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BOOK OF ABSTRACTS

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GCSGD 2023-HLS

In line with the Sustainable Development Goals (SDGs) on protection and promoting sustainable growth and development for our own and future generations, this global congress in health and life sciences provides an international platform to identify the key developments that contribute to a better future in health and life sciences.

Global Congress on Sustainable Growth and Development 2023 - Health and Life Sciences aims to:

1. Bring together academicians and experts around the world to present and share their expertise, knowledge and research findings towards sustainability and growth in health and life sciences.
2. Stimulate and strengthen interdisciplinary research links among researchers and stakeholders worldwide to take the bold and transformative steps to shift the world on to a sustainable and resilient path.

Main theme

Moving towards Sustainable Development Goals in Health and Life Sciences

Sub-themes

- Human Health and Well Being
- Sustainable Environment
- Biotechnology and Biological Sciences
- Pharmaceuticals and Nutraceuticals
- Food Security and Sovereignty
- Innovation, Infrastructure and Nanotechnology for Sustainability
- Applied Sciences

All the accepted papers will be submitted to *Scopus indexed journals and INTI Journal to consider for publication after peer review.

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UNRAVELING PLASTID GENOME EVOLUTION AND MYCOHETEROTROPHY IN *Cyrtosia lindleyana* THROUGH NEXT-GENERATION SEQUENCING

Lee Shiou Yih

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Abstract

Using next-generation sequencing, we characterized and analyzed the plastid genome (plastome) and transcriptome of the achlorophyllous mycoheterotrophic orchid *Cyrtosia lindleyana*. Despite plastome being severely reduced in size, key photosynthesis-related pathways remained intact, yet some plastid coding sequences seemed non-functional, shedding light on Vanilloideae genome evolution and mycoheterotrophy in Orchidaceae

KNS-02

IMPACT OF GLOBAL WARMING ON MICROBIAL DISEASES: AN INTERCONNECTED CRISIS

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Abstract

Global warming, resulting from human activities, profoundly impacts Earth's climate systems, influencing ecological dynamics and fostering the proliferation of microbial diseases. This abstract explores the intricate relationship between global warming and microbial diseases, examining the effects of environmental changes on host-pathogen interactions and the emergence of new infectious threats. Elevated temperatures and shifting precipitation patterns directly influence the distribution and survival of microbial pathogens, expanding their habitats and introducing them to new regions. Changes in humidity and temperature also impact disease vectors like mosquitoes and ticks, altering their life cycles and geographic ranges, thereby affecting the transmission dynamics of diseases such as malaria, dengue fever, and Lyme disease. The disruptions induced by global warming in ecosystems contribute to fluctuations in the abundance and distribution of reservoir hosts and vectors, complicating disease dynamics. Altered behaviors of pathogens and hosts can elevate transmission rates and lead to the emergence of drug-resistant strains, posing substantial challenges to public health. The abstract also explores potential mitigation and adaptation strategies, underscoring the necessity for interdisciplinary collaboration among climate scientists, ecologists, microbiologists, and public health experts. A comprehensive understanding of the connections between global warming and microbial diseases is essential for developing effective strategies to mitigate health risks associated with the climate change. In the face of escalating microbial threats, proactive measures are crucial for safeguarding global health and establishing resilient communities amidst the consequences of global warming.

KNS-03

PHYSIOTHERAPY -SUSTAINABLE ALTERNATIVE HEALTHCARE

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Abstract

Physiotherapy, as a green and sustainable alternative in healthcare, embodies a paradigm shift towards eco-conscious healing practices. Departing from the resource-intensive nature of conventional medicine, physiotherapy adopts a holistic approach that emphasizes natural, non-invasive methods. The discipline leverages therapeutic exercises, manual techniques, and lifestyle adjustments to promote recovery without the environmental impact associated with pharmaceutical interventions. Moreover, physiotherapists educate patients on self-management techniques, empowering them to take control of their health and reduce their reliance on medical resources.

In a world grappling with environmental challenges, physiotherapy emerges not just as an alternative healthcare solution but as a beacon of sustainability. By prioritizing preventive measures, minimizing reliance on pharmaceuticals, and empowering individuals to actively participate in their well-being, physiotherapy pioneers a green path for the future of healthcare one that is effective, patient-centric, and environmentally responsible.

KNS-04

DECIPHERING THE FUNCTION OF m6A EPITRANSCRIPTOMES DURING MOUSE CORTICOGENESIS

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Abstract

Proper development of the nervous system is critical for its function and deficits in neural development have been implicated in many brain disorders, such as microcephaly, autistic spectrum disorders, and schizophrenia. In the embryonic mouse cortex, radial glia cells (RGCs) function as neural stem cells, sequentially giving rise to neurons residing in different cortical layers and switching to glial production before their depletion during early postnatal stages. Such a precise and predictable developmental schedule requires a highly coordinated genetic program. Various studies have revealed transcriptional cascades that orchestrate the dynamics of mammalian cortical neurogenesis. There are more than ~180 types of RNA modification where N6-methyladenosine (m6A) is most abundant, m6A installed by the METTL3/ METTL14 methyltransferase complex is the most prevalent internal mRNA modification that regulates mRNA metabolism, including stability, translation, splicing, and other functions. m6A profiling with cell lines has revealed m6A sites in over 25% of human transcripts, with enrichment in long exons, and near transcription start sites and stop codons. Few studies establish the role of m6A signaling during mammalian embryonic brain development *in vivo*. Here, we used the *Mettl14* conditional knockout (cKO) mouse as a model to examine m6A function in postnatal cortical neurogenesis *in vivo*. Our results reveal critical epitranscriptomic control of mammalian cortical neurogenesis and provide insight into mechanisms underlying this highly coordinated developmental program.

GCSGD23001

EFFECTIVENESS OF MCKENZIE TECHNIQUES AND NECK MOBILITY EXERCISES IN CERVICAL SPONDYLITIS

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Abstract

Cervical spondylitis (CS) causes a great deal of financial hardship for those affected by it and contributes significantly to global disabilities. Chronic neck pain has a typically unfavorable prognosis, with associated impairment lasting longer compared to low back pain. It is estimated that 66% of individuals undergo neck pain at someday in their lives. Even after a year of treatment, over one-third of those affected may still experience low-grade symptoms or recurrences, which can often lead to the development of chronic pain. After 12 months of treatment, more than one-third of individuals affected still exhibit minor pain symptoms or recurrence, which typically leads to chronic pain. There are numerous therapeutic exercise techniques and approaches, but one feature they all have is the utilization of hands to manipulate and mobilize to comfort the patient. The study included 30 patients who were taken from a reputed hospital and they were segregated into two groups with 15 patients each: Group-A and Group-B. Randomized chosen subjects were allocated to each group. For each group, pre- and post-test measurements for impairment index were made using the Northwick Park Neck Pain Questionnaire (NPNPQ), and the Range of Motion was assessed using a Goniometer. Four days each week for four weeks, participants in Group A received McKenzie mobilization for the cervical region for 45 minutes while seated. Four days each week for four weeks, subjects in Group B received neck mobility exercises lasting 45 minutes while lying comfortably on their backs with their feet uncrossed. Findings revealed a substantial variation in the improvements in ROM and NPNPQ scores between Groups A and B after therapy. The overall study demonstrated that McKenzie exercises were successful in reducing discomfort and the degree of disability in patients with cervical spondylitis. When dealing with cervical spondylitis, McKenzie exercise is preferable to cervical mobility exercises. The study found that McKenzie exercise was superior to cervical mobility exercise in reducing pain and impairment incervical spondylitis patients.

Keywords: Cervical spondylitis, McKenzie exercise, neck mobility exercise

GCSGD23002

EFFECTIVENESS OF ULTRASOUND AND STRETCHING EXERCISES FOR CARPAL TUNNEL SYNDROME AMONG PREGNANT WOMEN

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Abstract

Carpal tunnel syndrome (CTS) affects a large percentage of pregnant women in the third trimester. CTS is recognized as an increased risk during pregnancy in which the median nerve is compressed in the carpal tunnel, with common symptoms including numbness, tingling, and needle sensation in fingers and hands and pain during the night. These symptoms are quite commonly addressed using therapeutic ultrasound. However, the best ultrasound intensity to manage CTS has not been addressed in depth. Hence, the aim of this study is to evaluate the effectiveness of ultrasound (1 MHz and 3 MHz) with stretching exercises among pregnant women with CTS. A total of 40 pregnant women with diagnosed CTS were recruited from Saveetha Medical College OPD and split into two groups based on inclusion and exclusion criteria, utilising a convenient sampling technique. Group A received continuous ultrasound with a frequency of 3 MHz, and Group B received pulsed ultrasound with a frequency of 1 MHz for 4 weeks, 15 minutes, 5 days a week, per session. Both groups received active forearm stretching exercises under the guidance of the therapist. The result of the study showed that there was a significant effect ($p<0.0001$) observed among pregnant women who received continuous ultrasound with a frequency of 3 MHz compared to those who received pulsed ultrasound with a frequency of 1 MHz. Based on the obtained results, the study concludes that the participants received continuous ultrasound with a frequency of 3 MHz along with forearm stretching exercises, which were found to reduce symptom severity and functional status among pregnant women with CTS.

Keywords: Carpal tunnel syndrome, forearm stretching exercises, ultrasound therapy

GCSGD23003

EFFECTS OF ULTRASOUND THERAPY VERSUS TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) ALONG WITH MYOFASCIAL RELEASE AMONG THE PHOTOGRAPHER WITH UNILATERAL TRAPEZITIS

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Abstract

Myofascial pain syndrome is associated with trapezitis, an inflammation of the trapezius muscle. Early on after inflammation, a muscular spasm happens. This can occasionally be uncomfortable and feels like muscle tightness. Spasm leads to the development of trigger points—muscle knots—when a simple injury is left untreated. Due to the spasm keeping the muscles always "on," knots develop. The muscle over time becomes overused and produces these knots since muscles are not intended for this continual effort. The spasm must therefore be treated in order to lessen this issue. Injury to the neck and back is where this occurs most frequently. Transcutaneous Electrical Nerve Stimulation(TENS) and ultrasound therapy are two forms of physical therapy used to treat trapezitis. A total of 30 photographers with diagnosed trapezitis were recruited from Saveetha Medical College Outpatient Department and split into two groups based on inclusion and exclusion criteria, utilizing a convenient sampling technique. Group A received continuous ultrasound with myofascial release, and Group B received TENS with myofascial release for 4 weeks, 5 days a week, per session. An unpaired t-test was used to do statistical analysis on all of the data that was gathered. When comparing the Ultrasound Therapy group to the TENS group, the test demonstrates substantial results ($p<0.05$) in lowering pain and increasing physical function as determined by NPRS, cervical rotation, side flexion ROM, and NDI. The study's conclusion, based on the data collected, is that, when it comes to lowering pain and enhancing physical function in individuals with trapezitis, ultrasound therapy works better than TENS.

Keywords: Trapezitis, ultrasound therapy, TENS, NDI, ROM, and NPRS

GCSGD23004

PRE AND POST PHYSIOTHERAPY MANAGEMENT IN A 5 YEAR OLD SPASTIC DIPLEGIC CEREBRAL PALSY GIRL UNDERGOING SELECTIVE DORSAL RHIZOTOMY

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Abstract

Cerebral palsy (CP) poses significant challenges, particularly in children with spastic diplegia, necessitating effective interventions to manage motor impairments. While Selective Dorsal Rhizotomy (SDR) shows promise, the comprehensive integration of pre and post-physiotherapy interventions remains an under explored aspect in optimizing functional outcomes. To evaluate the effectiveness of intensive pre-SDR physiotherapy in preparing the child for surgery. To examine the role of post-SDR physiotherapy in enhancing functional outcomes and quality of life. Conducting a thorough pre-SDR assessment, including motor function, postural control. Implementing an intensive preoperative physiotherapy program tailored to the child's needs. Documenting the SDR procedure and postoperative physiotherapy protocols. Assessing and recording motor improvements, postural changes, and quality of life indicators. Analyze pre- and post-SDR data to identify improvements in motor function and postural control. Discuss the impact of intensive pre-SDR physiotherapy on surgical outcomes. Examine the role of post-SDR physiotherapy in sustaining and enhancing functional gains. Compare findings with relevant literature, highlighting any novel aspects or unique outcomes. This study demonstrates the significance of integrating intensive physiotherapy with SDR for optimal outcomes in spastic diplegic cerebral palsy. Pre-SDR physiotherapy proves crucial in preparing the child for surgery, while postoperative interventions play a vital role in sustaining and enhancing functional improvements. The findings contribute valuable insights to the existing literature, emphasizing the holistic approach needed in the management of CP. The study underscores the nuanced interplay between pre and post-SDR physiotherapy, providing a comprehensive understanding of their synergistic impact on functional outcomes. This holistic approach serves as a novel contribution to the field, emphasizing the need for tailored physiotherapy interventions in conjunction with surgical procedures for optimal results in children with spastic diplegic cerebral palsy.

Keywords: cerebral palsy, spastic diplegia, SDR, motor control

GCSGD23005

GAUGING COVID-19 VACCINE HESITATION AMONG GUJARAT'S HIGHER EDUCATION STUDENTS AND ITS CORRELATION WITH PERSONAL CONDITIONS

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Abstract

Vaccine hesitancy poses a significant challenge to public health efforts, potentially compromising the effectiveness of vaccination campaigns. This study aimed to determine the prevalence of COVID-19 vaccine hesitancy among graduate and postgraduate students in the state of Gujarat, India. A cross-sectional survey was conducted among a representative sample of graduate and postgraduate students from various educational institutions in Gujarat. A structured questionnaire was administered to assess participants' attitudes, beliefs, and concerns related to vaccination. COVID-19 vaccine hesitancy was measured using a validated scale, and demographic factors were also collected. A total of 412 participants completed the survey. The study revealed variations in vaccine hesitancy across different disciplines, gender and demographic background. Additionally, factors such as misinformation from social media, lack of trust in vaccine safety, and concerns about side effects emerged as key contributors to hesitancy. This study sheds light on the factors influencing hesitancy and provide valuable insights for designing targeted interventions to address vaccine hesitancy and improve vaccine acceptance rates among this population. Efforts to combat vaccine hesitancy among students can contribute to overall community immunity and the success of immunization programs.

Keywords: COVID-19, vaccine hesitancy, prevalence, graduate students, Gujarat

GCSGD23006

BIOMECHANICAL ASSOCIATION AND INFLUENCE OF FOOT PRONATION ON SUBJECTS WITH ANTERIOR KNEE PAIN - A CASE-CONTROLLED STUDY

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Abstract

Structural abnormalities of the foot can disrupt the normal biomechanics (windlass mechanism) of the lower extremity, leading to compensatory motions at the subtalar joint. This abnormal kinematic chain link may be due to excessive compression in the lateral patellar facet and maltracking of the patella at the knee, which leads to anterior knee pain (AKP). The previous research studies did not clearly expose the biomechanical link between tibial kinematics and pronated foot posture. Thus, this study aimed to investigate the biomechanical relationship between pronated foot posture and AKP. A total of 50 clinically diagnosed AKP subjects with or without pronated feet were recruited at Mediclinic Al Noor Hospital, outpatient physical therapy department, UAE for this case-controlled study. The AKP participants with pronated foot was grouped as case group and with-out pronated foot was grouped as control group. The Kujala patellofemoral score, foot posture index, and dynamic valgus index were used as outcome measures for this study. The statistical significance between the groups was analysed using the independent t -test. Subjects in case group with AKP and pronated feet had statistically significant higher Kujala Patellofemoral Score, Foot Posture Index 6 (FPI-6) scores, and Dynamic Valgus Angle as compared to the control group ($p<0.05$). Karl Pearson's coefficient correlation statistical tool was used to find out the linear relationship between foot posture and anterior knee pain. The altered biomechanics of the foot posture could potentially influence the abnormal loading on the patellofemoral joint. This may be a contributing factor to AKP.

Keywords: Pronated foot, anterior knee pain, kujala Score, foot posture, DVI

GCSGD23007

EVALUATION OF PHYSIOCHEMICAL AND BIOREMEDIATION APPROACHES ON BUCKINGHAM CANAL, NEELANGARAI, CHENNAI.

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Abstract

The world is experiencing a severe scarcity of both high-quality and quantity freshwater due to river pollution. The most typical type of pollution seen in aquatic bodies is heavy metals. The identification of bacterial species that support heavy metal bioremediation creates novel possibilities for the removal of radioactive substances and heavy metals from contaminated water sources. Accordingly, the purpose of this study is to discover and assess the bioremediation potential of heavy metal-resistant bacteria from the Buckingham Canal, Neelangkarai samples. The samples were examined for physiochemical parameter analysis and resistant bacterial strains were isolated by primary and secondary screening. The isolated strains were produced for 16S rRNA gene sequencing and nucleotide BLAST analysis. Using *In Silico* studies like whole genome analysis and molecular docking, genes and proteins associated with metal-resistant mechanisms can be identified. The results revealed that Copper, Zinc, Lead, Chromium, and Manganese are the top-heavy metal contaminants screened in Buckingham Canal samples. This study supports the concept that out of 25 strains, only two bacterial strains were able to grow in all five heavy metals at higher concentrations. Additionally, there is a link between heavy metals and antibiotic resistance in bacterial strains, and the genes and proteins responsible for this connection have been discovered. The removal of heavy metals and hazardous compounds that have polluted water bodies is made possible by this groundbreaking study. It prompts scientists to find genes that increase the potential for microbial bioremediation.

Keywords: Bioremediation, 16s rRNA, BLAST, Genome, Molecular Docking

GCSGD23008

OPTIMIZATION OF ANTI MICROBIAL AGENTS TO PRODUCE BREAD USING WHEAT AND CASSAVA BLEND FLAVOURED WITH SPICES

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Abstract

Bread is a staple food in the human diet. It is a 'convenient' product delivering both satiety and nutrition, and is therefore highly desired worldwide. Traditionally, bread is made using high protein wheat as consumers generally do not like the quality of bread made with lower protein wheat. Most high protein wheat is grown in India and exported to other countries to make bread products. However, low protein wheat is more prevalent worldwide. Attempts to improve soil conditions, plant genetics and fertilizers to bolster protein levels in non-bread making (low protein) wheat have been made. While there have been some improvements in crop health and yield, and even protein content, the improved wheat has not been comparable in bread making spices are one of the most commonly used natural antimicrobial agents in foods and have been used traditionally for thousands of years by many cultures for preserving foods and as food additives to enhance aroma and flavor. The objective of this study was to prepare antimicrobial bread using different natural antimicrobials (Turmeric powder, cumin powder, White pepper, and clove powder in different concentrations) to obtain an acceptable product using RSM. The breads prepared were then analyzed for their sensory properties like color, flavor, Taste, texture and overall acceptability. From this result the Turmeric powder-4g/l, cumin powder – 2/gl, White pepper 2/g/l, and clove powder 2 g/l was more acceptability. For these optimized condition the bread was prepared (Fortified bread) and compared with control bread for the Proximate analysis, Texture profile, Loaf weight, Loaf volume and microbiological properties was studied with time. In physical parameters of bread baking loss, loaf volume, loaf weight, specific volume of bread was analysed. Textural characteristics of bread were determined as hardness, cohesiveness, gumminess and chewiness.

Keywords: Bread, pepper, COVID-19, proximate analysis

GCSGD23009

EVALUATION OF EPIGALLOCATECHIN -3-GALLATE TO OVERCOME THE OSIMERTINIB RESISTANCE IN NON SMALL CELL LUNG CANCER CELLS BY TARGETING YES-ASSOCIATED PROTEIN

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Abstract

EGFR T790M mutation is the major mechanism for resistance to EGFR-TKIs and becomes an obstacle for the treatment of NSCLC patients. Both EGFR activating mutant cells and T790M Mutated resistant cells demonstrated a strong initial response to treatment with third-generation osimertinib. However, osimertinib subsequently developed resistance, necessitating a thorough examination into resistance-overcoming techniques. Besides, the RT-qPCR study confers the over expression of Hippo pathway Yes-associated protein (YAP) and epithelial to mesenchymal transition (EMT) protein vimentin in the osimertinib resistant cells. In the current study, we found that Epigallocatechin -3-gallate (EGCG) a polyphenol of green tea inhibited cell growth and induced cell death in NCIH-460 cells harboring EGFR-T790M. The treatment also sensitized the resisitant cells to EGFR-TKI osimertinib. Our mechanism studies western blotting and RT-qPCR showed that EGCG decreased the protein level of YAP and vimentin, which was over expressed in mutant cell. Thus our findings suggested that EGCG might serve a promise drug candidate for overcoming third generation EGFR-TKIs resistance by targeting both YAP and vimentin.

Keywords: Epigallocatechin -3-gallate, EGFR T790M mutation, osimertinib, vimentin, Yes-associated protein

GCSGD23010

SPICES AS SUSTAINABLE FOOD PRESERVATIVES: A COMPREHENSIVE REVIEW OF THEIR ANTIMICROBIAL POTENTIAL

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Abstract

Throughout history, spices have been employed for their pharmaceutical attributes and as a culinary enhancement. The food industry widely employs artificial preservatives to retard the deterioration induced by microbial proliferation, enzymatic processes, and oxidative reactions. Nevertheless, the utilization of these synthetic preservatives in food products has given rise to significant apprehension among consumers, primarily stemming from the potential health risks that they pose. These risks encompass a spectrum of adverse effects, including but not limited to gastrointestinal disorders, the disruption of gut microbiota, allergic reactions, respiratory complications, and concerns regarding their carcinogenic properties. Consequently, consumers are displaying an increasing reluctance to purchase preserved food items that contain such additives. Spices, known for their antimicrobial value, are investigated for their potential as food preservatives. The review assesses 25 spice types for their inherent antimicrobial properties and their applicability in inhibiting various foodborne microorganisms and suggests further future investigations regarding their use as possible natural food preservatives that could offer safer, more sustainable methods for extending shelf life. Future research should delve deeper into the use of natural antimicrobials, such as spices, to not only replace synthetic preservatives but also optimize their application in food safety and shelf-life extension. Moreover, there is a need for continuous innovation in encapsulation technologies for antimicrobial agents. Developing cost-effective and efficient methods, along with scaling up production processes, will be crucial to competing with traditional antimicrobial options in terms of both efficacy and affordability.

Keywords: Food safety, preservatives, microbial inhibition, antibacterial agents

GCSGD23011

REMEDIATION OF AGRO WASTES USING MUSHROOM CULTIVATION AND APPLYING SPENT MUSHROOM SUBSTRATE TOWARDS ENVIRONMENTAL SUSTAINABILITY

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Abstract

The generation of Agricultural wastes is steadily increasing in both India and worldwide. The composting of these wastes is currently done by many ways such as Incineration, Landfills, Compost, Biogas Generation etc., but in turn these methods are detrimental to the environment. In some cases, these wastes are leftover without any conversions, thus polluting the environment. This paper attempts to examine the valorization of wastes in a gainful method that serves constructive to the surrounding. Rather than leaving the wastes as such, exploiting those wastes as a substrate for fungi culture is beneficial and so a wise waste management technique is imposed. The review shows that the generated wastes can be utilized for Mushroom cultivation and this method is dual beneficial since Solid Waste Management is imposed and offers food to the society. The results show that the method of Mushroom Cultivation serves as an eco-friendly and economically feasible method to remediate the generated Agro wastes. By converting agro-waste into a valuable resource, this technique contributes the reduction in waste generation, serving beneficial by improving soil fertility and crop yields, and providing economic opportunities and food security that is in line with Sustainable Development Goals (SDG's). The study found that Mushroom Cultivation is the best method and economically feasible one to remediate the Agricultural wastes generated in day-to-day life.

Keywords: Agricultural wastes, solid waste management, food security, SDGs,

GCSGD23012

STREPTOZOTOCIN INDUCED DIABETIC WOUND HEALING MODEL

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Abstract

Diabetes mellitus is a chronic disorder that results in increased blood glucose levels. One of the many complications is diabetic neuropathy, which results in poor blood circulation and elevates the chances of infection at the wound-site, if any. Azolla pinnata, is a fern species also referred to as mosquito fern, is known to possess a lot of therapeutic benefits. In this study, ethanolic powder extract of Azolla pinnata was evaluated for phytochemical constituents. Hydrogel was prepared and evaluated in terms of an acute dermal irritation test, according to OECD Guideline 404. Wistar albino rats were grouped and induced to have diabetes using streptozotocin (45 mg/kg). Later, they were subjected to a second degree burn wound on their dorsal region, and once the wound was developed, they were treated with a hydrogel. During the treatment period, parameters like area of wound contraction, period of epithelization, body weight, and blood glucose were measured on alternative days. Post- treatment animals were sacrificed, and tissue was isolated for estimation of antioxidant, hydroxyproline and histopathological studies. It was found that extract contains constituents like alkaloids, carbohydrates, glycosides, saponin and other active ingredients. The Hydrogel developed was appropriate for suitable skin pH, viscosity, occlusion, and syneresis and was capable of absorbing moisture. In vivo studies revealed that the high dose (400mg) and mid dose (200mg) groups showed remarkable results with respect to all the parameters considered, which was also confirmed by the histopathology of the healed tissue.

Keywords: Diabetic wound healing, azolla pinnata, hydrogel formulation, burn wound

GCSGD23013

ENHANCING LEACHATE TREATMENT: UNVEILING THE SYNERGISTIC POWER OF FILTRATION AND PHOTOCATALYSIS IN AN INTEGRATED SYSTEM

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Abstract

The disposal of Municipal Solid Waste (MSW) in landfills presents a growing global challenge. Leachate, the highly toxic and contaminated wastewater produced by the decomposition of waste materials, poses environmental concerns due to its content of suspended solids, heavy matter, and hazardous substances. This research aims to assess the effectiveness and efficiency of integrated methods involving physical filtration and photocatalysis using copper oxide (CuO) nanoparticles (NPs) for leachate treatment. Leachate samples were pre-treated using modified filtration system consist of sand media and activated carbon. Subsequently, the filtered leachate underwent heterogenous photocatalytic degradation, employing different concentrations of CuO NPs (100mg, 150mg, and 200mg). Water analysis, following standard methods such as pH, Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD_5), Suspended Solids (SS), and Ammoniacal Nitrogen (AN). The integrated leachate treatment system demonstrated significant results, achieving a total removal rate of 98% for COD, 99% for BOD_5, 93% for SS, and 93% for AN. These compelling results underscore the effectiveness of the integrated system in achieving substantial reductions across the evaluated parameters. The findings highlight the system's potential as a comprehensive and efficient approach for addressing the environmental challenges associated with MSW landfill leachate, paving the way for more sustainable and impactful waste management solutions.

Keywords: Leachate, filtration, CuO nanoparticles, durian husk, integrated treatment

GCSGD23014

STATISTICAL OPTIMIZATION OF NANOEMULSION FORMULATION USING DOCOSAHEXAENOIC ACID THROUGH PSEUDO PHASE DIAGRAM AND DESIGN OF EXPERIMENT

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Abstract

Docosahexaenoic acid is an omega-3 fatty acid with many therapeutic benefits. Its high oxidation level is a major concern in formulation development. Hence, researchers have investigated nanotechnology methods to incorporate docosahexaenoic acid into nanoemulsions. Recently, the D-phase emulsification method has gained recognition in nanotechnology. This study aimed to develop a pseudo-phase diagram for the D-phase emulsification and optimize the formulation that would fasten the docosahexaenoic acid nanoemulsion formulation. In this study, sandalwood oil, water, and D-phase (glycerin-co-solvent and Qualijja saponin-emulsifier) were the phase diagram components. The oil and D-phase were mixed in a range of 1:9 to 5:5 ratios, and the water percentage ranged from 9 to 95% to observe the clarity level. After the phase diagram, the optimization of the formulation was done using Box-Behnken Designs. Here, three factors were included (oil%, D-phase%, and speeding rate). The responses decided were particle size, zeta potential, drug entrapment efficacy, and spreadability. Along with the optimum formulation, the design of the experiment revealed the significant influence of stirring speed on particle size, drug entrapment efficacy, and spreadability, while zeta potential was influenced by D-phase amount. Briefly, the pseudo-phase diagram and optimization process assisted in deciding the best formulation by optimizing component quantity and the parameters of the production process. Therefore, these could help to prevent wastage of ingredients, energy, and time in research.

Keywords: Docosahexaenoic acid, nanoemulsion, pseudo-phase diagram, optimization

GCSGD23015

GREEN SYNTHESIS OF Cr_2O_3-MCC MICROCOMPOSITE FOR ENHANCED PHOTODEGRADATION OF CONGO RED DYE: A SUSTAINABLE APPROACH TO WASTEWATER TREATMENT

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Abstract

The incorporation of distinct materials to form microcomposite represents a promising approach for the creation of advanced and beneficial samples. This study delves into the development of a microcomposite employing commercial microcellulose (MCC) and Chromium (II) oxide (Cr_2O_3) nanoparticles (NPs). Utilizing an eco-friendly synthesis method, the Cr_2O_3-MCC microcomposite was efficiently prepared and harnessed as a photocatalyst for the photodegradation of Congo Red (CR) dye. A comprehensive analysis of the structural properties, crystallinity, morphology, and chemical compositions of the biogenic Cr_2O_3-MCC microcomposite was conducted. Fourier Transform Infrared (FTIR) spectroscopy, X-ray diffraction (XRD) analysis, Field Emission Scanning Electron Microscope (FE-SEM), and Energy Dispersive X-ray (EDX) analysis were employed for this purpose. FE-SEM revealed the hexagonal morphology of Cr_2O_3 NPs, while the Cr2O3-MCC microcomposite exhibited predominant features of small fibrous circles surrounded by bundles of hexagonal circles. MCC, on the other hand, displayed a white fibrous shape. Additionally, NPs were observed in both dispersed and agglomerated forms, with an average particle size below 100 nm. Photodegradation analyses demonstrated the efficacy of the Cr_2O_3-MCC microcomposite, achieving a substantial 68.88% degradation of CR dye under natural sunlight within a short irradiation time of 180 minutes. This underscores the potential of the microcomposite in wastewater treatment and its positive contribution to mitigating environmental impact.

Keywords: Chromium (II) oxide, microcellulose, microcomposite, congo red, photocatalysis

GCSGD23016

GREEN SYNTHESIS OF CHROMIUM OXIDE NANOPARTICLES FROM DURIAN HUSK AQUEOUS EXTRACT: A SUSTAINABLE APPROACH FOR OBESITY TREATMENT THROUGH LIPASE INHIBITION

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Abstract

In the face of the escalating global health challenge posed by obesity, Malaysia stands as a microcosm of a broader issue affecting populations worldwide. The surge in obesity rates has become a critical concern, demanding innovative approaches to combat this multifaceted problem. This study presents an innovative approach to synthesizing chromium oxide (Cr_2O_3) nanoparticles (NPs) using a green and sustainable method, involving the biogenic reduction of metal ions with durian husk aqueous extract. Unlike conventional nanoparticle synthesis methods that often employ hazardous chemicals and energy-intensive processes, our eco-friendly approach harnesses plant extracts as both reducing and stabilizing agents. The biogenic Cr_2O_3NPs were comprehensively characterized using various analytical techniques, including X-ray diffraction (XRD), Field Emission scanning electron microscopy (FE-SEM), transmission electron microscopy (TEM), energy-dispersive X-ray spectroscopy (EDX), and Fourier-transform infrared spectroscopy (FTIR). FE-SEM and TEM revealed the hexagonal morphology of Cr_2O_3 NPs with an average particle size below 100 nm. Furthermore, the inhibitory potential of the Cr_2O_3 NPs against lipase enzymes was evaluated through in vitro assays using porcine pancreatic lipase and showed 64.54% pancreatic lipase inhibition. In summary, our research not only introduces an environmentally friendly synthesis method for Cr_2O_3 NPs but also highlights their potential as effective inhibitors of lipase enzymes, opening avenues for the development of sustainable and targeted therapeutic applications.

Keywords: Green synthesis, chromium (II) oxide, lipase, durian husk aqueous extracts

GCSGD23017

PERFORMANCE APPRAISAL OF IT EMPLOYEES IN CHENNAI CITY USING BLOCKCHAIN TECHNOLOGY

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Abstract

Performance evaluation is an important aspect of professional development. Performance assessments are a necessary and valuable practise that provides employees with annual feedback on job efficiency and career advancement. The performance evaluation is intended to be a fair and impartial evaluation of an employee's performance. The primary goal of this research was to determine the effectiveness of the organization's performance evaluation system and the application of blockchain technology in evaluating performance. The study will examine the efficacy of the organization's performance evaluation system and help to improve it accordingly. Employee suggestions are also considered. The results reveal that the efficacy of performance evaluation in the organisation requires some innovation with the current method. The current approach used to measure employee performance has to be enhanced by incorporating blockchain technology into it.

Keywords: Performance appraisal, IT employee, blockchain technology, evaluation system

GCSGD23018

THE *IN-VITRO* ANTIBACTERIAL ACTIVITIES OF *Boerhhavia diffusa* EXTRACTS ON MDR *E. coli* UROPATHOGENS

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Abstract

The objective of the present study was to conduct *in vitro* study of antimicrobial properties of *Boerhhavia diffusa* a gainst multi drug resistant *E. coli* Uropathogens. Plant samples were collected from the outskirts of Meerut region, Uttar Pradesh, India. Ethyl acetate, methanol, ethanol, aqueous, amyl alcohol and toluene extracts of roots, fruits/flowers, stem and leaves of both plants were obtained by using Soxhlet extractor. In our study Ethyl acetate and methanol extract of roots of the plant showed highest antibacterial activity against multidrug resistant *E. coli* isolates of hospital patients.

Keywords: Uropathogens, Boerhhavia diffusa, E. coli, MDR.

GCSGD23019

LITFULO- RITLECITINIB: A REVIEW

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Abstract

Litfulo (ritlecitinib) is an oral, once-daily prescription treatment for severe alopecia areata in adults and adolescents aged 12 and older. Litfulo is a TEC family kinase and JAK3 inhibitor. Alopecia areata pathogenesis may be impeded by Litfulo's inhibition of JAK3 and TEC kinase family members, which may prevent cytokine signaling and T cell cytolytic activity. An autoimmune condition called alopecia areata causes patchy hair loss, primarily on the scalp but sporadically also on the face (beard, brows, and eyelashes). It is brought on by the immune system of the body attacking healthy hair follicles, which results in hair loss. Litfulo works by selectively and irreversibly inhibiting Janus kinase 3 (JAK3), and other tyrosine kinases, and inhibiting cytokine-induced STAT phosphorylation mediated by JAK3-dependent receptors. In addition, it inhibits the signalling of immune receptors dependent on TEC kinase family members. Alopecia areata is characterized by the deregulation of JAK/STAT activity, and the actions of Lifulo are thought to inhibit the function of signalling molecules and immune cells associated with hair loss in alopecia areata. Litfulo was approved on June 23, 2023, and was the first treatment to be approved for adolescents as well as adults with alopecia areata. It belongs to the class of medicines known as covalent kinase inhibitors. The review of Litfulo has been documented in this article.

Keywords: Litfulo, JAK3 inhibitor, alopecia

GCSGD23020

GLOBAL GOAL 3 ON GOOD HEALTH AND WELL-BEING: A CASE STUDY OF REHABILITATION HOSPITAL IN EAST LIBYA

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Abstract

The paper treats access to Goal 3 of the Global Goals on good health and well-being as a human right and the foundation of human prosperity. Despite significant progress in improving the health of billions of people since the MDGs of 2000, major hurdles persist, especially in developing countries, where women and children are most vulnerable. True progress will depend on universal and affordable healthcare that helps prevent disease and supports strong vaccination programmes, as well as education. The objective is to ensure healthy lives and promote well-being for all, including the disabled, at all ages, which is essential to sustainable development. After highlighting facts, figures, and targets by 2030, it presents an overview of Global Goal 3, which focuses on all aspects of health in the world, including increased life expectancy, reduced infant mortality rates, and ending epidemics such as AIDs, hepatitis, and other transmittable diseases. It demonstrates that across the world, over 1.3 billion people do not have access to effective and affordable health care, and 93% of them are in low- and middle-income countries, including Libya. These countries only make up 18% of global income and represent 11% of global spending on health care, meaning there's a huge imbalance. Interesting results from case studies, including the one from a rehabilitation hospital in Benghazi, as presented at UNDESA Knowledge Platform VNR Reports, demonstrate how everyone having the right to safe, effective, and affordable healthcare services, medicines, and vaccines can help achieve universal health coverage and progress in medical research and development. Our team lauds and welcomes an autonomous health reform committee (NCHSR) formed to carry out a root review and reform of Libya's ailing health sector that sprang out of the Libya Health System Strengthening Programme (LHSS), set up between the Libyan authorities and the European Union to reform Libya's health sector. The main highlights of the address include suggestions and recommendations to ensure that the rehabilitation of war victims and the support for ongoing war victims contribute to peace, progress, and prosperity, thereby alleviating suffering.

Keywords: SDGs, global goal 3, accelerating progress, health

GCSGD23021

STRUCTURAL AND PHOTO DEGRADATION ANALYSIS OF POLYSTYRENE/PEROVSKITENANOCOMPOSITES

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Abstract

In this study, the photocatalytic degradation of polystyrene (PS) perovskite nanocomposite was investigated under ambient air to assess the feasibility of developing photodegradable polymers. PS-$SrTiO_3$ nanocomposites were prepared by dispersing perovskite material nanoparticles in a polystyrene (PS) solution through constant stirring. The prepared nanocomposites, such as PS-$SrTiO_3$ and PS-$SrMnO_3$, were exposed to UV irradiation for various time intervals, namely 50, 75, 100 and 125 hours. With an increase in irradiation time, there was a corresponding increase in degradation efficiency. Additionally, the impact of UV radiation on the structural, optical, and degradation properties of different PS-perovskite nanocomposites has been investigated. XRD data revealed a predominant, well-crystallized phase, indicative of the cubic perovskite symmetry. FTIR analysis demonstrates that the observed peaks at 2893 and 2983 cm-1 result from the stretching of C-H bonds. The transmittance and intensity of the peaks decrease due to the breakage of the polystyrene chain caused by the action of the perovskite. Furthermore, FESEM analysis reveals the morphological characteristics of the nanocomposites, which confirms the photodegradation. The results indicate that an increase in the concentration of PS/perovskite nanocomposites with polystyrene enhances the photocatalytic degradation of the PS-perovskite nanocomposite. The final analysis of the film's surface structure reveals a noticeable splitting of the polymer film after exposure to UV radiation for duration of 125 hours.

Keywords: Perovskites, polystyrene, nanocomposites, UV irradiation, photocatalytic degradation

GCSGD23022

PHOTODEGRADATION OF POLYSTYRENE/ZnO NANO COMPOSITE FILMS UNDER UV IRRADIATION

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Abstract

The polymer nanocomposite has become world-wide research interest for developing polymeric materials with improved and desired properties by incorporation of the nanoscale materials into polymer matrix. Due to their nanometre size dispersion, nanocomposites exhibit markedly improved properties when compared with the pure polymers or conventional composites. In this work, the solid-phase photocatalytic degradation of polystyrene-ZnO nanocomposite was investigated under the ambient air in order to assess the feasibility of developing photodegradable polymers. PS-ZnO nanocomposites were prepared by using wet chemical method and ZnO nanoparticles were dispersed by constant stirring. The prepared nanocomposites such as pure polystyrene and PS-ZnO were exposed to UV irradiation for various time intervals i.e. 0, 30, 60 and 120 h. FTIR spectra show the decrease in the intensity of the aromatic peaks in the UV irradiated nano composites confirms the cleavage of aromatic ring. The two new absorption peaks appear at 1699 and 1397.9 cm^{-1} which are the characteristic absorption of carbonyl (C=O) groups and hydroxyl (OH) groups, there is an increase in the intensity of carbonyl and hydroxyl peaks confirms the formation of by products like aldehyde, ketone, etc. The intensity of these peaks increases as the UV irradiation time of the nano composite increases confirming the opening of the phenyl ring. Further, FESEM analysis reveals the presence of cleavages in the nanocomposites and confirms the rapid photo degradation of nanocomposites. The development of this kind of an innovative simple method to produce polymer nanocomposite can lead to ecofriendly disposal of polystyrene wastes without any toxic by products and promotes the production of potential plastic film with controllable degradation properties for commercial outcomes.

Keywords: Polystyrene, plastics, nanocomposite, photodegradable polymer

GCSGD23023

WOUND DRESSINGS FOR DIABETIC FOOT ULCER: A REVIEW

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Abstract

Millions of people worldwide are impacted by the growing healthcare issue of wounds. The risk of wound complications is increased by lifestyle conditions including Diabetes Mellitus. One of the important complications of diabetes is Diabetes Foot Ulcer (DFU) which is a chronic wound frequently delayed from severe infection, particularly in the lower extremity. Diabetic Foot Ulcers are the consequence of multiple factors and pose a significant risk for morbidity, limb loss and mortality. The critical aspects of the wound healing mechanism and host physiological status in patients with diabetes necessitate the selection of an appropriate treatment strategy based on the complexity and type of wound. In addition to systemic antibiotics and surgical intervention, wound care is considered to be an important component of Diabetic Foot Ulcer management. From a clinical perspective it is important to select an ideal wound care material which maintains wound healing environment. Recently, the use of bioactive polymers has become more significant in wound treatment because of its properties such as antimicrobial, immune-modulatory, cell proliferative and angiogenesis which create a microenvironment favourable for the healing process. This review aims to provide scientific evidence on the biopolymers that can be utilised as wound dressings for DFU patients.

Keywords: Diabetic foot ulcer, biopolymers, wound dressing, rapid healing

GCSGD23024

ECOFRIENDLY GREEN-SYNTHESIZED METAL NANOPARTICLES-COATED NANOFABRICS: A NEW FRONTIER IN ANTIMICROBIAL POTENTIAL AND WOUND HEALING APPLICATIONS

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Abstract

Cotton fabrics, which are well known for their exceptional properties, can harbor pathogenic microorganisms. Nanoparticles hold immense promise in biomedical fields such as drug delivery and antimicrobial potential. This study aimed to produce metallic silver nanoparticles (AgNPs) and tellurium nanoparticles (TeNPs) using an aqueous extract of *Curcuma longa* roots. The focus was on evaluating the antimicrobial and wound-healing properties of the formulated nanoparticle-coated cotton fabric. The formulated NPs were characterized using High-resolution transmission electron microscopy (HR-TEM) and Fourier transform infrared spectroscopy (FT-IR) analysis. These NPs were then applied to cotton fabrics to assess their efficacy against pathogenic microorganisms, which was confirmed using scanning electron microscopy (SEM) with energy-dispersive X-ray analysis (EDX). The nanofabrics coated with these nanoparticles displayed considerable antimicrobial effects, particularly the CL-TeNPs, showing significant inhibition of pathogenic growth, notably on gram-negative *P. aeruginosa* (29 mm) and gram-positive *S. aureus* (28 mm). Moreover, wound-healing experiments conducted on L929 fibroblast cells demonstrated the potent wound-healing activity of the formulated nanoparticle-loaded cotton fabric. HR-TEM analysis confirmed the presence of spherical NPs, further supporting their successful synthesis. In conclusion, the formulated CL-TeNPs, followed by CL-AgNPs from *C. longa*-coated cotton fabrics, have the potential for a variety of applications in hospitals, benefiting patients and medical personnel in preventing the risk of microbial infections.

Keywords: Plant-mediated nanoparticles, curcuma longa, bacterial infection, nano fabrics

GCSGD23025

RECENT APPROACH OF DATA ANALYTICS IN PHARMACEUTICAL INDUSTRY

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Abstract

Business executives from a range of industries are adopting innovative technologies and processes in order to stay competitive and relevant in today's fast changing digital environment. Data analytics, a technology that allows the collection, analysis, processing, and use of enormous volumes of data, is one of the fundamental technological innovations controlling change. They have the ability to automate a variety of techniques, including as clinical trials, drug development, and more. It is more important than ever to achieve and exceed organizational objectives while employing a strong technological mindset and creative strategies. Pharmaceutical firms face a variety of difficulties when managing large data, but these difficulties will soon be resolved. Businesses dealing with digital transformation require to be adaptable since it will help them adapt to a quickly changing technological and business environment. Achieving on and exceeding organizational objectives employing an effective digital mindset backed by innovation is more crucial than ever. This article discusses a few of the aspects of the pharmaceutical sector that data analytics are revolutionizing. By locating and evaluating various data points, such as patient demographic data and historical data, data from remote patient monitoring, and details on previous clinical trial events, big data analytics in pharma will benefit pharmaceutical companies with decreasing costs and acceleration of clinical trials.

Keywords: Data analytics, clinical trials, artificial intelligence

GCSGD23026

AN INVESTIGATION ON THE HEALTH STATUS OF RURAL WOMEN AND THE ACCESSIBILITY OF HEALTH CARE SERVICES IN TAMIL NADU

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Abstract

Indicators of socioeconomic progress, such as life expectancy (68.56 years in 2016), infant mortality (44 per 1000 live births in 2016), child mortality under five (47.8 per 1000 live births in 2015), and literacy rates, have satisfactorily improved in India in India in a satisfactory manner. Since infections, illnesses, malnutrition, and maternity issues still account for most of the disease burden, women in rural regions are predominantly disadvantaged of the disease burden, women in rural regions are predominantly at disadvantage. India is one of the few nations where men outnumber women by a large margin, and it has some of the highest maternal death rates in rural areas in the world. The maternal mortality rate (MMR), according to the Ministry of Health and Family Welfare, was 130 per 100,000 live births in 2016. More maternal deaths exist are more maternal deaths in states like Rajasthan, M.P., Jharkhand, Orissa, U.P., and Bihar. Women's health difficulties are frequently ignored until the illnesses are far along in their progression, which is one of the main factors affecting the disease load in women. The female gender is more susceptible to illnesses like anemia due to unbalanced nutritional intake and heavy labour. Women, especially the poorer ones, are frequently caught in a cycle of ill health that is made worse by having children and doing strenuous physical tasks. Sex ratio, which measures the ratio of males to females in the population, has shifted more in favour of men in India since the turn of the century.

Keywords: Reproductive women health care, child mortality, anemia, nutritional, labour

GCSGD23027

DEVELOPMENT AND EVALUATION OF PINEAPPLE JUICE BLENDED WITH CARROT AND POMEGRANATE JUICE FORTIFIED WITH PROTEIN BY RESPONSE SURFACE METHODOLOGY (RSM)

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Abstract

The blending of beverage is one of the methods to improve the nutritional values of traditional products. In this manuscript, fortified protein blended juices were developed with pineapple, carrot and pomegranate juice. Chickpea was taken as protein fortificant. Optimization of the juice constituents was achieved for the best possible combination of juice using response surface methodology (RSM). Taste, colour, flavour and over all acceptability were taken as response variables. Proximate analysis and microbial analysis for the pulse extract fortified blended juices were also performed. The overall acceptance tests for the samples were carried out to find the acceptability of blends of juice fortified with pulse extract. All three independent variables were observed to have significant effect ($P \leq 0.05$) with coefficient of determination more than 0.90.

Keywords: Blended juice, pineapple juice, carrot juice, extract, fortified juice

GCSGD23028

ADVANCEMENT, ROLESAND CHALLENGES OF E- BANKING SERVICESIN RURAL AREAS

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Abstract

In recent eras the Indian population has started availing the amenities of the banks. E banking trend is dissemination at a faster rate and well-defined as providing technology based banking services for 24x7. It provides internet banking services to its national and international customers. Internet banking is very cost effective and rapid processing method. Banks are also interested to deliver value based services with the help of advanced electronic and telecommunication technology. Our country has an extensive network of bank branches in rural areas. Many of them are commercial banks, the main slogan of this extensive growth of bank branches in rural India is financial inclusion. Nowadays, internet banking sites handle customer service inquiries, allow transfers from one account to another, accept loan applications, and open new accounts, among other things. Aside from the rapid adoption of electronic bank branches, an entire financial community has emerged, offering a wide range of financial services. Customers are increasingly using ATMs, home banking terminals, and the internet to conduct financial transactions instead of visiting banks. The rural banking system is clearly more inclusive of low income families than those provided by the banks. The study was conducted by collecting information through designed questionnaire from 50 respondents and the main objective of the research is to analyse the advancement, roles and challenges of e-banking in rural areas and suggests procedures to deal with it.

Keywords: E-banking, rural banking, customers, advancement, challenges

GCSGD23029

EFFECT OF DIFFERENT FORMULATED *Withania somnifera* DIET ON BLOOD PARAMETERS OF *Cyprinus carpio* EXPOSED TO *Aeromonas hydrophila*

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Abstract

Aquaculture has emerged as one of the most promising and fastest growing food production sector, which provides high quality protein, income generation employment and foreign exchange around the globe. The need to include sea food particularly, fish in the human diet has been emphasized with regard to its lowest levels of saturated fat, cholesterol and calorific value compared with other dairy products. Bacterial infection of fish constitutes a huge menace for aquaculture farming leading to disastrous economic loss and health risks for the consumer. Due to the great importance of blood in the diagnosis of diseases in medicine, haematological and serological investigations are now employed on an increasing scale for diagnostic purposes in fish pathology. This article illustrates the effect of herbal plants on the haematology of finfishes. Fish pathogenic organisms are serious threats to economic viability of any aquaculture practice. Currently, the use of antibiotics for prophylaxis and treatment of diseases leads to the development of antibiotic resistant bacterial strains, accumulation of residue in cultured fish and environmental problems. Therefore, a new approach to immunotherapy is actively used to prevent or cure fish diseases. The present study has been carried out hematological parameters using medicinal plant *Withania somnifera* on different concentrations such as, 0.5%, 1.0%, 1.5% and 2.0% formulated diet is studied against *Aeromonas hydrophila* on common carp *Cyprinus carpio*. The 1.5 %of plant extracts formulated diet showed increased haematological parameters than the control group. The herbal formulated diet can decrease the incidence of bacterial diseases and increase immune response and reproductive competence of fishes.

Keywords: Haematology withania somnifera, aeromonas hydrophila, cyprinus carpio

GCSGD23030

ANALYSIS ON THE FUNCTIONAL COMPONENT IN *Terminalia catappa* AND ITS UTILIZATION IN THE FUNCTIONAL FOOD FORMULATION

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Abstract

Terminalia catappa nut, also known as the Indian almond nut, is a seed from the *Terminalia catappa* tree, which is native to southeast Asia and belongs to Combretacea family. These nuts also called as Tropical almonds are good source of protein, fiber, vitamin C and E. They are also good source of antioxidants. *Terminalia catappa* nuts have been used for centuries in traditional medicine. They have been used to treat a variety of health conditions, including diarrhea, dysentery and fever. *Terminalia catappa* nuts are also said to have anti-inflammatory and anti-cancer properties. The aim of this study is to analyse the functional component of tropical almond nuts, their potential health benefits, and their incorporation into the formulation of food products. The *Terminalia catappa*fruits were collected in Iyer Bungalow, Madurai and the seeds were isolated. The functional compounds of T*erminalia catappa* seeds was identified using FT-IR. samples were dried into fine powder using hot air oven and pelletized using Potassium bromide. These pellets were used to detect the characteristic peak values and their functional group using FTIR Pellet method and on sampler KBr accessory on a JASCO FTIR spectrometer (FTIR- 4600).Macronutrients such as energy, carbohydrates, proteins, fat, and micronutrients such as vitamins, calcium, and iron were also analyzed. To develop functional food product the dried powder of tropical almond nuts was incorporated for the formulation of nutritive product of flavoured milk (TAM). Two different varieties of flavoured milk were tried out Tropical almond milk with pineapple and ginger (TAM1) and Tropical almond milk with cinnamon and banana (TAM2). The FTIR results revealed the presence of functional components and the formulated functional food products scored above 7 in 9-point hedonic scale.

Keywords: Indian almond, flavoured milk, FTIR

GCSGD23031

RESEARCH ON FUNCTIONAL COMPONENTS IN EDIBLE FLOWERS USING FTIR SPECTROSCOPY

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ABSTRACT

Edible flowers have traditionally been used as human food in various cultures. They enhance the appearance, taste and aesthetic value of food, which consumers appreciate. However, consumers are also demanding foods with beneficial health properties in addition to the nutrients they contain, and are looking for functional properties such as antioxidant and antimicrobial properties. Multiple studies have been conducted on edible flowers and proved to have functional compounds. Fourier transform infrared spectroscopy (FTIR) was introduced in 1991 as a technique for the identification of functional components. In this current research, the samples collected were the petals of hibiscus, Tanner's cassia and Rose (pink, peach, red, yellow varieties). They were dried at 50°C using hot air oven and finely powdered. KBr is used to make pellet and it is sent to FTIR for analytical part. The research revealed the presence of flavonoids, alkane, sulfoxide, carboxylic acid and other Halo compounds. The flavonoids possess anticancer, antioxidants, anti-inflammatory and anti-viral properties. The alkane possesses properties to work against UV rays, sulfoxide provides temporary relief against chronic genitourinary problems like cystitis. Carboxylic acid is excellent for human as they comprise of Omega 3 and Omega 6 fatty acids, helps in maintaining cell membrane. Halo compounds such as fluoride can merge with other compounds to strengthening and improving teeth enamel. Thus, the study emphasis that we can use it as a natural food coloring agents (pigment) instead of artificial colours in a new innovative food formulation.

Keywords: Edible flowers, FTIR, functional compounds, natural food colour

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ADVANCING SUSTAINABLE HEALTH: INTEGRATING INNOVATIONS, EQUITY, AND ENVIRONMENTAL CONSCIOUSNESS IN HEALTH AND LIFE SCIENCES FOR 2023 AND BEYOND

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Abstract

This research aims to explore the multifaceted landscape of sustainable development within the health and life sciences sector. Recognizing the imperative for a comprehensive and forward-thinking approach, the study delves into the integration of innovative technologies, promotion of health equity, and heightened environmental consciousness. The investigation begins by critically assessing current sustainable practices, identifying successful initiatives, challenges faced, and areas warranting improvement. A central focus is placed on the integration of environmental responsibility within healthcare systems and life sciences research, examining the delicate balance between scientific progress and ecological mindfulness. Highlighting the pivotal role of innovation, the paper explores the impact of cutting-edge technologies, including artificial intelligence, telemedicine, and precision medicine, on healthcare advancements. Emphasis is placed on how these innovations not only enhance healthcare delivery but also contribute to broader sustainability goals. Equity in healthcare takes center stage as the study evaluates strategies aimed at mitigating health disparities and ensuring universal access to healthcare services. By scrutinizing global collaborative efforts in response to the COVID-19 pandemic, the paper underscores the necessity for a coordinated international approach to pandemic preparedness and response. The evolving landscape of mental health is also considered, with an investigation into the integration of mental health awareness, support, and treatment options into mainstream healthcare services. Addressing the ethical dimensions of life sciences, the paper discusses responsible practices and proposes guidelines to navigate the ethical implications of emerging technologies and research. Education and literacy initiatives, regulatory frameworks, and workforce development strategies are examined as crucial components in achieving sustainable growth. Drawing upon real-world case studies and best practices, the paper concludes by presenting a future-oriented roadmap. This roadmap outlines key steps and recommendations, providing stakeholders in the health and life sciences sector with actionable insights to foster sustainable development beyond the year 2023. In essence, this research paper endeavors to offer a comprehensive exploration of sustainable health, weaving together innovations, equity, and environmental consciousness to chart a course for a resilient and sustainable future in health and life sciences.

Keywords: COVID-19, sustainable health, innovation in healthcare, equitable Access

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