

**PROCEEDINGS  
OF THE  
107<sup>TH</sup> INDIAN SCIENCE CONGRESS  
BANGALORE, 2020**

**PART II  
SECTION OF  
MEDICAL SCIENCES  
(INCLUDING PHYSIOLOGY)**

*President: Dr. Deep N. Srivastava*

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# **107<sup>TH</sup> INDIAN SCIENCE CONGRESS**

**JANUARY 3-7, 2020**

**BANGALORE**

## **I**

### **PRESIDENTIAL ADDRESS**

*President: Dr. Deep N. Srivastava*



**PRESIDENTIAL ADDRESS**

**Role of Interventional Radiology treatments in Rural India**

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Many new, minimally invasive interventional radiology procedures are now viable alternatives to traditional invasive therapy. These interventional radiological procedures can be performed in the outpatient setting and the overall cost to the patient may be less in the long run.

Radiofrequency and Laser ablation techniques are now widely used and rapidly expanding technologies in the interventional radiology used in the treatment of tumours, varicose vein and lumbar disc treatment. Similarly percutaneous vertebroplasty (PVP), Kyphoplasty & vesselplasty are used in the treatment of spinal lesions and osteoporotic vertebral collapse. The knowledge of these procedures is vital as medicine moves into minimally invasive procedures with targeted treatments as these procedures offer less risk, less pain and less recovery time compared to various surgical procedures.

In this presentation I would like to present my work related to these areas by showing examples in different diseases to create public awareness by organising training programmes at rural levels to train medical and paramedical persons. The technique, results and long term outcomes of these newer procedures will also be discussed.

**Key Words:** Interventional radiology, MSK, Vertebroplasty, Kyphoplasty, Vesselplasty, PLDD, RFA, Arthrography.



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**II**

**ABSTRACT OF  
PLATINUM JUBILEE LECTURE**



**PLATINUM JUBILEE LECTURE**

**So much yet so little: Studies on an age-old human pathogen  
*Salmonella* Typhi**

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Typhoid fever, a potentially life-threatening systemic disease caused by the Gram negative enteric bacteria, *Salmonella enterica* serovar Typhi (S. Typhi) is a major public health threat to the developing world. The entire south-east Asia is endemic for the infection and the incidence is particularly high in the Indian subcontinent. Treatment and control of infection is compounded by the limited knowledge on the pathogenesis of S. Typhi, which is different from the widely studied non-typhoidal strains. Available vaccines have modest efficacy at the best, especially for smaller children.. My laboratory has identified several novel and unique virulence factors of S. Typhi that are either absent or functionally redundant in non-typhoidal *Salmonella* serovars. To this end, we used computational prediction, followed by *in vitro* and *in vivo* experimental techniques. Most notably, we developed a novel mouse model of oral infection with S. Typhi and studied the role of the newly-identified virulence proteins in the pathogenesis and immune response.

The first virulence factor identified by us was an outer membrane adhesion protein (T2544) that is required for bacteria attachment to the extracellular matrix proteins to promote epithelial invasion. More importantly, T2544 is a potent antigen that is capable of inducing robust humoral and cell-mediated immune responses, both in mice and the naturally-infected humans. Active and passive immunization with recombinant T2544 protected the animals from S. Typhi challenge. Work is in progress to develop subunit vaccines based on

recombinant T2544, which will simultaneously protect against both *S. Typhi* and *S. Paratyphi* infections, given its constitutively high expression in a wide range of clinical strains. A second outer membrane protein [T2942/STIV (*Salmonella Typhi* invasion)] promotes epithelial invasion independent of the type three secretion systems. STIV binds to the transmembrane receptor tyrosine kinase, Met of the host cells through an 18-amino acid long extracellular loop, leading to receptors phosphorylation and activation of the intracellular signalling cascades that culminates into cytoskeletal rearrangements to promote bacterial uptake. Treatment with Met inhibitors resulted in markedly reduced virulence of *S. Typhi* in mice. My laboratory also reported about the essential role of an inducible and secreted eukaryote-type serine/threonine kinase (T4519) for the phagosomal survival of *S. Typhi*, that also contributes to bacterial virulence in vivo

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**III**

**ABSTRACTS OF  
SYMPOSIUM / INVITED LECTURES**



**Foreign Invitee**

**Super-Enhancers, Cluster of Genes, Targeted by Novel Natural Compounds Derived from Unani/Ayurvedic Medicine in Pancreatic Cancer (PDAC)**

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Super enhancers (SE) are unique areas of the genome that are densely bound by numerous transcription factors and play a critical role in the cell, including, tissue specification, identity and maintenance. SE regulates the expression of associated genes and often drives high-level transcription. Studies have established many genes that play an important role in cancer biology as SE-driven oncogenes. It is likely that the peculiar pancreatic-specific tumor phenotype is a consequence of oncogenes hacking the resident tissue regenerative program, thus interfering with super enhancer-driven repair networks exerting a disproportionately disruptive effect on tumor versus normal pancreatic tissue. Currently, there is no effective treatment available for PDAC. Although Gemcitabine is the firstline drug for the treatment of PDAC but improves survival rate upto 6 months only, due to the increasng incidence of resistance. Hence, there is need for novel drugs for the treatment of PDAC. Recently natural compounds gained more attention due to their better safety profile and ability to target multiple pathways. In this study, we have used combination of natural compounds, Isovanillin-Harmine-Curcumin designated as GZ17-6.02, derived from Unani/ Ayurvedic medicine that inhibited SE related to major transcription factor genes with promising anticancer activity in pancreatic cancer

In this study, we have used ChIP-Seq techniques and bioinformatics analysis following qPCR to identify super-enhancers in cancer cell lines and in pancreatic cancer tissues. Immunohistochemistry, proliferation assays, western blot, RNAseq and SETSA have been performed for understanding the role of enhancers and SE in PDAC.

H3K27ac marks were identified at enhancer region of numerous genes that act as SE in PDAC. The most prominent super-enhancers identified, based on a high level of H3K27ac marks were associated with c-MYC, MED1, OCT-4, NANOG and SOX2 genes. GZ17-6.02 affects acetylation of histones at some of the major SE related genes and at a high dose, a complete reduction in acetylation marks was seen in embryonic stem cell transcription factors. The mRNA sequencing data after GZ17-6.02 treatment also shows a reduction in transcription of, major transcription factors, SHH pathway genes, and stem cell markers.

There is no systematic study showing an association of super-enhancers with pancreatic cancer so far. Hence, in the present study, we have established that several super-enhancer regions can be targeted by GZ17-6.02 in PDAC. This study concludes that super-enhancers can be an important therapeutic target for PDAC.

**IL: 1**

**Bamboo Shoots consumed by rural population in North east India impairs thyroid hormone synthesis through disruption of key cellular and molecular components involved in hormonogenesis**

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Bamboo Shoots (BS) consumed and used predominantly in naturopathy and curing ailments since times immemorial to present day surpassing limited exposure in the Orient to gain worldwide popularity arising from beneficial effects in traditional medicine. It is consumed widely in South East Asian countries in several indigenous preparations. In north east India, it is predominantly used as natural cure to treat various diseases and also as food in different forms. Although known for advantageous effects, adverse affects including goitrogenic/anti thyroidal potential coming to light. In our earlier studies, it has been reported that the existing prevalence of endemic goitre associated with thyroid autoimmune disorders during post salt iodization phase among the rural population in Manipur, India is for the consumption of BS, therefore attempt has been made for an in depth study regarding the possible mode of action of BS extract in thyroid cells in culture. Phytochemically analysed BS extract at concentrations added to thyrocytes in culture with iodine and changes in mRNA and protein expression of NIS, TPO, TG and Pendrin and some of their transcription factors. Changes in cell cycle associated with Bax, Bcl-2 and p53 levels and DNA oxidation

was studied. Gene and protein expressions of NIS, TPO, TG and Pendrin were affected as well as block in G<sub>2</sub>/M phase of cell cycle was observed. Balance between Bax/Bcl-2 ratio was perturbed. DNA oxidation and changes in p53 associated with apoptotic hypertrophy was observed. Hormonogenesis is impaired due to changes in key elements of hormone synthesis associated with DNA damage, cell cycle disruption and factors controlling apoptotic hypertrophy even in presence of iodine.

**Keywords:** bamboo shoots, sodium iodide symporter, thyroid peroxidase, iodine, DNA damage, apoptotic hypertrophy

**IL: 2**

**BSA surface-modified silver nano formulated chlorogenic acid: A promising candidate against leukemia and lymphoma**

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Developing effective anticancer drug with lesser toxicity and higher tumour specificity is the absolute goal in the fight against cancer. The present study designed a cost-effective and eco-friendly synthetic strategy to prepare biogenic bovine serum albumin (BSA) modified chlorogenic acid silver nanoparticles (AgNPs-CGA-BSA) and to explore its antineoplastic, oxidative stress and apoptosis producing efficacy. After characterization, *in vitro* and *in vivo* studies were performed by AgNPs-CGA-BSA to search out its cytotoxic, redox status altering capability, apoptosis inducing and antineoplastic efficacy in Jurkat cells and Dalton's ascites lymphoma (DLA) cells. Cytotoxicity and apoptosis was induced by AgNPs-CGA-BSA resulting in promotion of reactive oxygen species, chromatin condensation, DNA fragmentation, cell cycle arrest at G<sub>0</sub>/G<sub>1</sub>, over-expression of proapoptotic proteins and mitochondrial dysfunction. In DLA-induced mouse xenograft model, AgNPs-CGA-BSA significantly reduced angiogenesis, cell proliferation and caused tumor regression. AgNPs-CGA-BSA increased lifespan of DLA-bearing mice through induction of antioxidant status and restoration of haematological parameters. In conclusion, biogenic AgNPs-CGA-BSA may be a promising anticancer nano-drug candidate for leukemia and lymphoma.

Keywords: AgNPs-CGA-BSA; Chlorogenic acid; Apoptosis; Oxidative stress; Tumor regression.

**IL: 3**

**Supplementation Of Seed Dust Of *Vicia Faba* And Sesame  
Ameliorates High Lipid Diet-Induced Dyslipidemia In Rats**

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Cardiovascular disease (CVD) refers to a group of conditions involving the heart, blood vessels, as a sequel of poor blood supply due to a diseased vascular supply. Over the past decade, CVD has become the single largest cause of death worldwide, representing nearly 30% of all deaths. Dyslipidaemia is a life style disorder characterized by increased levels of total cholesterol, LDL cholesterol and triglycerides and also decreased HDL cholesterol levels which generally turned into cardiovascular disease. A healthy dietary pattern is a cornerstone for the prevention and treatment of cardiovascular disease (CVD). Seeds of *Vicia faba* (SVf) and sesame seeds (SSi) considered as dietary supplement for high content of dietary fiber, proteins, vitamins, minerals, phytosterol, omega 3 fatty acids and others functional compounds. The study aimed to establish SVf and SSi as a powerful functional food for prevention and management of dyslipidemia. Rats were randomly divided into five groups fed ND (Normal Diet), HLD (High Lipid Diet), HLD+SVf dust, HLD+SSi dust and HLD+SVf+SSi with food for 60 days. After 60 days of treatment, it was observed that there was a significant ( $p < 0.05$ ) increase in plasma triglyceride, total cholesterol, LDL-C, malondialdehyde (MDA) and IL-18 levels but a significant ( $p < 0.05$ ) decrease in HDL-C, super oxide dismutase (SOD) & catalase activity in HLD in comparison with ND and other treated groups. HLD induced dyslipidemia, while SVf and SSi showed significant antidyslipidemic activity decreasing plasma triglyceride, total cholesterol, LDL-C, MDA, IL-18 level and increasing HDL-C, SOD, and catalase. SVf and SSi combined feeding caused potential synergistic effect and results suggested that this functional food consumption can prevent and help in management of dyslipidemia.

Keywords : Dyslipidemia; Lipid Profile; IL-18; Sesame Seed; *Vicia faba*.

**IL: 4**

**An approach to determine cellular alteration in Ultra Violet ray induced Corneal Photo-toxicity of Limbal Epithelial and Stem/ Progenitor Cells**

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**INTRODUCTION:**

Over the last two decades depletion of stratospheric ozone has increased the flux of Ultra Violet (UV) radiation at the surface of earth and the cumulative effect of this radiation has become an important aspect of UV induced eye damage mainly affecting the farmers. Maintenance of corneal transparency is dependent on the integrity and functionality of the outermost corneal epithelium which itself is maintained throughout life by a population of Limbal Epithelial Stem Cells (LESC) located at limbal Palisade of Vogt. Thus the compartmentalization of the LESL within the limbal Palisades of Vogt gives us a valuable opportunity to understand the behavior of adult stem cells in their microenvironmental vicinity. Diseases concerned in the corneal blindness have been reported to be caused by limbal stem cell deficiency and is accordingly called Limbal Stem Cell Deficiency Diseases (LSCD). Dysfunction of LESL due to UV induced photo-toxicity is a qualitative loss where the stem cells and their neighboring cells are typically altered. The stem cells fate become hampered and thus mislaid cellular homeostasis. However, the mechanism regarding

the maintenance of these stem cells in their specialized niche in health and diseased condition remains poorly understood. We have tried to weigh up the phenotypic alteration of limbal epithelial cells in UV related corneal disease like Pterygium and also in UV exposed experimental mice by light scattering analysis, stem cell specific marker expression, proliferation and apoptosis profile markers, cell cycle analysis and receptor expression of niche related growth factors in normal and diseased state. We conclude that replenishment of the LESC niche can provide an effective measure of therapy in LSCD.

**IL: 5**

**Assessment of anti-biofilm potential of certain phyto-extracts on multi-drug resistant *Staphylococcus aureus***

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The South-West region is one of the most populous regions in the state of West Bengal, India. With rapid urbanisation, a significant proportion of people in this region live in high population-density unhealthy places, which increases the risk of development and spread of different life-threatening infectious diseases caused by multi-drug resistant bacteria. To date, the bacterial pathogen, *Staphylococcus aureus*, a gram-positive cocci, has been recognized as a severe threat to human lives due to its strong virulence properties. It causes skin and soft tissue infections (SSTIs) including small benign boils, folliculitis, impetigo, cellulitis etc. In recent time epidemiologic studies confirm increasing evidences of bacterial resistance towards multiple antibiotics. *Staphylococcus aureus* also becomes resistant to different beta lactam antibiotics (Methicillin, penicillin etc.) and also resistant to the antibiotic, Vancomycin. Besides this, biofilm forming ability of *Staphylococcus aureus* has a boundless role to strengthen its virulent properties as biofilm itself is highly resistant to antimicrobial drugs. As a result, mortality, morbidity and health care cost have increased day by day. That's why, biofilm can be a new target for treating different contagious diseases caused by multi drug resistant bacteria. In recent past, an interest in medicinal plants or bioactive compounds present in these plants has been established for their anti-biofilm activity. In this study,

methanolic fruit extract of *Aegle marmelos* and methanolic leaf extract of *Barleria lupulina* lindl showed effective anti-biofilm activities (75 and 70%, respectively) against community-acquired multi-drug resistant *Staphylococcus aureus*. Findings reveal that these plants can be an alternative source to conventional antibiotic therapy against highly virulent multi-drug resistant *Staphylococcus aureus*.

Key words: Multi-drug resistance, pathogen, *Staphylococcus aureus*, anti-biofilm, antibiotics, virulence

**IL: 6**

### **Gandhian Values for Rural Health**

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Mahatma Gandhi, a symbol of world peace, spent his entire life in the pursuit of non-violence and truth. He believed that every human being has good in him, and that no one is born evil. He advocated that it is the bond of *Ahimsa* and love, that unites human beings. He used this as a universal method for dealing with conflicts. The 21<sup>st</sup> century has drifted away from the Gandhian postulates, with lust for power, disrespect for religion, misuse of science and technology, unfair competition, thereby leading to ill-health. Only a healthy mind can build a healthy Nation. Gandhiji said that our body sends several signals to indicate the effects of wrong habits and lifestyles. However, the modern medicine is used to mask these signals and wrong doings.

*“It is health that is real wealth and not pieces of gold and silver.”*

As we celebrate the 150<sup>th</sup> birth anniversary of the Mahatma this year, MGM Institute of Health Sciences, Navi Mumbai, strongly advocates the implementation of Gandhian values in all its constituent Units of Health Sciences (Medical, Nursing, Physiotherapy, Biomedical Sciences, Prosthetics and Orthotics) at Navi Mumbai and Aurangabad campuses. The guiding force, the MGM Trust, established in 1982, works with the motto, *“Wipe every tear from every eye.”*

*107<sup>th</sup> Indian Science Congress, Bangalore 2020*  
*Abstracts of Symposium / Invited Lectures*

Initiative	Outcome
<b>Clean campus</b>	<ul style="list-style-type: none"> <li>• Participation in Swacch Bharat Abhiyan</li> </ul>
<b>Green initiatives</b>	<ul style="list-style-type: none"> <li>• Tree plantation programs</li> <li>• E-Governance strategies</li> </ul>
<b>Inclusion of Gandhian values into teaching-learning process</b>	<ul style="list-style-type: none"> <li>• Increased awareness regarding Gandhian philosophy amongst faculty and students</li> <li>• Implementation of Communication Skills module including plays depicting values of empathy and patient rights</li> <li>• Initiatives taken by students to construct scripts for movies and plays depicting Gandhian values</li> </ul>
<b>Social commitment</b>	<ul style="list-style-type: none"> <li>• Charity for needy patients</li> <li>• Display of Gandhian thoughts at strategic places in the hospital</li> <li>• Over 1000 diagnostic health camps in remote villages</li> <li>• Adoption of 10 remote villages under Unnat Bharat Abhiyan</li> <li>• Stoppage of open field defecation practices in villages</li> <li>• Decreased mortality and morbidity from water-borne diseases as a result of IEC activities in villages</li> <li>• Cleanliness drives in Ashram schools and slum areas</li> </ul>
<b>Overall Development</b>	<ul style="list-style-type: none"> <li>• Nurturing human values in the formal education process</li> <li>• Improved teacher – student and doctor – patient bonding</li> <li>• Team building spirit</li> <li>• Feeling of inclusiveness amongst stakeholders</li> <li>• Strong inculcation of the values of social commitment, honesty and sincerity into the minds of budding health professionals</li> <li>• Self-realization, self-respect</li> <li>• Patriotism</li> <li>• Respect for all religions</li> </ul>

*Section XI : Medical Sciences (including Physiology)*

The MGMIHS Model of Integrated Curriculum aims at holistic development of the budding health professional. This model has removed the inter-departmental barriers, thereby doing away with the fragmented approach to teaching-learning.

**“The body was never meant to be treated as a refuse bin, holding all the foods that the palate demands.”**

Inclusion of Gandhian values into Health Science education with an emphasis on improving the quality of rural health services, has proved to be an excellent initiative of our Institution. We as health professionals, need to be role models for the community. On the occasion of the 150<sup>th</sup> birth anniversary of the Mahatma, *“Let us be the change, we wish to see in the world.”*

**IL: 7**

**New age innovative strategies to identify and design novel drugs  
for cancer.**

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Cancer is a major health burden causing significant morbidity and mortality. Its incidence in India was 1 million in 2012, and it is estimated to reach 1.7 million by 2035, along with rise in the death rate from 680000 to 12 million. Carcinogenesis is a multi-step event starts from early pre-cancerous stage to final it ends as cancer. To fight cancer, many drug development technologies are initiated globally, through programs like in silico drug designing and synthesis of novel molecules (Rao et al, 2012; Reddy et al, 2010; 2012; 2018). In spite of several advancements in the treatment, disease remains incurable, patients experience tumour recurrence and metastasis at distant sites and this may be due to the presence of Cancer stem cells (CSCs). Moreover, the currently administered therapeutics are reported to have severe side effects with a dose-limiting toxicity and development of resistance. Hence, novel therapeutic agents are needed. Bio-prospecting is an upcoming and emerging science where biologists, chemists and other researchers are actively involved in building data base of the commercially prospective bio-resources. It is simple, basic science, which deals with plants, microbe's animals and other natural resources that may be of commercial

importance. At present various, novel and innovative bio-prospecting strategies have been started globally in assessing these natural resources for the benefit of human welfare. Due to this, discovery of many novel bioactive entities from natural resources for treating cancers is gaining significance. Currently, the use of medicinal/herbal extracts/natural products for cancer therapy is rapidly progressing and is presumed to have minimal side effects. The active molecules present in such medicinal/herbal extracts have been reported to stop the progression of multistage carcinogenesis in a synergistic manner. These medicinal/herbal extracts may possess active molecules like polysaccharides, pigments, steroids, terpenoids, flavonoids and alkaloids (Rao et al, 2008; 2009; 2012). Few, new age and innovative bio-prospecting experimental studies conducted by us revealed that, this crude medicinal/herbal extracts and as well as purified natural products exhibited anti-proliferative properties on various cancer cell lines *in-vitro* (Rao et al, 2009; 2012). In spite of promising beneficial effects of medicinal/herbal extracts /natural products, their effects on various cancers have not explored and studied in detail. Hence, the present topic highlights the significance of new age and innovative strategies to identify and design novel drugs for cancer.

**IL-8**

**Untold story: Occupational injury of Agricultural workers**

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Occupational accidents of agriculture and cultivation are sudden, unexpected, unintended, violent deleterious consequences in agricultural farming and its downstream activities with an array of outcomes of morbidity, mortality and disability. Thus Occupational injury of agricultural workers means all forms psychosomatic damage of workmen resulting from known and unknown hazards at workplaces. Overall impact of accidents is more than direct impact and associated productivity losses. There are indeterminate incremental depletion of productivities with stress on already overburdened general healthcare services and hidden socio-economic burdens. Real life internalization on specific risk is revitalized at every moment with the passing of days in ice-ball phenomenon by encouraging skill domain in the non-threatening environment and rewarding positive performance. Successful trauma control in farming envisages on futuristic vision and pro-activities ranging from recognition of hazards to the empathetic implementation of injury surveillance that includes injury registry, mitigation, plan, and control programs followed by holistic evaluation.

Key words: Agriculture, Injury, Risk factors

**IL-9**

**Safe and symptomatic medicinal use of surface-functionalized  $Mn_3O_4$  nanoparticles for hyperbilirubinemia treatment**

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Hyperbilirubinemia, or jaundice, is a life threatening disorder in newborns. It is a multifactorial disorder with many symptoms. Generally, the physiological jaundice is the most prevalent type however in some regions pathological jaundice is also common. This review article focuses on a brief introduction to jaundice, its types and causes, measuring the bilirubin level, clinical approaches towards hyperbilirubinemia, different precautionary measures for the parents of babies suffering from hyperbilirubinemia and different remedial therapeutic measures for its treatment. Aim: Testing the potential of citrate-capped  $Mn_3O_4$  nanoparticles (NPs) as a therapeutic agent for alternative rapid treatment of hyperbilirubinemia through direct removal of bilirubin (BR) from blood in mice. Materials & methods: NPs were synthesized and the mechanism of BR degradation in presence and absence of biological macromolecules were characterized in vitro. To test the in vivo BR degradation ability of NPs,  $CCl_4$ -intoxicated mice were intraperitoneally injected with NPs. : We have synthesized the NPs with the ultrahigh efficacy toward degradation of BR by a simple and green solution-based technique. We further demonstrated that these Mn-based NPs are safe, biocompatible and effective-targeted probes for hyperbilirubinemia in mice model based on the in vitro and in vivo assessments.

Keywords: Hyperbilirubinemia; Mn-based functionalized nanoparticles; Nanomedicine; Nanotherapy of jaundice.

## IL-10

### **Antivirulence Strategy for Controlling *Clostridium difficile* Infection**

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*C. difficile* (CD) is a significant gut pathogen that causes a toxin-mediated enteric disease in humans. Gut dysbiosis following prolonged antibiotic therapy increases the susceptibility to CD infection (CDI) by promoting bacterial spore germination, pathogen colonization and subsequent toxin production. The toxins, TcdA and TcdB, are the major virulence factors of CD that disrupt intestinal epithelial integrity and elicit a strong inflammatory response, leading to severe colitis. Although broad-spectrum antibiotics predispose patients to CDI by disrupting the normal gut flora, antibiotics continue to be the drug of choice for treating the disease. Moreover, the emergence of antibiotic resistant hypervirulent CD further limits the continued use of antibiotics for treating CDI.

This study investigated the efficacy of two phytochemicals, carvacrol (CR; 5-isopropyl-2-methylphenol) and baicalin (BC; 5,6-dihydroxy-7-O-glucuronide flavone) in attenuating CD toxin production, sporulation, spore outgrowth and clinical disease in mice. Results indicated that CR and BC reduced CD toxin production, sporulation and spore outgrowth ( $P < 0.05$ ). Follow up studies in a mouse model showed that both compounds significantly reduced diarrhea and mitigated the clinical symptoms of CDI. Additionally, CR and BC promoted a favorable gut microbiota shift without detrimentally affecting the gut microbiome diversity. Collectively, results suggest the therapeutic potential of CR and BC for controlling CDI, however, follow up human clinical trials are necessary.

Key words: *C. difficile*, Treatment, Carvacrol, and Baicalin

## **IL -11**

### **The Sound of Silence**

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Disabilities, both physical and mental, act as barriers for proper and conventional communication that sustain the highly valued inter-personal and psychic connections among the peoples and communities in the society. For India, the figures are far from assuring. The 2001 census data available at the website of the Ministry of Home Affairs, Government of India, reveal that the total burden of disabilities in India is about 21 million, of which West Bengal ranks third with 1.8 million, preceded by Uttar Pradesh and Bihar. Among the persons with disabilities, 7.5% is related to speech and 5.8% with hearing. This is alarming and should act as a caveat because hearing and speech development in a child go in tandem and speak of a more serious impairment than the figures actually suggest. We consider deaf those persons who have a non-functional hearing for the ordinary functions of life, that fails to improve even with amplified speech. Technically, they would have hearing loss of more than 90 dB in the better ear, or total loss of hearing in both ears.

The problem starts in the very early childhood when the child's parents complain about the non-sensitivity of the child to audible signals and verbal commands, and later, inability to speak. Such children, if left untreated, would face several hurdles while growing up including studies, inter-personal communications, employment, and self-esteem.

Human cochlea is an electromechanical transducer. Cochlear implants are first true bionic sense organs, which, like inner hair cells, receive mechanical energy and convert them into electrical energy. These are not hearing aids, as hearing aids only amplify mechanical sound

waves, but do not fundamentally alter the nature of the stimulus. Cochlear implant works by producing meaningful electrical stimulation of the auditory nerve where degeneration of the hair cells in the cochlea has progressed to a point such that amplification provided by hearing aids is no longer effective. It has a pivotal role these days in management of adults and children with hearing impairment.

Cochlear implant has an external and internal component.

1. External component:  
consists of an external speech processor and a transmitter.
2. Internal component  
surgically implanted and comprises the receiver/stimulator package with an electrode array.

Sound is picked up by the microphone in the speech processor. The speech processor analyses and codes sound into electrical pulses. The processor uses a variety of coding strategies to deliver meaningful speech parameters from the acoustic stimulus to the nerve.

The electrical impulses are sent from the processor to the transmitting coil which in turn sends the signal to the surgically implanted receiver/stimulator via radiofrequency. The receiver/stimulator decodes the signal and transmits it to the multichannel electrode array placed in the scala tympani of the cochlea and stimulates the spiral ganglion cells in different places along the basilar membrane. The auditory nerve is thus stimulated and sends these electrical pulses to the brain which are finally interpreted as sound.

The goal for selection of candidates for cochlear implant is to never have a single patient perform poorly with cochlear implant than they did with hearing aid. The earlier cochlear

*Section XI : Medical Sciences (including Physiology)*

implant is done, the better is the long-term outcome, and FDA guideline has set the minimum age of cochlear implantation to 12 months in 2000.

Cochlear implant, can never bridge the gap between the chronological age and language age which had been present beforehand. But, truly it can significantly improve the quality of life with proper rehabilitation.

Blessed are those who hear....those who do not hear are in the world of silence. It is our duty to see that they are transported from the world of silence to the world of sound.

**IL -12**

**Hypoxia inducible factor (HIF) using liposome-encapsulated perfluorocarbons: A novel therapeutic strategy for cancer**

**Saurabh Satija**

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There is an increasing need for the development of novel anti-cancer drugs to kill selective tumor cells. Cancer is the leading cause of death worldwide, resulting primarily from genetic instability and conversion of ordinary cells into tumor cells in a multi-stage process that usually develops from pre-cancerous to malignant tumors. The tumor microenvironment (TME) is created by interaction between malignant and untransformed cells which leads to hypoxic condition. Hypoxia plays an important role in tumor growth by activation of Hypoxia-inducible factor – 1 (HIF-1). Thus, inhibition of HIF-1 activity has marked effects on tumor suppression. There are ongoing efforts to recognize HIF-1 inhibitors and to test their effectiveness as an anti-cancer therapy. The HIF-1 inhibition can be achieved by the compounds having capacity to regulate tumor microenvironment. Thus, in the proposed study we will develop liposome-encapsulated for stabilizing HIF. It is believed that the developed formulation will lead to development of a novel drug delivery strategy to treat patients suffering from tumor hypoxia.

**Keywords:** Cancer, Target drug delivery, Nano-carrier, Nanotechnology.

**IL -13**

**Comparison of Physiological And Health Related Parameters of Elderly Persons Between Rural and Urban Areas**

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Dept of Human physiology  
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Key words: elderly people, physiological parameters, rural - urban.

Globally, as of now, 10 percent of the World's population is elderly and it is expected to increase to 21 percent in 2050. The old age is not necessarily a condition of disability; on the other hand, there is an enormous increase in the probability of range and diversity of performance parameters with the increasing age. The direct implication is that the concept of fixed age for compulsory retirement leads to obvious loss of elderly qualities and skills. Some physiological variables related to the efficiency are altered due to aging process. In the present study, variations of physiological and health related parameters of elderly population have been compared between rural and urban areas. The body composition, pulmonary function parameters, blood pressure, hand grip strength and musculoskeletal problems of elderly people belonging to the rural and urban areas were studied in this investigation.

The results showed that the body compositional parameters like, body weight, height, BMI, percentage of fat and lean body mass were significantly different between male and female elderly subjects. Significant difference was also observed in the body compositional

parameters in male and female elderly subjects in rural and urban areas. In case of pulmonary function tests the PEF/ FER ratio and FEV1 showed significant rural- urban difference among elderly people. COPD was highly prevalent among elderly people of both sexes. There was no significant difference in systolic and diastolic blood pressure between rural and urban areas but the resting pulse rate had significant difference between two areas. The hand grip strength measured at the arm position of 180° of female elderly had significant difference between rural and urban areas. The musculoskeletal problems in terms of occurrence of pain in some of the body segments showed rural urban difference.

It is concluded that the physiological status of elderly subjects had significant difference between rural and urban areas and rural elderly people were more vulnerable from the health point of view.

**107<sup>TH</sup> INDIAN SCIENCE CONGRESS**

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**BANGALORE**

**IV**

**ABSTRACTS OF  
ORAL PRESENTATIONS**



**OP: 1**

**Flavonoids/Polyphenols induced cellular and molecular changes in thyrocytes**

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Consumption of food containing flavonoids for its antioxidant properties has increased, thus molecular mechanism of flavonoids/polyphenols on thyroid in culture has been investigated. In our earlier studies the role of several flavonoids containing food on thyroid status in experimental animal in *in vivo* was investigated and observed that consumption of flavonoids/polyphenols gradually develops biochemical hypothyroidism. Therefore the effect of flavonoids/polyphenols on NIS, TPO, TG and Pendrin protein expressions as well as gene expressions of those with PAX8 and MCT 8 - the most important regulators of thyroid hormone synthesis along with generation of H<sub>2</sub>O<sub>2</sub>, anti-oxidant status as well as NO, LPO and LDH, DNA damage conducted with the objective to find out the possible signalling pathway of these antithyroid biomolecules on changes in activities of thyrocytes.

To determine IC<sub>50</sub> thyroid follicular cells in culture were exposed to different concentrations of flavonoids and then effective dose was determined and applied to get the optimal response. The overall results reveal that there is graded decrease in NIS, TPO, TG protein expressions along with their gene expressions as well as that of PAX8, pendrin and MCT 8. Increase in SOD, GSH, GPx, NO, LPO, LDH and DNA damage levels with decrease in CAT and H<sub>2</sub>O<sub>2</sub> levels were also observed. The possible signalling pathway for the action of flavonoids on thyrocytes has been evaluated.

*Key words:* flavonoids//polyphenol, TPO, TG, Pendrin, NIS, DNA damage, H<sub>2</sub>O<sub>2</sub>

**OP: 2**

**Selected yoga practices to cure allergy and Asthma in  
Rular India**

**BK Bandre**

Director, Indore School Of Yoga

Prevalence of bronchial asthma and allergic rhinitis has increased world over and rular India is also affected. Idia behind this study was to find out the factors working behind the problem in rular area of Indore. Fifty (50) patients were selected from all walk of life in rular area of Indore their average as was 35 year and vital capacity of lungs were measured by pick flow meter which was mean 150 L/mm initially of this study . Patient were trained for selected yoga practices in ten days of regular common class. Total time taken for their practices were about thirty minutes they were explained to change lifestyle is reduce the sensitivity for various allergens. Group of twenty five patient were advise not to use the pillows at night during sleep and other twenty five patients were continued to sleep with pillows even two pillows were used by second group.

Practices of yoga were very simple i.e. Brahmamudra, Kandha Sanchalana, Marjrasan, Bhujangasan, Dhanurasana, Uttanpadasana & Shavasana with these practices of Pranayama mainly Kapalbhathi 50, Bhastrika 3 Rounds Anuloam – Vilom 10 rounds. It is found same yoga practices did not work on patients who were using pillows at night during sleep. Those were not using pillows were improved and symptoms were reduced to zero and Vital capacity improved from 150 to 250 L/ mm in one month of duration. Sensitivity reduced in sinuses and they were comfortable with their allergens. Yoga practices with life style changes can cure the clergy and asthma.

**OP: 3**

## **Development and Intervention of Heart Revival in the Management of Cardiovascular Diseases**

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Cardiovascular disorders (CVD) like hypertension, ischemic heart disease, hyperlipidemia, cardiac arrhythmia and cerebrovascular disorders like strokes are responsible for a high incidence of mortality and morbidity. WHO reported in 2015 that nearly 17.7 million deaths were attributable to CVD. In last report in 2016, it was 17.9 million, representing 31% of all global deaths and out of these deaths, 85% are due to heart attack and stroke. The important behavioural risk factors of CVD are unhealthy diet, physical inactivity, tobacco use and harmful use of alcohol. The effects of behavioural risk factors may show up in individuals as raised blood pressure, raised blood glucose, raised blood lipids, overweight and obesity. Cessation of tobacco use, reduction of salt in the diet, consuming fresh fruits and vegetables, regular physical activity and avoiding harmful use of alcohol have been shown to reduce the risk of CVD. In addition, drug treatment of diabetes, hypertension and high blood lipids may be necessary to reduce cardiovascular risk and prevent heart attacks and strokes. An herbal formulation, Heart Revival has been prepared following the norms and guidelines of new drug development from indigenous knowledge of science and technology for the prevention and therapeutic application in CVD management. A thorough research on pharmaceutical, pharmacological, toxicological and clinical investigation has been conducted to establish the translational research from bench to bedside. All research findings will be elaborately discussed.

**Key Words:** CVD, ischemic heart disease ,hyperlipidemia, platelet aggregation, hypertension, clinical trial

**OP: 4**

**Direct action of different potencies of Hepar sulphur on  
*Staphylococcus aureus* – an in vitro study**

**Supriya Singh<sup>1</sup>, Subhrajit Paul<sup>2</sup>, Satadal Das<sup>3</sup>**

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Hepar sulphur a well known Homoeopathic medicine which is commonly used in pyogenic infections particularly in Staphylococcal infection. In this study we explored possibility of different potencies of Hepar sulphur for their direct action on *Staphylococcus aureus* on solid culture media. A lawn culture of *Staphylococcus aureus* (ATCC) was done in different Mueller Hinton Agar plates and then different potencies of Hepar sulphur ( 6c, 12c, 30c, 200c ) were applied directly soaked in sterile filter paper discs along with controls. It was found that 30c potency showed good sensitivity zones (P values <0.01) and 200c potency showed moderate sensitivity zones (P value <0.05) while other potencies and controls did not show any significant sensitivity zone. Thus Hepar sulphur 30c may act against *Staphylococcus aureus* in a significant way.

Key Words – Staphylococcal infection, Hepar sulph, Sensitivity zone.

## **OP-5**

### **Diosgenin loaded PLGA nanoparticles triggered cell apoptosis and cycle arrest by activation of p53 in MCF-7 cancer cell line.**

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In recent years, phytochemical-based nano drugs are achieving importance for its effectiveness in cancer therapy. The present study was focused to synthesize diosgenin (DG) loaded poly lactic-co-glycolic acid (PLGA) nanoparticles (DG-PLGA NPs) to enhance its biocompatibility and to investigate its apoptosis producing efficacy by activation of p53 in MCF-7 breast cancer cell line. DG-PLGA NPs showed sustained release kinetics and rapid intracellular uptake capability. The synthesized DG-PLGA NPs was characterized by UV-vis spectroscopy, dynamic light scattering and surface zeta potential measurement, Fourier transform infrared (FTIR) spectroscopy, X-ray diffraction, transmission electron microscopy (TEM). DG-PLGA NPs exhibited cytotoxicity, increased reactive oxygen species formation and induced apoptosis by chromatin condensation, cell cycle arrest at G2/M phase, expression of proapoptotic proteins, mitochondrial dysfunction and activation of p53 in MCF-7 cells. This findings confirmed DG-PLGA NPs as a promising anticancer nano-drug candidate for breast carcinoma.

**Keywords:** Diosgenin; DG-PLGA NPs; Apoptosis; cell cycle arrest; p53; Mitochondrial dysfunction.

**OP: 6**

**Direct action of different potencies of Hepar sulphur on  
*Staphylococcus aureus* – an in vitro study**

**Supriya Singh<sup>1</sup>, Subhrajit Paul<sup>2</sup>, Satadal Das<sup>3</sup>**

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Hepar sulphur a well known Homoeopathic medicine which is commonly used in pyogenic infections particularly in Staphylococcal infection. In this study we explored possibility of different potencies of Hepar sulphur for their direct action on *Staphylococcus aureus* on solid culture media. A lawn culture of *Staphylococcus aureus* (ATCC) was done in different Mueller Hinton Agar plates and then different potencies of Hepar sulphur ( 6c, 12c, 30c, 200c ) were applied directly soaked in sterile filter paper discs along with controls. It was found that 30c potency showed good sensitivity zones (P values <0.01) and 200c potency showed moderate sensitivity zones (P value <0.05) while other potencies and controls did not show any significant sensitivity zone. Thus Hepar sulphur 30c may act against *Staphylococcus aureus* in a significant way.

**Key Words** – Staphylococcal infection, Hepar sulph, Sensitivity zone

**OP- 7**

**Menstrual Health And Management: Improving Quality of Life of Rural India.**

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Menstruation is a unique phenomenon to the females. It is clear from the study findings that majority of the girls were having wrong knowledge about menstruation regarding the practices. In rural India the lack of knowledge and awareness of menstruation leads the major and several disease such as UTIs, RTIs, cervical cancer and also increase the Maternal mortality rate etc. The present paper highlights the issue of lack of awareness which leads major diseases, and non-biodegradability, non-affordability of special hygiene product and how it has turn into a critical environment concern all over the world. To solve this problem the study proposed an idea of creating awareness and hygiene in females during their menstruating period through cost effective, eco-friendly and Biodegradable sanitary napkin.

Keyword: Biodegradable, Eco-friendly, Hygiene, Awareness.

**OP- 8**

**Secular Trend in Nasio-facial Anatomy of Meitei Males of Manipur**

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Nasal and facial dimensions are the anatomical features that determine the unique identity of an individual in specific and of the ethnic community in general. Nasal and facial dimensions however, may be subject to modification owing to the influence of both endogenic and exogenic factors operating on it. Therefore examining nasio-facial anatomy for the purpose of personal and ethnic identification on one hand and for clinical applications such as rhinoplasty surgery, nose and face augmentation, facial reconstruction and orthodontic surgery on the other is gaining ground gradually. Keeping this in view, the present study which aims at mapping nasio-facial profile on one hand and examining if any secular trend has taken place during the last generation on the other has been carried out among randomly selected 1600 adult male Meitei population of Manipur valley belonging to age 21 to 60 years using 9 (nine) nasio-facial measurements. Overall findings of the study reveals that Meitei males in general have narrow breadth of bizygomatic arch, low to medium total facial height, above medium nasal breadth, mesorrhinae nose, leptoprosopic to mesoprosopic morphological facial index, mesen type of morphological upper facial index. As regards the comparison of the present findings with that of the previous generation is concerned, statistically significant difference are observed in 7 (seven) out of the total 9 (nine) parameters subjected to study. Interestingly all the 6 (six) breadth measurements viz. LFB, BBA, EBB, IBB, BGB, NB and only 1 (one) height measurement i.e. MFH show significant difference thus revealing that breadth measurements are more prone to intergenerational modification than the height measurements. On the whole the population has experienced intergenerational positive secular trend with respect to nasio-facial dimensions.

Key words :Nasal Index, Mesorrhinae, Morphological Facial Index, Mesoprosopic, Upper Facial Index, Mesen

**OP- 9**

**Morphological Studies on Heart Samples of Sildenafil Citrate and Alcohol Fed Albino Mice**

Suriyakumari, K.V.P<sup>1</sup>, Udayakumar, R<sup>2</sup> & **Sanjay Kumar**

<sup>1</sup>Department of Anatomy, Sri Manakula Vinayagar Medical College & Hospital, Madagadipet, Puducherry – 605 107.

<sup>2</sup>Department of Physics, Annamalai University, Annamalainagar – 608 002. Tamilnadu.

Although ED is a benign disorder, it is of concern that the projected prevalence for 2025 points out to be 322 million men worldwide and with the largest increase in the developing world. Sildenafil is an effective oral drug for men with erectile dysfunction. But, it has many side effects. Now, it is well known that chronic consumption of excessive amounts of alcohol is a major source of social and medical problem. The present study was aimed at studying the impact of the combined dosage of Sildenafil citrate and Ethanol on the form and function of Heart of Albino mice. The morphological studies were carried out using Light microscopic technique and the results indicate the loss of normal branching pattern of the cardiac muscle fiber, Edema and vacuolated cells. Hence, it is concluded that the administration of the combined dosage of Sildenafil citrate and Ethanol produces drastic alterations in the structure of Heart of Albino mice.

**Key Words :** Albino mice, Heart, Sildenafil citrate, Alcohol, Histoarchitecture.

**OP- 10**

**Systematic review and Meta analysis on prophylactic mouth washes – a paradigm shift from chlorhexidine gluconate to essential oil mouth wash.**

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The purpose of this review is to systematically evaluate the effects of an essential-oil mouthwash compared to a chlorhexidine mouthwash with respect to plaque and parameters of gingival inflammation.

PubMed/MEDLINE databases were searched for studies. A meta-analysis was performed, and weighted mean differences were calculated.

A total of 17 unique articles were found, of which 11 articles met the eligibility criteria. Essential oil mouthwash provided significantly better effects regarding prophylactic plaque control than chlorhexidine

In long-term use, the standardized formulation of essential oil mouth wash is reliable than chlorhexidine mouthwash.

**Keywords:** Chlorhexidine, essential oils, meta-analysis, plaque.

**OP- 11**

**Positive Correlation of Non-Genetic Risk Factors With Diabetes Mellitus**

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Diabetes mellitus (DM) is a metabolic disorder characterized by chronic hyperglycemia, due to an alteration in insulin secretion, insulin action or both. Common risk factors like hypertension, poor metabolic control, smoking, obesity and dyslipidemia were more prone to develop diabetic complications. To identify risk factors for DM in the population of Jammu region, 320 DM cases were compared with 350 unrelated healthy controls. All statistical tests were done by using SPSS version 20. The study revealed overweight, stress, sedentary life style, smoking, alcohol intake, LDL, TG, TC and fasting glucose as positive predictors of DM.

**Key Words:** DM, hyperglycemia, smoking

**OP- 12**

## **Role of Exercise training in treatment of Chronic Respiratory Diseases**

**Vishal Bansal**

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Decrease in functional exercise capacity is a common, extra-pulmonary manifestation of chronic respiratory diseases that impacts quality of life. This decrease in exercise capacity is multi-factorial which includes weight loss due to cachexia of chronic disease, recurrent infections, systemic inflammation, malnutrition, free radical injury, gas exchange abnormalities, co-morbidities, acute/chronic/intermittent/persistent hypoxia, peripheral (skeletal) muscle dysfunction, cardiovascular inefficiency and respiratory muscle dysfunction. There is associated intense sensation of dyspnea during physical activity due to abnormalities in lung mechanics and expiratory flow limitation. Peripheral muscle dysfunction leads to early leg fatigue even during mild exertion resulting in functional limitation and poor quality of life.

Skeletal muscles play an important role in life as they are the basis for respiration and mobility. Their dysfunction directly influences exercise performance and is an independent predictor of health care utilization and mortality. Prolonged duration of disease results in skeletal muscle dysfunction. As skeletal muscles undergo atrophy, their strength gets diminished resulting in early exhaustion and marked reduction in functional capacity. Diaphragm and respiratory muscles have to work against an increased load leading to respiratory fatigue and dyspnea.

Peripheral skeletal muscles show great plasticity by adapting its morphologic and metabolic properties differently depending on the training strategy used. When submitted to endurance training, it undergoes several changes that improve its capacity for aerobic metabolism. Studies have shown an increase in type I fibers along with a proportionate decrease in type IIb after 6 to 15 weeks of intense training. Evaluation of the contractile protein composition of the skeletal muscle has shown that a fast to slow type fiber conversion occurs with endurance training. Strength training has been found to be well tolerated which improves strength and mobility and decreases incidence of falls often seen in chronic respiratory patients. Although exercise training does not change pulmonary functions, it improves exercisecapacity and reduces dyspnea. Proposed mechanisms of this increase in exercise tolerance include better motivation, desensitization to dyspnea and less lactic acid production at a given workload.

Exercise training imparts new hope for chronic respiratory patients. It's a treatment which imparts reduction in dyspnea, increased exercise tolerance. Patients can walk, bathe and dress, have better social life and are happier.

**OP- 13**

**Prevalence of goiter and Hashimoto's thyroiditis among school children and women of reproductive age group in Manipur**

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In Manipur, certain section of the population are suffering from goiter and other thyroid disorders like Hashimoto's thyroiditis during post-salt iodization period. Therefore, it is necessary to assess the iodine nutritional status and other factors that can cause thyroid problems among the population.

A total population of 3992 were examined for goiter. Iodine and thiocyanate in urine of the goitrous population were measured. Iodine in edible salt and drinking water were also measured. Thyroid function tests and FNAC were done among goitrous population. Total goiter prevalence rate was 13.98%. Median urinary iodine level and mean thiocyanate level were 166 µg/l and 0.7286±0.408 mg/dl respectively. All the salt samples tested had sufficient iodine. Certain population had abnormal thyroid functions and Hashimoto's thyroiditis. The present study shows that the studied region is clinically goiter endemic without biochemical iodine deficiency and there is prevalence of Hashimoto's thyroiditis.

**Key words:** School children, women, goiter, urinary iodine, urinary thiocyanate, iodine in edible salt and water, thyroid function test.

**OP- 14**

**Potent HIV-1 Reverse Transcriptase Activity Punicalagin, A Novel Tannin Component Isolated From *Terminalia Chebula* Ritz**

**Estari Mamidala<sup>1</sup> and Swapna Gurrapu<sup>2</sup>**

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Reverse transcriptase (RT) is a viral enzyme and one of the main targets for drugs against human immunodeficiency virus (HIV). The aim of this study was to evaluate punicalagin, a novel tannin component isolated from *Terminalia chebula* Ritz against HIV-1 Reverse Transcriptase.

The crude extracts were prepared from dried seeds of *Terminalia chebula* in methanol by maceration method and isolated a novel tannin component by using column chromatography and HPLC. *In vitro* HIV-1 RT inhibition activity was determined by HIV-1 RT capture elisa test.

Isolated compound was identified as tannin, punicalagin, a novel compound. The anti-HIV activity was tested with PBMC and punicalagin showed HIV reverse transcriptase inhibitory activity and it was more effective than standard drug AZT. In PBMC cells, at 100  $\mu$ M, punicalagin inhibited >91% of HIV-1 RT with IC<sub>50</sub> 88.32  $\mu$ M. The positive control (AZT) inhibited >87% of HIV-1 RT.

Such studies will provide the solid biological foundation for translational research, which is needed to evaluate the *in vivo* activity of a Punicalagin, novel tannin component.

**Key Words:** HIV-1, Punicalagin, Tannin, Terminalia chebula

**OP- 15**

**Prevalence of IGE Hypersensitivity in North East Region of India  
and its Clinical Significance**

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Immunoglobulin E (IgE) are antibodies produced by the immune system that has been found in mammals acting as intermediates in type 1 hypersensitivity reactions by binding to mast cells and basophils. Individuals with a family history of atopy have an increased risk of developing IgE sensitization. Increase in IgE levels are associated with IgE antibodies to allergic reactions or parasitic infection. In this work it was focused on the increased IgE serum level in blood of the patients from different age groups of the specific allergens. Higher level of IgE was observed for patients belonging to age group of 41-50 suffering mostly from atopic eczema, angioedema, hives, red rash, Asthma patients. The least number of patients admitted was in the age group of 14-20 having least IgE level in blood serum.

Keywords: IgE, Hypersensitivity, hives, red rash, eczema, asthma, IgE, patients.

**OP- 16**

**Recent Advances in Diagnosis of Oral Potentially Malignant Disorders and Oral Cancer**

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Oral cancer detection at a late stage leads to high mortality and morbidity. The time of diagnosis influences the treatment and survival rate. Early diagnosis for detecting these lesions and predicting their progress is very important to provide care to patients and improve their quality of life and survival rate. Oral cancer is mostly preceded by oral potentially malignant disorders like oral submucous fibrosis, Leukoplakia, Erythroplakia. Regression of the premalignant lesion is possible by reducing the risk factors including tobacco and alcohol use. Biopsy of the lesion with histopathological examination will always be the gold standard for diagnosis of oral cancer, which, however, has some limitations. It is time consuming, expensive, invasive, and needs a trained health care provider. Advances in detection methods that can be used for the early diagnosis of oral potentially malignant disorders to make oral cancer curable and increase the patient's survival include the following recent advances which are non-invasive, such as Autofluorescence spectroscopy, Raman spectroscopy and diffuse reflectance spectroscopy and chemiluminescence. Optical spectroscopy has the potential to detect malignant lesions earlier, before they become macroscopically visible, by probing tissue biochemistry and morphology in vivo in real time. Autofluorescence of tissues under excitation with light is produced by several endogenous fluorophores. These include fluorophores from tissue matrix molecules and intracellular molecules like collagen, elastin, keratin, FAD and NADH. The presence of

disease changes the concentration of these fluorophores, which makes autofluorescence spectroscopy sensitive to tissue alterations. Light based detection systems have good sensitivity and specificity which can be used as early diagnostic tool in detection of oral potentially malignant disorders and oral cancer.

Key words: Potentially Malignant disorders, Tissue Autofluorescence, spectroscopy.

## **OP- 17**

### **Morphological Studies On Heart Samples of Sildenafil Citrate And Alcohol Fed Albino Mice**

**Suriyakumari, K.V.P<sup>1</sup>, Udayakumar, R<sup>2</sup> & Sanjay Kumar**

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**OP- 18**

***Clinical Scenario In Pregnancy With Single Umbilical Artery –  
Diagnosis And Implications***

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Fetuses with single umbilical artery are at increased risk for adverse outcomes. **Single umbilical artery (SUA)** results when there is a congenital absence of either the right or left umbilical artery. The estimated prevalence is 0.4-1% of pregnancies.

*Aims and Objectives: The purpose of this work was to study the incidence of Single Umbilical artery in pregnancy using ultrasonography.*

Materials and methods: 50 pregnant women of second trimester were studied using ultrasonography attending the antenatal clinic in the department of OBG who were referred for routine ultrasonography.

General physical examination of the pregnant women was done. Age of the patient and the gestational age were noted. Fetal head circumference, Fetal abdominal circumference, Fetal biparietal diameter and amniotic fluid index were observed using ultrasonography. Colour Doppler was used to confirm the findings

During this study a case of Single Umbilical artery was observed which was associated with IUGR. Any associated findings were noted.

Identifying the presence of single umbilical artery is important for prenatal diagnosis of congenital anomalies and aneuploidy. Pregnancies complicated by Single umbilical artery are at increased risk for fetuses of small for gestational age, preterm birth, pregnancy-induced hypertension, IUGR and increased perinatal mortality.

**Key words:** Single umbilical artery, IUGR, Anomalies

**OP- 19**

**The behavioral screening used in AIIMS CTVS and cardiology department questionnaire, the Strengths and Difficulties**

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A novel behavioural screening questionnaire, the Strengths and Difficulties Questionnaire (SDQ), was administered along with Rutter questionnaires to parents and teachers of 400 children drawn from AIIMS CTVS and Cardiology. Scores derived from the SDQ and Rutter questionnaires were highly correlated; parent-teacher correlations for the two sets of measures were comparable or favoured the SDQ. The two sets of measures did not differ in their ability to discriminate between CTVS and Cardiology clinic attenders. These preliminary findings suggest that the SDQ functions as well as the Rutter questionnaires while offering the following additional advantages: a focus on strengths as well as difficulties; better coverage of inattention, peer relationships, and prosocial behaviour; a shorter format; and a single form suitable for both parents and teachers, perhaps thereby increasing parent-teacher correlate and educationalists...

Given the well-established validity and reliability of the Rutter questionnaires, the high correlation between the total scores generated by the SDQ and Rutter questionnaires is evidence for the concurrent validity of the SDQ. Parent-teacher correlations were either equivalent for the two measures or slightly favoured the SDQ, perhaps because the SDQ used identical items for parents and teachers whereas the Rutter questionnaires were

somewhat different for parents and teachers. The ROC analyses showed that the two measures had equivalent predictive validity, as judged by their ability to distinguish between cardiac and non cardiac samples. Of course, discriminating between cardiac and non cardiac clinic attenders is a relatively easy task, but the high correlation between SDQ and Rutter scores within each clinic group suggests that the two measures are also likely to be comparably discriminating in more demanding screening tasks, such as detecting non referred cases of child mental health problems in the community; further empirical studies would be needed to confirm this.

**OP- 20**

**Protective role of soluble dietary fibre (Fructan) and ZnO nanoconjugate against nicotine induced cardiac rhythms: An electroencephalography study**

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Zinc is a biocompatible component and soluble dietary fibre (SDF) is dietary supplement (which is digested by gut bacteria) both are have a good and great role on cardiac health. In smokers, nicotine profoundly changes the cardiac functions.

ECG is a cheapest and the most reliable method for assessing cardiovascular abnormalities. Our main objective of this study to prepared a new nano-conjugate and applies against nicotine induced alterations in cardiac activity.

In this research we prepared a nano-conjugate compound with zinc oxide and Fructooligosaccharides (SDF) by chemical synthesis method and characterized by using UV-Vis spectrophotometer, SEM, XRD and FTIR analysis. In the present study we used albino rat (Bd wt. 100±120 gm.) which are anaesthetised by ketamine and xylazine and

take ECG reading. Study the structural damage and changes in the histological image of heart muscle (H&E staining method).

ECG waves were recorded on the basis of time in millisecond (ms). The ECG parameters are ORS, RR,ST, PR, QT, TP interval (ms), P& T wave duration (ms) and heart rate (beats/min or BPM). Results shows that Zinc oxide-Fructooligosaccharides nanoconjugate (ZnO-FNC) help to reduce nicotine induce alterations and all data are significantly differ ( $P < 0.05$ ) compare to nicotine treated group (group II) and changes were towards normal (group I).Supplementary group (group VI) shows that heart muscle damages are improve and restore the normal architecture gradually.

ZnO-FNC has potential effects on cardiovascular arrhythmic rhythms which help to recover nicotine induced cardiovascular disorders.

Keywords: Zinc, Fructo oligosaccharides, ECG.



**107<sup>TH</sup> INDIAN SCIENCE CONGRESS**

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**V**

**ABSTRACTS OF  
POSTER PRESENTATIONS**



**PP-1**

**Green Synthesis of Nano Iron Particles of clinical importance**

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Majority of world population up to 80 percent depends on traditional medicine. Currently the use of medicinal plant extracts/herbal medicine for treating various disorders and diseases is rapidly rising, since they are presumed to have minimal side effects. *Camellia sinensis* (Green tea) is most widely consumed popular beverage for centuries in the world. For the past few decades, the beneficial health effects of green tea have been reported. Tea drinking lowers the levels of serum cholesterol, prevents oxidation of low density lipoprotein (LDL) and also reduces the risk of cardiovascular disease and cancer. Its chemical composition is quite complex and few studies effectively characterized and separated few bioactive compounds which has significant biological activities. Especially Polyphenols are major ingredients found in tea, which have antioxidative, antimutagenic and anticarcinogenic properties. Since nanotechnology is upcoming field, where nanoparticles has multifunctional applications in various fields like medicine, nutrition and energy. Especially the iron nano

particles has a role in treating anaemic people. Hence in the present study, we applied a simple approach for the generation of iron nanoparticles using green tea extract (aqueous) which has clinical importance. It was noticed that *Camellia sinensis* leaf extract can reduce iron ions into iron nanoparticles at room temperature. Further nano size was assessed by nano analyser and found that the synthesized nano particles were in the range of 18.2 nano meters, and the Zeta potential found to be in the range of -0.2mv. Next these nano iron particles was further characterized using Scanning Electron Microscope (SEM), EDAX and XRD analysis. Thus this study demonstrates the green synthesis of Iron Nanoparticles using *Camellia sinensis* leaf extract which has clinical significance.

Key words: Traditional medicine, Nano Iron Particles, *Camellia sinensis*

**PP-2**

**A preliminary investigation to assess the vascular changes among hypertensive patients**

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Hypertension (HTN) is also known as Arterial Hypertension is a chronic medical condition in which the blood pressure is elevated in the arteries. The major risk factors include stroke, myocardial infarction, heart failure, aneurysms of the arteries, peripheral arterial disease and chronic kidney disease etc. Hypertension leads to cardiovascular morbidity and mortality; affecting approximately 20%-50% of the world's adults. According to the estimates of year 2000 nearly 1 billion adults have been suffered with hypertension and it is predicted to increase to 1.56 billion by 2025. Recent global statistics also revealed that it occupies fourth place in premature deaths in developed countries, whereas seventh place in developing countries. In India its prevalence rate is higher in urban compared to

rural areas and moreover prevalence pattern is comparable with that of USA. Therefore, the present study is undertaken to assess the vascular changes (assessed by periscope) among hypertensive patients with the following objectives that include a)systolic and diastolic pressure b)augmentation index c)systolic velocity d)functional vascular changes e)aortic pulse pressure and also to find out the association between vascular changes in hypertensive patients with their selected socio demographic variables. The study comprises of 60 hypertensive patients which were selected by using Non probability Convenience sampling technique. The results clearly indicate that significant changes has been noticed in hypertensive patients in renal diseases. Among these, 60 percent of the patients observed with increased brachial pulse wave velocity, which indicate structural damage due to various risk factors associated with hypertension. Apart from this 30 percent of the patients noticed with elevated levels of aortic augmentation index. Moreover increase in pulse pressure were also found in most patients, which is a hallmark for ageing arteries.

Key words : Hypertension, Vascular changes, Periscope

**PP-3**

**Assessment of knowledge on Hormonal replacement therapy among post-menopausal women.**

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Menopause is a natural event, which is termed as the physiological cessation of menstrual cycle. Most women experience this phenomenon. The key concept is that women enter menopause with different menopausal status for instances, natural menopause, surgical menopause, early menopause or even premature ovarian failure and encounter enormous changes in various physiological, psychological, emotional and social factors during and after menopause. Therefor the present investigation is carried in aim to assess the level of knowledge on hormonal replacement therapy among post-menopausal women. Recent

Indian menopause society report clearly states that, the expected figures in 2026 will be 103 million menopausal population. A cross sectional descriptive research design was used for the study. 60 post-menopausal women were selected by using nonprobability convenience sampling technique. The study was conducted in Narayana Medical College Hospital, Nellore after getting Institutional Ethical committee clearance. A Self structured Questionnaire was administered. Findings reveal that, out of 60 subjects, the level of knowledge on Hormone replacement therapy among post – menopausal women were adequate knowledge 8 (13.3%), moderate knowledge 28 (46.6%) and inadequate knowledge 24(40%). Thus, the above results conclude that among Post-menopausal women, burden of menopausal symptoms is quite high, which results in disturbance in day-to-day lifestyle activities. Hence knowledge on Hormone replacement therapy requires high attention among women, which in turn improves the quality of life among postmenopausal women for various menopause-related symptoms.

**Keywords:** Hormone replacement therapy, post-menopausal women.

**PP-4**

**Preliminary Assessment of Life style modifications among Patients with Type II Diabetes mellitus (DM)**

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Diabetes mellitus (DM) comprises of a group of disorders categorized by hyperglycaemia, altered metabolism of lipids, carbohydrates, proteins and an increased risk of complications from vascular diseases. Globally, 194 million people are affected with DM associated with high rates of mortality and morbidity. DM prevalence is more common in India, China and USA and is anticipated to reach to 333 million by 2025. The present therapeutic options for diabetes include oral hypoglycaemic agents and insulin etc. In spite of advancements in the treatments disease still remains incurable. Moreover, type II DM, is a major burning

issue worldwide. Therefore the present study is undertaken in an aim to evaluate the effectiveness of self- management programme on life style modification and also blood sugar levels among patients with Type II DM. The study comprises of 60 patients with Type II DM which were selected by using Non probability Convenience sampling technique. Results indicate that effectiveness of self-management programme on life style modification in experimental group was found to be significant with a value of  $P < 0.05$ . With regard to blood sugar levels, the mean of FBS is  $104.6 \pm 12.5$  mg/dl and the PPBS is  $173.5 \pm 12.8$  mg/dl ( $P < 0.05$ ). Thus these findings indicate that self-management programme on life style modifications and blood sugar levels are more effective to change the life style pattern among patients with type II DM. The present study concludes that, the self-management programme on life style modifications was statistically significant and effective in changing the life style pattern and reducing blood sugar levels among patients with Type II DM.

Key words: Life style modification, self-management programme, Type II Diabetes mellitus

**PP-5**

**All are the plus in Rural Life except pompous style of Urban where environment determines the provision of better structure for future**

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The look of present village life has got tremendous achievement of all round support to transform for better healthy environment. Obviously it creates advantage to get access for adopting all the goods necessary for upgrading the previous old pattern of backwardness and this is due to communication which built on effort of priority basis of fund initiated by Government. Today's roads and passage to reach at each door of rural dwelling have become easy and communicable for all the amenities. Health sectors in block levels are brought under easy access to get all the keys to advanced type of protocol through mobile and network system. Education on this forefront technology have geared up to incorporate the need of modern sustained values of life to move on and scope of all the facilities in urban cluster can be accommodated in future. The basic need of people to live well is on food & inhabitation of course along with healthy choice of life. The green atmosphere of rural belt is driving on restoration by unchanging the tune of rural resources which is credited to rural peoples. The People of rural India will be double gifted with their own sources of cultivation and inputs of modern health accomplishments. Standard of living and multi-dimensional approach needed for transparent structure for future.

Key words: Healthy environment, communication, amenities, advanced type of protocol, green atmosphere, standard of living.

**PP-6**

**Study of the awareness about AIDS/HIV among the Students studying in Bachelor courses in R. J. College Chapra Bihar.**

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Department of Zoology, R J . College, Chapra,) <sup>1</sup>

Department of Zoology, R. N. College, Hajipur,) <sup>2</sup>

In this research paper it was try to know the awareness of HIV /AIDS among the students of R.J. College, Chapra by the method of questionnaire and interview. The research works were carried during the month of August 2019. A set of 15 questions were framed in the form of questionnaire, as adopted from the Research paper – “Mohan Rakesh, Study of the awareness about AIDS/HIV among the selected categories of the students of the locality Agarwa & Bluatal of Chapra town ,East Champaran, Bihar, Res Expo Int Multi Res Journal ISSN: 2250-1630, March-2014, p27” A total of 600 students of different stream of Bachelor course were interviewed with the help of the students of M. Sc.(Zoology)

KEY WORDS , AIDS awareness HIV, Monogamy, Unsafe sex.

**PP-7**

**Study of the awareness about AIDS/HIV among the students of R. N. College Hajipur, Bihar.**

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In this research paper it was try to know the awareness of HIV /AIDS among the students of R.N. College, Hajipur by the method of questionnaire and interview. The research works were carried during the month of August 2019. A set of 15 questions were framed in the form of questionnaire, as adopted from the Research paper &ldquo;Mohan Rakesh, Study of the awareness about AIDS/HIV among the selected categories of the students of the locality Agarwa & Bluatal of Motihari town ,East Champaran, Bihar, to know the awareness of the HIV/AIDS among our students . A total of 900 students of different stream of Bachelor courses were interviewed with the help of the students of M. Sc.(Zoology)

KEY WORDS: Hajipur, AIDS awareness HIV, Monogamy, Unsafe sex.

**PP-8**

### **Wrist Watch Medical Adherence and Medication Carrier**

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Medication adherence is important factor for the outcome of medical therapies and we propose smart watch-based medication system with replaceable chambers to carry the medicament which is feasible and provides innovative solution to encourage medication self-management. Moreover, with the help of attached sensor to belt it also provides patient vitals and If abnormalities in vitals are found than it gives emergency call to ambulance/ care-takers facilitating elderly homecare. The material used will be latex on outer side and aluminum on inner side so that thermal fluctuations can be maintained. Smart-watch definitively become close assistants to help elderly in their daily life.

Keywords: Medication Adherence, Smart-watch, Latex, Aluminum.

**PP-9**

**Addressing Spirituality and Nationalism: Relocating the  
Genesis and Growth of Homeopathic System of Health  
Care in British India**

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Medicine and its reorganisation in the colonial and postcolonial context have worked within the larger rationale of scientific truths as a means towards modernising the indigenous medical tradition. The colonial botanical medical engagement has transformed the indigenous therapeutic culture in to newer structures. The Homoeopathic medical practice, that witnessed strong opposition in the land of its birth and abroad, was accepted and promoted in the realm spiritualistic and nationalist frameworks. The colonised Bodies often transformed in to experimental subjects for practice of this newer mode which relocated as a piece of the 'glorious ancient Indian past'. The formation of national character for a completely foreign branch of medical science is the subject under discussion in this paper.

**Keywords:** Homoeopathy, Colonialism, Middle class, Body, Culture.

**PP-10**

**Phytochemicals from *Ruta graveolens* leaf retard cancer cells growth through proliferation inhibition in vitro**

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*Ruta graveolens* (RG) is a medicinal herb with known anti-inflammatory properties. RG has been used in the management of diseases such as allergy, asthma, autoimmune diseases. Preliminary studies using the extracts of RG leaves have reported potent anti-oxidant and anti-inflammatory activities. But, not much is known about the anti-cancer properties of the extracts of RG leaves and roots. Hence in this study we have prepared extracts of RG leaves using solvents of increasing polarity, and tested the efficacy of prepared extracts for inhibiting ROS (which are required for the transformation of normal cells to cancer cells) and the proliferation of cancer cells. Analysis of the data showed a dose dependent increase in the antioxidant activity as well as anti-cancer activity, especially with the chloroform and ethanol extracts. For instance, a significant 80% cell death was noticed when MDA-MB-468 cells were exposed to chloroform extract. Studies are currently evaluating the efficacy of these extracts for modulating the expression of key signaling cascades involved in tumor cell proliferation and apoptosis.

Key: *Ruta graveolens*, breast cancer cell line, phytochemical

**PP-11**

**Molecular characterization of Integrin (INT) cDNA in sheep uterine endometrium**

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Integrins (INT), adhesion molecules present in uterine endometrial and decidual cells play a crucial role in adhesion and implantation in livestock. The present study was designed to clone and characterize INT cDNA in sheep endometrium. Total RNA was isolated from sheep endometrium and was reverse transcribed using Superscript III first strand synthesis kit to synthesize cDNA and amplified by *Taq* DNA polymerase. The amplified 261 bp INT cDNA product were gel purified and were ligated into pDrive cloning vector. The ligated product was transformed into DH<sub>5a</sub> *E. coli* competent cell. The transformed cells were then allowed to grow in LB plate at 37°C for overnight. The white positive colony were selected and subcultured in LB broth containing ampicillin and plasmids were isolated and digested by suitable restriction enzymes to release the insert for confirmation of the recombinants and the positive clones were sequenced. The sequence of sheep integrin revealed >93% and 94% identity with the corresponding mammalian homologs at nucleotide and amino acid level, respectively. Phylograms constructed on the basis of INT nucleotide sequence and inferred amino acid sequence from various species showed that cattle, buffalo, sheep, goat, human, camel and pig comprise one clade and horse represent an entirely different clade. It can be concluded that the amplified cDNA and deduced amino acid sequence of sheep integrin is conserved across the ruminant species.

Keywords: Implantation, INT, uterine Endometrium, Buffalo.

**Pp-12**

Is Viral Hepatitis Becoming A Next Era Public Health Burden?

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Transfusion of blood and its components has the risk of transfusion-transmissible infection (TTI). TTI include Hepatitis B virus, Hepatitis C virus, syphilis, Human Immunodeficiency Virus and malaria.

This study focuses on the status of TTI screening amongst voluntary non- remunerated Blood donors from 2011 to 2018 of a district hospital blood centre in West Bengal. Tests were done by ELISA and Syphilis by Rapid Plasma Reagin. All reagents were provided by Government of India. The prevalence of Hepatitis B was highest (1.62%) followed by Hepatitis C (0.53%). HIV (0.5%) was lesser than the Viral Hepatitis. Public awareness and screening of Viral Hepatitis are required.

**PP-13**

**Evaluation of *in vitro* acute and *in vivo* sub-acute toxicity of hesperetin loaded nanoparticles**

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Hesperetin is a natural bioflavonoid found abundantly in citrus fruits with promising antioxidant and anti-inflammatory properties. The present study was aimed to assess the *in vitro* acute toxicity of hesperetin in human lymphocytes and also to examine *in vivo* sub-acute toxicity in mice. ROS generation was not occurred in hesperetin loaded nanoparticles treated human lymphocytes which suggested that hesperetin loaded nanoparticles did not induce oxidative stress in normal lymphocytes. Hesperetin loaded nanoparticles also exhibited no genotoxic effect on human lymphocytes. The sub-acute toxicity was evaluated after administration of hesperetin loaded nanoparticles at different concentration in Swiss albino mice for 28 days. In hesperetin loaded nanoparticles treated mice, body weight, haematological, hepatic and renal biomarkers were not altered up to the highest dose compared to control group animals. Histopathological investigations of mice liver, kidney did not reveal any morphological changes. From the above findings it can be concluded that hesperetin loaded nanoparticles treatment did not show any toxic effect both *in vitro* and *in vivo* model.

Key words: Hesperetin, Hesperetin loaded nanoparticles, Lymphocyte, Genotoxic effect, Sub-Acute toxicity study, Hepatic and renal biomarkers

**PP-14**

**Taurine ameliorates lambda-cyhalothrin induced immunotoxicity**

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Widespread use of synthetic agro-chemicals and other environmental xenobiotics may produce health hazards. Pesticide exposure may affect immune system and may result in altered disease susceptibility. Lambda cyhalothrin (LCT), a type II synthetic pyrethroid, is used worldwide to control pests in agricultural production, animal husbandry and public health applications. In present study, immune response of LCT was studied in rat exposed to LCT via oral application at two dose levels (10.83 and 15.17 mg/kg body wt) for consecutive 14 days. The serum total protein, albumin, globulin and the organ to body weight ratios for spleen and thymus were significantly decreased with increasing dose of LCT. Moreover, different pathological alterations in liver were also observed. LCT exposure suppressed the cell-mediated immune responses in rats in a dose-dependent manner. Taurine (50 mg/kg body wt) was treated as antidote before LCT administration. In the combined TAU-LCT treated groups, oxidative stress was ameliorated in LCT induced rat. LCT induced immunological toxicity in rats and remarkable reduction was seen due to administration of TAU as an antidote. In conclusion, all of these findings of the present study strongly suggest the immunoprotective role of TAU against LCT-induced immunotoxicity in rat.

**Key words:** Lambda cyhalothrin; Taurine; Haematological alteration; Cell-mediated immune responses.

**PP- 15**

**“Establishing the mode of action of medicinal plants that have been used as antipyretic, analgesic and anti – inflammatory targeting and deciphering TNF –á signaling cascade:”**

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Overcoming the pain still remains a great challenge to the science. Pain is a fundamental experience characterized by an unpleasant physical perception and corresponding emotional state. Pain is biologically adaptive in that it signals actual or potential tissue damage, which evokes withdrawal and/or recuperative behaviors. Several plant-derived products (the opiates, derived from *Papaver somniferum*, and the salicylates, derived from the *Salix* family, being the most notable) have been used to relieve pain for thousands of years. The current study tries to establish the mode of action of medicinal plants namely *Vitex nigundo*, *Boswellia serrate*, *Curcuma longa*, *Pterocarpus santalinus* using In vitro assays viz albumin denaturing and membrane stability assay. Carrageenan rat paw edema is used as an in vivo assay followed by RT2 PCR arrays to decipher the TNF alpha cascade and hence the mode of action of these medicinal plants. Keywords: albumin denaturing, membrane stability, Carrageenan rat paw edema RT2 PCR arrays

**PP- 16**

**Evaluate the immune system related changes that occur during space flight and combat them by the use of medicinal plants, on ground based studies, in analogue settings**

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One of the key areas correlating space biology and life sciences research lies in understanding the effects of the space environment on human physiology and on gravitational biology in plants and animals. The strategy for achieving that goal as originally enunciated in the 1987 Goldberg report, However, during the past decade there has been an explosion of new scientific understanding catalyzed by advances in molecular and cell biology and genetics, a substantially increased amount of information from flight experiments, and the approach of new opportunities for long-term space-based research on the International Space Station. The current study evaluates the immune related changes that occur during the space flight and combat them using medicinal plants *Acacia catechu*, *Centella asiatica*, *Tinospora cordifolia*, *Trigonella foenum* and *Withania somnifera*. The secondary metabolites of these plants were separated using standard fractionation technique as mentioned in Plant Drug analysis Wagner et.al. A bank of molecules was generated; their immune modulatory activity confirmed by inhibition of histamine release from mast cells, mitogen induced lymphocyte proliferation, inhibition of T cell proliferation and inhibition of dihydro-orotate dehydrogenase. To simulate the space flight ground based analogues studies were carried out by the hind limb unloading mice model and clinostat model.

Keywords: immunomodulation, hind limb unloading mice model, clinostat model.

**PP- 17**

**PREVALENCE OF RISK FACTORS FOR  
CARDIOVASCULAR DISEASES IN JAMMU**

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Cardiovascular diseases (CVDs) are emerging at an alarming scale in Jammu and Kashmir (J&K). The present study is designed to capture data on prevalence of different established risk factors for CVD in Jammu region. For study purpose 400 CVD patients and 400 unrelated healthy controls were enrolled. Coronary artery disease (with double vessel stenosis) and essential hypertension were observed to be more prevalent CVD phenotypes in Jammu region. A significant difference was observed in parameters: TC ( $P < 0.0001$ ), TG ( $P < 0.0001$ ), LDL ( $P = 0.01$ ), HDL ( $P < 0.0001$ ), BMI ( $< 0.0001$ ) & WHR ( $P = 0.008$ ) among patients and controls. The present study disclosed higher prevalence of multiple risk factors associated with CVD profile in individuals of Jammu region.

Keywords: Cardiovascular disease, Jammu, prevalence, risk factor.

**PP- 18**

**Interleukin-1 Beta-31(T/C) promoter polymorphism in the etiology of Preeclampsia**

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Pre-eclampsia is a pregnancy-specific life threatening syndrome with one of the mechanism in its etiology being Th1/Th2 imbalance as normal pregnancy is Th2 biased. IL-1 plays an important role in the initial implantation of fetus. The present study aims to understand the role of IL-1 $\beta$ (-31T/C) polymorphism in a total of 400 samples (including both preeclampsia cases and controls). The genotyping was done by PCR-RFLP method. The statistical analysis revealed a significant association between IL-1 $\beta$ -31 allele.

Keywords: Immune-response; Interleukin; PCR; Preeclampsia

**PP-19**

**Comparison Of Mean Platelet Volume, Platelet Count Total Leucocyte And Neutrophil Counts In Normoglycemics, Impaired Fasting Glucose And Diabetics.**

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This study is aimed to highlight derangements of various blood parameters in Diabetes mellitus compared with controls, in patients presented with increased plasma glucose level.

A cross sectional study done among Normoglycemics, impaired fasting glucose and diabetics patients attending our central laboratory , SIMS Research Center, Bangalore.

Total 248 cases of increased plasma glucose level along with control were subjected to hematological investigations. A statistically significant correlation was seen between rising MPV, Platelet, Total Leukocyte and Neutrophil counts with rising glucose levels, which may co-relate with microvascular complications in Diabetes Mellitus.

Keywords: Diabetes mellitus, Impaired fasting glucose, Mean platelet Volume.

**PP-20**

**Incidence Of Opportunistic Infections (Ois) and Immune Reconstitution Inflammatory Syndrome (Iris) in Study Subjects Attending Government General Hospital, Vijayawada, Andhra Pradesh, India**

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The objective of the present study was to reveal the prevalence of opportunistic infections in both HAART era and Pre - HAART era of HIV/AIDS study subjects attending Government General Hospital, Krishna district, Vijayawada, A.P., India, during April, 2012 to April, 2015.

Krishna district is located at 16°10' N latitude and 81°08' E longitude. To investigate this study, permission from Nodal Officer, from Senior Paediatrician and from authorities of VCTC & ART Centre, Vijayawada was obtained. It was the cross-sectional record-based study. Out of 95 attendees of VCTC; 24 subjects of both genders were in pre-HAART era, 60 subjects of both genders were in HAART era, and remaining 11 subjects died during the study period.

Out of 95 subjects; 24 subjects under were in pre-HAART era and 60 subjects under were in HAART era. Among the pre-HAART era subjects; 8 (33.3%) subjects have suffered from herpes zoster/dermatitis, 7 (29%) from ear discharge (otitis media), 4 (17%) from oral candidiasis/ oesophageal candidiasis, 4 (17%) from pneumonia and only one

(4%) from Bell's palsy. Among the HAART era subjects; 28 (47%) subjects suffered from TB with lymphadenopathy, out of 28 subjects 25 subjects have suffered from Pulmonary TB (PTB) with TB lymphadenitis and pleural effusion, remaining 3 subjects suffered from Extra pulmonary TB (EPTB). Second most common OI found was diarrhoea in 6 (10.0%) subjects, followed by 5 (8.0%) subjects suffered from oral candidiasis/oesophageal candidiasis, 5 (8.0%) subjects from ear discharge (otitis media), 5 (8.0%) subjects from herpes zoster/ dermatitis, 4 (7.0%) subjects from pneumonia, 2 (3.3%) subjects from CMV retinitis, 1 (2.0%) subject from bilateral craniosynostosis and remaining 4 (7.0%) subjects from HIV wasting syndrome. Out of 60 subjects taking HAART, 44 (73.0%) subjects showing immune reconstitution inflammatory syndrome (IRIS) episodes. These included TB-IRIS in 28 (47.0%) subjects, Herpes Zoster-IRIS in 5 (8.0%) subjects, Candidiasis-IRIS in 5 (8.0%) subjects, PCP-IRIS in 4 (7.0%) subjects and CMV-IRIS in 2 (3.0%) subjects under HAART and 16 (27.0%) subjects from the other infections were prevalent.

Thus, the study has revealed the incidence of opportunistic infections in both subjects under pre-HAART era and HAART era. Finally it was found that tuberculosis and dermatitis were the major co-infections of HIV, and most of the subjects 28 (47.0%) suffered from the TB-IRIS.

**Key words:** HIV/AIDS, HAART era, Pre-HAART era, Opportunistic infections, Immune Reconstitution Inflammatory syndrome (IRIS).

**PP- 21**

**Identification of Potential Lead Compounds Against Snake Neurotoxin in Rauvolfia serpentina Through Molecular Docking**

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Snake envenomation is a serious health issue in all over the world. In world Bungarus caeruleus (Indian krait), Naja naja (Indian cobra), Dendroaspis polylepis polylepis (Black mamba), Oxyuranus microlepidotus (Inland taipan) are venomous snakes which cause high rate of mortality and morbidity. Antivenom therapy is the only treatment in modern medicine but it has several limitations including serious side effects to the patients. Most of the snake bite victims still rely on herbal medicine which cause less side effects than the immunotherapy. But its efficacy and mode of drug activities are seldom investigated. In-silico screening is best option to identify the lead compounds and demonstrate the drug activity. The study of neurotoxins performed using various in-silico tools and databases to determine physical and chemical properties, motifs and domain scanning and structural analysis. In the present investigation chemical molecules present in Rauvolfia serpentina were docked with each of four neurotoxic proteins such as Basic phospholipase A2 beta -bungarotoxin A2 chain, Cytotoxin 1, Kunitz – type serine protease inhibitor dendrotoxin E and Basic phospholipase A2 paradoxin – like alpha chain using Hex software. Further, high degree of target specificity makes neurotoxins valuable molecules for drug development viz computer aided drug designing and structural bioinformatics.

**Keywords:** Neurotoxins, Rauvolfia serpentine, In-silico, Docking

**PP-22**

## **ZnO nanoparticles Coated Reusable Menstrual Cups**

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A new approach to menstrual discharge by the cup method was reconsidered especially because of the possibility of infection. However combating external microbial infection there is still remains of microbes which comes out by menstrual fluid. To battle this infection we thought of coating to the cup by Zinc Oxide (ZnO) nanoparticles, which shows excellent antimicrobial activity. Menstrual cups were fabricated by medical grade Silicon, Natural polymer and Thermoplastic elastomer. ZnO nanoparticles were synthesized by Sol Gel Method. While preparing the cup simultaneously ZnO was coated on the surface of cup by Ultrasonication method. Characterization of ZnO by UV-Vis Spectroscopy, XRD and TEM was revealed that those are spherical in shape and their size varied from 40 to 50nm. The trials were conducted to see if their were any contamination in the cups with or without ZnO coating. (3-(4,5-Dimethylethiozole-2-yl)-2,5-diphenyltetrazolium bromidefor) MTT assay revealed that ZnO nanoparticles were not cytotoxic.

**Keyword:** ZnO nano particles, Sol-gel method, U-Vis Spectroscopy and MTT assay Test.

**PP-23**

**Yagya-Therapy: A new hope for alternate medicine system**

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At the present time, many ancient traditional medicine systems again come back in trend to take care of population. Yagya-Therapy is one of these ancient traditional treatment methods to treat the diseases. In ancient time, Yagya performed by the rishis to related with religious prospects and for treatment. The Yagya loses its medicinal importance by passing of time and has been performed only for religious aspects. In last few years, many research work done in the field of medicinal herbs and method to use these herbs for treatment of various health related problems of population. Yagyopathy or Yagya-Therapy is an ethno-botanical therapy derived from the ancient medical science of India and Vedic texts, in which therapy uses the herbal/medicinal plant for treatment. In Yagya-Therapy, based on principle of inhalation therapy, patients inhale the medicinal vapours, gases and phytochemicals that are released by natural herbal/plant products after processed in fire. Yagya-therapy promises wider healing applications without any risk, side effects or drug-resistance. It is cost effective, eco-friendly and provide added benefits of purifying the environment and balancing the eco-system.

**Keywords:** Yagya-therapy, Medicinal herbs, Ethno-botanical, Inhalation.

**PP-24**

**In vitro synergy of Carbapenems with *Belladonna 3c* against *Staphylococcus aureus***

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Due to increasing global antimicrobial drug resistance against different bacteria, it is essential to search whether alternative medicine can play some role in this situation. In this study we explored *Belladonna 3c* – a commonly used homoeopathic medicine in Staphylococcal infections to observe its in vitro activity and synergy with life saving antimicrobial Carbapenem namely Meropenem and Imipenem against *Staphylococcus aureus* (ATCC). A Kirby-Bauer protocol was followed in this experiment with *Staphylococcus aureus* (ATCC) and Carbapenems followed by application of *Belladonna 3c* culture discs along with them in similar experiment sets. Control studies were also done with the vehicle and the *Belladonna 3c* directly showed increased sensitivity zone in comparison to control vehicle and it showed synergy with Meropenem and Imipenem against *Staphylococcus aureus*.

**Key Words** – Staphylococcal infection, *Belladonna*, antimicrobial drug resistance, synergy

**PP-25**

**Association of TGF- $\alpha$ 1 and TGF- $\alpha$ R2 expression in esophageal cancer patients from Northeast India.**

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TGF- $\alpha$ 1 and TGF- $\alpha$ R2 are key regulators of the transforming growth factor  $\alpha$  (TGF- $\alpha$ ) signalling pathway. The importance of the TGF- $\alpha$  signaling pathway in cancer has been reported in numerous studies.

Real time qPCR was done to evaluate the mRNA expressions of TGF- $\alpha$ 1 and TGF- $\alpha$ R2 genes in 30 different esophageal cancer (EC) patients in comparison to 20 healthy controls. We also analyzed the association of their expression profile with different life style factors and clinicopathological parameters.

Expression of TGF- $\alpha$ 1 gene in human esophageal cancer, showed upregulation (Mean fold change  $2.59 \pm 3.53$  for blood samples and  $2.37 \pm 1.37$  for tissue samples ) and expression of TGF- $\alpha$ R2 showed downregulation (Mean fold change  $0.62 \pm 0.61$  for blood samples and  $0.62 \pm 0.68$  for tissue samples ). Habit of consumption of betel nut, difference in gender and histopathology grade showed significant difference ( $p < 0.05$ ) with the change in the expression of TGF- $\alpha$ 1. While analyzing TGF- $\alpha$ R2 expression, habit of consumption of betel nut, alcohol and difference in gender showed significant difference.

Altered expression of TGF- $\alpha$ 1 and TGF- $\alpha$ R2 may be correlated with tumor progression in EC patients. Habit of consumption of betel nut, alcohol, difference in gender and histopathology grade may have some association with the change in the expression of the studied genes in EC patients.

Keywords: TGF- $\alpha$ 1, TGF- $\alpha$ R2, TGF- $\alpha$ 1 signalling pathway, esophageal cancer.

**PP-26**

**Smartphone Usage and its Association With Stress Related  
Bruxism, Temporomandibular Joint Disorder Among Dental  
Tutees- An Analytical Investigation in Chennai, India**

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Smartphone addiction can cause stress which can invariably lead to clenching or grinding of teeth and Temporomandibular disorder.

121 Dental students were selected by convenience sampling. A self-administered pre-tested questionnaire was filled by the participants and a clinical examination was conducted for Bruxism and Temporomandibular disorder. Statistics was done using SPSS version 23.0.

90 (74.4%) felt stressful when unable to use their Smartphone. A significant p value was obtained while assessing the association between stress and bruxism.

Using smartphones should not become an addiction but can be a boon in life if used appropriately.

**Keywords:** Smartphone, Addiction, Students, Bruxism, Temporomandibular joint.

**PP-27**

**Biochemical and pharmaceutical study of some Ayurvedic  
Biosalts isolated from medicinal plants.**

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Ayurvedic herbal biosalts which are inorganic in nature are the water soluble component of the white ashes of the burnt medicinal plants possessing excellent medicinal properties. They are isolated from the medicinal plants by adapting the traditional procedure.

All the biosalts constitute the important class of Ayurvedic drugs whose chemical, pharmaceutical and medical investigations using modern scientific technique is an unexplored and interesting area for advanced research. Our multidisciplinary group is working in this area since past many years.

This communication is part of extensive project on isolation characterization and pharmaceutical investigations in which five medicinal plants are selected.

**Key Words:** Biosalts, Biochemical and pharmaceutical Study.

**PP-28**

**Occupational Health Associated with Postural Assessment of Women Workers in Small Tea Plantations of Meghalaya, India**

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The nature of activity mostly involved by women workers in small tea plantation in awkward postures and repetitive monotonous job working resulted in pain, work load and severity of pain were assessed using Workplace Ergonomics Risk Assessment and Posture Assessment using Ergo Master for a sample of 40 women workers involved in tea plucking and weeding activities to draw the results of the study. Results indicated that work related musculoskeletal problems and disorders affect mostly upper extremities in tea plucking activity and lower body region for weeding activity.

**Keywords:** nature of activity, workload, awkward postures, WERA.

**PP-29**

**Effect of gender and socio-economic status on cognitive Performance**

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Cognitive development is affected by a number of social and environmental variables that interact with the child's genetic inheritance in complex ways that are not yet fully understood. A relevant social variable could be socioeconomic status. The present study investigated the effect of gender variation and socio-economic status on cognitive performance evaluated by measurement of heart rate variability and NASA-TLX questionnaire on a group of male and female college students with variable socio-economic status. Results of the study showed that family income and educational background of parents affect whereas gender variation does not affect cognitive performance of college students.

**Key words:** Cognitive performance, gender variation, socio-economic status, heart rate variability & NASA-TLX.

**PP- 30**

## **Type 2 Diabetes Mellitus: The Role of Oxidative stress and Antioxidants**

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Diabetes mellitus is a group of metabolic disease characterized by hyperglycemia. Oxidative stress contributes to the pathogenesis of diabetic microvascular and macrovascular complications. This study was undertaken to find the oxidative stress and antioxidant conditions in diabetic and healthy individuals.

A case-control study carried out at Kantipur Dental College Teaching hospital & Research center, Kathmandu, Nepal from January, 2018 to January, 2019. A total of 200 subjects were selected in this study. Among them 100 were diagnosed as diabetic individuals and rest 100 were healthy controls with age and gender matched. Blood samples were drawn after overnight fasting for the analysis of glucose, thiobarbituric acid reactive substances (TBARS), lipid hydroperoxides, nitric oxide, total antioxidant activity, vitamin A, vitamin C, vitamin E, reduced glutathione, glutathione peroxidase, superoxidase and catalase.

The plasma glucose, lipid peroxidation parameters: TBARS, lipid hydroperoxide and nitric oxide were increased in diabetic patients. Antioxidants markers including total antioxidant activity, reduced glutathione, vitamins A, C & E levels were significantly decreased in diabetic patients compared to healthy control counterpart.

Increasing evidence of free radicals/ oxidative stress with respect to decreased levels of antioxidants has implicated a strong role in progression of diabetes and its associated complications. Proper medications with antioxidants supplementation, physical exercise, and restricted diet can improve diabetes through the reduction of oxidative stress.

**Keywords:** Diabetes mellitus, free radicals, oxidative stress, antioxidant, vitamin

**PP-31**

**Drug yielding – *Cissus quadrangularis* (wall)**

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*Cissus* belongs to order Rhamnales and family *Vitaceae* in plant group Dicotyledonous. In Hindi this is known as Harjori or Harjor. Plant is edible stemmed vine. Root, stem and leaves are used as drug in Ayurvedic medicinal system. Plants is tendril climber, stem quadrangular, green with distinct articulate node and enters nodes, tendrils at nodes, opposite simple leaves are ovate and dentate, flowers greenish white in branched cyme. Edible parts are tasteless and mucilaginous. Many chemical constituents are already reported and their results were useful in various diseases but in this study only external use in case of bone fracture is considered. Since last three years.

**PP-32**

**Modulation of Reproductive Behaviour of Albino Rat with  
Aqueous leaf Extract of Plant Medicine *Azadirachta indica* (Neem)**

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thee economical plant medicine in fertility control of our vest population.

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Utilization of natural sources for sustainable development of new therapies for modern fertility control technology and search after reproductive function modulatory agent in plant medicine is thrust area of dynamic research.

Knowing the valuable effect of *Azadirachata indica* (Neem) seeds and leaves extract on reproductive function, aim of he present project to study the probability of finding non toxic potency of indigenous agent for contributing beneficial effect on albino rat model. For this purpose change of morphology of gorvad oestrous cycle, corpusleuteum count in females, sperm count & motility in male and reproductive hormone, enzyme level and mating behaviour were investigated.

The result of these observation may throw some light on therapeutic rationales for the use of thee economical plant medicine in fertility control of our vest population.

Key words : *A. indica* – Reproductive modulation – Albino rat

**PP-33**

**Analysis Of Vitamin-D Receptor Gene Polymorphism In South Indian Women Indian Women With Polycystic Ovary Syndrome**

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Polycystic ovary syndrome (PCOS) is the most common endocrine disorder of reproductive age women. Emerging evidence suggests that Vitamin D Receptor (VDR) might be a causal factor for characteristics associated with PCOS such as obesity and type 2 diabetes. Present study investigated association between VDR gene BsmI A/G (rs1544410), ApaI A/C (rs7975232) and TaqI T/C (rs731236) single nucleotide polymorphisms and PCOS risk in South Indian women. Genotyping of VDR gene SNPs was carried out in PCOS patients (n=95) and controls (n=130) by PCR-RFLP method and confirmed by sequencing analysis. Haplotype frequencies for multiple loci and the standardized disequilibrium coefficient (D<sub>0</sub>) for pairwise linkage disequilibrium (LD) were assessed by Haploview software. Results showed significantly increased frequencies of BsmI G/G (p=0.0197), ApaI C/C (p=0.048), TaqI C/C (p=0.044) genotypes and BsmI G (p=0.0181), ApaI C (p=0.0092), TaqI C (p=0.0066) alleles in patients compared to controls. In addition, the frequency of the 'BsmI G, ApaI C, TaqI C' haplotype was also significantly elevated in patients (p=0.0087). In conclusion, the VDR gene BsmI A/G ApaI A/C TaqI T/C and haplotype may constitute an inheritable risk factor for PCOS in South Indian women.

Key words: PCOS, VDR gene, SNP's, PCR-RFLP method.

**PP-34**

**Effect Of Ayurvedic Lifestyle And Therapeutic Interventions In Management Of Rickets- A Retrospective Case Series Analysis**

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Micronutrient deficiency remains in epidemic proportions all over the Indian subcontinent with a prevalence of 70% to 100% in general population. Biomedical sciences view rickets as deficiency without enquiring the exact reason for it, even in children with sufficient nutritional intake. Ayurveda views this deficiency as an error in the *agni*(digestive fire) either at the level of *koshta*(gut health) or in *dhatu* by errant life style, environmental and other reasons. Rickets are now a days a common case in usual OPD of Ayurvedic practitioners. This study is a retrospective analysis of the impact of Ayurvedic intervention consisting of medicines , procedure based therapies, and life style modifications, in 32 children attended in OPD and IPD of VPSV Ayurveda college, kottakkal during the period of 2014-2016.

Diagnosis of rickets were made on the basis of clinical, biochemical & radiological parameters. *shamana* treatments either in form of internal medications or procedure based therapies in hospitals were continuously made for 6 months. Assessments were made before starting treatment and after 6 months of treatment. The radiological features

cupping, fraying, wedging were assessed by visual analogue scale later classified as mild moderate severe and nil. Serum alkaline phosphatase levels and symptoms of RURTI were also assessed

A highly significant reduction was observed in radiological as well as biochemical parameters studied ( $P < 0.001$ ).

Ayurveda considers nutritional deficiencies as *Agnimandya*, if the child is provided with sufficient quantity and quality of food. Ayurvedic methodology of life style intervention along with medicaments and procedure based therapy are assumed to have significant positive impacts for improvement of rickets in children.

Keywords: Rickets, *agnimandya*, micronutrient deficiency, gut health

**PP-35**

**Estrogen Receptor- $\beta$  (rs3020449C/T) Promoter polymorphism in the Etiopathology of Uterine Leiomyomas**

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Estrogen receptor beta exerts antiproliferative and apoptotic effects in different tissues and regulates the growth of uterine leiomyomas. Leiomyomas are benign pelvic myometrial neoplasms of uterus. The present study conducted with 100 clinically, ultrasonographically confirmed patients and 100 healthy women without any gynaecological issues to investigate the association of rs3020449C/T promoter polymorphism in ER $\beta$  gene with leiomyoma risk in Telangana population. Genotype and allelic frequencies revealed an increased risk of TT genotype and T allele when compared to CC genotype and C allele in UL cases than in controls thus, highlighting the role of ER $\beta$  in the etiology of leiomyomas.

Keywords: Uterine Leiomyomas, Estrogens, Myometrium, Proliferation, Neoplasms, Pathology,

**PP-36**

## **Changing Trends In Bacterial Isolates And Antibiogram Of *Salmonella* Species**

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With timely diagnosis and treatment of enteric fever mortality may be reduced but, inappropriate antibiotics use leads to multidrug resistance. 319 *Salmonella* isolates from blood samples analysed. 52.4% *Salmonella typhi* and 47.6% *Salmonella paratyphi-A*. Most were isolated during monsoon months, among 1-30 years and males. Isolates were highly susceptible to chloramphenicol followed by third generation cephalosporins, cotrimoxazole & ampicillin. Resistance to nalidixic acid and ciprofloxacin was high. *S. typhi* MDR was 1.7%. *S. typhi* and *S. paratyphi-A* isolated in equal proportion and more prevalent in younger age. To adopt bivalent vaccination in immunization schedule. Cephalosporins still remain treatment of choice.

Keywords: *Salmonella* Species, Antibiogram, MDR.

**PP-37**

**Designing A New Therapy For Treatment Of Age Related  
Macular Degeneration: *In Silico* Study**

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**Key Words:** Age Related Macular Degeneration, Antioxidants, Molecular Docking

Age Related Macular Degeneration (AMD) is the most common cause of permanent visual loss in the elderly with no specific management till date. This paper reports suitable antioxidants-Glutathione (GSH) and Alpha Lipoic Acid (ALA) to combat AMD. The study analyzes their viability by molecular docking studies, the pharmacokinetic parameters and finally comparing it with the current protocol recommended under Age Related Eye Disease Study (AREDS). The chosen antioxidants have comparable docking capabilities with ALA (with a docking score of -31.86) being more effective than most of the standard AREDS2 components, and safer alternatives (0 Lipinski violations). Results obtained from Swiss-ADME web tool showed that ALA has the better bioavailability than components of AREDS2. Thus, the introduction of GSH and ALA as new molecular entities for treatment of AMD would be beneficial for both its antioxidant activity and abilities to bind proteins responsible for blood vessel proliferation.

**PP-38**

## **Computational Intelligence Towards Predictive Risk Analysis in Liver Transplant Patients**

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Keywords — Healthcare, predictive analytics, decision support system, liver transplant, data analytics, prediction, risk

Computational Intelligence has been a key player in the domain of healthcare paradigms and has generated phenomenal ripples in multifarious areas of medical science.

Obtaining better insights and proffering better treatment to the patients have always been the primary motives behind incorporating computational intelligence and machine learning in healthcare analytics. This work is based on a National Liver Transplantation Program, where computational intelligence has been applied to analyze efficiently the patients, followed by separating the cohort into different clusters based on their corresponding risks in a predictive pre-transplant perspective. This leads to the development of a Clinical Decision Support Systems in liver transplantation, aimed at assisting the medical personnel to determine the risks of the patient cohort and act accordingly, backed by the holistic visualization of the cohort risk clusters.

Keywords — Healthcare, predictive analytics, decision support system, liver transplant, data analytics, prediction, risk

**PP-39**

**Chrysin Attenuates Chronic Unpredictable Mild Stress Induced Changes In Behavior, Inflammation And Improves Dopaminergic, Serotonergic Function**

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Chronic stress is one of the predominant etiological factor which evoke molecular alterations in the brain lead to development of depressive disorder. In the present study, we investigated the effect of Chrysin on chronic unpredictable mild stress (CUMS) induced changes in behaviors, dopaminergic and serotonergic function, and inflammation in brain. Randomly, mice were divided into four groups of six animals in each group. On 28<sup>th</sup> day after assessing behavioural parameters, brain biochemical markers were assessed. From the results, it is concluded that the Chrysin protects the brain cells from CUMS induced molecular changes by attenuation of inflammation and oxidative stress.

Key Words: Chrysin, CUMS, Depression, Inflammation

**PP-40**

**Impact of Socio-economic Status on Motion Stereotype of Adults Females**

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Motion stereotypes are generally influenced by the conditioned reflexes. They are basically the repetitive motion exerted by the human being against a stimulus. The present study was conducted to evaluate the impact of socioeconomic status on motion stereotypic responses of the adult female subjects. To study the motion stereotypic responses of the subjects some analog and digital control-display units were fabricated. Randomly selected adult females (n=2628) subjects of the present study were classified into four socioeconomic groups according to modified Socio-economic scale suggested by B. G Prasad. Informed consent was taken from the subjects prior to the study.

The results revealed that the majority (41.02%) of the subjects of the present study was from lower middle class and only 8.37% subjects were from upper class. From the results it was noted that there was a significant ( $P < 0.01$  or less) association between the socioeconomic status and stereotype strength. The mean response initiation time was significantly different among the four social classes found in the study and it was also noted that the subjects of upper class had the shortest response initiation time while the lower middle class had the longest. The Index of reversibility was also found to be different for each social class.

So, it may be concluded from this study that socioeconomic status has predominant impact on motion stereotypic responses of the adult females.

**Key word:** adult female, socioeconomic status, motion stereotype.

**PP-41**

**Evaluation of postural stress of carpenters in relation to their work pattern**

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Vidyasagar University, Midnapore

The wooden culture in India is as old as the Indus Valley Civilization. The carpenters are engaged in the wood work. As they are belonging to the unorganized sector their socioeconomic status is poor and they are exposed to physiological and environmental stresses. As a result they suffer from work related musculoskeletal problems. The carpenters are required to do major tasks, e.g, sawing, planning and chiseling for making wooden furniture using different hand tools. The aim of the present study was to evaluate the musculoskeletal problems and postural stresses in their workstation. The Musculoskeletal problems of the carpenters were evaluated by employing Nordic questionnaire method during executing different carpentry tasks. The postural analysis was made by OWAS, RULA and, REBA methods and the pattern of the work posture was determined by video photographic method. It was observed that the carpenters had to adopt different inappropriate work postures during executing different task of carpentry. From the analysis of postural pattern it was noted that the carpenters were compelled to work in strenuous posture in most of their work time. They adopted forward bending posture in sitting with folded leg condition for about 85% of the total work time in case chiseling, in erect condition 74% of the work time in case of planning and in erect condition with one leg lifted for 86% of the time during sawing. From the analysis of postural stress by OWAS, REBA and RULA methods it was noted that the risk level of the work posture was very high and corrective measures were needed as soon as possible. The prevalence of musculoskeletal problems of the carpenters was high in lower back, shoulder and arms. It was concluded that the carpenters were exposed to high postural stress which lead to occurrence of musculoskeletal problems.

Key words: Postural stress, carpenter, MSD

**PP-42**

## **Molecular Docking Analysis of Sesquiterpenes as HIV-1 Entry Inhibitors Targeting Gp41 Pocket**

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Gp41 and its conserved hydrophobic groove on the NHR region is one of the attractive targets in the design of HIV-1 entry inhibitory agents. This hydrophobic pocket is very critical for the progression of HIV and host cell fusion. Our molecular docking have identified one such herbal molecule sesquiterpenes that may bind HIV-1 Entry Inhibitors Targeting gp41 with high affinity to cause non-competitive inhibition. Results are also compared with other US FDA approved drugs. Docking study suggest that the ligand cyclozaronone has high binding energy (-9.48) compare to other sesquiterpenes ligands -9.43, -9.26, -8.54, -9.28, -7.46, -7.29, -8.13, -8.61, -7.28, -7.29 respectively and ligand sesquiterpenes has strong binding interactions with GLN, ASN amino acids, all of which belong to one or the other catalytic pockets of HIV-1 gp 41. It is expected that these binding energy and binding interaction could be critical in the inhibitory activity of the HIV-1 gp41. Therefore, this study provides an evidence for consideration of cyclozaronone as a valuable natural molecule in the treatment and prevention of HIV- 1 Entry Inhibitors targeting gp41.

**Key Words:** Sesquiterpenes, Cyclozaronone, Gp41, HIV-1

**PP-43**

**Variations in Age and Gender based on Ocular characteristics: A  
Cross-Sectional Study in Nagpur Region of India**

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Cataract is the key cause of blindness in the world touching around 18 million people<sup>1</sup>. We investigated age and gender with ocular characteristics.

We prospectively studied 154 subjects. Statistical Analyses were conducted using R and MATLAB.

We demonstrated that age was highly statistically significant for patients with Glasses, Pseudophakia, Presbyopia, Myopia, and Cataract while the gender was not, with a larger proportion of females among the subjects.

This study can provide the initial normative data for ocular characteristics and help in planning and improving the quality of surgical outcomes particularly in rural India.

Keywords: Age-related cataract, Blindness, Pseudophakia, Intraocular Lens, Ophthalmology, Cataract

**PP-44**

***In silico* Molecular Docking Studies of meroditerpenoids  
against FOXO1**

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In spite of the global occurrence of type-2 diabetes mellitus (T2DM) infection and lack of auspicious treatment for Diabetes patients, there are only a few drugs accepted for the managing of infected patients. The objective of this study is the evaluation of Meroditerpenoid compounds for anti-T2DM activity. *In silico* anti-T2DM lead prioritization was performed on a set of known compounds from *Styopodium flabelliforme*. The energy minimized structures of these molecules were docked into FOXO1. Docking experiments were done using Autodock software for nine compounds docking with FOXO1. In the present study, 9 compounds (Atomarianone-A, flabellinol, flabellinone, Isoepitaondiol, stypodiol, stypoldione, stypoquinonic-acid, stypotriol, taondiol.) were docked into FOXO1 and out of nine, one compound, Flabellinol indicated high binding score (-8.41 kcal/mol) and the residues SER:205,212 TRP:160,209 PHE:197 LYS:200 TYR:165,196 GLY:208 ASN:158 were might play important roles in binding with these compound.

Keywords: Docking, FOXO1, *Styopodium flabelliforme*, Diabetes mellitus.

**PP-45**

**Type 2 Diabetes Mellitus: The Role of Oxidative stress  
and Antioxidants**

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Diabetes mellitus is a group of metabolic disease characterized by hyperglycemia. Oxidative stress contributes to the pathogenesis of diabetic microvascular and macrovascular complications.

This study was undertaken to find the oxidative stress and antioxidant conditions in diabetic and healthy individuals.

A case-control study carried out at Kantipur Dental College Teaching hospital & Research center, Kathmandu, Nepal from January, 2018 to January, 2019. A total of 200 subjects were selected in this study. Among them 100 were diagnosed as diabetic individuals and rest 100 were healthy controls with age and gender matched. Blood samples were drawn after overnight fasting for the analysis of glucose, thiobarbituric acid reactive substances (TBARS), lipid hydroperoxides, nitric oxide, total antioxidant activity, vitamin A, vitamin C, vitamin E, reduced glutathione, glutathione peroxidase, superoxidase and catalase.

The plasma glucose, lipid peroxidation parameters: TBARS, lipid hydroperoxide and nitric oxide were increased in diabetic patients. Antioxidants markers including total antioxidant activity, reduced glutathione, vitamins A, C & E levels were significantly decreased in diabetic patients compared to healthy control counterpart.

*Section XI : Medical Sciences (including Physiology)*

Increasing evidence of free radicals/ oxidative stress with respect to decreased levels of antioxidants has implicated a strong role in progression of diabetes and its associated complications. Proper medications with antioxidants supplementation, physical exercise, and restricted diet can improve diabetes through the reduction of oxidative stress.

**Keywords:** Diabetes mellitus, free radicals, oxidative stress, antioxidant, vitamin

**PP-46**

**Association between cardio respiratory fitness, physical fitness and components of metabolic syndrome in young tribal and non-tribal population of Tripura**

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The purpose of the study was to examine the association of cardio respiratory fitness and physical fitness with components of metabolic syndrome (MetS) in young tribal and non-tribal population of Tripura.

Research Design and Methodology: The study included 183 young males, out of which 78 were tribal and 105 were from non-tribal background and 164 young females, out of which 75 were tribal and 89 were from non-tribal background (age 18 to 25 years) from Tripura, a North Eastern state of India. Cardio respiratory fitness and physical fitness index of the subjects were evaluated by Queen's college step test and Harvard's step test respectively. Metabolic risk of the subjects was evaluated according to National Cholesterol Education Programme Adult Treatment Panel III [NCEP ATP III] criteria.

24.04% of total male and 23.78% of total female subjects including tribal and non-tribal background showed profound metabolic risk with the presence of three or more risk components. The most prevalent metabolic risk component identified in both male and female subjects was central obesity and triglyceride level. All the traditional metabolic risk factors in both tribal and non-tribal subjects correlated with cardio respiratory fitness and physical fitness of the subjects.

Increased cardio respiratory fitness and physical fitness provides protection against metabolic syndrome in young adult subjects irrespective of sex and ethnicity.

**Key words:** Cardiorespiratory fitness, physical fitness, metabolic syndrome

PP-47

### **Molecular characterization of Integrin (INT) cDNA in sheep uterine endometrium**

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Integrins (INT), adhesion molecules present in uterine endometrial and decidual cells play a crucial role in adhesion and implantation in livestock. The present study was designed to clone and characterize INT cDNA in sheep endometrium. Total RNA was isolated from sheep endometrium and was reverse transcribed using Superscript III first strand synthesis kit to synthesize cDNA and amplified by *Taq* DNA polymerase. The amplified 261 bp INT cDNA product were gel purified and were ligated into pDrive cloning vector. The ligated product was transformed into DH<sub>5a</sub> *E. coli* competent cell. The transformed cells were then allowed to grow in LB plate at 37°C for overnight. The white positive colony were selected and subcultured in LB broth containing ampicillin and plasmids were isolated and digested by suitable restriction enzymes to release the insert for confirmation of the recombinants and the positive clones were sequenced. The sequence of sheep integrin revealed >93% and 94% identity with the corresponding mammalian homologs at nucleotide and amino acid level, respectively. Phylograms constructed on the basis of INT nucleotide sequence and inferred amino acid sequence from various species showed that cattle, buffalo, sheep, goat, human, camel and pig comprise one clade and horse represent an entirely different clade. It can be concluded that the amplified cDNA and deduced amino acid sequence of sheep integrin is conserved across the ruminant species.

Keywords: Implantation, INT, uterine endometrium, buffalo

**PP-48**

**Medicinal plant *Cephalandra indica* and its medicinal Applications on diabetes mellitus**

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Nowadays, it is one of the leading causes of morbidity and mortality because Diabetes mellitus causes secondary physiological changes in the multiple organ system. The complications of Diabetes Mellitus are adult blindness; non-traumatic lower extremity amputations, end stage renal disease, neuropathy and retinopathy etc. In the coming days it is presumed to be increasing day by day due to an increase in factors contributing to hyperglycemia, which may include dietetic irregularities, metabolic dysfunction, lack of exercise, stress, and busy lifestyle. As concerned about the cure of Diabetes Mellitus, it could be possible in the early stages but we can at least assure to give prolonged life to a diabetes.

*Cephalandra indica* is extensively used as vegetable and grown widely throughout India. *Cephalandra* plant has been used in traditional medicine as a household remedy for various diseases, including bile disorders, anorexia, cough, diabetic wounds, hepatic disorders. For the last few decades, some extensive work has been done to establish the biological activities and pharmacological actions of *Cephalandra indica* and its extracts. Polyprenol (C60-polyprenol (1) is the main yellow bioactive component. Majumder PM, Sasmal & Nambi RA, Antiulcerogenic and Antioxidant effect of *Cephalandra indica* (Linn.) Voigt leaves on Publication RefNo.: IJPRD/2010/PUB/ARTI/VOV-2/ISSUE-9/NOV/014 ISSN 0974–9446 International Journal of Pharma Research and Development – Online [www.ijprd.com](http://www.ijprd.com) 98 aspirin-induced gastric ulcer in rates J of Natural Product Radiance, 7 (2008) 15-18. For the last few decades, some extensive work has been done to establish the biological activities and pharmacological actions of *cephalandra indica* and its extracts. Polyprenol (C60-polyprenol (1) is the main yellow bioactive component of has been shown to have a antidyslipidemic of biological actions. Shibib B A, Khan LA & Rahman R, Hypoglycaemic activity of *Cephalandra indica*.

**Key words:** 1. Diabetes mellitus. 2. hypoglycemia. 3. glucose-6-phosphatase. 4. polyprenol. 5. hyperglycemia.

**PP-49**

**Effect of Mobile Phone Radiation on Male Reproductive System of Swiss Albino Mice and the Supplementary Action of High Casein Diet**

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Nowadays, mobile phones have become a prime necessity. Presently, various advance networking like 3G, 4G connections are available in the market to get a faster and efficient service. But these mobile phones emit harmful electromagnetic radiation which has various ill effects on the different physiological systems. According to a survey carried out in 2018, in India, total 69.2 million people are affected by Diabetes mellitus. The present study has been done to find out whether mobile phone radiation has any role in male reproductive system of Swiss Albino mice or not and whether high casein diet has any ameliorative effects.

Male Swiss Albino mice were exposed to 2100 MHz frequencies of electromagnetic radiation emitted from 4G mobile handsets (3hours daily for 3 months). Damages were seen in the testicular tissue by histological studies, morphological damages of sperm cells were also observed in scanning electron microscopy, decreased number of sperm motility (progressive and non progressive), viability and total sperm count were also observed in the animals exposed to mobile phone radiation. Sign of recovery were seen in the animals supplemented with high casein diet.

Key words: High casein diet, Electromagnetic waves, Apoptosis, Spermatogenesis, Testis, Male reproductive system

**PP-50**

**RESILIENCE OF PHOTOSYNTHATES ON MOLECULAR  
LIFE LINE OF CELLS**

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The effects of lutein and zeatin of leaf on the viability of normal and neoplastic cells was studied. There were no immediate negative or toxic effects in terms of cell attachment, cell proliferation, cell survival, cytoskeletal organization, and cellular growth by treatment with zeatin concentrations. The presence of zeatin resulted in the prevention of cell enlargement, reduction of intracellular debris, prevention of actin polymerization, and enhancement of cellular ability to decompose hydrogen peroxide and to cope with ethanol and oxidative stresses. The concentration 40 $\mu$ M, 80 $\mu$ M, and 200 $\mu$ M of zeatin and lutein effects was found. The oral administration significantly increased the activity of catalase, peroxide dismutase, glutathione reductase and glutathione in blood and liver while the activity of glutathione peroxidase and glutathione-S-transferase found to be increased in the liver tissue. The inhibition of superoxide generation in macrophages resulted. It induces the reduction of degenerative diseases.

Key Words : Lutein, Zeatin, oxidative stress, macrophases, degenerative.

**PP-51**

**Neuroinflammation and Cognitive Impairments in ICV Streptozotocin Induced Rat Model of Alzheimer 's disease.**

**Nicky Singh, Rupsa Ghosh, Pritha Gupta and Tusharkanti Ghosh\***

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Alzheimer's disease is a progressive neurodegenerative disorder characterized by memory impairment. Neuroinflammation with the overexpression of cytokines is a characteristic feature of AD. The cognitive impairments in AD may be linked with neuroinflammation in brain. Intracerebroventricular (ICV) streptozotocin (STZ) injected rat model of experimental AD (STZAD) is a well-established and widely accepted rat model of sporadic Alzheimer's disease. The present study investigates the neuroinflammation and memory impairments in STZAD rats in two time points after STZ injection. The male albino rats (Charles-Foster strain) were grouped as control, sham operated and STZAD rats. The cognitive parameters (working memory error, reference memory error, latency to enter first baited arm and latency to enter all four baited arms in Radial Arm maze) and inflammatory markers (TNF $\alpha$ , IL1 $\beta$ , iNOS, PGE2, COX2, ROS and nitrite) in hippocampus were measured after 7 days and 21 days of ICV STZ injection in rats. In STZ-AD rats, working memory error, reference memory error, latency to enter first baited arm and latency to enter all four baited arms in Radial Arm maze were increased from that of control and sham operated rats in 21 days and 7 days study, but in 7 days study the magnitudes were lesser than 21 days study. In 21 days study hippocampal levels of TNF $\alpha$ , IL1 $\beta$ , ROS, nitrite and iNOS were increased in STZ-AD rats. PGE2 and cox2 were not elevated in these rats. In 7 days study, the hippocampal level of TNF $\alpha$ , IL1 $\beta$ , ROS and nitrite were increased in STZ-AD rats. PGE2 and cox2 and iNOS were not elevated in these rats. It appears from these two time duration studies that the neuroinflammation and cognitive impairments in STZAD are probably linked.

Keywords-Alzheimer's disease, memory impairment, inflammatory markers

**PP-52**

**Circadian Rhythms of Melatonin, Core Body Temperature and Heart Rate in altered photoperiodic condition in Antarctica**

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Circadian rhythms in humans are changes in the physiological systems that occur within a 24 hour period. In a normal light and dark cycle of 24 hour, melatonin show higher night-time and lower daytime levels, core body temperature (CBT) and heart rate (HR) increases in the daytime and decreases at night. The present study investigated the effect of altered photoperiodic condition on circadian rhythm patterns of melatonin, CBT and HR for 12 months on winter-over members of 24 Indian Scientific Expedition to Antarctica. Results of the study showed phase delay in melatonin, CBT and HR rhythm during dark winter months.

Keywords: Circadian, melatonin, core body temperature, heart rate & Antarctica.

**PP-53**

**Chemical Poisoning Induced Suicidal Death Cases: The Challenges In Clinical And Legal Medicine Jurisprudence**

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The forensic pathology examinations deal with the subjects of unnatural death cases followed by the chemical and toxicological analysis and others maintained in a cascade of chain of custodial jurisdictions. This study delineates the problems of preventive, therapeutic, investigative and prospective prosecution in suicidal poisoning cases on different factors of the resolving modes and statuses. The cause of death in suicidal, homicidal and accidental chemical poisoning case events are ascertained in medico legal and subsequent forensic analysis. A total of 209 autopsy cases were accounted at Tox-Lab for eight months study with subjects of 15-71Y age using different sets of experiments. The Medical forensic analysis revealed the use of paraquat, endosulfan, organo-phosphates, cartap and phosphides etc. from viscera and blood, (n=149, p<0.01) in the cases. The challenges and problems of both rural and urban areas are recorded in detail and the necessary measures are recommended. The economic instability, greed, mental abnormality and conflicts in family structures, illegal relationships and extramarital love affairs etc. are the prime factor causing unnatural death, as observed. The maintenance of emergency medicine & PCC, awareness generation and counseling and social control may save many lives.

Key words: forensic toxicology, psychology, psychiatry, drug addiction, alcohol.

**PP-54**

**Comparative Study of Calcium based Ayurvedic Drug egg shell bhasma and its contemporary Ca based ayurvedic drugs.**

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During recent years drugs of animal origin also becoming more and more important due to its merits and advantages.

Egg shell bhasma derived from hen's egg shell powder is one of the interesting ayurvedic drug which has created special attraction in all fields of modern medicines and pharmacy which is the subject of current interest.

Why egg shell bhasma has created special interest? Tons of egg shells are disposed everyday in land fields which contains substantial Calcium along with polymeric portenious organic matrix and several trace inorganic constituents including Sulphur.

Egg shell bhasma prepared from hens egg shell powder by following strictly the process of ayurvedic bhasmikanana which is relatively very easy and simple.

Calcium available from egg shell bhasma is easily assumable and absorbable in human body.

This calcium is having its biological origin is more effective than synthetic/mineral calcium.

The huge raw material produced daily in the form of egg shells may be consumed in large quantities for medical purpose which will prevent environmental pollution therefore such a utilization of egg shells will be a novel project belonging to green chemistry.

According to ayurved pharmacy, the medicinal potency, utility and versatility can be significantly enhanced by skilful, modification in ayurvedic process of bhasmikanana by using different herbal acidic media.

This involves three major steps. (a) Purification of egg shell powder (b) its conversion into microscopic powder followed by triturating this powder with selected plant juices providing acidic media. (c) Transformation of this triturated material into bhasma state through repeated calcinations.

In the present work egg shell bhasma is prepared by following standard procedures, four different acidic media including lemon juice, buttermilk, sorrel leaves and tamarind juice.

The synthesized egg shell bhasma is characterized chemically as well as structurally by using modern instrumental techniques like E-DAX, XRD, SEM, IR and UV spectroscopy. The results are employed to assess the effect of acidic media on chemical and structural properties.

Egg shell bhasma is mainly  $\text{CaCO}_3$  whose percentage varies from 75 to 90 percent. Apart from this organic components as well as trace inorganic constituents are also detected. This egg shell bhasma satisfy all the essential tests for genuine ayurvedic bhasma. The mid IR spectra of pure egg shell powder shows sharp and intense peaks indicative of organic components. The IR spectra of the bhasma sample shows breaking of the sharp IR peaks, the nature of which depends upon particular sample. The size and shape i.e. morphology of egg shell bhasma depends on the specific acidic media as reflected in SEM photographs.

**Key Words:** Egg shell bhasma, Calcium based drugs.

**PP-55**

**Hematological Alterations After Exposure Periods Of Acephate  
In Freshwater Snake Headed Fish *Channa Punctata*.**

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The present study assesses the acute toxicity and hematological alterations of Acephate are an organophosphate pesticide on *Channa punctata*. The sublethal concentration of Acephate is 910 which is reported earlier. In the present study the alterations in the hematological profiles were investigated in *Channa punctata* after exposures of lethal and sublethal exposures of Acephate that the pesticide had considered an impact on the different blood parameters. The out coming results of different blood parameters after toxicant exposures were given in the table along with standard deviations and percent changes over control. Toxicants mainly acted on circulatory systems and major impact on blood parameters. Hence our present study revealed the effect of pesticide toxicity on blood parameters. In our studies we have observed the significant changes in blood parameters after exposures of Acephate in lethal, 5day and 10 days .The results of the present study were tabulated in Table 1 after exposures of lethal, 5day and 10 days. In the present study the RBC counts ,WBC counts HB and PCV levels decrease significantly (p- value at <0.05) compare to control in lethal, 5day and 10 day sub-lethal after exposures of pesticide., MCH and MCHC levels and MCV the levels were increased compared to control. Glucose, TL, AST and ALT levels increased significantly after exposures of Acephate but the Total Protein values were decreased insignificantly.

**Key words:** Acephate, *Channa punctata*, LC<sub>50</sub>, Hematological changes.

**PP-56**

**Oil from *Melaleuca alternifolia* shows, anti-virulence and anti-biofilm activity of multi-drug resistant uro pathogen *Serratia marcescens*.**

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Multidrug-resistance *Serratia marcescens*, emerges as an opportunistic human pathogen cause various nosocomial infections particularly urinary tract infections. The purpose of this study was to evaluate the anti-virulence and anti-biofilm effect of Tea tree oil against *S. marcescens*. TTO was found to possess bactericidal activity against *S. marcescens*. TTO was also able to disrupt both initial and mature biofilm. Furthermore, low concentration of TTO inhibit different virulence factors of *S. marcescens*. TTO induced ROS dependent cell membrane damage as a mechanism of its antimicrobial activity. Hence, TTO may considered as a potential antibacterial agent against *S. marcescens* and its associated diseases.

**Key word:** *Serratia marcescens*, MDR- Uro pathogen, Tea Tree Oil; Anti Biofilm, Anti virulence.



**107<sup>TH</sup> INDIAN SCIENCE CONGRESS**

**JANUARY 3-7, 2020**

**BANGALORE**

**VI**

**LIST OF**

**PAST SECTIONAL PRESIDENTS**



## **PAST SECTIONAL PRESIDENTS**

### **Medical Sciences ( Including Physiology )**

Prakash Chandra Dhara	2019	Tushar K Maitra	2000
Anup Kumar Bhattacharya	2018	P Rai	1999
Somnath Roy	2017	A P Galhotra	1998
Chittaranjan Maity	2016	Devavrata Chakraborti	1997
Shashi Bala Singh	2015	M A Ghafoor	1996
Surya Kant Tripathi	2014	Hrishikesh Jana	1995
Tusharkanti Ghosh	2013	Amiyakumar Hati	1994
Manujshree Ray	2012	G P Sen	1993
Amar Kumar Chandra	2011	T K Das	1992
Tapas Kumar Bose	2010	N N Roy Chowdhury	1991
Ananga Mohan Chandra	2009	B B Mallick	1990
Ranajit Sen	2008	Basudeb Datta Chaudhuri	1989
Amal Roy Chowdhury	2007	P N Bhat	1988
Sujit Kumar Bhattacharya	2006	A K Ganguly	1987
P K Banerjee	2005	Chandan Roy Choudhuri	1986
P P Venugopalan	2004	S S Khera	1985
Debjani Guha	2003	Ajay K Gosh	1984
<b>Medical &amp; Veterinary Sciences</b>		R C Mazumdar	1983
Pratip Kumar Debnath	2002	H G Sen	1982
P C Das	2001	P K Banerjee	1981

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*List of Past Sectional Presidents*

Jayasree Roy Chowdhury	1980	Harvey	1920
Dipak Kumar Ray	1979	W Glen Liston	1919
Dinabandhu Banerjee	1978	<b>Physiology</b>	
T S Tirumurti	1939	Manoj Kumar Chakraborty	2002
<b>Medical Research</b>		Subodh Ch. Paul	2001
U N Brahmachari	1938	A Namasivayam	2000
<b>Medical &amp; Veterinary Research</b>		Khub Singh	1999
A Olver	1937	Pratima Chatterjee	1998
M E Shortt	1936	W Selvamurthy	1997
K R K Iyengar	1935	Usha Nayar	1996
S S Sokhey	1934	P K Dey	1995
A D Stewart	1933	Satipati Chatterjee	1994
M H King	1932	S K Manchandra Lazar Mathew	1993
Brahmachari Bahadur	1931	Lazar Mathew	1992
R Knowles	1930	T Desiraju	1991
R E Wright	1929	H B Kundu	1990
R N Chopra	1927	Haripada Chattopadhyay	1989
R Rao	1926	B S Gajalakshmi	1988
<b>Medical Research</b>		G S Chhina	1987
F P Mackie	1925	Jyotirmoy Sen Gupta	1986
S R Christophers	1924	Biswanath Koley	1985
J Cunningham	1922	J M Senapati	1984
J W D Megaw	1921	S Dua Sharma	1983

*Section XI : Medical Sciences (including Physiology)*

R N Chopra	1938	Subodh Mitra	1956
S L Bhatia	1937	Sushil Kumar Basu	1955
W Burridge	1936	R N Chaudhuri	1954
Sushiela Swarup Mitra	1976	S C A Dutt	1953
B Chakrabarti	1975	V R Khanolkar	1952
B R Sen Gupta	1974	G Sankaran	1951
P N Wahi	1973	M V Radhakrishna Rao	1950
N V Bhaduri	1972	M B Soparkar	1949
P N Brahmachari	1971	G D Bhalerao	1948
Kalyan Bagchi	1970	G Panja	1947
D P Basu	1969	K N Bagchi	1946
S R Rao	1968	S W Hardikar	1945
Amiya B Chowdhury	1967	K V Krishnan	1944
P C Sen Gupta	1966	F C Minett	1943
J B Chatterjee	1965-1964	S K Basu	1942
Srish Chandra Seal	1963	A C Ukil	1941
J C Banerjee	1962	J R Haddow	1940
A K Hazra	1961	S R Das Gupta	1977
A R Natarajan	1960	A K Medda	1981
P G Pande	1959	A K Mukherjee	1980
A K Bose	1958	Rabindra Nath Sen	1979
C R Das Gupta	1957	Harishikesh Jana	1978

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S N Ray	1977	N N Das	1955
Sripathi Bose	1976	P B Sen	1954
C C Deb	1975	N D Kehar	1953
A K Maiti	1974	S Banerjee	1952
S K Mukherjee	1973	S M Banerji	1951
K N Sharma	1972	Kalidas Mitra	1950
Sarada Subramanyam	1971	B B Sarkar	1949
J Nag Chaudhuri	1970	Bashir Ahmed	1948
P Brahmayya Sastry	1969	S A Rahman	1947
M L Chatterjee	1968	P De	1946
S R Maitra	1967	B Muckherji	1945
B K Anand	1966	S N Mathur	1944
M C Nath	1965-1964	B Narayana	1943
D P Sadhu	1963	N N Das	1942
G C Esh	1962	B B Dikshit	1941
D N Mullick	1961	W R Aykroyd	1940
A Roy	1960	N M Basu	1939
N P Benwari	1959	N K Bhattacharya	1982
S N Ray	1958	<b>Veterinary Research</b>	
Indrajit Singh	1957		
D V S Reddy	1956	Arthur Olver	1938