speeches/lectures, office orders/memorandums, videos, annual reports and the in-house database. This paper discusses the need and features of open source software in digital preservation with the successful adoption of open source software for Rajarata University Library. It's also explaining all these aspects with the practical approach planned for digital preservation of its research publications and other collections. This article describe how an institutional repository (IR) has setup for intellectual thought content and output of Rajarata University using Dspace software. Nowadays, Universities are producing more digital objects like research articles, Magazine, Newsletter, reports, theses, Audio/video, clipping and provide access, to its users to these digital objects.

Keywords: Digital data, Preservation, Open source, Institutional Repository, Academic Library System, Digital-Preservation, Rajarata University Library scholarly-communication

## HOW BUSINESSES AFFECT SOCIETY AT A SPIRITUAL LEVEL

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### **ABSTRACT**

Ask any B-school graduate about the main aim of a corporation and the most likely answer would be enhancing shareholder value. The push for sustainable development in corporate culture has been a welcome change, but the concept of shareholder value is so engrained in a corporate's collective psyche that it will always be the primary goal, often to the detriment of society and the environment. The team at the Maharshi University of Spirituality has 38 years of spiritual research experience and has undertaken extensive research into how the spiritual dimension affects people's lives. It was found that while sustainable development is a noble concept, it is just a step towards the larger altruistic spiritual role that corporations should pursue. In line with ancient Indian culture, a basic requisite for any entity should be to increase spiritually positive vibrations in people and the environment, or at the very least not add to the negative vibrations. Unfortunately, this understanding has been lost over time and is not included in B-school curricula. This paper elaborates on a few examples of how corporations consistently ignore these spiritual rules in various fields such as entertainment, food, beverages, jewellery and garments to the detriment of society.

Keywords: Positive spiritual vibrations, spiritual perspective on business goals

## DOES SOCIAL SERVICE RESULT IN SPIRITUAL GROWTH?

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### **ABSTRACT**

Many spiritual aspirants equate social service with Spirituality and feel they are following the Spiritual Path of Action (Karmayoga). However, does performing social service result in spiritual growth? While guidance about the matter has been provided in ancient Sanskrit sacred Scriptures, the spiritual research team at MAV has uncovered details in relation to this aspect through spiritual research. The spiritual purpose of life is to grow spiritually and complete one's destiny. To grow spiritually means to transcend identifying one's consciousness with the 5 senses, mind and intellect and instead merge into God's infinite consciousness within (the Soul). Often, the severe hardships in peoples' lives are due to destined events and by helping them one is merely delaying their destiny. If social service is carried out with the incorrect spiritual perspective, and for people who aren't spiritually deserving, then one may create further destiny and not follow Karmayoga in the true sense. Also, the risk of getting emotionally involved in the service will bind one further. Both these factors, amongst many others, can create obstacles in spiritual growth. The lure of social service to make a difference in this world is understandable. However, for those seeking the Divine, the path that Spiritual Masters (Saints) recommend is more subtle. MAV recommends 'Eight Steps of Spiritual Practice' for faster spiritual growth. If followed sincerely, any spiritual aspirant will be able to experience higher-levels of spiritual experiences compared to the limited worldly experiences of social work. Spiritual practice also alleviates suffering due to destiny.

Keywords: Social work, spiritual practice, spiritual growth

# **INFLUENCE OF TRADITIONAL REHABILITATION AND COUNSELING PROGRAMS FOR PRISONERS IN SRI LANKA**

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## **ABSTRACT**

This study examines the influence of traditional rehabilitation and counseling program methods pertaining to the prisoners in Sri Lanka. Prisoners can be defined as a community who needs a special attention in the society. Nowadays limited attention has been given for the prisoners and their rehabilitation programs that comportment for them. This can be noted as a reason for crime escalation. Apart from that the different types of intervention with young people also will be instrumental in towards increasing the crime in the society. This study examines the rehabilitation and counseling methods relevant to the prison community and its influence for their future. This relationship can be identified as a social development factor in the modern society merely these programs consists with practical knowledge to fulfill the prisoners' role as social mortals. There for this circumstance needs a specific attention to identify the methods and influence of the rehabilitation programs. According to the collected data by open-ended questions, the methodology was constructed for this research study. All the original data of this study were collected through dispensing questionnaires and deep interviews with selected authorized parties and prisoners under the topics of awareness and facilities to rehabilitation and counseling treatments, methods utilized for execute rehabilitation programs, satisfaction and influence of the prisoners. Results indicates that the most of prisoners and authorized parties has an dissatisfaction concerning the traditional rehabilitation and counseling programs which needs to be systematically change relevant to the modern society. This may leads to the prison overcrowding. The study recommends allowing prisoners to train modernized and standardized work experiences trough rehabilitation programs to enhance the value of life of the prisoners after the probationary period.

Keywords: Rehabilitation, Counseling, Prisoners, Traditional methods

# **PRIVACY AND PANDEMIC: AN ANALYSIS ON DIGITAL RIGHTS VIOLATIONS DURING THE RECENT COVID 19 OUTBREAK**

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## **ABSTRACT**

The topic has been chosen as it talks about some of the issues that are ignored or mistakenly forgotten during the ongoing Pandemic. The recent COVID pandemic started in later 2019 and rapidly became global phenomenon within a shorter-period of time. With deaths and economic depressions, the human rights are at stake with the increase of government restrictions and strict health measures. Right to life, right to access for a standard health care, freedom of expression and freedom of movement. Although the human rights activists and various civil society organizations are pressing the human rights violations happening in the pandemic, very few mentions about the human rights violations happening in the digital platforms. This research paper intends to pen down some of the key issues found in the digital rights and their silent violations during the time of pandemic. It is important to note that digital rights violations should be given equal priority as other human rights. Along with the spread of virus, bio surveillance and online tracking censorships are being taken as safety measures to control the spread of the virus, which are silently violating the digital rights. The extended essay will focus on both international aspects as well as Sri Lankan aspects. The differences will be compared and analysed with a focus on future developments that can be made in the digital rights area. In the conclusion part, the research paper will talk about the own view points of the author that should be given priority in the future in the area of digital rights violations and remedies with presenting recommendations and suggestions.

Keywords: Covid 19, digital rights, human rights

**TO IDENTIFY THE RELATIONSHIP BETWEEN SPORT AGGRESSION LEVEL  
AND NUMBER OF YEARS IN SPORT PRACTICES OF WRESTLERS IN SRI  
LANKA NATIONAL POOL**

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**ABSTRACT**

Wrestling is a game that requires both psychological and physiological strength. Psychological factors such as aggression can affect both positively and negatively in a sport performance. Aggression can be described as any inter personal action which was intended to cause an individual or person physical damage or mental distress. This research mainly aims to identify the relationship between the sport aggression level and number of years in sport practices of male wrestlers in Sri Lanka national pool. The specifically to identify the relationships between sport aggression level and biological age, competition level and sport aggression level of national wrestlers in Sri Lanka and determine the sample knowledge on sport aggression. This was used the survey method and selected sampling method and applied the research on sample of thirty (n=30) male wrestlers in Sri Lanka. All the original data were collected to this research by a questionnaire. There consists with twenty one (21) questions about aggression level and six (6) questions about the knowledge of aggression with a five (5) point scale of answering. The analyzed was done by using the IBM SPSS statistics 21 and Microsoft Excel 2013. The results indicated (P<0.01) that there were a significant negative correlations between the sport aggression level and number of years in sport practices (r=-0.921), sport aggression level and biological age (r=-0.56) and with the competition level and sport aggression level (r=-0.646). The most dominant factor affected for the aggression level was the practice age of the players. All the sample had a total mark over eighty percent (80%) for the knowledge. So it can be pointed out that they had good knowledge and good belief about the aggression and controlled aggressive play during a match. This study endorsed that a special attention is required for the psychological preparation of the players and it is important to work a sport psychologist with the national team. This research will helpful for the players in Sri Lanka national pool and Sri Lanka Wrestling federation.

Key words: Aggression, Practice age, Biological age, Wrestling, Competition level

# ACCESS SUBSCRIBED DATABASES BEHIND THE LIBRARY WALL DURING THE COVID 19: A CASE STUDY OF UNIVERSITY LIBRARY

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## **ABSTRACT**

The academic libraries encountered unforeseen challenges during the recent health crisis and as a result there was a greater discourse on the necessity of enhanced online library services. In this context, most of the academic libraries strove to provide library services to the users based on their capacity of online collection and capabilities of library staff on handling the online library services. This study thus intends to investigate the manner in which the academic libraries catered to the users' needs during the pandemic from 15th March to 15th June 2020, utilizing their subscribed databases by the university. The study is concentrated on the Library of Southern Campus, KDU which implemented a number of initiatives to provide the existing services of subscribed databases of Emerald & IEEE, they were adapted into an online platform while exploring new initiatives/practices for library users. At the initial outset of the project, the library staff were guided on the usage of active remote access facilities and since March 15th the users were made aware about all the updates of Emerald & IEEE, conducting awareness programs through online social media on how to fulfil their academic and research needs on teaching and learning. This paper was used for an analytical survey and investigation on the usage statistics of the subscribed databases during the COVID 19 period and a questionnaire was used to derive comments from the library staff and library users. The major finding was that accessibility increased from 18% to 80% and downloads of journal papers & various articles increased from 11% to 48% of the Emerald & IEEE during the period COVID 19. Lack of e-books for all subjects has been a pressing issue. In addition, lack of funds for use of the Internet facility was the main difficulty faced by the library staff. The study thus recommended that University should be provided enough funds for library staff for access to the stable internet facilities and to subscribe to the enough e-books for available academic programmes offered by the University.

Keywords:1. Online library services in Covid-19, 2. Academic library services for subscribed databases in Covid-19,3. University Library services in Covid-19

## **EFFECTIVENESS OF ONLINE LEARNING DURING THE PERIOD OF COVID-19 PERSPECTIVE OF STUDENTS IN SRI LANKAN CONTEXT**

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### **ABSTRACT**

Covid-19 is an epidemic that impacts every aspect of the world. In this period school students, university undergraduates have to learn through online platforms because of the social distancing. Students are susceptible to the novel coronavirus epidemic and this sudden change. However, a developing country like Sri Lanka faces difficulties to conduct online teaching techniques. It is questionable that people can facilitate, while they do not fulfill their essential needs to live. Therefore, this study aims to investigate the effectiveness of online teaching in the age of Covid-19 perspective of students in Sri Lanka. Eight hundred and sixty-seven students from different schools and universities in all areas equally participated in this study. According to the quantitative analysis through Minitab and SPSS findings indicate that there was a significant effect for the students in Sri Lanka through this online teaching. 88% of students in rural areas do not have enough infrastructure, IT literacy, English knowledge, and capabilities to engage with online teaching. Further, mathematical and practical subjects cannot learn effectively online. And above 67% of students' response that the online system cannot evaluate the performance and knowledge of students fairly and ultimately there is a psychological impact on the students. Rare teaching aids and equipment for students are the main issues found in this study. Finally, online teaching is the only mechanism can use for this pandemic situation and the Sri Lankan education system have to facilitate the online learning needs of students without any unfairness.

Keywords: Covid-19, Online Teaching, Students, Pandemic situation, Undergraduates

**THE IMPACTS OF TOUR OPERATORS' KNOWLEDGE LEVEL AND  
CONGRUITY TO PROMOTE DESTINATIONS; WITH SPECIAL REFERENCE TO  
SABARAGAMUWA PROVINCE**

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***ABSTRACT***

Sri Lanka is a well famous destination among the international tourists. This arcadian country has nine provinces which provide thousands of different experiences to both international and domestic tourists. Sabaragamuwa province is one of the epic provinces which contains 'a full package of intriguing places' to tourists who visit the province. Thus, the visitation of tourists to the Sabaragamuwa province seems low compared to nearby provinces such as Western and Southern. The aim of this report was to study the impacts of tour operators' knowledge level and congruity to promote destinations; with special reference to Sabaragamuwa province. Key objectives of the study were; to identify different destinations in Sabaragamuwa province, identifying existing knowledge of tour operators on tourism in Sabaragamuwa province and identifying the relationship between tour operators and tourism service providers in Sabaragamuwa province. Data was collected utilizing semi-structured interview method. Sample was selected using convenience sampling method. Interview guidelines designed by using main four areas. According to research findings majority of tour operators had proper knowledge on tourism industry of Sabaragamuwa province. The knowledge level and congruity of tour operators may affect to promote tourism destinations and increasing visits of tourists. However, it is needed to improve the understanding of tour operators about the tourism industry of Sabaragamuwa province as well as providing an idea on significance and diversification of tourism destinations within the province. Provincial ministry of tourism is responsible for developing tour operators by providing required knowledge and awareness as well as creating environment to meet all the tourism stakeholders related tourism industry of Sabaragamuwa. Other than that developing infrastructure facilities is another good strategy that the provincial ministry can implement to develop tourism in the area.

Keywords: Tour Operators, Destinations, Sabaragamuwa Province

## IMPACT OF SELF EFFICIENCY ON TEACHING TRANSITION IN THE AGE OF COVID-19 FROM THE PERSPECTIVE OF ACADEMICS

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### **ABSTRACT**

The repercussion of the COVID-19 has influenced every aspect of human life while leading individuals towards more remote interactions. Accordingly, the teaching-learning platform has also invested in novel technologies to move forward with this uncertain environment. The systematic models including e-learning, mobile learning, Class blogs, Discussion groups has gained increased attention recently. However, transferring from the conventional model to techno-centric model has resulted in a range of positive and adverse consequences. Therefore, this study concentrates on teachers' perceptions of convenience, accessibility, efficiency and effectiveness and enjoyment of these techno-centric techniques and the barriers teachers encounter with the transition. Furthermore, the study emphasized the differences associate with the gender, teaching disciplines and professional/academic qualifications. The perspectives of two hundred eighty-six academics reference to self-efficacy, and transitive teaching techniques were measured through a quantitative philosophy. The study incorporated random sampling techniques and followed the ordinary least square regression and T-Test analysis. Thereby, the analysis established a relationship between self-efficacy and transitive teaching techniques. Profoundly, the study revealed that there's a significant difference in perceptions relating to the teaching disciplines. Finally, the study concluded that concentration on diversity in self-efficacy is crucial in assessing the worth of transitive teaching technique.

Key words: COVID 19, Self-efficacy, Teaching transition, Academics Perception, E-learning

## EXPLORING THE SOCIAL FACTORS FOR THE DECLINE AND UPSURGE IN “KOLAM” CULTURE AMONG SRI LANKAN TAMILS

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### **ABSTRACT**

Kolam" is one of the traditional aesthetics of the majority of Hindus in South Indian and Sri Lankan It is a form of drawing that is drawn by using rice flour, often using naturally or synthetically colored powders. It is especially a part of the daily traditional beliefs of the Tamil women start their daily routine by waking up in the morning drawing kolam in front of the house. It is believed that the sanctity of the houses is maintained by placing "kolam" in the houses. Analysts are of the opinion that the kolam culture among the Sri Lankan Tamils may have come through South Indian connections. In the 1970's, drawing kolam in the morning in front of houses was common among Sri Lankan Tamils. The ensuing insecurity caused by the civil war and the fear-based lifestyle changed the culture of the people drawing kolam in front of house. The Sri Lankan Tamils use the grated coconut for kolam making used rice flour, turmeric only on special days. Due to the difficulty in obtaining materials, the daily kolam drawing in the Sri Lankan Tamil culture had decreased. Nowadays the involvement of Sri Lankan Tamils in kolam is increasing due to the influence of social media, reached the masses understanding of the kolam drawing methods and the methods of creating the kolam. Also, colored powders and print fabrics are easily available from South India Due to the internal peace situation, women are more likely to be able to draw kolam in the early morning without feeling frightened. In this research I try to figure out influence factor for kolam culture among Sri Lankan Tamils, Peace and social media are influencing the movement of Kolam culture towards the future.

Keywords: Kolam, Sri Lankan Tamil women

# A JOURNEY OF THE MEMORIES THROUGH THE MONUMENTS: A STUDY BASED ON THE VISUAL EXPRESSION

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## **ABSTRACT**

**நினைவுத்தூபிகளும் அதன் நினைவுகளின் பயணமும்: காண்பிய வெளிப்பாட்டு முறைமை தொடர்பான ஆய்வு**

உலகின் அதிகாரப்பூர்வமான மற்றும் உணர்வு நிலை வெளிப்பாட்டுடன் இணைந்த கட்டுமானமாகக் காணப்படுவது நினைவுத்தூபி ஆகும். இயற்கை அழிவுகள் மற்றும் மனிதனால் ஏற்படுத்தப்படும் அழிவுகள் என இருவகையிலும் உயிரிழப்புக்கள் ஏற்படுத்தப்படுகின்ற நிலையில் இப்பாதிப்புக்களின் ஞாபகங்களை மீட்டிப்பார்க்கவும் ஏனைய சந்ததிகளுக்கு காவிச்செல்லும் ஓர் வடிவமாகவும் காணப்படுகின்றது. இவ்வகையே குறிப்பிட்ட சமூகம் சார்ந்த பிரச்சினைகளின் ஆக்கச்சுட்டியாகவும், இறந்தவர்களை பராமரிப்பதற்கான இடமாகவும் மற்றும் மனவடுக்களுடன் வாழ்வோருக்கு ஆறுதல் அளிப்பதற்கான ஓர் வழிமுறையாக காணப்படுகின்ற அதே நேரம் இவற்றினை குறியீடு செய்வதாக அதன் வடிவமைப்பும் வெளிப்பாட்டுத்தன்மையும், காணப்படுகின்றன.

இலங்கையில் பல்வேறுபட்ட நினைவுத்தூபி கட்டுமானங்கள் காணப்பட்டாலும், அவற்றில் வடக்கு மற்றும் கிழக்கு பிரதேசங்களில் காணப்படும் குறிப்பிட்ட சில நினைவு கட்டடங்களை மையமாக கொண்டே இவ் ஆய்வு அமைகின்றது. இலங்கையில் இடம்பெற்ற போர் மற்றும் போருக்குப்பின்னரான இன ரீதியான கருத்து முரண்பாடுகளுக்கும், செயற்பாட்டு ரீதியான முரண்பாடுகளுக்கும் மத்தியில் ஆக்கப்பட்டும், அழிக்கப்பட்டும் வரும் ஞாபகங்களின் சின்னங்களை பாதுகாத்தல், பராமரித்தல் தொடர்பான சிக்கல்கள் மற்றும் சவால்கள் தொடர்பான தெளிவுகள் அவசியமாகும். குறிப்பிட்ட சமூக குழுமத்தின் சந்ததியினர் தமக்கான ஞாபகங்களை மீட்டிப்பார்ப்பதற்கும் அதன் இருப்பு தேவையான ஒன்றாக இருக்கின்றது. இருப்பினும் சமூக, இனக் குழுக்களுக்கு மத்தியில் இடம்பெறுகின்ற முரண்பாடுகளுக்கான தீர்வுகளை வழங்குவதற்கு அப்பால் அவ்முரண்பாடுகளை தூண்டும் செயற்பாடுகளில் ஒன்றாக இவற்றை இனங்காண முடிகின்றன. இப்பின்னணியில் நினைவுத்தூபி தம் அமைவிடம் சார்ந்தும் இருப்புநிலை சார்ந்தும் தனக்கான பல்வேறு அர்த்தங்களை ஏற்றுக் கொள்கின்றன.

இவ்வாறாக நினைவுத்தூபி வடிவமைப்பும் அதன் நினைவுகளின் பயணங்களும் வெறுமனே அதன் காண்பிய வெளிப்பாட்டினாலும் ஊடகத்தினாலும் தீர்மானிக்கப்படுவதில்லை மாறாக அவை மனவடுக்களினதும் நினைவுகளினை பதிப்பிக்கும் குறிகாட்டியாகவும் தொழிற்படுகின்றது. எனவே இவ் ஆய்வானது நினைவுத்தூபி சார்ந்த பல்வேறு கருத்தியல் தளத்திற்குள் நின்று ஆய்வு செய்வதுடன் அவற்றினை ஆவணமாக்குகிறது.

# THE POTENTIAL FOR VIRTUAL TOURISM AS A WAY OF REVITALIZING SRI LANKAN TOURISM INDUSTRY IN THE FACE OF COVID-19

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## **ABSTRACT**

Even though movements from one place to another themselves are the building boxes of the tourism industry, with the restrictions of travel due to Coronavirus and growing doubts on safe travel in the coming days, it will take a while for the sector to return to pre-COVID level. The pandemic of coronavirus has challenged the global operation of tourism industry. Since tourism sector plays a prominent role in Sri Lanka economy, it has severely affected the Sri Lanka's economy as well. Given the economic setback, the industry operators are not able to merely wait till the threat of the pandemic is complete gone. Virtual reality-based technologies offer the sense of 'being there', thereby it seems to have the possibility of becoming the saviour of the industry during this period. This study was conducted to understand the potential for virtual tours as a way of strengthening the devastated Sri Lanka's tourism industry in the face of COVID-19 pandemic. Based on the aforementioned facts, this study engaged in a qualitative approach through archival method or document review. Therefore, thematic and content analysis were used. Data were collected from contents available in social media networks and websites regarding Virtual Tourism and Sri Lanka tourism's virtual tours. Viewers' comments, Sri Lanka tourism operators' ideas were taken into consideration. Findings emphasize the importance of adopting virtual tours during a crisis which hinders the global travel. It was revealed that virtual tours can be a promising alternative way to accelerate the return of the industry when faced with a pandemic, to keep the wanderlust on the edge and to get a hold of the customers in the meantime.

Keywords: Virtual Reality, Tourism, Virtual Tourism, Coronavirus

# THE IMPORTANCE OF TOURISM INDUSTRY FOR THE ECONOMIC GROWTH IN SRI LANKA

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## ***ABSTRACT***

All sectors of the economy plays an important role towards the long running development and stability. Among those, tourism is the one, which plays an important role in development, prosperity and generates foreign revenues. This sector reflects the nature and beauty of the country and creating a peaceful environment. It also provides opportunity for the country to make a better image. Nowadays this sector is facing many issues. In addition, the popularity of this sector is falling down day by day means that people is not ready to make tours because of the many threats and problems with their life and security. Several researches and studies have been conducted on this tour and how it is related to the development of economy. Most of them cover how we can promote this sector. Here, qualitative research data were collected from articles, books and online resource. How can we promote this tourism sector? How can we create better images to the world and what changes Tourism Revenues in Sri Lanka decreased to 135 USD Million in march from 391USD million in February of 2020. Top priority had been given to developing sustainable destinations by SLTDA. Sustainable tourism is a long-term goal for Sri Lanka, and the real importance of sustainable tourism cannot be underestimated for Sri Lanka to work towards a positive overall balance in environmental, sociocultural, economic and experiential impacts for locals and tourists.

Keywords: Tourism Revenues, Economic Development, sustainable Tourism, Investment

## **DETERMINANTS OF PERFORMANCE OF OPERATIONAL LEVEL EMPLOYEES: A CASE OF VOGUE TEX (PVT) LTD**

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### **ABSTRACT**

In contemporary business environment, apparel industry has been identified as a one of the most challenging and competitive industries among the other sort of industries. For endurance, apparel industry needs to have a mean of achieving competitive advantage. Basically this competitive advantage has been achieved by the apparel industry via human resources. Human resource has been identified as the only living resource among the other resources which has the capability to think, innovate and create etc. Consequently, human resource is viewed as a basic factor which pushes an organization towards the goal achievement. Hence, organizations are very sensitive on performance of the employee and on the factors that affect the performance of employees. This study was undertaken to identify the significance of the factors that affect performance of the operational level employees of Vogue Tex (Pvt) Ltd. This study was a cross sectional study with the sample of 96 operational level employees of Vogue Tex (Pvt) Ltd. In order to select the sample, convenience sampling method was applied. Data were collected through standard questionnaire and to analyses the data, descriptive statistics, Simple ranking method and Factor analysis were performed using SPSS 20. Based on the empirical findings, researchers have tested eight factors namely, Working Environment, Organizational Culture, Personal Factors and Problems, Compensation & Reward System, Job content, Leadership, Team Cohesiveness and Training. All of these eight factors have been affected significantly in determining performance of the operational level employees. However, based on the findings, researchers have found that Training and Organizational Culture are the major and the most prominent determinants of the performance of the operational level employees. Hence, it has been concluded that Organizational culture and the Training are the most important factors when articulating the performance level of the operational level employees in the Vogue Tex (Pvt) Ltd.

Keywords: Employee Performance, Working Environment, Organizational Culture, Personal Factors and Problems, Compensation & Reward System, Job content, Leadership, Team Cohesiveness, Training

# **CORPORATE GOVERNANCE AND CORPORATE SOCIAL RESPONSIBILITY (CSR) DISCLOSURE: EVIDENCE FROM SRI LANKAN LISTED BANKS**

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## ***ABSTRACT***

The main purpose of this paper is to examine the relationship between corporate governance and corporate social responsibility of Sri Lankan listed banks during the period from 2016 to 2019. Corporate governance was measured through its characteristics namely, board size, board independence, board meeting, board gender diversity, cross directorship, audit committee size and audit committee meetings. The content analysis was employed to measure the CSR disclosure using GRI framework 2016. All the data were collected from the annual report published in the website of Colombo stock exchange, Sri Lanka. All the listed banks (11) were selected to this study except one due to the recent listing. Hierarchical regression analysis was employed to investigate the association between the corporate social responsibility disclosure and other independent variables. The result indicates the moderate level of CSR disclosure among the sample listed banks in Sri Lanka. Result of the regression analysis indicate that only three governance variables positively associated with CSR disclosure. Those are, board size, audit committee size and audit committee meeting. The study also proves the positive association among firm size, firm profitability and CSR disclosure. The findings of the study are limited to the context of the study, Sri Lankan listed banks, for the period 2016 to 2019. Therefore, generalizability of the result to the other context is questionable. The findings of the study pressure the need of larger size board and audit committee to pool the expertise by which the CSR disclosure could be enhanced. The result also provide the implications to policy makers to develop the mandatory reporting requirement at least to a certain extent. The study reveals the relationship between CSR disclosure and corporate governance based on the CSR disclosure measured through content analysis with the contents of GRI framework 2016.

Keywords: Corporate social responsibility disclosure, Corporate governance, Listed banks in Sri Lanka

# EMPLOYEE REWARDS AND JOB SATISFACTION: A STUDY OF COMMERCIAL BANK EMPLOYEES IN JAFFNA DISTRICT

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## **ABSTRACT**

Increasingly, Organizations are realizing that they have to establish an equitable balance between the employee's contribution to the organization and the organization's contribution to the employee. Establishing this balance is one of the main objectives is suggesting good rewards for employees. The aim of this study is to investigate the relationship between job rewards and job satisfaction of Commercial banks employees in Jaffna District. For this purpose, 300 employees were selected as sample in Commercial Banks in Jaffna District and based on simple random sampling. The primary data was collected by using questionnaire. Pay, Promotion. Responsibility and Recognition were used as measures of Job rewards. Two main Hypotheses were tested and used correlation, Regression and ANOVA analysis through SPSS Software (20.0Version). There are main and sub hypothesis analyzed in this research, H1: There is a relationship between job rewards and Job Satisfaction, H1a: There is a positive relationship between pay and job satisfaction of commercial bank employees in Jaffna, H1b: There is a positive relationship between promotion and job satisfaction of commercial bank employees in Jaffna.H1c: There is a positive Relationship between recognition and the job satisfaction of commercial bank employees in Jaffna, H1d: There is a positive Relationship between Responsibility and the job satisfaction of commercial bank employees in Jaffna,. Results are Pay, Promotion and Recognition are positively correlated with Job Satisfaction and Responsibility is negatively correlated with Job satisfaction. Hence H1 hypothesis is accepted H2: There is a significant impact of job rewards on job satisfaction of bank employees.H2a: There is a significant impact of pay on job satisfaction of commercial bank employees in Jaffna H2b: There is a significant impact of promotion on job satisfaction of commercial bank employees in Jaffna H2c: There is a significant impact of recognition on job satisfaction of commercial bank employees in Jaffna H2d: There is a significant impact of responsibility on job satisfaction of commercial bank employees in Jaffna . All rewards are positively significantly impacted on job satisfaction. Hence the H2 hypothesis is accepted.

Key words: Bank employees, job rewards Pay, promotion, Recognition and Responsibility

# **SELF – EFFICACY AND RESILIENCE PREDICTING WORK ENGAGEMENT: A SURVEY ON EMPLOYEES IN HANDLOOM INDUSTRY IN SRI LANKA**

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## **ABSTRACT**

Handloom industry is identified as industry which can establish under low capital investment rather than other industries and creates more job opportunities for individual level employees specially in the rural areas in Sri Lanka. The number of employees engage in the industry gradually decrease (Department of Census statistic 2014 -2018). Numerous psychological capital specialists stated that the morale of workers can be improved by personal resources/psychological capital to improve employee work engagement. The researcher has selected two components of psychological capital for current study and investigated how efficacy and resilience effect on work engagement of employees of handloom industry in Sri Lanka. The respondent the study were employees in the handloom industry in Sri Lanka and selected 100 employees from western province through convenience sampling technique. The data were collected through a standard and validated questionnaire survey and data were analysis through reliability analysis, confirmatory factor analysis, correlation and regression tools with support of SPSS 20.0 version. The result revealed that self – efficacy and resilience positively and significantly influence on work engagement of employees of handloom industry in Sri Lanka. On the whole the self – efficacy and resilience accounted almost 62% of the variance in the work engagement of employees in Handloom industry in Sri Lanka. Most of the empirical studies investigated how psychological capital effect on work engagement and lack of studies which investigated the how component of psychological capital effect on work engagement. This research make novel contribution through find out how two components of psychological capital separately impact on work engagement.

Key Words: Self - efficacy, Resilience, Work Engagement

## **A SYSTEMATIC LITERATURE REVIEW ON OPPORTUNITY IDENTIFICATION AND DEVELOPMENT IN SOCIAL ENTERPRISE RESEARCH CONTEXT**

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### **ABSTRACT**

Marking a clear departure from commercial ventures, the primary purpose of social enterprises is delivering a social mission. However, irrespective of the contextual differences, just as for-profit business organizations, social enterprises are supposed to invest on ‘worthy opportunities’ that they can make an increased social impact while existing as financially viable organizations. However, knowledge on opportunity identification and development in social enterprise research still remains scattered and unorganized. Investing on this, our main objective in this paper is to systemize and organize the contemporary knowledge on opportunity identification in social enterprise research context. Relying on a systematic literature to achieve our core objective, we analyzed 86 social enterprise context specific papers published at well reputed databases - Scopus, Social Science Citation Index and Science Direct. We followed two stage process to analyze the articles. First, we performed a citation analysis to see the most influential researched dimensions within research domain of opportunity identification and development in social enterprise research context. Second, to understand the most frequently researched dimensions in the field, and to understand the particular patterns, we performed a thematic analysis. Our finding discovered five themes that the opportunity identification and development concept has been investigated in social enterprise research context. Overall, while there is emerging volume of research on opportunity identification, fairly less investigations can be seen on how social enterprise develop opportunities into viable socially conscious businesses. By doing so, we contribute immensely to social entrepreneurship research context since the findings brings the attention of future researchers on the missing pieces of the big picture.

**IMPACT OF WORKING CAPITAL MANAGEMENT ON FINANCIAL  
PERFORMANCE: EVIDENCE FROM LISTED COMPANIES IN HOTELS AND  
TRAVELS INDUSTRIES**

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***ABSTRACT***

There is an increasing pressure on financial executives to create higher value to shareholders. To create value to shareholders, one of the important finance decisions that managers can focus is the efficient management of working capital (WCM). This study examines effects of working capital management on financial performance using a sample 36 of listed companies in Hotels and Travels Industries in Sri Lanka over the period 2014-2018. The study finds that the cash conversion days, accounts receivables, Average accounts receivables days, inventory conversion days, are negatively related to financial performance measured by return on assets and return on equity. The findings of the study suggest that even firms operating in service industries such as Hotels and Travels Industries can increase financial performance by efficient management of their working capital.

Keywords: cash conversion cycle, working capital management, return on assets, return on equity Sri Lanka

**IMPACT OF ENGLISH PROFICIENCY ON MANAGEMENT  
UNDERGRADUATES' ACADEMIC PERFORMANCE OF RAJARATA  
UNIVERSITY OF SRI LANKA (RUSL)**

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**ABSTRACT**

As the 'lingua franca', English Language plays a vital role in business world and higher education system in Sri Lanka. Specially, in the field of Management, English language has become the medium of instructions and it becomes a major difficulty for the non-native English speaking students. Among all the universities, Rajarata University of Sri Lanka (RUSL) has given the opportunity to face first year examination either in Sinhala, English, or both languages. However, it has become a barrier to familiar with English language. Thus, this study was conducted with the objective of identifying the impact of English proficiency on Management undergraduates' academic performance of Rajarata University of Sri Lanka. 147 undergraduates from second year, third year, and fourth year were selected as the sample for the study and structured questionnaire was developed to gather the data. The data were analyzed using correlation analysis and regression analysis. The Reliability test shows all four variables are internally consistent. According to the descriptive statistics, all four variables are contributing to the independent variable. The correlation analysis shows that, all four variables are positively correlated with independent variable ( $p < 0.05$ ). According to the regression analysis, 80.9% of the variance of the academic performance of Management undergraduates of RUSL is explained by the four variables. Coefficients of all four variables have positive impact on independent variable, thus, the four hypotheses of the study can be accepted. The findings show that, majority of respondents acknowledged that English language is important for their academic success. Thus, it should be made further opportunities to motivate students to improve their English proficiency.

Keywords: Academic Performance, English Language Skills, Management Undergraduates

**FLAGS OF (IN) CONVENIENCE? CONCERNS REGARDING FLAG STATE  
CONTROL AND COMPLIANCE: A CRITICAL ANALYSIS OF FLAG STATE  
DUTIES AS LAID DOWN UNDER THE UNCLOS**

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***ABSTRACT***

Maritime trade and fisheries have developed internationally over the past several decades. There has been an increasing trend toward the use of flags of convenience (FOC) in both the merchant shipping and fishing sectors as a secondary effect. This is an area of concern regarding international maritime security and safety. Numerous international conventions and regulations governing shipping and high seas fisheries have been established over the past decades. The United Nations Convention on the Law of the Sea (UNCLOS) provides the overall legal framework. Other related agreements provide detailed obligations for Flag States to ensure that vessels registered to fly their flags are in compliance with international law and regulations. Registries that do not require the disclosure of beneficial ownership indicate that there is virtually no link or capacity to ensure Flag State monitoring of the ship's activities and enforcement of international regulations. This study attempts to examine how the practice of FOC has led to undermine the international law on Flag-State duties. Based on the framework provided in the UNCLOS and the practice of FOC, this study discusses issues endemic to the maritime industry focusing primarily on security concerns. Possible recommendations have been made encompassing the regional and international levels. This is a normative research which consists of a literature review and a comparative analysis. A comprehensive study has been done on the existing international legal instruments and related scholarly publications. Primary sources such as international treaties and conventions relating to law of the sea were used. Text books by scholars, research journal articles and web based resources were used as secondary sources.

Key Words: Flag of Convenience, Maritime Security, UNCLOS

## CHALLENGING AND CONFORMING OF GENDER STEREOTYPES BY JEAN RHYS IN “WIDE SARGASSO SEA”

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### **ABSTRACT**

“Wide Sargasso Sea” (1966) which was written by Jean Rhys, a mid-twentieth century novelist who was born and grew up in the Caribbean Islands of Dominica, is an anti-colonial and feminist response to Charlotte Bronte's “Jane Eyre” (1847). It describes the backdrop to Rochester's marriage from the point-of-view of Antoinette Cosway, Rhys' adaptation of Bronte's devilish madwoman in the attic. Rhys tells the story of Antoinette, about her unhappy marriage to an unnamed English man who erases her identity and renames her Bertha and takes her to England by removing her from her original roots, where she is entrapped in an oppressive patriarchal society. The novel is set in the mid-1800s, during a time in which a woman's position within the society was strictly defined. The purpose of the research paper is to analyze the way in which Rhys challenges and conforms to constructed gender stereotypes of the society in “Wide Sargasso Sea”. Through the analysis, it is found that, Rhys challenges the constructed gender stereotypes in the society by using some of the characters in her novel. Basically, she uses the character of the main protagonist of the novel, Antoinette, to challenge the constructed norms of the society. But, even though Rhys challenges the gender stereotypes, in many instances, she subtly conforms to them too in some instances. The Feminist Critical Approach is used to do the analysis and it is identified that, even though “Wide Sargasso Sea” is widely known and praised as a literary piece which challenges the gender stereotypes, in reality, it is a combination of both challenging and conforming of gender stereotypes.

Keywords: Gender, Stereotypes, Feminist Critical Approach, Patriarchal society, Identity

# FACTORS AFFECTING THE PERFORMANCE OF STUDENTS' WRITING IN ENGLISH

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## **ABSTRACT**

The struggle to learn the English language by the native Sinhalese and Tamil speaking people of Sri Lanka has continued although English has been taught as a subject in all schools on the recommendation of a Special Committee on Education in 1943. Despite the Reforms in Education introduced recurrently with emphasis on teaching of English, the issue of non-acquisition of English is a phenomenon ubiquitous amongst the students in Sri Lanka. The high rate of failures in English, at the G.C.E. (O.L.) examination during the past ten years reflects the dire issue at hand. In order to uncover the reasons for this enigma a case study on 'Factors affecting the performance of students' writing in English' of the Junior Secondary Stage students was conducted in a popular 1 AB government school in the Piliyandala Education Division, which has a high percentage of failures in English at the G.C.E. (O.L.) examination. The main objectives of the study were to uncover the factors affecting performance in writing in English of the Junior Secondary Stage students. Both the case study design and survey research design were incorporated as the sample exceeded 500. In order to obtain quantitative data, about student performance and other variables, a questionnaire and diagnostic test were administered. Qualitative data was obtained with focus group discussions and interviews. The outcome of the research uncovered the main factors affecting the performance in writing of the student cohort and recommendations were made as derived from the research findings.

Key words: Writing in English. Secondary students, Second language Acquisition

# EXOTICISM, POSTCOLONIAL EXOTIC AND STRATEGIC EXOTICISM IN ACTION: A CASE STUDY OF VIDEOS PRODUCED ON SRI LANKA

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## **ABSTRACT**

Visual media, videos in particular, on a country and its community are powerful texts which can influence the way in which that country and its people are represented to the world outside. In the present study, *Exotic Sri Lanka* by Michael Rogge and *Sri Lanka- the Wonder of Asia* by Sri Lanka Tourism Promotion Authority are subjected to a content analysis and comparative study vis-à-vis the concepts of exoticism, postcolonial exotic and strategic exoticism as conceptualised by Graham Huggan in his seminal work *The Postcolonial Exotic: Marketing the margins*. The case study is used as a platform to discuss wider theoretical issues in the field of postcolonial studies. The objectives of the study are to explore the ways in which Sri Lanka has been represented in the selected videos and whether there are any changes in the ways of representation following the 40 year gap from 1973-2013, with a view to examining the manner in which the concepts of the exotic and postcolonial exotic operate in the videos, and to examine the role of strategic exoticism therein. The key findings of the case study reveal that strategic exoticism has become an integral aspect of the global tourism industry, and in such an arena where the countries from the centre and peripheries both compete, the Orient or the countries from the margins are compelled to utilise exoticism as an economic strategy that enables effective marketing of their tourist attractions. This problematises the notion of strategic exoticism as an escape route from the dilemma of the postcolonial exotic. The study concludes that as much as it is a tool of subverting the exotic, strategic exoticism does not result in an overthrow of the postcolonial exotic since it is merely a means of survival/dealing with postcoloniality in a global context which is market-driven.

Key words: Postcolonial exotic, Strategic exoticism, 'Exotic Sri Lanka', 'Sri Lanka- the Wonder of Asia'

## **“PRO-EYE” - A VIRTUAL ASSISTANT FOR FACILITATE VISION IMPAIRED INDIVIDUAL**

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### **ABSTRACT**

In a fast-paced world to acquire knowledge and to survive independency has become a significant factor, but for a visually impaired person this independency is critical question. As per studies visual loss a double the risks of depression as well as they can also develop many other mental disorders. Even though there are technologies and devices that are advanced enough to help vision impaired they are either not affordable by most or complex in interaction. The proposed system compromises state-of-the-art technologies at low cost to aid visual impaired personalities in outdoor navigation, image recognition, text recognition using human alike conversations, providing effortless interactions. This improves the visual perception and the awareness towards an ambiguous environment.

Keywords: Virtual Assistant, Object Recognition, Intelligent Character Recognition, Natural Language Processing, Expert System

## VARIATION OF PHYSICO CHEMICAL CHARACTERISTICS OF UPPER CATCHMENT OF KELANI RIVER BASIN USING MULTIVARIATE ANALYSIS

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### **ABSTRACT**

The Kelani river, is the second longest and most polluted river in Sri Lanka which subjected to many pollution studies. The present study was conducted to evaluate the water quality results obtained for upper catchment of Kelani river using multivariate statistical techniques to understand the correlation of selected parameters. Water quality parameters such as Water temperature-WT, pH, Dissolved Oxygen-DO, Turbidity, Electrical Conductivity-EC, Total Dissolved Solids-TDS, Biological Oxygen Demand-BOD, Alkalinity, Hardness, nutrients (NO<sub>2</sub> -, NO<sub>3</sub> -, NH<sub>4</sub> -, PO<sub>4</sub><sup>3-</sup>) and Chemical Oxygen Demand-COD were measured using standard methodologies during May 2018 to May 2019 for thirteen selected locations of the upper catchment of Kelani river with triplicates. All selected locations were received very high DO values (4.65-9.7 mg/l) which indicate the high saturation of DO along the locations. The turbidity and EC values were also deviated as 0.15-25.3 NTU, 20.10-453.20 µs/cm respectively. Almost all the physical and chemical parameters tested were within the recommended acceptable range published by relevant authorities except COD which U6, Panakoora got the highest value of 25.33 mg/l. Considering all the results obtained for upper catchment could be considered as low pollution in nature. Factor analysis results also indicated that the first factor consist of EC, Turbidity, WT, DO, and BOD called water quality indicating factor described 29.3% of the total variance. Respectively the second factor explained 18% of the total variance (comprise of total alkalinity and total hardness of water) and the third factor consists of phosphate, total suspended solids and ammonia described by 16.9% from total variance. Therefore, the present study concluded the validity of using multivariate statistical techniques for interpretation of large set of data and identify the most correlating factors even the parameters are in acceptable range in order to explain the pollution nature of the upper catchment in Kelani river.

Key words: Kelani river, principal component analysis, multivariate analysis

# DEVELOPMENT OF A VIRTUAL INVERTED PENDULUM CONTROLLING SYSTEM FOR ONLINE TEACHING

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## **ABSTRACT**

Many established practices of modern society require rapid changes to accommodate challenges introduced by the Covid-19 pandemic. Education is one such important aspect of modern society, which demands changes, and online teaching became an attractive alternative method. Engineering profession demands hands-on experience to practice engineering. Therefore lab-practicals are one of the major requirements in Engineering studies. This paper presents a simulation platform, which allows the students to get hands-on experience in inverted pendulum control. balancing system. The PID and LQR controllers were used with the developed simulator and the results are presented. The simulation environment was developed using commonly available software in control systems laboratories, as well as with students, as the interface. The inverted pendulum system was modelled using CAD software and was imported into the modelling software to build a nonlinear system dynamics simulation. The mathematical model for the proposed system was established using systems theory. Furthermore, a prototype was fabricated according to the CAD model. Therefore virtual-system is based on a real system which allows the students to compare system performance in linear, nonlinear and real aspects. This simulation platform has been developed to conduct practicals on controller designing for the inverted pendulum system, performance comparison among different control laws, and for the development of a nonlinear model from an existing system. This approach in control engineering could be further extended, to produce a commercialized virtual-lab. The presented system can be used to develop advanced control systems including robust and optimal control as well as nonlinear control systems.

Keywords: Virtual Practical, Inverted Pendulum, Online teaching, PID, LQR

# ANALYSIS OF DRIVER CHOICE AT THE CLOSURE OF THE MAIN ROAD USING FLOATING CAR DATA

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## **ABSTRACT**

Progress in the option of transport data collection allows users to collect data using floating vehicles. This data provides real-time information about the road network. In the Czech Republic, these data were published in a pilot project last year. The article uses this new data source. Data can be spatially displayed using GIS software. Analysis options can be used and drivers' choice when the main road is closed can be detected.

Keywords: GIS, floating car data, traffic data, data analysis

## A STUDY ON FINDING THE FACTORS, HINDERING THE USE OF DIGITAL WALLETS AMONG YOUTH IN DEVELOPING COUNTRIES

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### **ABSTRACT**

A digital wallet or eWallet is a mobile based software application that securely persists consumer's payment information and passwords for numerous payment methods. By using an eWallet, users can complete their transactions quickly with technologies such as Quick Response (QR) and near-field communications (NFC). In the modern world, people use digital wallets to engage in financial and non-financial activities using the internet. It stores physical financial instruments digitally and provides high availability to convenience to the user. Typically, to facilitate high security to those financial assets in the digital wallet of the user, and to maintain reliability and availability, mobile application developing organizations follow different authorization mechanisms. The problem prevailing in a developing country similar to Sri Lanka is the less use of digital wallets in day-to-day transactions. The final outcome of the research will be to find the factors which affect the use of digital wallets in Developing countries through a selected sample in Sri Lanka. The students who study in western province universities in Sri Lanka will be considered for the study due to their computer and language literacy and the conceptual model UTAUT-3 will be used. The advantage of finding the mentioned factors is to help eWallet developers to enhance their products to attract and on-board more customers. The eWallet developers can consider these measures when developing a solution and use it to promote the application. Further, when developers create an optimal solution, the consumer of eWallets will be highly benefited with an efficient financial application.

Keywords: eWallet, digital wallet, UTAUT-3, Unified theory of acceptance and use of technology – 3, user adaption, behavioral intention

# APPLICATION OF CLOUD-COMPUTING FOR THE INTERNAL STAKEHOLDERS' COLLABORATIVE INVOLVEMENT IN THE CONSTRUCTION INDUSTRY: A LITERATURE REVIEW

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## **ABSTRACT**

The significant challenge in the construction project is the efficient collaborative involvement of the stakeholders since the stakeholders are coming from multidisciplinary and working together to achieve a particular goal. Consequently, at present, the construction industry has started to move on to Cloud-based technology for the collaboration of the stakeholders, Cloud-Computing (CC) is one of that technology. Although the stakeholders' collaboration through cloud-computing provides many benefits for the enhancement of project performance of the industry, the stakeholders rarely utilise the cloud-based applications and technologies during their day-to-day activities of the construction process. Accordingly, practical enhancement of the stakeholder collaborative involvement through CC in the construction industry needs to be re-analysed. Accordingly, there is a requirement to review the involvement ways of internal stakeholders through the CC for the collaboration and enhancement of the project performance. Hence, this paper highlights the literature findings on the collaborative involvement of stakeholders through Cloud Computing. Also, this study discusses the benefits and limitations of the usage of this CC. The findings revealed that contract management, design management and drawing, real-time management, and document management are the collaborative involvement features of internal stakeholders through CC in the construction processes. Real-time monitoring, low maintenance cost, and high collaboration were identified as major benefits of the CC. Moreover, a higher requirement of computer resources, high implementation cost, data security and protection, and lack of awareness of the stakeholders were identified as significant limitations of cloud-based BIM collaborative involvement of internal stakeholders in the construction processes.

Keywords: Construction Industry; Cloud Computing; Cloud-Based BIM; Stakeholders involvement, stakeholder collaboration

## WHY SRI LANKAN ADVANCED LEVEL STUDENTS PREFER TO PARTICIPATE IN PRIVATE TUITION RATHER THAN SCHOOL?

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### **ABSTRACT**

Preference of the private tuition is a growing among Sri Lankan students. Specially, most of the Advanced Level students participate in private tuition without participate in school. Aim of this study is to reveal key factors and reform government education system by considering private tuition. A survey questionnaire was distributed among students who completed Advanced Level examination in Sri Lanka. Data collection for the closed-ended questionnaire was distributed and conducted using emails and social media. Collected data were analysed. Theory sections of the subjects were covered from school and tuition were respectively 32.5%, 68.2%. But practical of the subjects were covered from school and tuition are respectively 40.9%, 29.6%. 37.8% of Grade 12 and 52.6% of Grade 13 students have allocated more than 06 hours per week for tuition classes in Advanced Level. The tuition expense of 88% of grade 12 students and 84% of grade 13 students, was lower than 6000 LKR per month. 80.7% students with financial difficulties got help from relation or obtained free cards from tuition classes. Around 90% of students were satisfied with the teaching skills of tuition class teachers compared to the school teachers. 54% of the students were obtained very useful learning materials only by the tuition classes. That is very higher value compared to the respective value of schools (4%). Syllabus coverage of schools, teaching skills of school teachers were in low level with compared to private tuition. Useful learning materials have been provided by tuition classes than schools. The students with financial difficulties got support from relation/teacher or by free cards. According to the analysis, the highest preference of advanced level students was private tuition rather than school and this study revealed key factors that should be addressed to reforming the Advanced Level government education system in Sri Lanka.

Key words: Tuition, School, Advanced Level

## **BIOPRINTING PROCESS AND APPLICATIONS IN MEDICAL RESEARCH**

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### ***ABSTRACT***

The presence of the modern technology is an integral component of development. The key assortments of the bioprinting are Additive Manufacturing (AM), computer aided design and manufacturing and digitizing and mimicking the physical characteristics of the human organs. Even though, a relatively younger technology, it has strongly felt its potential. Using bioprinting human organs such as ear cartilages to human tissues already gained the attraction of many academics and research institutes. It is exciting to see the potential of availability of custom manufactured human organs most probably available within the next decade for patients long suffering for their needs.

Key words: bioprinting, additive manufacturing, digitizing, mimicking, human organs

**OPTIMIZATION OF BREWING TIME AND TEMPERATURE FOR IMPROVING  
TOTAL PHENOLIC CONTENT AND ANTIOXIDANT ACTIVITY IN  
PASSIFLORA FOETIDA L. TEA USING RESPONSE SURFACE METHODOLOGY**

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**ABSTRACT**

*Passiflora foetida* L. (*P. foetida*) or 'Udahalu' leaves are exploited over centuries in Sri Lankan Ayurveda. Antioxidant activity of the leaves was scientifically proven by few researchers, yet optimizing the brewing parameters to obtain maximum antioxidant contents were not considered. Therefore, in the present study brewing time and temperature of the herbal tea prepared from *P. foetida* were optimized by using Response Surface Methodology (RSM) with Central Composite Design (CCD). The influence of different infusion temperatures (minimum 40°C and maximum 90°C) and steeping times (minimum 10 min and maximum 30 min) of 39 combinations were tested. Total phenolic content (TPC) was evaluated using Folin Ceocalteu method while ferric reducing antioxidant power (FRAP), and DPPH radical scavenging activity was used to assess antioxidant content. Color values were observed using Chroma Meter CR-400. The results showed a good fit of data and the highest TPC was observed at 90°C for 30 min combination while 40°C for 10 min. had the lowest values. FRAP and DPPH radical scavenging activities optimum in 100°C. for 20 min. combination and minimum in 29.6°C for 20 min. combination. The final statistically optimized curve for all the tests given by RSM showed that the optimum brewing time-temperature combination for *P. foetida* herbal infusion was 100.4°C for 34 min. Little changes were observed in color values (L\*, a\*, and b\*) with the alteration of brewing time and temperature. The activities increase with elevated time and temperatures. That may be due to the active compounds abundantly extracted with the enhancement of brewing time and temperature. Further studies need to evaluate the consumer preference of the combinations.

Key words- Antioxidant, Optimum time temperature, *Passiflora foetida*

## IMPACT OF OCCUPATION RELATED STRESSES OF NURSES ON THEIR CHILD REARING AND FEEDING PRACTICES IN KANDY DISTRICT

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### **ABSTRACT**

Nursing is a stressful occupation and it affects individual nurses on their professional and personal life. Child rearing and feeding practices of nurses are influenced by their unique understanding and experiences as well as occupation-related stress. This study evaluates the extent of occupational stresses of nurses and their causes and the impact on their child-rearing and feeding practices. The mixed method exploratory descriptive cross-sectional study was carried out by a series of semi-structured interviews followed by a survey using a self-administered questionnaire. In the randomly selected sample of 84 nurses, majority (76.2%) are suffering from moderate to severe stress. Common causes of stress include workload, inadequate staff, inadequate facilities, responsibilities, taking an immediate decision, critical patient care, administrative problems, witnessing death and suffering of patients and failing to provide parental responsibilities. However, conflict with health staff, lack of support from colleagues, or disappointment of the job was not common. Stress level and authoritative style of parenting had a negative correlation ( $p=0.003$ ) but the authoritarian style had a positive correlation ( $p=0.005$ ) with stress level. There was a positive correlation between stress and force-feeding practice ( $p=0.002$ ). Authoritarian parents inclined to force-feed ( $p=0.004$ ) and authoritative parents were inclined to modelling in feeding their children ( $p=0.001$ ). In conclusion, nurses are experiencing stress due to the multitudes of causes. The majority of nurses seem to adopt an authoritative style of parenting and they show monitoring feeding attributes. Those who adopt the authoritarian type of parenting are likely to experience more stress and used to force-feed.

Key words: Child rearing practices, Feeding practices, Nurses, Stress

# FACTORS INFLUENCING RELAPSES AMONG PATIENTS WITH PSYCHIATRIC ILLNESSES IN PSYCHIATRIC UNIT, NATIONAL HOSPITAL OF SRI LANKA

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## **ABSTRACT**

Psychiatric illness is characterized by a combination of abnormal thoughts, emotions, behavior, and relationship with others. Relapse means occurrence of the mental illness again after getting improved, resulting from not managed properly. It is affected to disease recovery and, leading factor for hospital readmission. Therefore, it is paramount important to find the factors which influence on relapses to increase the healthcare outcomes. Thus, this study aimed to examine the factors influence on relapses among psychiatric patients at the National Hospital in Sri Lanka (NHSL). A quantitative descriptive study was conducted to assess a convenience sample of 150 closed relatives of psychiatric patients who were admitted to the psychiatric ward and the clinic of NHSL due to relapse. Ethical approval was obtained from the Ethics Review Committee of NHSL. A self-administered questionnaire was used to collect data and analysis was done in descriptive way using SPSS (version 22). According to the findings, majority of the patients were male (54%), Sinhalese (84%), aged between 26-45 years (52%), and educated up to Ordinary Level (49%). Most of them were married (55%) and lived with their family (90%). Under patient related factors, poor insight (73%); poor clinic visits (55%); avoiding taking medications (72%); consuming alcohol (24%) and substance addiction (14%) were identified. Further, unemployment (54%); minimal engagement with religious activities (53%); poor family support (60%); and less awareness regarding community mental health services (70%) were revealed as affected social factors. Moreover, regarding health care institutional factors, patients had not being educated about the disease (37%), precipitating factors (36%), side effects of the drugs (21%); and the detail of the clinic visit (21%). In conclusion, not taking drugs, irregular clinic visits, poor insight, less family support, and less awareness about available community health services, are mainly affected factors on relapses among psychiatric patients.

Keywords: psychiatric, patients, relapse, clinic visits

# **FACTORS RELATED TO OBESITY AMONG TEENAGERS AT THE NUTRITION CLINIC IN DISTRICT GENERAL HOSPITAL, GAMPAHA, SRI LANKA**

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## **ABSTRACT**

Obesity means abnormal or excessive fat accumulation in the body which is a major risk factor for many non-communicable diseases. Teenage obesity is a major global health problem including in Sri Lanka. Thus, detecting the causative factors is paramount important to prevent teenage obesity. The aim of this study was to identify the factors related to obesity among teenagers at the Nutrition clinic in District General Hospital, Gampaha. A quantitative descriptive study was used for this study. A self-administered questionnaire was used to assess a convenience sample of 184 teenagers aged between 13-19 years and BMI >27.5kg/m<sup>2</sup> from the Nutritional Clinic in District General Hospital, Gampaha, Sri Lanka. Data was analyzed descriptively by using SPSS version 22. Ethical approval was obtained from the Ethic Review Committee of National Hospital of Sri Lanka. The response rate was 94.4%. The majority of participants were aged 12-16 year (65.9%) females (64.1%) who stayed in their own houses (83.5%) with their parents (92.9%). Under life style factors, most of them had heavily consumed meats (93%), oily foods (96.4%), sweets (53.6%), and artificial beverages (54.7%). But only 41.2% often used fruits and vegetables while 2.9% were engaged in exercise daily. Further, watching TV (94.1%) and using mobile phones (55.3%) > 2 hours per day and studying during night times (48.8%) were identified. Furthermore, the results emphasized that heavy consumption of sweets (p=0.001); less consumption of fruits and vegetables (p=0.016); and inadequate sleep (p=0.009) were significantly associated with teenage obesity. Regarding family related factors, most of mothers (81.2%) and fathers were educated up to O/L (75.3%) while mothers were employed (47.1%) of them. In conclusion, poor dietary habits; including over consumption of sweets, and having less amount of vegetables and fruits; and inadequate sleep have been significantly related with obesity among teenagers.

Keywords: teenage obesity, lifestyle factors, BMI

**DETERMINATION AND COMPARISON OF THE TOTAL PHENOLIC CONTENT,  
TOTAL FLAVONOID CONTENT AND THE ANTIOXIDANT ACTIVITY OF  
GARCINIA MANGOSTANA L. (MANGOSTEEN) FRUIT EXTRACTS IN SRI  
LANKA**

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**ABSTRACT**

Garcinia mangostana (Mangosteen) is a Southeast Asian tropical fruit which is known for its edible pulp. Bioactive compounds of mangosteen have been applied evidently in traditional medicine for various motives. Objective of this study was to determine and compare the phenolic and flavonoid phytochemical contents and the antioxidant activities of the peel, rind, pulp, and seed extracts of the mangosteen fruit. The samples were dried using a dry-oven method at 40°C, followed by phytochemical extraction with 70% methanol solution. The total phenolic content (TPC) was evaluated by Folin-Ciocalteu method which ranged from  $8.56 \pm 1.17$  µg/ml (rind) to  $2.47 \pm 0.29$  µg/ml (seed), and the total flavonoid content (TFC) was evaluated by AlCl<sub>3</sub> method which was ranged from  $9.64 \pm 0.65$  µg/ml (rind) to  $6.32 \pm 0.34$  µg/ml (seed). The antioxidant potentials evaluated by 2, 2-diphenyl-1-picrylhydrazyl (DPPH) and 2, 2-Azino-bis (3-ethylbenzthiazoline-6-sulfonic) acid (ABTS) methods. Observed DPPH activity ranged from  $95.22 \pm 1.11$  % (rind) to  $61.82 \pm 0.86$  % (pulp) and observed ABTS activity ranged from  $98.31 \pm 0.70$  % (rind) to  $77.42 \pm 3.02$ % (pulp). Antioxidant activities exhibited a positive correlation with both TPC and TFC while TFC was more responsible for the antioxidant activity than the TPC of the fruit. The study showed that the waste of the fruit contained a higher quantity of phytochemicals with potential antioxidant activities. The study further demonstrated that the peel, rind and seed considering as waste had more phytochemicals (phenolic acids and flavonoids) with higher antioxidant activities than the pulp which solely consumed.

Keywords: Garcinia mangostana, mangosteen, phenolic content, flavonoid content, antioxidant activity

**ADHERENCE LEVEL TO GOOD PHARMACY PRACTICE BASED NATIONAL  
MEDICINES REGULATORY AUTHORITY GUIDELINES BY COMMUNITY  
PHARMACIES IN COLOMBO CITY AREA AND POLONNARUWA DISTRICT IN  
SRI LANKA**

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**ABSTRACT**

This study explored the adherence level to Good Pharmacy Practice (GPP) by the pharmacies in Sri Lanka. GPP is the guidelines developed globally in order to standardize the services delivered from pharmacies to patients. The guideline issued by National Medicines Regulatory Authority (NMRA) based on GPP was used as the tool and the pharmacies, 131 in Colombo city area (Colombo 1-15) and 32 in Polonnaruwa district were used as the sample and study setting. The elements and parameters under the GPP main expanses of premises, personnel and storage of a pharmacy were observed using a scored checklist. The data was analysed at 95% confidence interval. The Colombo city area pharmacies were adhered to total GPP in 56.25% and Polonnaruwa district it was 49%. Among the main expanses the storage was the mostly adhered category in Colombo area (69%) as well as in Polonnaruwaruwa (58%). In storage parameters both Colombo (93%) and Polonnaruwa (100%) Pharmacies adhered to non-availability of expired drugs on the shelves. In contrast the tidiness and the cleanliness of the dispensing area was 80% in Colombo but 9.37% in Polonnaruwa. The adherence in two areas also showed differences in expanses of premises and personnel. The finding of the study is important as no study has been done to analyses the adherence to NMRA GPP based guidelines. Moreover only one study has been done in Sri Lanka to check the GPP adherence which was also in 2007. The latest finding could be used to formulate new regulations on GPP and also to take measure to improve adherence for poorly adhered categories.

Keywords: GPP, Pharmacy, NMRA, Good Pharmacy practice, Adherence

# FACTORS RELATED TO OCCUPATIONAL HAND INJURIES AMONG PATIENTS ADMITTED TO THE NATIONAL HOSPITAL OF SRI LANKA

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## **ABSTRACT**

Occupational hand injuries are the second most common cause for hand injuries worldwide which lead to temporary and permanent disabilities. On the other hand, these injuries are considered as the number one most preventable occupational injury. The purpose of this study is to investigate the factors related to the occupational hand injuries of patients admitted to the Accident Service, National Hospital, Sri Lanka (NHSL/AS). One hundred eighty participants aged between 15 to 75 years with injured hands due to occupation were purposively selected for this descriptive cross-sectional study. Data were collected using self-administered questionnaires and descriptive technique was performed for data analysis. The commonest types of occupational hand injuries were cut injuries (35%) and crush injuries (27%). It was found that 53.4% were craft and trade related workers and 81% were full time workers ( $p=0.038$ ). Most common source of injury was powered instruments 63.85%, ( $p=0.002$ ) and 85.3% of subjects have not used protective gloves, 60.1% were not provided safety equipment while 70.6% of them were being distracted due to feeling of discomfort at time of performing task. Major injuries were found among who had not received safety training 46%, ( $p=0.024$ ) and working overtime more than two hours 68.7% ( $p=0.012$ ). Therefore, it can be concluded that crush injuries and cut injuries were commonly reported and the commonest source of injury was power tools. The potentially modifiable factors such as the working conditions, safety training and use of gloves are common causes of occupational acute hand injury. The results suggest safety precautions may prevent occupational acute hand injury.

Key words; occupational injuries, hand, hand injuries

## QUANTIFICATION OF ARSENIC SPECIES IN SOME RICE VARIETIES IN THE NORTH CENTRAL PROVINCE OF SRI LANKA

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### ABSTRACT

Rice is one of the staple foods in the world and Arsenic (As) is a major toxic element mostly reported in the Asian rice. The elemental As can be found in foods in various forms. Some studies have been conducted to find total As content in Sri Lankan rice and it is necessary to detect As species separately because the toxicity of all the As species are not similar. In this study As<sup>3+</sup>, As<sup>5+</sup>, monomethylarsonic acid (MMA) and dimethylarsinic acid (DMA) levels in Sri Lankan rice were determined. Parboiled Samba rice collected from Anuradhapura, Raw Kekulu white rice and Parboiled keeri Samba rice collected from Polonnaruwa were analyzed for determination of As species. As species were extracted using 1% electronic grade nitric acid and each species was separated and quantified using HPLC coupled ICP-MS. MMA and DMA levels in all the rice varieties were lower than the limit of quantification (LOQ). As<sup>5+</sup> content in parboiled Samba rice was 8.9 ug/kg while it was lower than the LOQ in other two rice varieties. As<sup>3+</sup> contamination was detected as 52.4, 21.1, 31.1 ug/kg in Parboiled Samba rice, Raw Kekulu white rice and Parboiled keeri Samba rice respectively. The highest total inorganic As level (60.7 ug/kg) was found in Parboiled Samba rice while Raw Kekulu white rice and Parboiled keeri Samba rice contained 21.1 and 34.2 ug/kg of the total inorganic As respectively. Thus the Parboiled Samba rice collected from Anuradhapura showed a significant risk of the inorganic As.

Keywords: Rice, Arsenic, Species, Toxicity, ICP-MS

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**DETERMINATION OF THE ANTIOXIDANT CAPACITY OF DIFFERENT  
SOLVENT EXTRACTIONS OF LEAVES AND BARK OF AZADIRACHTA INDICA  
(NEEM)**

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**ABSTRACT**

Antioxidants diminish the activation of overwhelming free radicals which is the cause for many diseases. As using synthetic antioxidants carries drawbacks, at present there is a high demand on natural antioxidants derived from medicinal plants to develop natural therapeutic strategies. The present study aims to detect the antioxidant properties of the leaves and bark of the versatile medicinal plant, *Azadirachta indica* (Neem). The dried and powdered leaves and bark samples were extracted via cold maceration with four differently polar solvents: 80% ethanol, 80% methanol, distilled water and chloroform. A qualitative phytochemical screening was performed to detect various phytochemicals resulting a higher number of phytochemicals in Neem leaves. The quantitative determination of the total phenolic content (TPC), total flavonoid content (TFC) and total antioxidant capacity (TAC) was conducted using spectrophotometry with reference to Gallic acid, Rutin and Ascorbic acid standard curves respectively. Furthermore, the free radical scavenging activity was obtained in terms of 2,2'-Azino-Bis-3-Ethylbenzothiazoline-6-Sulfonic Acid (ABTS), Ferric ion reducing antioxidant power (FRAP) and 2,2-diphenyl-1-picryl-hydrazyl-hydrate (DPPH) radical activity. The statistical analysis was done via SPSS. The study revealed that extracting a particular agent depends on the solvent and the extracted part of the plant. With reference to that, polar solvents showed more contribution towards the extraction while leaf extracts stated a higher antioxidant capacity, established by the TPC values of ethanolic and chloroform leaf extracts which were 508.58 µgGAE/g and 181.65 µgGAE/g respectively. The present study can be developed further to investigate alternative drug developments using the antioxidant properties of Neem.

Keywords: Antioxidant capacity, *Azadirachta indica*, free radicals, solvent extractions

**DETECTION AND DETERMINATION OF ANTIBACTERIAL ACTIVITY OF  
CYMBOPOGON NARDUS (CITRONELLA) ETHANOLIC EXTRACTS AGAINST  
ESCHERICHIA COLI AND STAPHYLOCOCCUS AUREUS**

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**ABSTRACT**

Finding alternative treatments for bacterial infections due to increase of antibiotic resistance is currently a major global challenge and discovery of phytochemicals with antibacterial potential is highly relevant. *Cymbopogon nardus* (Citronella) plant species has evidenced of having antibacterial property from previous research studies. This study was aimed to assess the antibacterial activity of phytochemical compounds of *C. nardus* ethanolic extract against *Escherichia coli* (ATCC 25922) and *Staphylococcus aureus* (ATCC 25923) bacterial strains. Antibacterial activity was assessed using in vitro antibacterial tests. Antibiotic susceptibility test (ABST) was the qualitative test conducted to determine zones of inhibition against bacterial species at 50 and 100 mg/ml concentrations. Highest zone diameters were exhibited against *S. aureus* as 15.67±0.58 mm and 16.67±0.58 mm respectively. Inhibition diameters detected against *E. coli* were 15.00±0.00 mm and 15.33 ±1.15 mm respectively. Antibacterial activity expressed by *C. nardus* was significantly different between bacterial species. Broth dilution method was conducted as quantitative antibacterial tests to detect Minimum Inhibitory Concentrations (MIC). Lowest concentration of *C. nardus* with bacteriostatic potential against *S. aureus* was detected as 12.50 mg/ml and against *E. coli* was detected as 25 mg/ml. Minimum Bactericidal Concentration (MBC) for *S. aureus* and *E. coli* were detected as 50 and 100 mg/ml respectively. The data from present study confirmed the presence of antibacterial compounds and the promising aspect of *C. nardus*. The discovered therapeutic potential of *C. nardus* as an antibacterial agent against *E. coli* and *S. aureus* needs to be fully evaluated using further studies.

Keywords: *Cymbopogon nardus* (Citronella), Antibacterial activity, Antibiotic susceptibility test, bacteriostatic, Bactericidal

# IDENTIFICATION OF LACTOBACILLUS IN COMMERCIALY AVAILABLE SET YOGHURT SAMPLES AND THEIR APPLICATION IN SYNTHESIS OF SILVER NANOPARTICLES (AGNPS) FROM SILVER NITRATE

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## **ABSTRACT**

Probiotics are nonpathogenic living microorganisms which confer health benefits on the host. Nowadays, probiotic Lactobacilli are frequently used in green chemistry approach for silver nanoparticle synthesis which is considered as an ecofriendly alternative way to other chemical and physical methods. This study was designed to investigate the biosynthesis of silver nanoparticles using Lactobacillus, isolated from commercially available set yoghurts in local market and to evaluate antibacterial and antioxidant potentials of synthesized silver nanoparticles. Five set yoghurt samples were purchased and cultured on MRS media. Thereupon Lactobacillus was phenotypically and biochemically identified using colony morphologies (on MRS agar) and biochemical tests (Gram, acid-fast, endospore stainings and catalase test), respectively. Then Lactobacillus mediated silver nanoparticle synthesis from silver nitrate was carried out by sunlight irradiation. Nanoparticles obtained were characterized by means of UV-visible spectroscopy. Afterwards, DPPH radical scavenging assay and agar well diffusion assay were carried out to determine antioxidant and antibacterial activity of the synthesized silver nanoparticles. As results, Muroid white colonies with entire margins were observed in all samples. Bacterial colonies from all the samples showed positive results for Gram staining, negative results for acid fast staining, endospore staining and for catalase test. UV-visible absorption spectrum for each sample showed absorbance maximum between 390nm-470nm, which is a characteristic of surface plasmon resonance of silver. In DPPH assay, silver nanoparticles showed significantly high ( $P < 0.05$ ) antioxidant activity ( $85.20\% \pm 2.6354$ ) compared to Lactobacillus. In agar well diffusion assay, silver nanoparticles displayed considerable antibacterial activity ( $25.333 \pm 0.577$ mm for *Escherichia coli* and  $21.333 \pm 0.577$ mm for *Staphylococcus aureus*) whereas Lactobacillus did not show any antagonistic effect against *Escherichia coli* and *Staphylococcus aureus*. Considering the findings of this study, it can be concluded that Lactobacillus can be used effectively in the production of silver nanoparticles which consist of antioxidant and antibacterial activity for commercial and medical applications.

Key words: Lactobacillus, Silver nanoparticles, Antioxidant, Antibacterial

**ADMINISTERING SINHALA PEDI-EAT TO DETECT FEEDING DIFFICULTIES  
IN CHILDREN WITH DISABILITIES: EVIDENCE FROM A UNIVERSITY  
CLINIC IN SRI LANKA**

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**ABSTRACT**

Background: Dysphagia in children with disabilities leads to aspiration and has a long-term impact on child's development. Due to increased survival rates of children with complex and medically fragile conditions prevalence of feeding and swallowing disorders is increasing. The Sinhala Pediatric Eating Assessment Tool (PediEAT) is a parent-report instrument developed to assess symptoms of feeding problems in children aged 6 months to 7 years. Objectives: To describe the feeding difficulties and to determine the association between the concern level of feeding difficulties with the diagnosis of dysphagia among children with disabilities between 6 months-7 years at the Multi-Disciplinary Team (MDT) Clinic for children with disabilities and their families at the Ayati center, University of Kelaniya. Methods: A descriptive cross-sectional survey was conducted at the Multi-Disciplinary Team (MDT) Clinic for children with disabilities and their families at the Ayati center, University of Kelaniya. The study population included parents of children between 6 months-7 years attending the MDT clinic from November to December 2019. Four hundred ten (n=410) parents of children with disabilities were selected using selective sampling method. Sinhala Pedi-EAT questionnaire was used to assess the feeding difficulties Results: The most prevalent feeding concerns under the physiologic symptoms was cough during or after meal time (71%, n=291). Under the problematic mealtime behaviors the following was the commonest: rejection of the foods (54%, n=221). Under the restricted eating, the following was observed: spitting out food from the mouth (81%, n=332). Getting 30 seconds per each spoon (58%, n=237) was the most frequent oral processing issues. Mealtime was longer than 45 minutes for the majority of the children (61%, n=149). They were red flagged for a diagnosis of dysphagia. Children who were diagnosed with developmental disorders (72%, n=296) presented higher risk for having dysphagia. Conclusions & recommendations: Highest scored feeding difficulties were under the problematic mealtime behaviors of Pedi-EAT questionnaire. Educating parents / caregivers regarding helpful and unhelpful behaviors on child's feeding will aid in managing problematic feeding behaviors in children. Pedi-EAT can be reliably used to screen feeding difficulties in children in Sri Lankan clinical context.

Key Words: feeding and drinking difficulties, Pedi-EAT, children with disabilities, MDT clinic

**GLOBAL ACADEMIC RESEARCH  
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**PROCEEDINGS**

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# IMPLEMENTATION OF RECONCILIATION MECHANISMS FOSTERING THE TRANSITIONAL JUSTICE IN POST-WAR SRI LANKA

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## **ABSTRACT**

For nearly three decades, the fierce civil war in Sri Lanka came to an end in 2009. The violent atmosphere left severe confrontations to be addressed by the Government, international community and civil society. The major necessities were to reconcile affected communities, rehabilitate the ex-combatants, search for displaced people, and standardize living conditions. These necessities were to be accomplished with a credible reconciliation framework fostering transitional justice mechanisms. The international community requested to conduct an impartial investigation, and the United Nations unilaterally appointed two committees. The main objective of the study is to examine the implemented reconciliation mechanisms to address the issues of post-war Sri Lanka. Moreover, the study focus on the contribution of the initiatives in promoting transitional justice in Sri Lanka. The study is mainly based on secondary data qualitative analysis, and the analysis will be conducted through content analysis. The relevant data will be gathered through journal articles, reports, books, and research papers. The results and findings illustrate that the Sri Lankan Government has implemented the Lesson Learnt and Reconciliation Commission, the Presidential Commission to investigate into Complaints regarding Missing Persons, the Office for National Unity and Reconciliation and the Consultation Task Force on Reconciliation Mechanisms. Implementation of these initiatives promoted the transitional justice concept in Sri Lanka, and it paved the way for establishing the Office of Missing Persons and the Office of Reparations. The establishment of the two organizations has positively impacted on transitional justice process of Sri Lanka.

Keywords: Reconciliation, Transitional Justice, Post-war, Civil War

## EVOLUTION OF THE BRITISH- EU FOREIGN POLICY

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### **ABSTRACT**

The relationship between the European Union and Britain goes back to the time where the initiative was taken in forming the European Union. Through the course of time, the British - EU relations have been a rough ride due to the ideological disputes among the leaders of the nations involved. Britain has rarely played a smooth part in European integration, earning the description of “an awkward partner” and in recent years Britain has gone further, becoming a dysfunctional and destructive partner. Not a day seems to pass without Britain’s domestic politics causing problems for the rest of the EU. Therefore, the main objective of this paper is to analyze the evolution of the British- EU foreign policy overtime under the specific British Prime Minister since the establishment of the Common Foreign and Security Policy (CFSP) of the EU until the 2016 BREXIT referendum. The study is based on qualitative research using secondary data to get an in-depth understanding of the discussed phenomenon. Hence, the research adopts the method of content analysis to achieve the research objective. British officials’ attitude towards the CFSP has been extremely argumentative from one tenure to the other. In exploring the consensus of the officials towards the CFSP, it can be divided into periods according to the specific leader. Through the findings, it can be emphasized that the British leaders focused mostly on the leadership role and achieving their foreign policy objectives rather than institution building. Thus, it can be identified that Britain’s main intention was to emerge as an internationally powerful state together with the help of the US rather than making a change in the European region which ultimately led to BREXIT as well.

Keywords: Britain, EU, Foreign Policy, BREXIT

## RETHINKING THE FUTURE: CONTEMPORARY ART PRACTICES IN SRI LANKA

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### ***ABSTRACT***

In the narration of Sri Lanka art history, contemporary art gives a new direction to visual languages and subject matters through artistic practice. 90s trend art practices explore the social conflict and memories of the violence of personal and collective social space and redefine the meanings and politics of dominant aesthetics. For instance, Eminent and young visual artist works explore the memories, acts of torture, the trauma of individual and social experiences in war, and the post-war era. On the other hand, these art practices are also interrogating the violence of ethnicity, gender, etc. In this context, conceptual art practices are imagined a good future in society and create space for the future artistic generation to explore their new ideas. So, this research examines the new concept and new art form of the visual artist in the contemporary art scene and constructs the new role of the artist in society.

Keywords: - Contemporary art, concept, art forms

**EMERGING CHALLENGES AND CONSTRAINTS IN THE POST-WAR  
RECONCILIATION PROCESS BETWEEN SINHALA AND TAMIL ETHNIC  
COMMUNITIES IN SRI LANKA**

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**ABSTRACT**

The Sri Lankan civil war prevailed nearly for 30 years from 1983 to 2009. Although, the armed struggle was ended, many studies repeatedly highlight that the ethnic reconciliation process is still a challenge. Therefore, this study was conducted to explore the research question of "Why has the post-war reconciliation process between Sinhala and Tamil ethnic communities in Sri Lanka been delayed"? The purpose of this study was to examine the emerging challenges and constraints in the post-war reconciliation process between Sinhala and Tamil ethnic communities and making recommendations to empower the reconciliation process. The study employed mixed method approach for data collection and analysis using both qualitative and quantitative data through primary and secondary sources. Primary data were collected from 200 respondents in six villages of the Trincomalle District, Eastern province in Sri Lanka. Qualitative data were analyzed through thematic methods while the quantitative data was analyzed using Statistical Package for Social Sciences. The study found that the post-war reconciliation process of Sri Lanka is becoming complex because of the failures of the prevailing mechanisms such as unnecessary interference of politics, lack of understanding the reality and a clear road map for the expected reconciliation process alongside not addressing humanity-based needs in the process. It has been concluded that unless both Sinhala and Tamil communities come up with their own solutions based on the mutual understanding and trust, the reconciliation process will be interfered by many causes including socio, economic and political factors.

Key Words: Conflict, Ethnic communities, Prejudices, Reconciliation

## ACTIVATION OF CONTENT SCHEMATA SUPPORTIVE STRATEGIES (C3S) – A STEP TOWARDS BETTER COMPREHENSION

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### **ABSTRACT**

Developing or improving L2 readers' Comprehension Monitoring Competence (CMC) is one of the herculean tasks in the field of teaching English as a second language. Facilitating the learner's content schemata is one of the strategies employed by the ELT practitioners to activate, the learner's comprehension monitoring abilities. This paper focuses on the specific role of the content schemata - a type of knowledge which activate or promotes the learners to interact with the content and the themes and sub-themes of the texts they process. The study included 39 first year Engineering students attached to Faculty of Engineering of University of Jaffna. Two stories extracted from the Readers Digest Magazines were used for the purpose of this study. The duration of the study was three days. The main objective was to identify whether the activation of various content words and phrases promoted the learner's comprehension monitoring abilities. Initially the students were introduced a story and some comprehension questions. Their answers were marked and the mean was calculated. Second day of the lesson began with a list of words and phrases taken from another story. The students were instructed to create three different stories, using those words provided in the list. (The real story was not provided). The learners functioning in three groups created, three different stories with the content words they interacted with. The real story and the comprehension questions were given during the third day and the answers of the learners were marked and the mean was calculated. The mean obtained by the learners in the second stage was higher than the previous attempt. The gain the learners achieved was proved significant. It can be concluded that the prior knowledge in content schemata provided a better processing capabilities and the learners are activated in a proper way to comprehend the story successful.

Keywords: Content Schemata, Comprehension, Processing, Schema Theory, Second Language

# A MODEL FOR DESIGNING THE ACADEMIC LIBRARY SERVICES IN ONLINE LEARNING ENVIRONMENT

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## **ABSTRACT**

In this Covid-19 pandemic situation Teaching Learning activities are conducted remotely by using digital teaching and learning tools. That can be defined as online learning. As an academician, it is necessary to identify the situational requirements and the responsibilities to carry-out online teaching and learning process. The academic libraries are the main resource provider in both physical and online learning environments. Due to the advancement of digital teaching and learning technologies and due to the Covid-19 pandemic, users' expectations and users' information seeking behaviors have been changed rapidly. Hence, academic libraries have a big role to play on fulfilling students and academics information requirements in an effective and efficient manner. As identified through the literature review process, to fulfill users' information needs, academic libraries should focus their services mainly for E- learning resources, E- learning services, ICT infrastructure facilities, Roles and skills of Information professionals and the management policy. Accessing learning resources are much important to both students and academic staff. Information services should be arranged according to situational conditions and to maintain interaction. In any critical situation, academic libraries should be prepared to support the university teachers and learners to shift from a traditional system to modern system with communicating global knowledge. This paper presents the conceptual model that developed based on literature review and research findings which can be used by academic libraries to design their services to especially offer in online teaching and learning environment.

Key Words: Academic Library, Online Learning, Conceptual Model, Digital Teaching and Learning

**KEY DETERMINANTS OF INTERNAL AUDIT OUTSOURCING ARRANGEMENT  
IN SRI LANKA: IS HIGH TECHNICAL COMPETENCY THE OVERRIDING  
FACTOR?**

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**ABSTRACT**

The internal audit function is increasingly being transforming towards outsourcing to external practitioners instead of which has traditionally been an in-house function of the company. Conversely, a sizeable professional business entities are looking forward for the corporate audit assignments. This research aimed at investigating the key determinants of internal audit outsourcing arrangement of CSE enlisted companies in Sri Lanka in place of handling an in-house function. Further, it investigated whether the practitioner's high technical competency override the other determents. The technical competence, perceived audit quality, cost saving, corporate strategy and firm size were considered as the independent variables, whereas the outsourcing arrangement is the dependent variable. Mix method approach was used in this study. Fifty (50) CSE enlisted companies whose internal audit function has outsourced either fully or partly were considered as the sample and the quantitative data were collected using structured questionnaire followed by 20 in-depth interviews for qualitative data. Descriptive statistics, correlation coefficient and multiple liner regression analysis techniques were used as statistical techniques for quantitative data analysis. The quantitative analysis revealed the technical competence, perceived audit quality, corporate strategy and firm size as significant factors in determining the sourcing arrangement while the high technical competence of the practitioner override other determinants investigated. More interestingly, the cost saving identified as an insignificant determinant of the internal audit outsourcing arrangement. This results were confirmed by the in-depth interview results. In conclusion, the study recommends the practitioners to maintain high technical competency to acquire more business opportunities.

Key words: Internal Audit, determinants of outsourcing, technical competence, Sri Lanka

# THE EFFECT OF ENTREPRENEURIAL EDUCATION ON ENTREPRENEURIAL COMPETENCIES: A STUDY OF STUDENTS OF THE VAVUNIYA CAMPUS

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## **ABSTRACT**

The thriving chase of entrepreneurial education over the last decades has drawn a rising concentration in entrepreneurial education research, leading to the formation of an increasingly rich field of study. Entrepreneurial education has developed in prodigious treads and has spread broadly everywhere the world in recent decades. The evolving body of research studies has assessed and addressed the effectiveness of entrepreneurship education with intent to foster student's advertence on self-employment as a career option and reinforcing entrepreneurial competencies and culture among university students through entrepreneurial education. Entrepreneurial competencies have considered as crucial element in business startups, development and success of the business performance. Since, it is the totality of knowledge, skills, and abilities essential to create, organize and to manage a business venture effectively. Therefore, it is important and urgent to develop entrepreneurial competencies among students in Universities that foster self-employment among the undergraduates. The main objective of this study is to identify the effect of entrepreneurial education to enhance the entrepreneurial competencies of the undergraduates of the Vavuniya Campus. For this purpose, four competencies were identified - Cognitive and non- cognitive competencies, Business and management competencies, Human relations competencies, Conceptual and relationship competencies - and analyzed. The four main competencies consist of six variables. The data were collected by issuing the questionnaire.100 undergraduates identified in Vavuniya Campus and data were collected from the fourth year and third year students of the Vavuniya Campus. Simple random sampling technique was used in this study. This study used Descriptive analysis, and Principal Components with Varimax Rotated Method of factor analysis for analyzing the Entrepreneurial competencies using the Statistical package for Social Sciences (SPSS) 20.0 version. The results indicated that the factors extracted from the analysis consist of 70.4% variance. Based on the factor score, the cognitive and non-cognitive competencies score value is 6.88, the second was the Business and Management competencies (5.34), the third was the human relations competencies(3.26) and the conceptual and relationship competencies was in the fourth rank (2.86). Based on the analysis the finding of the study indicated that the entrepreneurial education highly effects on cognitive and non-cognitive competencies than other competencies of the Vavuniya Campus Students.

Keywords: business management competencies, cognitive and non-cognitive competencies, entrepreneurship education, human relations competencies, relationship competencies

## CONSUMER PREFERENCES TOWARDS DIFFERENT RICE VARIETIES IN POLONNARUWA DISTRICT

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### **ABSTRACT**

This study evaluated the factors influencing the consumers' preferences towards different rice varieties as well as identify the association between socio – demographic status and the preferences of rice varieties among the respondents in Polonnaruwa district. Data were collected from a random sample of 100 households who lives in rural and urban areas in Hingurakgoda DS division in the district during the period of May-June 2020. The collected data were analyzed using frequency, chi – square test, multinomial probit model and its marginal effects. Frequency of consumer preferences on rice varieties revealed that, 48% of the households preferred Nadu followed by 40% and 12% of them chose samba and raw rice respectively. Further, 51% of the households eats rice at twice in a day whereas 42% and 7% of them eats rice thrice in a day and once in a day respectively. Results of chi- square test suggest that, association between residential places and preferences on rice varieties was higher than gender and opinion about the prices of rice. The results further indicated that about 58% of the households who lives in rural areas preferred Nadu while nearly 61% of the urban households preferred samba. However, nearly 14% and 8% of rural and urban households chose raw rice as their preferred rice respectively in the study. The multinomial probit model was used to assess the impact of socio – demographic, economic and consumption habits on household preferences towards rice varieties. Empirical results of the model indicated that among socio – demographic characters, gender, education and residential place whereas among economic and consumption habits, concern on price of rice and monthly income were significantly influenced on consumers' preferences on rice varieties in the study. The findings of the study would help to the stakeholders in traditional rice industry to understand the underlining the patterns of consumers' preferences towards different rice varieties in Polonnaruwa district.

Keywords: Consumers' preferences on rice varieties, consumption habits, socio – demographic status, multinomial probit model

# MODELING TEA SMALLHOLDERS' ADOPTION DECISIONS ON TEA PLANT VARIETIES IN SRI LANKA: MULTINOMIAL PROBIT MODEL ANALYSIS

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## **ABSTRACT**

This study was conducted to investigate the impact of tea smallholders' socio- demographic, economic and farming characteristics on their adoption decisions towards three tea plant varieties in Badulla district of Sri Lanka. Data used in the study was collected from a survey using a multi-stage sampling technique during the period November to December in 2019. 108 respondents were randomly selected from three major tea producing regions in the district. Frequency analysis, descriptive statistics, chi-square test and one way ANOVA were used to describe the basic features of tea smallholders whereas multinomial probit model was estimated to examine the impact of the above characters on adoption decisions on tea plant varieties in the study. Among the respondents, 43.5% of the smallholders chose VP 20/25 while 29.6% and 26.9% of them chose VP 20/23 and CY9 tea plant varieties respectively. Chi-square test revealed that, females are more likely to adopt VP20/23 variety while males more prefer to choose VP 20/25 variety in the study. In order to identify the mean differences in yield across three tea plant varieties, one way ANOVA was used and its results found that, average yield derived from the two varieties namely, VP20/25 and VP 20/23 are the same and they are differ from the variety CY9. Estimated results of multinomial probit model showed that, gender, secondary education, farming experience, output from the chosen tea plant variety, prices of each tea plant variety, types marketing channels and frequency of harvest were major determinants on adoption decisions of tea smallholders. Findings of the study recommended that government and extension agents should create a favourable environment like training facilities, pricing policies and proper marketing channels for further improvement on their adoption decisions towards the different types of tea plant varieties in the study area.

Keywords: Adoption decisions, economic and farming characteristics, multinomial probit model, tea plant varieties, tea smallholders

# PROTECTION OF CIVIL LIBERTY IN THE REALM OF HOSTILITY: A COHESIVE APPROACH

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## **ABSTRACT**

The creation and evolution of International Human Rights Law is an evident result of the inhumane maltreatments that took place during the Second World War. Since then, the applicability of International Human Rights Law for the protection of civil liberty during an armed conflict has been an exhaustive debate. Many scholars argue that since International Humanitarian Law is specifically enacted to address and rectify the situations in armed conflicts and the main objective of the treatification of International Human Rights Law is to regulate and preserve the State–Individual relationship in their respective jurisdictions, International Human Rights Law should not continue to apply in the realm of hostilities. This paper mainly focuses on the negative and problematic impact of this conservative ideology on the Rights of Civilians during a combat. For this purpose, the research mainly addresses the following questions: (a) the current international legal framework applicable during warfare; (b) the compromised status of the civilians during an armed conflict; (c) the legal lacunas of International Humanitarian Law concerning civil liberty; (d) the importance of the materiality of International Human Rights Law for the protection of civilians. A desk review of UN sources on armed conflicts, documents on the ICRC’s database, and other scholastic electronic resources was used to achieve this purpose. In conclusion, the research paper anticipates to contribute to the contemporary debates regarding the well-versed incorporation of International Human Rights Law into International Humanitarian law for the protection of civil liberty in the course of an armed conflict and vice versa.

Keywords: International Human Rights Law, International Humanitarian Law, Civil Liberty, Armed Conflicts, Cohesive Approach

# **ALTERNATIVE ASSESSMENT: THE MOTIVATIONAL IMPACT UPON ESL LEARNERS**

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## **ABSTRACT**

This paper highlights the motivational role of alternative assessment in learning English as a Second Language. The importance of individual factors influencing second language acquisition revolve around Second language acquisition theories. Within those factors the importance of motivation is undeniable. The aim of this paper is to give an insight into student motivation for learning English as a second language through the use of alternative assessments at the American College of Higher Education. The paper analyses levels of motivation after alternative assessments in English as a second language. Within this paper quantitative methods are adopted. The use of statistical analysis techniques identifies a rise in motivation in ESL through alternative assessments. This paper suggests further research based on psychological needs, a larger sample etc.

Key words: motivational, alternative, assessment, portfolio, needs, tools

## **EFFICACY OF SIVATHAI CHOORNAM AND SIRUNKU THAILAM ON PATIENT WITH SIRUNKU NOI (SCABIES)**

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### **ABSTRACT**

The objective of study was to determine efficacy of “Sivathai Choornam” and “Sirunku thailam” on patients with Sirunku Noi (scabies). It is a common parasitic skin infection caused by *Sarcoptes scabiei*. Affected areas are finger webs and also seen on the trunk, arms and legs and palms of hands and soles of feet. Scabies is intensely itchy, especially at night which is most severe in children and elderly. Rashes are with small pimples or red bumps, scaly or crusty skin. It is mentioned that sivathai choornam can be used to cure sirunku noi in siddha vaithya thirratu and sirunku thailam in palm olla can be used as external application. Ninety patients who had these symptoms of sirunku noi attended private siddha medical clinics conducted in vadamardchy south west piradeshsa sabbha were selected for study. The data were statistically recorded and analysed. According to analysis, signs and symptoms in 60% of those used only Sivathai choornam started to disappear gradually. Signs and symptoms were reduced in 70% of those used only this sirunku thailam for external use. The signs and symptoms significantly decreased in 90% of those who took sivathai choornam and sirunku thailam. All three groups observed diet restriction. But 5% of group 2 and 3 patients could not continue with treatment because of allergic reaction due to sirunku thailam. Results suggest that, sivathai choornam and sirunku thailam are effective and harmless polyherbal preparations with potential benefits in treating sirunku noi.

Keywords: Sirunku noi, Sirunku thailam, Sivathai choornam, Scabies, Siddha Medicine

**PROGNOSIS AND CORRELATION BETWEEN NEIKURI AND PRAKRITHI OF  
PATIENTS IN KAITHADY SIDDHA TEACHING HOSPITAL,  
CHAVAKACHCHERI**

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**ABSTRACT**

Neikuri is an identical method of urine examination and a remarkable diagnostic and prognostic tool in Siddha medicine. Prakrithi are based on three humours, as vatha pitha & kapha which also persuade the prognosis of disease in particular patient. Aim of this study is to assess the prognosis and correlation between Neikuri and Prakrithi of patients in Kaithady siddha teaching hospital, Chavakachcheri. It was a descriptive cross-sectional study with fifty vatha, pitha & kapha patients. An interviewer administrated questionnaire and Prakrithi chart was used. Neikuri was assessed by spreading pattern and duration for spreading oil drop in urine. Significant wherever applicable were found by chi-square test. P value less than 0.05 was considered as significant. Mean age of study population was 54.36 ( $\pm 1.26$ ) years with the range of 19 to 86 years. Vatha, Pitha, Kapha and Thontha patients were 66% (n=33), 20% (n=10), 8% (n=4) and 6% (n=3) respectively. Very good prognosis was shown by 16 % (n=8) of subjects, 48 % (n=24) showed good prognosis, 22 % (n=11) bad prognosis, 14% (n=7) very bad prognosis. Among very bad prognosis 72 % (n=5) had vatha disease and 28 % (n=2) had pitha disease. In the study, 72% of vatha disease patients were on vatha humour and 28% pitha disease patients were on pitha humour. Significant correlation was found between neikuri and prognosis. Patients with very bad prognosis had same Prakrithi, thosha, spreading pattern and disease.

Keywords: Neikuri, Prakrithi, Three humours, Siddha Medicine, Sesame oil

## **EFFECT OF ASANAS AND BREATHING EXERCISE ON BODY MASS INDEX FOR CERTIFY SCHOOL STUDENTS**

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### ***ABSTRACT***

The purpose of the study was to investigate the Effect of Asanas and Breathing Exercise on body mass index for Certify School Students. The subject were 50 Certify School students stayed at Hostel Atchuvvely the age of the subject ranged from 13 to 18 years. The subjects were selected randomly from Certify School Students .Before started Asanas practice body mass index was measured with help of digital height and weight machine for measuring body mass index (BMI).After twenty days Asanas & Breathing Exercises Training: Starting prayer Meditation, Sun Salutation, Breathing Exercise, Asanas. Again same measurement was taken. The data was Analyzed by applying paired t-test and descriptive statistical technique and product movement correlation was employed to observed the mean (M), Standard deviation (SD) and other parameters. The analysis of data was worked out by using the IBM-SPSS version 20. The level of significant was set at 0.05. The findings of the present study have indicated that Asanas and Breathing practices gave significant reduction on body mass index for Certify School students.

Keywords: Body Mass Index, Asanas, Breathing Exercise, Sun salutation

# A LITERATURE REVIEW OF “SANJEEVINI CHOORANAM” IN THE TREATMENT OF ALL TYPE OF POISONOUS SNAKEBITE IN SIDDHA MEDICINE

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## **ABSTRACT**

Today the poisonous snake bites are the life threatening problems and significant amount of mortality as morbidity all over the world including Sri Lanka. Snakebite is coming under the Jeeva Nanjukal in toxicology in Siddha Medicine. In the classic snakebite has been considered as difficult to treat due to be difficulty and diagnosis and severity in nature. With these ideas when we searched the Siddha Literatures we found “Sanjeevini Chooranam” for all type of poisonous snakebite. It is mentioned in the book “ruNge;jpu itj;jpa Kiwfs; (tp~ Nuhf rpfpr;ir)” page no 150 – 152. The aim of this study was to literature related review the important characters of Sanjeevini Chooranam which is in the treatment of snakebite. Data were collected from the related authenticated text books and studies in details according to their properties related to Siddha aspect. Collected data had been analyzed according to the organoleptic characters and pharmacological action which enables the chooranam to act on snake bite poisoning. Results and Discussion: The results showed that, among the 49 medicinal plants belonging 21 families were identified and the most common families include Fabaceae, Cucurbitaceae and Apocynaceae and the morphology is 30.6% (15) plants was shrub and 71.4% (35) and 16.3% (8), were used as root bark and bark respectively. These plants contain siddha properties {bitter and sweet taste 56% (28) and 16% (8); hot potency 73.46% (36) and pungent efficacy 79.59% (39)}; pharmacological actions {diuretic 38.3% (36), tonic 37.23% (35), and astringent 35.1% (33)}; 41.49% (39) plants were used as diet and 9.6% (9) were identified as poisonous plants. Conclusion: It is that all the ingredients of the Sanjeevini Chooranam have the property and the pharmacological action to cure for snake bite poisoning. Therefore Sanjeevini chooranam is the best healer for snake bite poisoning. Although this literature review can be provide useful documentation for the management of the snake bite in Siddha Medicine, further extensive scientific studies should be carried out in future.

Keywords: Siddha Medicine; sanjeevini chooranam; review; snake bite

## EVALUATION OF NEPHRO TOXICITY OF SINNA SIVAPPU MAATHIRAI A SIDDHA HERBO MINERAL DRUG

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### ABSTRACT

Sinna Sivappu Maathirai is a compound herbo mineral Siddha drug prescribed for cough, chest pain when coughing, breathing difficulties and cough with fever. It is prepared from nine herbs, borax and red sulphide of mercury. Large quantity (15-20Kg) of Sinna Sivappu Maathirai is used widely per annum in Northern Province. Siddha products offer very little data on toxicological profile but traditional medicine required full toxicity studies, even if manufactured according to classical texts. Renal failure induces a slow and progressive decline of kidney function enhanced by various factors including toxic chemicals. So far, Sinna Sivappu Maathirai has not been studied regarding the nephro toxicity previously.

Objective: To evaluate the nephrotoxicity of Sinna Sivappu Maathirai

It was a hospital based descriptive observational study at government Ayurvedic hospital, Kaithady, Jaffna, Sri Lanka. According to the Stephen, et al. (2007) sample size was calculated as 64. Ethical clearance (J/ERC/16/76/DR/003412) and administrative approval were obtained. Blood urea, serum creatinine, uric acid and urine were investigated in 63 participants after obtain consent. Participants who prescribed SSM for the first time with the dose of two Kuntriyalavu (260mg) for 18 and above years, two times a day after meals with anupannm of betel extract 5ml for 7 days included. Pregnant women, and mentally incompetent patients, patients with renal impairment were excluded. All the participants were assessed at day 0 and after 1st week, 2nd week, 4th week and 12th week of visits. Blood sample for all investigation was 5ml on five occasions. Samples were taken to department of Biochemistry and department of Medicine in an ice box (40c) within 4 hours and lab procedures were continued. Enzymatic (UV), alkaline picrate and colorimetric method were followed through semi-automated chemistry analyzer. Mean, standard deviation, paired t- test were calculated using SPSS 22. The mean value of blood urea (25.20±11 to 26.84±09.03), serum creatinine (0.66±0.13 to 0.87±0.47) and uric acid (4.01±0.89 to 5.33±1.01) were under the normal range between visits. Mean differences and p-value of blood urea (-0.70±3.63 to -1.65±7.12 and 0.004 to 0.191), serum creatinine (-0.02±0.18 to 0.08±0.46 and 0.152 to 0.778) and uric acid (-0.01±0.38 to 0.15±0.58 and 0.015 to 0.766) were not indicating nephrotoxicity in this study limit. Significant level was calculated as p-value ≤ 0.05. Urine albumin, pus cell and epithelial cell were not change between visits. Eight questions were not indicating the nephro toxicity clinically. It could be concluded that SSM has no nephrotoxicity with the dose of 260 mg with 5 ml betel extract bd/pc for one week treatment for respiratory symptoms in the age range of 18 and above years in both gender.

*Acknowledgement*

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## ROLE OF PUNKAMPAL KIRANTHY OIL IN THE MANAGEMENT OF SENKIRANTHY IN INFANTS

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### **ABSTRACT**

Senkiranthy is one of the commonest skin problems in infants. Siddha pediatrics texts classified Kiranthy into two types they are Senkiranthy and Karumkiranthy. Karumkiranthy is a rare phenomenon. Pararasasegaram and Balaroga Nidhana has mentioned etiological factors, sign and symptoms and treatment of Kiranthy diseases. Formation of slightly elevated red patches over the body, mild itching, restlessness, abdominal discomfort are the common symptoms of the Senkiranthy. The objective of this study was to assess the effectiveness of the Punkampaal Kiranthy oil in management of Senkiranthy infants. This study was carried out from March 2015 to June 2015 at the Cellaiyah memorial Siddha Ayurvedic Medical centre, Vavuniya. Punkampaal Kiranthy oil used as an external medicine. It was prepared at the above Medical centre. 30 infants were treated for Senkiranthy during this period. This disease has been studied based on the Siddha Medical literatures, clinical findings with patients and prognosis. The results were assessed on the basis of subjective and objective improvements. 83% (25) of senkiranthy infants got good results within two weeks. 10 % (3) cured from kiranthy with in 1 month. Only 7 % ( 2) had not got any improvements. No adverse effective were noted during the treatment periods. This study revealed that external application of Punkampaal Kiranthy oil was effective for Senkiranthy in infants.

Keywords: Senkiranthy, Punkampaal Kiranthy oil, Infants, Karumkiranthy

## CONSUMER AWARENESS, MYTHS AND BELIEVES ON HIGHLY PROCESSED FOOD PRODUCTS AVAILABLE IN SRI LANKA

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### **ABSTRACT**

Highly processed foods are popular in the modern world, and there is a worldwide discussion regarding their impact on human health. Therefore, consumer perception of this kind of food is vital to decision-makers. However, the studies on awareness, myths, and believes in highly processed foods are less in Sri Lanka. Thus, this study had focused on recognizing consumer awareness and misbelieves in highly processed foods available in Sri Lanka. The 500 respondents had selected by using stratified random sampling techniques from the entire country; were interviewed using a structured questionnaire which had obtained information on general awareness, myths and beliefs, and factors influencing their buying behavior. Statistically analyzed results showed that 74% of respondents had an awareness of highly processed foods. The highest awareness (95%) was observed in Kalutara while least in Vavuniya and Matara districts. The 84.2% of respondents, from the 18-25 age group, had awareness, with the highest positive perception was observed among children in their families. According to the occupation, 92% of academia and researchers had an awareness and positive belief in highly processed food. 53% of respondents selected that the taste and convenience are the main reasons for consuming highly processed foods. More than half of the respondents (57%) believe that the retail shops are the best shopping place than the other buying places. 30% of the respondents believe books, magazines, or journals as their information sources regarding highly processed foods. 74% of respondents had a willingness to read the labels as a habit when they purchase highly processed foods. Results revealed that academia and the young generation have good awareness and positive belief in highly processed food products than other ages.

Keywords: Awareness, Believes, Highly-processed food, Myths, Perception

## MEDICAL LEECH THERAPY (ATTAI VIDAL) IN SIDDHA MEDICINE- A REVIEW

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### **ABSTRACT**

Siddha medicine, traditional system of healing that originated in South India and is considered to be one of India's oldest systems of medicine. Siddha is a comprehensive system that places equal emphasis on the body, mind, spirit and restore the innate harmony of individual. In Siddha system diseases were classified in to 4448. In Siddha system of medicine, the diseases were treated in many ways like Mani, Manthiram, Avizhtham, Yogam and Varmam. Avizhtham (Medicine) is one way to treat the diseases in Siddha medicine, which is further divided into 32 internal medicine and 32 external medicines. Attaival (leech therapy) is an external blood letting therapy of application of medicinal leech to remove blood from the affected area and give relieve distension, remove pus & slough and drain the discharge. The aim of the study is to review the Attaival from different Siddha literatures and research articles. Seven books were selected from library of Unit of Siddha Medicine & University of Jaffna. Data were collected and analysed and the leech therapy was described by various Siddhars in their literature, Particularly the Siddhar Agastiyar and Therayar who explained leech therapy elaborately in their text Agasthiyar erandayiram, Agasthiyar ranavaithiyam and Agasthiyar nayanavithi & Therayar Tharu. According to Therayar Tharu, Attai vidal is placed in twenty seventh place. Attai Vidal (Medicinal leech therapy) is also called as Hirudo therapy on the basis of commonly used leech species, *Hirudo medicinalis*. Medicinal leeches are used in the treatment of various diseases such as benign tumors, swelling, Kiranthi, haemorrhoids, abscess and boils, contusion, varicose ulcer, varicose vein, deep vein thrombosis, rheumatoid arthritis, skin and musculoskeletal diseases, arthritis, dysmenorrhea, eye diseases, traumatic swelling. Many studies have found that leeches have various bioactive molecules in their secretions. such as Hirudin, hyaluronidase, collagenase, histamine like molecules, anaesthetics, fibrinases, antibacterial, etc. This is concluded that the leech therapy was used in Siddha and other system of medicine for various medical and surgical conditions. The Scientific studies on leech saliva were proven and support the leech application in Siddha system of medicine

Key Words: Siddha, Attaival, Leech therapy, Hirudin

**ASSESSMENT OF VITAMIN D LEVELS AND ITS CORRELATION WITH  
OSTEOPOROSIS AND FRACTURE SITE COMMINATION IN OSTEOPOROTIC  
HIP FRACTURES IN TERTIARY CARE HOSPITAL**

Dr. Kishore Vellingiri, Dr. Prabhu E, Dr. Nagakumar J S,

Dr. Arun H S, Dr. Karthik S J

*India*

**ABSTRACT**

Inadequate serum vitamin D levels is associated with secondary hyperparathyroidism, increased bone turnover, bone loss and increased fracture risk. Hip fracture due to osteoporosis is a serious injury associated with a high risk of death. Annual mortality in patients with these fractures varies from 15 to 30%, depending on the population. Vitamin D is well recognized to be suboptimal in older patients when compared to age-matched controls. Thirty minutes of exposure of skin over the arms and face to sunlight, without application of sunscreen, preferably between 10 a.m. to 2 pm daily is reported to be adequate to avoid Vitamin D (Vit.D) deficiency for an average healthy adult. 1) Vit.D can be low due to 1) Dietary deficiency of Vit.D and inadequate exposure to sunlight 2) Inability to absorb Vit.D from the intestines or inadequacy of production from skin 3) Inability to process Vit.D by liver and kidney into its active and functional forms. 2) Deficiency of Vit.D causes secondary hyperparathyroidism, increased bone turnover and bone loss, mineralization defects, hip fractures and fractures at other sites. 1) Effective supplementation of Vit.D, calcium and phosphorous increases bone mineral density, decreases the incidence of hip fractures and other non-vertebral fractures in high risk population. 4) Serum level of Vit.D < 20 ng/ml was considered as deficiency, Vit.D level between 20–29 ng/ml was considered as insufficiency, Vit.D (Hypo.D) and Vit.D level 30–100 ng/ml was considered as normal. 1) Prevalence of hypovitaminosis D in patients with osteoporotic hip fractures, correlation between the levels of vitamin-D and osteoporosis measured by Singh's index and the presence of comminution at fracture site is studied in patients with proximal femoral fractures following trivial trauma. OBJECTIVES: To know incidence of vitamin D deficiency in osteoporotic hip fracture patients in our rural population and also to know its correlation with osteoporosis and fracture comminution osteoporotic hip fractures in tertiary care hospital."

Prospective study, n=30 patients, STUDY PERIOD: SEPTEMBER 2019- JULY 2020  
STUDY CENTRE: R.L.JALAPPA HOSPITAL, TAMAKA, KOLAR, INCLUSION AND EXCLUSION CRITERIA: Age group 45- 90 years history of trivial trauma and fractures of proximal femur. Intertrochanteric fractures- Boyd & Griffin Neck of femur fractures - Garden's classification All the patients with fracture following a trivial trauma like slip and fall while standing/walking were included in the study and patients with significant history of trauma like road traffic accidents/ fall from height and pathological fractures were excluded. STATISTICAL ANALYSIS: Statistical analysis - t-test and Chi-square test for analysis of categorical variables. Pearson's correlation is done for estimating the degree of correlation between the variables.

**A COMPARISON BETWEEN SINGLE SPIN VS DOUBLE SPIN INTRA-ARTICULAR PRP INJECTION IN PATIENTS WITH BILATERAL EARLY OA KNEE: A NOVEL TECHNIQUE**

Dr. Souradeep Mitra

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***ABSTRACT***

To compare the effects of two different platelet-rich plasma (PRP) production methods as intra-articular injection treatment for patients with bilateral osteoarthritis knee (OA). The study involved 32 patients affected by bilateral OA knee. The patients were treated with single spin PRP injection in one knee and double spin PRP injection in the other knee. The knee to which single spin or double spin PRP injection was to be given was picked through randomization. If one knee received single spin PRP injection, the other knee would receive double spin PRP injection. The patients were evaluated at the time of presentation and at 1, 3- and 6- months follow-up with WOMAC, VAS and Oxford Knee scores; adverse events and patient satisfaction were also recorded. Patients were surveyed before the first injection and after a follow-up of  $24.2 \pm 0.1$  weeks. VAS decreased after single spin PRP, by  $3.58 \pm 0.34$  points ( $p < 0.001$ ), WOMAC-Score decreased by  $23.51 \pm 2.82$  points and Oxford knee score increased by  $2.45 \pm 0.14$  points. After double spin PRP, VAS decreased by  $4.78 \pm 0.43$  points ( $p < 0.001$ ), WOMAC-Score decreased by  $32.51 \pm 4.32$  points and Oxford knee score increased by  $3.92 \pm 0.34$  points. Patients undergoing treatment for knee OA with double spin PRP can be expected to experience improved clinical outcomes when compared with single spin PRP. Although further studies comparing the two methods are required.

## TREATMENT OF FLEXION TYPE OF SUPRACONDYLAR FRACTURE IN A PEDIATRIC PATIENT: CASE REPORT

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### **ABSTRACT**

Flexion type of pediatric supracondylar humeral fracture is an uncommon fracture and accounts for only 1% - 10% of supracondylar fractures. Various methods of treatment have been advocated that depend on the grade and stability of the fracture and include manipulation and casting in extension, skeletal overhead traction, closed/open reduction and internal fixation with Kirschner wires. However, various difficulties, including inherent instability of the fracture, difficulty in maintaining reduction, difficult Kirschner wiring in the extension position, and frequent loss of reduction in a cast and even postoperatively, make the treatment of this fracture a challenging task. 2 year old female presented to Orthopaedics OPD with history of self fall on 10/8/20 following which she sustained injury to her left elbow. H/o swelling, crepitus, abnormal mobility was present over left elbow Range of motion at elbow- Painful and restricted. No distal neurovascular deficits She was clinico-radiologically diagnosed to have Gartland type III flexion type supracondylar fracture of left humerus. Initial closed reduction with cast application did not achieve adequate reduction. Closed reduction + K wire application with 2 lateral K-wires and 1 medial K-wire with extension slab application was done on 18/8/20. No distal neurovascular deficits were noted After regular follow-up, K-wires were removed at 4 weeks following adequate radiological union. Using this technique, adequate reduction was achieved and on regular follow-up adequate radiological union and good functional range of motion was achieved without ulnar nerve injury.

**MICROWAVE ASSISTED ECOFRIENDLY SILVER NANOPARTICLE  
SYNTHESIS USING SIX VARIETIES OF CAPSICUM ANNUUM: EVALUATION  
OF ANTIOXIDANT, ANTIBACTERIAL AND PHOTOCATALYTIC PROPERTIES**

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**ABSTRACT**

Recent advancements of nanotechnology have given rise to nanomaterial generation which plays a major role in medicine. Silver nanoparticles (AgNPs) have gained great importance due to their high antioxidant, antimicrobial, non-toxic nature and biological functionality which make them ideal for biomedical applications. In this study AgNPs were synthesized using six varieties of Capsicum annum (C.annuum), to assess antioxidant, antibacterial and photocatalytic properties. The synthesized AgNPs were characterized using, UV-vis spectrum which shows a plasmon resonance peak between 400– 450 nm. Higher antioxidant properties were observed in AgNPs than in water extracts. Antibacterial properties were assessed against Escherichia coli and Staphylococcus aureus showed no significant difference between AgNPs and water extracts. Photocatalytic activity of Galkiriyagama AgNPs was assessed using methylene blue, showed that 6,350 ppm and 425 ppm AgNPs can degrade dye molecules completely within 30 and 160 minutes respectively. Thereby, green synthesized AgNPs from C.annuum varieties could be used in medical research to reduce free radical induced diseases, antibacterial resistance as well as to have a better environment without poisonous dyes.

Keywords: Nanotechnology, Green synthesis, Chili, Assays, Photocatalysts

**CLEAN WATER FOR BETTER HUMAN LIFE: CONSTRUCTING ECO-FRIENDLY WATER FILTERS AND ASSESSING THEIR WATER FILTRATION ABILITY AND WATER QUALITIES**

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**ABSTRACT**

Clinical reports of rising renal complications in Anuradhapura and Kurunegala districts have caused major concerns in the groundwater quality. The majority of the rural population directly consume this water from wells, which are not tested or treated. Many studies point to contamination of these groundwater sources due to pesticide leaching, weathering of rocks and farming malpractices. The objective of this study was to produce an eco-friendly, low-cost water filter suitable for a low-income rural population. Thus the filter consisted of *Strychnos potatorum* seeds, Coconut Charcoal, Laterite, Dolomite, River sand and Activated Carbon arranged in glass bottles in a cartridge system with taps to control flow rate, mounted vertically on a wooden structure with a flow rate of 500 mL per hour. Biochemical and Microbiological tests were carried out for four wells in Anuradhapura and two wells in Kurunegala, before and after filtration. While majority of wells were within guideline limits of WHO, titrimetric analysis revealed high sulfates (5350 mg/L), total hardness (159.17 mg/L) and chlorides (704.52 mg/L) in certain wells which were reduced to guideline range after filtration. Nitrate values obtained by spectrophotometric analysis of samples were within guideline values (50 mg/L) and were dependent upon the geographical location of sampling. The microbiological analysis showed high counts (200 CFU) of gram-negative bacteria in well samples and a combination of boiling and filtration was suggested. The designed filter was suitable to reduce Total hardness and Chloride levels and can be improved by changing the position of filter material or adding modifications.

**COMPARATIVE STUDY ON VITAMIN PROFILE, MINERAL PROFILE,  
ANTIOXIDANT PROPERTIES AND TOTAL PHENOLIC CONTENT OF  
PALMYRAH (BORASSUS FLABELLIFER) SAP AND SAP BASED PRODUCTS**

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**ABSTRACT**

Palmyrah (*Borassus flabellifer*) sap and sap based products (SASBP) are enriched with health benefits. This study focused on comparing the abundance of vitamins, antioxidants, total phenolic content (TPC), total flavonoid content (TFC) and minerals and to select the best product among palmyrah SASBP, namely sap, palm sugar, treacle and jaggery. HPLC (reversed-phase) was used to determine the water and fat-soluble vitamins. Quantitative analysis of water-soluble vitamins was performed with analytical method validation. Antioxidant was determined by DPPH and ABTS radical scavenging assays and ferric reducing antioxidant power (FRAP). Statistical analysis was done using one-way ANOVA and Tukey comparison. The findings showed significant differences ( $p < 0.05$ ) in all tested parameters between samples. The vitamins of SASBP ranged from  $(2.81 \pm 0.83$  to  $35.16 \pm 6.72)$  mg/100g for thiamine,  $(4.35 \pm 0.46$  to  $45.03 \pm 3.23)$  mg/100g for niacin,  $(4.44 \pm 0.17$  to  $87.16 \pm 3.94)$  mg/100g for pyridoxine and  $(5.42 \pm 0.39$  to  $52.52 \pm 3.83)$  mg/100g for ascorbic acid. Accuracy ranged from  $(98.43 \pm 5.28$  to  $100.64 \pm 4.48)$  %, LOD ranged from  $(0.357$  to  $1.152)$  ppm, and LOQ ranged from  $(1.081$  to  $13.573)$  ppm. Treacle had the highest DPPH and ABTS radical scavenging activity with an IC<sub>50</sub> value of  $(2.40 \pm 0.36)$  and  $(6.16 \pm 0.43)$  mg/ml respectively, and the highest FRAP [ $(23591.8 \pm 88.5)$  mmol Fe (II)/100g] and TFC [ $(9.43 \pm 0.21)$  µg/ml]. TPC was the highest in jaggery [ $(196.30 \pm 3.21)$  GAE mg/100g] among SASBP. Ca, Mg, P, Fe, Na and K were higher in jaggery and sugar than treacle. Sugar showed the highest Fe content [ $(59.94 \pm 2.63)$  mg/100g]. The best sample sequence was in the order of treacle > sugar > jaggery > sap

Keywords: Palmyrah, HPLC, antioxidant, vitamins, flavonoids

## **BREAST CANCER AWARENESS AMONG UNDERGRADUATES IN EASTERN UNIVERSITY, SRI LANKA**

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### **ABSTRACT**

Breast cancer is the most frequent malignancy of women worldwide and has been ranked first among females in Sri Lanka. Aim of the study was to evaluate the knowledge and practice on awareness of breast cancer among undergraduates from selected faculties in Eastern University, Sri Lanka. This institutional based cross-sectional descriptive study was conducted among 1413 students. Self-administered questionnaire was used. Data were analyzed using SPSSv22 for descriptive analyze and Chi-square test. Ethical clearance was obtained. The response rate was 90.4%. Around 71% were females and majority of the students were from faculty of arts and commerce. Only less than half of the participants had mentioned that Family history of breast cancer (43.7%), diet related factors (45.4%) and abstinence from breast feeding (42.7%) are the risk factors of breast cancer. While, nearly two third of them had known breast lump as a symptom of breast cancer and around 95% of the participants were aware that early detection is possible. In addition, more than 70% of the participants have misunderstood that preventive surgery and abstinence from sexual activities can prevent the breast cancer. Even though, around 95% of the female participants were aware on breast self-examination (BSE). However, only 23% had performed BSE once a month and 61% had never performed BSE. Overall knowledge on risk factors, early detection and prevention of breast cancer was poor among undergraduates from selected faculties in Eastern University with minimum level practice on self-breast examination. Further, awareness programs on breast cancer are strongly recommended.

Keywords: Breast cancer, Awareness, Breast Self-Examination, Eastern University

# **CURCUMA LONGA EXTRACT INDUCES UP-REGULATION OF CASPASE-3 EXPRESSION IN BREAST CANCER STEM CELL POPULATION: A POSSIBLE MECHANISM FOR CANCER DEATH**

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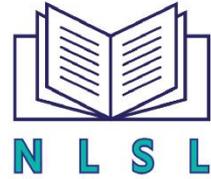
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## **ABSTRACT**

Breast cancer stem cells (BCSCs) is a population of breast cancer cells that responsible for cancer recurrence and apoptosis resistance. Unfortunately, current therapies have limited efficacy to BCSCs population. Previous studies have indicated that Curcuma longa extract (CL) exerts apoptosis effect on several cancer cells by targeting various molecules including caspase-3 which possess fewer side effects. Caspase-3 is a protein which plays a crucial role in apoptotic pathways by cleaving a variety of key cellular proteins. Therefore, in this study we investigated the apoptosis effect of CL especially on caspase-3 expression in BCSCs. BCSCs cell population were isolated by CD44+/CD24- by magnetic associated cell sorter (MACS) from MDA-MB231 breast cancer cells and analysed for hallmark stem cell characteristics by flowcytometry. The caspase-3 expression and apoptosis induction under CL administration analysed by flowcytometry. Our results demonstrated that CL induced caspase-3 expression in doses-dependent manner, finally leading to apoptosis cells up to 92.20% at CL 60µg/mL. These results suggest that the caspase-3 induction may represent an important cell death mechanism in BCSCs.

Keywords: BCSCs, Curcuma longa extract, caspase-3, apoptosis, CD44+/CD24-.

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