miRNAs: Major Players in Non-Canonical Signaling Strategy

Dr. V B Sameer Kumar Ph.D.
Department of Biochemistry & Molecular Biology,
Central University of Kerala
India.
Corresponding author e.mail: sameerkumarvb@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PL 01**

ABSTRACT

Maintenance of homeostasis is a complex event in a multicellular organism, which is made possible by optimizing the functioning of various parts of the body through communications between different cell types that makes up the organism. The well-known mechanisms of inter-cellular communications involve, the autocrine, paracrine and endocrine loops of signaling, where, signaling molecules secreted by one cell type is sensed by another for an appropriate response. In these kinds signaling responses, the signal is processed in the cells either from its surface or through nuclear receptors to bring about a change in the expression pattern of genes leading to the phenotypic changes. Recent investigations in this field have identified the existence of a shortcut loop of signaling that involve the horizontal transfer of nucleic acids through exosomes, which are capable of altering the phenotype of the recipient cells. This talk is intended to discuss the importance of this signaling mode, under the light of results from our lab related to anti-cancer drug resistance and tumoral angiogenesis.

Published: February 2018.

The recent innovations in biofuels and effective strain improvement for sustainable development goals

Dr. Lata I Shukla Ph.D.
Department of Biotechnology, School of Life Sciences
Pondicherry University
Kalapet, Puducherry-605014
Corresponding author e.mail: lishukla@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PL 02**

ABSTRACT
Biofuels have come in of different generations. The algae can be used as an efficient biological producer of oil, biomass, and biofuels. They have high photosynthetic efficiency and a faster growth rate than other plants, they can grow in treated wastewater, and cheap fertilizers can be used to provide the nitrogen source. The technology can utilise non-arable land to grow the algae. The production is not seasonal and can be harvested daily. An algal photobioreactor can provide continuous production of biomass and advanced technologies are available for the isolation of oil from biomass. The system has a higher yield than other biodiesel feedstocks, less spatial requirements and does not compete with food production. The recovery or harvest technology, and resilient villages and urban populations with the utilization of resource is essential. The implementation of SDG requires fuel at cheaper price and biofuel provide the opportunity.

Published: February 2018.

Beneficial and Pharmacological Properties of Phytochemicals Derived From Traditional Medicinal Plants

Dr. S. Subramanian Ph.D.
Department of Biochemistry
University of Madras
Guindy Campus, Chennai-25
Corresponding author e.mail: subbus2020@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PL 03**

ABSTRACT

Phytochemicals are ecologically derived secondary metabolites, produced by the plants to protect them against damage due to environmental stress such as UV radiation, high temperature, extreme cold, draught, flood and microbial invasion. Plants are Omni present in the earth's environment and have been used for a large range of purposes including nutrition, medicine, flavouring, beverages, dyeing, repellants, fragrances, cosmetics, charms and various industrial uses. India is one of the twelve mega biodiversity countries of the world having rich vegetation with a wide variety of plants with medicinal and industrial applications. Phytotherapy is a field of medicine which involves the treatment of diseases using medicinal plants. In herbal medicine, the term 'herb' refers not only the seed producing plants but also roots, bark, leaves, flowers, seeds and fruits. Scientific interest in medicinal plants has burgeoned in recent times due to increased efficiency of novel drugs derived from medicinal plants and rising concerns about the undesirable side effects associated with modern allopathic drugs. The phytochemicals are broadly classified into alkaloids, steroids, flavonoids, pectins, lectins, saponins, anthroquinones, glycosides, stilbenes, terpenoids, carotenoids, phenolic compounds and oils. Plants take up carbon-di-oxide and oxygen through their shoot system and water/inorganic salts through the root system and use them as starting material for the synthesis of phytochemicals. Depending upon the climate, nature of soil, method of cultivation and environmental influence, the phytochemical contents may vary in terms of quality and quantity. According to the WHO, about eighty percentage of world's population relies on herbal medicine for the primary health care needs and more than sixty percent of the commercially available modern drugs are originally derived from the traditionally important medicinal plants. Among the various phytoingredients, flavonoids play a pivotal role in alleviating the primary as well as the secondary complications of dreadful diseases such as cancer, diabetes and atherosclerosis. The best examples include Taxol from *Taxus brevifolia* and Vinblastine from *Vinca rosa* for the treatment of cancer and Metformin from *Galega officinalis* and Phytosterols for the treatment of atherosclerosis. Most of the marketed medicines are distillations, combinations, reproductions or

Published: February 2018.

variations of substances found in medicinal plants. Our forefather's recommended some of these medicinal plants which are abundantly found in nature, long before their values are demonstrated and understood by scientific methods. However, few medicinal plants alone have received scientific or medicinal scrutiny and the WHO has recommended the traditional medicinal plants warrant systematic scientific evaluation before the use of plant extracts or its active principle for treatment. Recently we have extracted, isolated and identified several phytochemicals having a wide range of pharmacological activities.

Published: February 2018.

Metabolic disorders in HIV infected patients on Antiretroviral Therapy in South India- a cross sectional study

Dr. S.Mini Jacob MD
Department of Experimental Medicine
The Tamilnadu Dr MGR Medical University
Guindy, Chennai
Corresponding author e.mail: saramini@yahoo.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PL 04**

ABSTRACT

Antiretroviral therapy (ART) has made HIV/AIDS a chronic and manageable disease. Complications associated with HIV infection and long term antiretroviral therapy include cardiovascular disease, lipid disorders, glucose metabolism disorders, adipose tissue disorders, bone metabolism disorders, and lactic acidosis.The objective of this study was to assess lipids abnormalities and insulin resistance in HIV infected patients on ART. This was a cross sectional study conducted in an ART centre at a tertiary care hospital in Chennai. HIV infected patients who attended the ART centre were enrolled into the study. After obtaining written informed consent, anthropometric measurements (height in cms, weight in kgs) were recorded. Body Mass Index (BMI) and Waist-Hip ratio (WHR) were calculated. History of HIV disease, CD4 counts and duration of ART were collected from patient's records. Fasting glucose and lipid assays (total cholesterol, triglycerides and HDL-c) were estimated by enzymatic-linked colorimetric methods. Insulin levels were tested using ELISA (Monobind Inc. USA) and insulin resistance was measured by homeostatic model assessment (HOMA) formula. All the tests were performed in the Department of Experimental Medicine, The Tamilnadu Dr. MGR Medical University, Chennai. Statistical analysis were done using SPSS, Pearson's and Spearman's correlation was used to find the strength of relationship among the variables. A total of 100 (57 males & 43 females) HIV infected patients were enrolled into the study. The median age was 41± 8.1 years (IQR: 34 - 58) and were receiving ART for more than one year (duration: 1 ½ -11 years). Seventy nine received fixed dose combination of Zidovudine/Lamivudine/Nevirapine (ZLN), 4 were on Tenofovir / Lamivudine / Nevirapine (TLN) and 17 were on Tenofovir / Lamivudine / Efavirenz (TLE) regimen. The mean BMI and WHR were 22.5 ± 3.98 and 0.95 ± 0.10 respectively. The recent median CD4 counts were 579 ± 278.5 cells/µl (IQR: 424-725). Seven male and four female were found to be diabetic, the mean value of fasting glucose was 94 ± 35.1 and The mean total cholesterol was 223 ± 45.4 and hypercholesterolemia was observed in 21 patients (12 males & 9 females). The mean triglyceride was 159 ± 101.1 and hypertriglyceridemia was found in 28 patients (19 males & 9 females). Nine (5 males & 4 females) had lower HDL-c (<40 mg/dl) and 49 (26

Published: February 2018.

males & 23 females) had higher LDL-c. A strong negative correlation was observed between total cholesterol and CD4 counts ($r = -0.06$, $p < 0.001$), LDL- c and CD4 counts ($r = -.107$, $p < 0.001$). There was a positive correlation between duration of ART and HOMA ($r = 0.049$, $p= 0.759$) but was not statistically significant. The study has demonstrated that 49% of the HIV infected patients who were on ART for more than one year had dyslipidemia. High cholesterol levels were observed in patients were on TLN and TLE regimens. All HIV infected patients on ART for more than one year should be monitored for lipid and insulin levels.

Published: February 2018.

Green Nanomaterials: Cancer Research

Dr. Sailaja V. Elchuri Ph.D.
Department of Nanobiotechnology, Vision Research Foundation, SankaraNethralaya, No 18 College Road, Nungambakkam, Chennai.
Corresponding author e.mail: sailaja.elchuri@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PL 05**

ABSTRACT

The nanoparticles used in Cancer research have both metallic and nonmetallic nanoparticles. Among nanomaterials, metal nanoparticles have an added advantage due to their Surface Plasmon Resonance (SPR) and the Surface enhanced Raman scattering (SERs) properties. Gold nanoparticles s are most favored biocompatible, nanoparticles but the reducing agent use in the synthesis of GNPs could be toxic in *in vitro* and *in vivo* systems. The use of naturally occurring biomolecules for the synthesis of nanoparticles has bridged the green chemistry with the nanotechnology. We have synthesized GNPs from grape fruit extracts which had SERS properties and therapeutic potential in cancer cells. The polyphenols of grapes with antioxidant and anticancer properties elicited synergistic performance when used in preparing GNPs. When these GNPs were conjugated to antioxidant peptides, the resultant nanoparticles exhibited superior free-radical scavenging properties. Additionally, when these GNPs were conjugated to peptide targeting MDM2 increased therapeutic potential of the peptide by eliciting P53 mediate response. Future direction should be using more environmental friendly nanomaterials for research application.

The non-metallic nanomaterial that received significant attention in cancer research is Graphene, which is one atom thick having a two-dimensional carbon atoms arranged as sheets and has a large number of amazing properties. It has superior electrochemical properties and canbe made into any shape and has highest Young's modulus (0.5 – 1TPa) among any known material. Furthermore graphene can be conjugated to other polymers and gold nanoparticles for various biological applications. The biocompatibility of Graphene has been tested in several cancer cell linessuch as U87MG human glioblastoma and MCF-7 human breast cancer cell lines. In cancer research Graphene and its derivatives have been used in early detection of cancer, photodynamic therapy enhancers, vehicles for gene delivery, cancer biomarker discovery, delivery of chemotherapeutic drugs and tumour imaging. Most actively studied compound for cancer research application was Graphene oxide. However the Oxygen molecule in the graphene has elicited reactive oxygen species (ROS) causing damage to the cell. This is a good option to kill a cancer cell for therapy but if we are looking for lesser toxic nanomaterial for gene delivery application a safer nanomaterial is needed. Towards this end replacing oxygen atoms with more

Published: February 2018.

inert elements is a better option. Studies on the fabrication of such materials and mechanism of biological pathways should enable synthesis of more safe nanomaterials for gene delivery studies. Another area of cancer research is making scaffolds for growing cancer cells that can mimic tumour growth *invivo*. These 3D cancer cell models should bring down the cost of preclinical cancer drug research before proceeding to expensive animal models for drug testing. Studies using graphene and its derivatives are in available for neural stem cell growth and bone cell regeneration. Graphene with its highest tensile strength should be explored for developing preclinical 3D models for cancer cell growth. Additionally, more ecofriendly Graphene nanomaterials synthesized using green nanotechnology for 3D cancer cell growth applications is need of the hour.

Published: February 2018.

Tuberculosis – An overview

Dr. Geetha Ramachandran Ph.D.
Scientist 'E' & Head,
Department of Biochemistry & Clinical Pharmacology,
National Institute for Research in Tuberculosis (ICMR),
Chetpet, Chennai.
Corresponding author e.mail: geetha202@rediffmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PL 06**

ABSTRACT

Tuberculosis (TB), an infectious disease caused by Mycobacterium tuberculosis continues to be a major cause of morbidity and mortality. The global epidemic situation is further aggravated by the emergence of HIV infection and strains of drug-resistant TB. The most common form of TB is pulmonary or lung TB. But TB can affect any part of the body, which is termed as extra-pulmonary TB. Pulmonary TB is diagnosed by using medical history and physical exam. This is confirmed by sputum examination. Diagnosing extra-pulmonary TB requires more testing depending on the type of TB. These include (i) examining biopsy specimen from the affected area for M. tuberculosis (ii) Urine culture, which will look for TB infection in the kidneys (iii) Lumbar puncture and testing of CSF for infection in the brain CT scan used to diagnose TB that has spread throughout the body and to detect lung cavities caused by TB. The chronic nature of mycobacterial infections generally necessitates treatment for about 6 to 9 months. Multiple drug regimens are necessary to prevent the development of drug resistant strains. Further, the microorganisms grow slowly; hence patient compliance, drug toxicity, and the development of bacterial resistance present special therapeutic problems. The modern short-course chemotherapy aims at rapid bactericidal and sterilising action. Improper and irregular chemotherapy leads to acquired drug resistance. Some of challenges in effective TB control include developing rapid tests for early diagnosis, discovery of more powerful drugs, having a powerful vaccine that would prevent the infection from becoming disease.

Published: February 2018.

Medicinal Effects and Mechanism of Capsaicin in Other *Capsicum Sp*. Vs *Capsicum annuum* L.

Aarathilfa G[1], Roopini K[1], Tasleem Thabasum[1]*

[1]Department of Biochemistry, Justice Basheer Ahamed Sayeed College For Women (Autonomous), Chennai-600 018, India

*Corresponding author e.mail: tasleemaarif07@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP01**

ABSTRACT

Capsaicinoids are the major constituent of all the capsicum species. The most commonly occuring capasaicinoids are capsaicin (69%), dihydrocapsaicin (22%), nordihydrocapsaicin (7%), homocapsaicin (1%) and homodihydrocapsaicin (1%). When compared to other compounds, capsaicin plays an active role and is an important component of chilli pepper which belongs to the plant species capsicum. These compounds forms the secondary metabolite of capsicum sp.. Capsaicin is chemically noted as 8-methyl-N-vanillyl-6-nonenamide. Pure capsaicin is hydrophobic, colourless, highly pungent and crystalline to waxy substance. Capsaicin in large quantity is present in the placental tissue, the innet membane and to a lesser extends in the other fleshy part of the fruits of plants in the genus capsicum. The seeds themselves will not produce capsaicin, although higher amount of capsaicin is found in the whiter pith of the inner walls, where the seeds are attached. The health benifits of the compound capsaicin includes antidiabetic, antimicrobial, antifungal, anticholesterine, antioxidant and anti inflammatory. The health benifits of capsicum includesrelief from stomach issues, back pain, muscle spasms, head aches, cancer, skin ageing, peptic ulcer, lower risk of cardiovascular diseases and diabetes. It also has antiinflammatory and analgesic properties and also provides relief from pains related to arthritis. Capsicum is an ancestral species that is popularly known and consumed world wide. But the interesting fact is about its medicinal benifits which is still unknown. Though capsaicin is one of the active compounds in capsicum sp., it is present in lesser amount in capsicum annuum (sweet pepper) which is recogonised by its flavour. It is reported that capsaicin in smaller dosage to human model increases the secretion of hydrogen ion in the stomach. This leads to ulcer, acidity, gastro intestinal dysfunctioning and in some cases carcinoma of the stomach. This review paper suggests that for the cancer treatment and for other gastro intestinal dysfunctioning, capsicum annuum L -sweet pepper which is low in capsaicin content are more effective in treatment than other capsicum variety which has high amount of capsaicin content.

Published: February 2018.

Evaluation of *in vitro* antioxidant activity study of 2-thiohydantoin

Uma S[1*], Devika P T[2]

[1]Department of Biochemistry, New Prince Shri Bhavani Arts and Science College, Medavakkam, Chennai-100.

[2]PG & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Chennai-119.

[*]Corresponding author e.mail: abiramisivalingam@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP02**

ABSTRACT

The thiohydantoin nucleus is a 5-membered ring system containing a reactive cyclic thiourea core. This heterocycle is used for the synthesis of drugs with antidiabetic, antimicrobial and anticancer agents. The aim of the study was to evaluate the antioxidant activity of the synthetic compound, 2-thiohydantoin. 2-thiohydantoin moiety also possesses several phamacological properties including anticonvulsant, antiinflammatory, antiulcer and antiarrhythmic properties. The present study gives information regarding four different *in vitro* methods that were used to measure the antioxidant activity of the synthetic compound, 2-thiohydantoin. *In vitro* studies on the effect of 2-thiohydantoin on scavenging 2,2-diphenyl-1-picrylhydrazl radical(DPPH$^{\bullet}$), 2,2-azinobis-(3-ethylbenzothiazoline-6-sulphonate) radical cation (ABTS$^{\bullet}$), hydroxyl radical (OH$^{\bullet}$) and superoxide anion radical ($O_2^{\bullet-}$) confirmed the free radical scavenging and antioxidant activity of 2-thiohydantoin. Thus the observed effects are due to the free radical scavenging and antioxidant potential of 2-thiohydantoin.

Published: February 2018.

Protective effect of Phloridzin on lipid peroxide metabolism in isoproterenol induced myocardial infarction in male wistar rats: A Histopathalogical study

Jayalakshmi P[1*], Devika P T[1]

[1]PG and Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600 119, India.

[*]Corresponding author e.mail: mahapoongavanam72@yahoo.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP03**

ABSTRACT

This study aims to evaluate the preventive effect of Phloridzin on lipid peroxides, enzymatic and non-enzymatic antioxidants and histopathological findings in isoproterenol (ISO) induced rats. Myocardial infarction (MI) is induced in rats by subcutaneous injection of ISO (100 mg / kg body weight) at an interval of 24 h for 2 days. ISO - treated rats show a significant increase in the levels of thiobarbituric acid reactive substances, lipid hydroperoxides in plasma and heart and plasma uric acid and a significant decrease in the activities of superoxide dismutase, catalase, glutathione peroxidase, glutathione reductase, glutathione-s-transferase in heart and the levels of reduced glutathione, Vitamin C and vitamin E in plasma and the heart and ceruloplasmin in plasma. Oral pretreatment with Phloridzin (10,20,30mg / kg body weight) daily for a period of 21 days show significant decrease in the levels of lipid peroxidation products and uric acid and improved the antioxidant status by increasing the activities of antioxidant enzymes and non-enzymatic antioxidants. Histopathological findings of the myocardial tissue show the protective effect of Phloridzin in ISO- induced rats.The effect at a dose of 30 mg/ kg of Phloridzin was more pronounced than that of the other two doses (10 and 20mg / kg body weight). Thus, the present study reveals that Phloridzin exerts cardioprotective effect against ISO- induced MI due to it's free radical scavenging and antioxidant effects, which maintains the tissue defence system against myocardial damage.

Published: February 2018.

Preliminary Studies on antioxidant and antidiabetic properties of *Cassia auriculata* flower extract: an *in vitro* approach

Aravind C[1], Sriram Prasanth[2*]

[1]PG & Research Department of Biochemistry, Dwaraka Doss Goverdhan Doss Vaishnav college, Arumbakkam, Chennai-106

[2]Assistant Professor, P G & Research Department of Biochemistry, Dwaraka Doss Goverdhan Doss Vaishnav College, Arumbakkam, Chennai-106

[*]Corresponding author e.mail: gsriramprasath@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP04**

ABSTRACT

Cassia auriculata Linn. a member of genus Cassia which belongs to family *Caesalpiniaceae.* Various parts of the plant have been reported to possess a wide array of pharmacological and beneficial properties. The flowers and seeds of the plant are used in the treatment of diabetes mellitus. In the present study, an attempt has been made to evaluate the antioxidant and antidiabetic potential of *Cassia auriculata* flower extract *in vitro*. Phytochemical analysis of the flower extract indicated the presence of alkaloids, flavonoids, proteins, carbohydrates, saponins, tannins, glycosides and phenols. The total phenolic and flavonoid content were found to be 262.31± 3.01 mg Gallic acid equivalent and 61.33 ± 3.05 mg quercetin equivalent respectively. The free radical scavenging activity of the flowers extract was determined against 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical, 2,2'-azino-bis(3- ethylbenzothiazoline-6-sulphonic acid) ABTS, radical Scavenging assays. At a concentration of 1000µg/ml, the leaves extract significantly scavenged 82.1 % of DPPH radicals and 83.50 % ABTS radicals. *C. auriculata* flower extract increases the uptake of glucose through the translocation of GLUT 4 in rat L6 myotubes. In Glucose uptake assay, *C. auriculata* flower extract showed 66.0 ± 1.79% glucose uptake over control compared with the standard insulin (1 IU/mL) which showed 92 ± 2.5% glucose uptake over control. In the presence of Wortmannin, a PI3 kinase inhibitor, the glucose uptake is reduced which evidence the fact *C. auriculata* flower extract may facilitates the translocation of GLUT4 via PI3 kinase mediated pathway.

Published: February 2018.

Chemical Profile of Marine Ascidian *Didemnum bistratum* and its Antibacterial and Mosquitocidal Properties

Gomathy V[1*]

[1] Chettinad Academy of Research and Education (Care), Kelambakkam.

[*] Corresponding author e.mail: gomathirathinavelu@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP05**

ABSTRACT

Ascidians are sessile marine invertebrates with immense promise to produce bioactive molecules with prominent therapeutic applications. It is highly warranted to investigate their active biomolecules and pharmacological properties. The present study was focused towards the chemical investigation of methanolic extract of *Didemnum bistratum* using Fourier Transform Infrared (FTIR) Spectroscopy and Gas Chromatography-Mass Spectrometry (GC-MS) analysis. A total of 13 transmittance peaks corresponding to distinct functional groups were observed from the FTIR analysis. GC-MS analysis revealed the vapor phase elution of 234 metabolites. *D. bistratum* exhibited commendable inhibition of the bacterial strains *P. aeruginosa, MRSA, K. ascorbata, E. coli* and *K. oxytoca*. Active compounds of *D. bistratum* also exhibited pronounced larvicidal activity against the dengue vector mosquito *Aedes aegypti*. Further compound separation, Structural identification and bioassays may lead to the development of novel candidate drugs which could be lead compounds of pharmaceutical importance, in future.

Published: February 2018.

Review – Techniques involved in (Water Chemistry) Heavy Metal analysis.

Thangamalathi S[1], Anuradha V[2*]

[1]Research Scholar, Department of BioChemistry, Mohamed Sathak College Of Arts & Science, Sholinganallur – 600119, TamilNadu, India.

[2]Assistant professor and Research Supervisor, Department of BioChemistry, Mohamed Sathak College Of Arts & Science, Sholinganallur – 600119, TamilNadu, India.

[*]Corresponding author e.mail: vanuradha.2003@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP06**

ABSTRACT

The chemical components in water and changes can control the ecology, ecological characteristics, hydrology and interactions with the atmosphere and geo - sphere control water chemistry. This review explains, the occurrence of heavy metals in water bodies can be natural origin – eroded minerals within sediments, leaching of ore deposits and volcanism extruded products and anthropogenic in nature – solid waste disposal, industrial or domestic effluents, harbor channels dredging. The term heavy metal includes essential and non – essential trace metals, which maybe toxic to the organisms depending on their own properties, availability and concentration levels. Heavy metals can be present in the aquatic system in both dissolved forms and particulates ones. The dynamics which regulates the transference of heavy metals between the dissolved and the particulate phases depends on the pH and oxide – reduction potential of the system. Also these parameters regulate the chemical speciation of heavy metals within the system. Different analytical methods are available to determine metals within aquatic samples. The main analytical methods can be applied to determine metal concentrations in water samples are classical methods, spectrometric method, FAAS, ETAAS, ICP – MS, Electrochemical and chromatographic techniques. Other techniques are Luminescence, X – RFC and Neutron activation analysis. In particular case of mercury, most successful one is cold vapour – atomic absorption spectroscopy. The main goal of this chapter is deals with the instrumental techniques to determine the heavy metals, trace elements and major metals in natural waters.

Published: February 2018.

Identification and Characterization of *Lactobacillus brevis* P68 with Antifungal, Anitioxidant and Probitic Functional properties.

Nandini K[1*], Abeerami V[1], Bhuvaneswari S[1], Shamundeeshwari K[1]

[1] Department of Biochemistry, Prof Dhanapalan College of Arts And Science,Kelambakkam,Chennai-603102, India.

[*]Corresponding author e.mail:dhanakrishna09@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP07**

ABSTRACT

In the present study *L. pentoses, L.plantarum, L.fermentum, L.brevis, L.paraplantarum, L.buchneri, L.acidipiscis*, which are strains capble of producing antifungal metabolites against food spoilage fungi, where isolated and identified based on 16S rRNA gene sequencing from different traditional pickles L.brevis P68 exibited significant antifungal activity, and its invitro antioxidant and probiotic properties were investigated.The antifungal compound was characterized based on C13 nuclear magnetic resonance(NMR), ^{1}H NMR infrared,and mass spectral data.the minimum inhibitory concentration (MIC) of the compounds was assessed using the broth micro dilution technique. The MIC of the compounds against penicilium chrysogenum and P.roqueforti was 2.5mg/ml and that against gibbrella moniliformis and H_2O_2 (1.0Mm) hydroxyl radical and DPPH scavenging activity inhibition rates were 32.76 and 48.63%,respectively,and the activities towards the glutothion peroxidase and superoxide dismutase enzymes were high. This strain tolerated low Ph and bile salt, exhibited bile salt hydrolase and extra cellular enzyme activities and was sensitive to common antibiotics with high hydrophobicity. This study revealed that the antifungal, antioxidant and probiotic properties of L.brevis P68 confirmed its appilication to the food industry.

Published: February 2018.

Phytochemical Screening and Antioxidant Activity of *Cissus quadrangularis*

Sasi Rekha G V[1], Devika P T[2*]

[1]Research Scholar, Department Of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai – 600119, Tamilnadu, India.

[2]Assistant professor and Research Supervisor, Department Of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai – 600119, Tamilnadu, India.

[*]Corresponding author e.mail: devikabio@rediffmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP08**

ABSTARCT

Cissus quadrangularis is a valuable medicinal plant. This plant was highly reported in Ayurveda, Siddha and Unani systems of medicine. *Cissus quadrangularis commonly known as* Veldt Grape has been used for centuries in the traditional medical practices of India which belongs to vitaceae family used to cure various diaeases. Due to its pharmacological properties, the present study was aimed to investigate the phytochemical and antioxidant activity. Qualitative phytochemical analysis shows the presence of various phytochemicals like Phenols, alkaloids, flavonoids, tannins, glycosides and terpenoids . The bioactive compounds from different solvent extracts were investigated to look for the presence of anti oxidant and anti diabetic properties. The findings confirm the potential benefits of the plant as described in traditional medicine. Ethanol and aquous extracts were found to be richest in their phytochemical composition. Antioxidant components like phenols, flavanoids are rich in *Cissus quadrangular is* extracted with 70% ethanol fraction showing maximum. The antioxidant activity of 70% ethanolic extract of *Cissus quadrangularis* was studied by DPPH assay and Ferric Reducing Power assay which showed the highest total antioxidant capacity. Further studies are needed to evaluate the in vivo antioxidant potential of *Cissus quadrangularis* extract in various animal models.

Published: February 2018.

Comparative analysis of Mitochondrial DNA (D-loop) variations associated with cervical cancer

Akram Husain RS[1], Keerthana S[1], Anoop Sreevalsan[2], Prema Jayaprasad P[3], Ramakrishnan V[1*]

[1]Genetics Lab, Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam - 603103, Tamil Nadu, India

Department of Obstetrics & Gynaecology, Chettinad Hospital and Research Institute, Kelambakkam-603103, Tamil Nadu, India

[3]Department of Obstetrics &Gynaecology, Chettinad Super Speciality Hospital, Kelambakkam - 603103, Tamil Nadu, India

[*]Corresponding author e.mail: rkgenes@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP09**

ABSTRACT

Cervical Cancer is the second most common gynecologic malignancy and constitute for significant public health problem globally. Several factors such as infections with Human Papilloma Virus (HPV), Human Immuno Deficiency Virus (HIV), poor personal hygiene, usage of oral contraceptives and genetic risk factors lead to disease pathogenesis. The human mitochondrial DNA (mtDNA) is a double stranded circular genome of 16569 Bp and containing 37 genes. Further, the mutation rates in mtDNA are 10 times higher than that of nuclear DNA. Genetic variations were observed in liver, breast, gastric, colorectal and cervical cancers in the highly variable non-coding displacement (D) loop region in the forms of insertions, point mutations, deletions and microsatellite variabilities. MtDNA is the target for high level alterations in various types of cancers and high incidences of somatic mutations have been reported in cervical malignancy. In this current study, we have analyzed the mitochondrial genomic sequences with reference to cervical cancer from NCBI-Nucleotide databank submitted from different geographical regions (Argentina, Mexico, U.S.A, and India) which were submitted from 1/1/2001 till 31/12/2017 along with the sequences from our study in South India. We have identified significant variations in the analyzed mtDNA genome sequences. The mtDNA mutations are hot spots and have the potential of being used as early biomarker in addition with available methods for improved cervical cancer diagnosis.

Published: February 2018.

Anti-inflammatory and Antioxidant potentials of *Vitex negundo* Linn and its Molecular mechanism

Anitha L[1], Shalini D[1], Bhagavathy S[2*]

[1]PG Student, PG & Research Department of Biochemistry, Mohamed Sathak college of Arts and Science, Sholinganallur, Chennai-600 119, India.

[2]Assistant Professor, PG & Research Department of Biochemistry, Mohamed Sathak college of Arts and Science, Sholinganallur, Chennai-600 119, India.

[*]Corresponding author e.mail: sbhagavathy12@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP10**

ABSTRACT

There is considerable ethnomedical and pharmacological evidence that *Vitex negundo* possesses analgesic, antipyretic, antihistaminic, antiallergic, antibacterial, antioxidant and antiphlegmatic, potential. In the present study an attempt was made to identify the beneficial effect of bioactive compounds of *V.negundo* and to check its antioxidant and anti-inflammatory potentiality. The aqueous and organic extracts were subjected to the screening of phytochemical analysis and the results confirmed the presence of phyto constituents like carbohydrates, fatty acids, proteins, amino acids, saponins, tannins, flavanoids, alkaloids, glycosides, polyphenols and carotenoids. The results of phytochemical analysis reveal that the ethanol, chloroform and aqueous are the best solvents to extract the possible phytochemicals from *V.negundo.* So these solvents were further used for the quantification of phytotochemicals. The ethanol extract shows the maximum quantity of phenols, flavonoids and tannins. This confirms that ethanol is the best solvent to extract the bioactive phytochemicals from *V.negundo.* The GC-MS analysis for the identification of bioactive compounds confirms the existence of 11 different bioactive compounds. The antioxidant properties of the *V.negundo* leaves was evaluated by various antioxidant assays, including DPPH, FRAP and NO. The antioxidant activities were compared to standard antioxidant BHA. The ethanol extract of *V.negundo* was found to have good antioxidant capacity compared with the reference standard and thus can be used as potential radical scavenger against deleterious damages caused by the free radicals. The best result of radical scavenging activity was observed at concentration of 120µg/ml of the ethanol extract. The Anti-inflammatory effect of ethanol extract from *V.negundo* leaf was determined by protein denaturation assay. Results showed 52.24% inhibition was observed at the concentration of 120µg/ml. The results of the present work, proves the high antioxidant and anti-inflammatory effect observed for ethanol extract from *V.negundo* leaf and also it has a potential of preventing human diseases in which free radicals are involved, such as inflammation.

Published: February 2018.

Phytochemical screening and *in vitro* antibacterial potential of *Cassia auriculata Linn.* flowers against pathogenic bacteria

Praveena D[1*], Jothika V[1], Meenatchi A[1]

[1]Department of Biochemistry, Professor Dhanapalan college of arts and science, kelambakkam, Chennai-603 103, India.

[*]Corresponding author e.mail: akithojusav@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP11**

ABSTRACT

The aim of present study is to investigate the screening of phytochemicals and to determine the antibacterial potential of Cassia auriculata flowers against five human bacterial pathogens namely Bacillus sp., Lactobacillus sp., Pseudomonas sp., Proteus sp., and Streptococcus sp. using five different solvents namely, acetone, chloroform, ethanol, methanol and water. The phytochemical analysis gave the positive result for Alkaloids, Saponin, Terpenoids, Phenols, Tannins, Flavonoids, Carbohydrates, Proteins and Amino acids. The maximum antibacterial activities were assessed with agar well diffusion method. 10, 20, 40 µl volumes of different plant extracts were used. The antibacterial activity decreased in the order of Ethanol > Methanol > Acetone > Water > Chloroform. Out of the five extracts used methanol and ethanol were found to be highly active against Bacillus sp., Lactobacillus sp., and Streptococcus sp. Moderate antibacterial potential was seen in acetone and aqueous extracts and no bacterial activity was recorded with chloroform extracts except for Proteus sp.

Published: February 2018.

Phylogenetic Analysis of Gram Negative Organisms Using Bioinformatics Tools

Jinu Joseph[1*], Sundaralingam[1]
[1]Madras Christian College, Chennai.
[*]Corresponding author e.mail: jinujose2395@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP12**

ABSTRACT

DNA gyrase (type II topoisomerase), the only topoisomerase able to introduce negative supercoils into DNA, is essential for bacterial transcription and replication; absent from humans, it is a successful target for antibacterials, DNA gyrase, made up of two subunits A and B, a part of the DNA gyrase is responsible for the ATP-dependent resealing process of the DNA during replication. Retrieving the protein sequences of DNA gyrase subunit B of various gram negative organisms and analyzing the similarity and the phylogenetic relationship of the same. It also involves the prediction of the structure of phylogenetic tree using bioinformatics software.

Published: February 2018.

Screening, Production, purification and characterization of Bromelain from *Ananas Comosus* and its applications

Jennifer P J[1], Bhagavathy S[2*]

[1]M.Phil Research Scholar, PG & Research Department of Biochemistry, Mohamed Sathak college of Arts and Science, Sholinganallur, Chennai-600 119, India.

[2]Assistant Professor, PG & Research Department of Biochemistry, Mohamed Sathak college of Arts and Science, Sholinganallur, Chennai-600 119, India.

[*]Corresponding author e.mail: sbhagavathy12@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP13**

ABSTRACT

Bromelain is a major protease, isolated from pineapple *(Ananas comosus).* Bromelain is accumulated in the entire plant to different extent and properties depending on its source. In the present study, Bromelain was extracted from all parts of pineapple using sodium citrate buffer. Bromelain was filtered, centrifuged and used for further studies. After the determination of protease activity and protein content, the Core and Pulp extract of *A.comosus* was chosen using gelatin as the substrate. The samples were optimized on the basis of pH, temperature, Substrate concentration and etc. After optimization, the Bromelain was purified by precipitation and dialysis. Then SDS-PAGE was performed in order to determine the molecular size of the obtained protein. Then the effectiveness of Bromelain as an anti-browning agent, extracted and purified from pineapple Core and Pulp was determined. The study showed that Bromelain is a better anti-browning agent when compared with some of the available commercial anti-browning agents. Further the application of Bromelain was tested by stain removal, compared to positive control, the ability of stain removing property for the produced enzyme was observed to be good. The Core and pulp bromelain was tested for antibacterial activity against bacterial pathogens. Among them, Pulp bromelain had maximum inhibition effect on *Bacillus subtilis, Klebsiella pneumonia* and Core bromelain had maximum inhibitory effect on *Bacillus subtilis, Proteus vulgaris, Schigella flexneri* and *Escherichia coli* and there was no inhibitory activity for the other tested pathogens. Immobilized Bromelain prepared using calcium alginate beads and its stability and characters were noted.

Published: February 2018.

Fabrication of pH responsive DOX Conjugated PEGylated Palladium Nanoparticle Mediated Drug Delivery System: an *In vitro* and *In vivo* evaluation

Manikandan S[1*], Rudhramurthy J[1], SaiKishore P[1], Shanthi K[1]

[1]Department of Biochemistry, Prof. Dhanapalan College of Arts and Science, Kelambakkam, Chennai-603 102, India.

[*]Corresponding author e.mail: ganeshvicky14@gmil.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP14**

ABSTRACT

Efficient delivery of therapeutics into tumor cells to increase the intra cellular drug concentration is one of the key issues in cancer therapy. In this work, we designed pH responsive palladium nano particles (PdNPs) as an anticancer drug nanocarrier system for effective drug delivery. The synthesis of the nanocarrier involved conjugation of Doxorubicin (DOX) to the surface of palladium nano particles PdNPs via a hydrazone interaction. The nanoparticles were characterized by UV-spectroscopy, Transmission electron microscope (TEM), Dynamic light scattering(DLS), Zeta potential, Fourier transmission infrared spectroscopy(FT-IR), X-ray diffraction(XRD) and Nuclear Magnetic Resonance(NMR). The drug release behaviour was subsequently studied at different pH conditions. The results showed a sustained release of doxorubicin(DOX) preferentially at the desired endosmal pH (5.5). The biological activity of the doxorubicin (DOX) conjugated palladium nano particles (PdNPs) was studied by an MTT assay, flurosence microscopy, and apotosis. Intracellular uptake studies revealed preferential uptake of this NPs into HeLa cancer cells. The in vitro apotosis study revealed that doxorubicin(DOX) conjugated palladium nano particles(PdNPs) caused significant death into HeLa cells. Further , blank PEGylated palladium nano particle(PdNPs) displayed low toxicity and good biocompatibility. Doxorubicin (DOX) conjugated palladium nano particle(PdNPs) had the strongest anti-tumor efficacy against HeLa tumor xenograft models in vivo. These findings demonstrated that PEGylated palladium nano particles (PdNPs) were deemed as a potential drug nano carrier for cancer therapy.

Published: February 2018.

Synthesis and Evaluation of Antidiabetic Properties of a Zinc-Mixed Ligand Complex in HFD - Low Dose Streptozotocin Induced Diabetic Rats

Muruganantham K[1], Selvam R[1], Subramanian S[1*]

[1] Department of Biochemistry, University of Madras, Guindy Campus-600 025

[*]Corresponding author e.mail: subbs2020@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP15**

ABSTRACT

Due to the multifactorial and multisystemic nature of type 2 diabetes, it is often treated with a combination of therapeutic agents with different mode of action. Zinc is an essential trace element with antidiabetic properties. Earlier, we have synthesized several organo-zinc complexes and evaluated their safety and antidiabetic properties in experimental diabetes. More recently, we have synthesized a Schiff base complex having metformin and 3-hydroxyflavone in the equimolar ratio and evaluated its antidiabetic properties in experimental type 2 diabetes (20mg/kg.b.w./rat/day for 30 days). In the present study, a new zinc-mixed ligand (metformin-3-hydroxyflavone) was synthesized and its antidiabetic properties was evaluated in HFD fed - low dose STZ induced type 2 diabetes in rats. The complex synthesized was subjected to spectral studies namely FT-IR, Mass, ^{1}H NMR and ^{13}C NMR for authentication. The acute toxicity and dosage fixation studies were conducted as per OECD guidelines. The hypoglycemic efficacy of the synthesized complex was evaluated through OGTT, HOMA-IR, QUICK-I and by determining the status of important biochemical parameters. The spectral data evidenced the synthesis of new zinc mixed ligand complex. The oral administration of the complex significantly improved the glucose homeostasis. The complex possesses significant antidiabetic properties relatively at a less concentration (10mg/kg.b.w./rat/day) than the other complexes reported by us. Further, the results of the present study also signify the addition of an organo ligand to metformin significantly improved the efficacy of metformin in ameliorating both the primary and the secondary complications of type 2 diabetes mellitus.

Published: February 2018.

Cardioprotective effect of Fisetin on cardiac marker enzymes and membrane bound enzymes in Isoproterenol induced Myocardial infarction in male wistar rats

Mythily Panneerselvam[1], Devika P T[1*]

[1]PG and Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600 119, India.

[*]Corresponding author e.mail: devikabio@rediffmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP16**

ABSTRACT

Myocardial infarction is one of the most killer diseases in many parts of the world. This study evaluates the cardioprotective effect of Fisetin on cardiac marker enzymes and membrane bound ATPase in isoproterenol (ISO)-induced myocardial infarction (MI) in rats. Rats were pretreated with Fisetin (10, 20 and 30 mg/kg) orally for a period of 30 days. After the pretreatment, Isoproterenol (100 mg/kg) was administered subcutaneously to rats at an interval of 24 h for 2 days. ISO-induced rats showed a significant increase in the activities of marker enzymes such as creatine kinase (CK), creatine kinase-MB (CK-MB), aspartate transaminase (AST), alanine transaminase (ALT), and lactate dehydrogenase (LDH) in serum and there by subsequent decrease in the heart, and also ISO-induced rats showed a significant increase in heart weight. A significant decrease in the activity of sodium/potassium dependent adenosine triphosphatase and increased in the activities of calcium and magnesium dependent adenosine triphosphatase were observed in the heart of ISO-induced rats. Pretreatment with Fisetin significantly increased the activities of marker enzymes and membrane bound ATPase in Isoproterenol-induced rats. Thus, our study shows that Fisetin possess cardioprotective effect in Isoproterenol-induced Myocardial infarction in rats. Results obtained from histopathological studies also supported that Fisetin has preventive effect against ISO-induced myocardial infarction.

Published: February 2018.

Molecular Docking Studies Involving the Inhibitory Effect of Gymnemic Acid, Trigonelline and Ferulic Acid, the Phytochemicals with Antidiabetic Properties, on Glycogen Synthase Kinase 3 (A&B)

Roshana Devi V[1], Sharmila C[1], Subramanian S[1*]

[1] Department of Biochemistry, University of Madras, Guindy Campus, Chennai-25

[*]Corresponding author e.mail: subbs2020@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP17**

ABSTRACT

Type 2 diabetes mellitus is a multidimensional endocrine disorder arises due to insulin resistance coupled with insufficient insulin secretion. Chronic hyperglycemia in diabetes is known to affect most of the vital organs in the system which ultimately results in the dysfunction of major metabolic pathways. Several drugs are commercially available to maintain normoglycemia in diabetic individuals through the regulation of biological functions such as controlling the absorption of glucose in the intestine, increasing the insulin sensitivity, improvement in the secretion of insulin, prevention of excessive breakdown of glucose as well as gluconeogenesis and enhancement of glycogen synthesis. Among the various clinical approaches to maintain the blood glucose level within the physiological range, the regulation of glycogen metabolism is considered as a major target in the prognosis of diabetes mellitus. Since, most of the currently available drugs elicit undesirable side effects in addition to the development of resistance after prolonged use, the search for lead molecules preferably from plant origin still continues. Recently, we have formulated a mixture containing three phytochemicals from medicinal plants namely Gymnemic acid, Trigonelline and Ferulic acid in the ratio of 2:3:1 and systematically evaluated its antidiabetic efficacy in high fat diet fed-low dose STZ induced type 2 diabetes in rats. The present study is aimed to conduct molecular docking studies involving the inhibitory effect of individual components in the mixture, the phytochemicals with antidiabetic properties on glycogen synthase kinase 3 (A&B). The data obtained evidenced the regulatory role of GTF in the regulation of glycogen metabolism.

Published: February 2018.

Dietary carcinogenic risk of Heterocyclic amines: A review

Binu Clara J[1*], Mahendran C[2], Shariffa Benazir K[3]

[1]PG & Research Department of Biochemistry, Mohamed Sathak College Of Arts and Science, Sholinganallur, Chennai – 600 119, India.

[2]Centre for Biological Sciences, Department of Biochemistry, K.S. Rangasamy College of Arts and Science, Tiruchengode – 637215. India

[3]PG & Research Department of Biochemistry, Mohamed Sathak College Of Arts and Science, Sholinganallur, Chennai – 600 119, India.

[*]Corresponding author e.mail: binuclaraj@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP18**

ABSTRACT

Heterocyclic amines are a group of chemical compounds, many of which can be formed during cooking. HCAs have been associated with an increased risk of a number of common cancers, such as cancers of the breast, colorectum, and prostate in many epidemiological studies. They are mostly found in well cooked meat that show a brown or black crust. A non-protein amino acid found in muscle tissue (creatine) which is present in meat are heated together at high temperature (125-300^{o} C) or cooked for long periods to form the HCAs. The formation of HCAs varies by meat type, cooking method, and "doneness" level (rare, medium, or well done). Meats cooked at high temperatures, especially above 300^{o} C (as in grilling or pan frying), or that are cooked for a long time tend to form more HCAs. HCAs are some of most potent mutagens and have been clearly shown to induce tumors in experimental animal models. This review evaluate and summarize the HCAs are the potent mutagens and may increase the risk of human cancer.

Published: February 2018.

Ocimum basilicum leaves extract facilitates the glucose uptake by increasing the expression of GLUT 4 in L6 myotubes

Santhana Bharathi P[1], Sriram Prasanth G[2*]

[1]PG & Research Department of Biochemistry, Dwaraka Doss Goverdhan Doss Vaishnav college, Arumbakkam, Chennai-106.

[2]Assistant Professor, P G & Research Department of Biochemistry, Dwaraka Doss Goverdhan Doss Vaishnav College, Arumbakkam, Chennai-106.

[*]Corresponding author e.mail: gsriramprasath@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP19**

ABSTRACT

Ocimum basilicum is a common herb that is known for its ornamental and therapeutic importance. The plant has been reported to possess hepatoprotective, immunomodulatory, antihyperglycemic, hypolipidemic, antitoxic, anti-inflammatory, antibacterial and antifungal properties. In the present study an attempt has been made to evaluate the glucose uptake potential of Ocimum basilicum leaves extract in vitro. Phytochemical analysis of the leaves extract revealed the presence of phenols, alkaloids, flavonoids, glycosides, saponins, tannins, phytosterols and triterpenoides. The total phenolic and flavonoid content were found to be 284.72 ± 1.44 mg Gallic acid equivalent and 43.65 ± 0.21 mg quercetin equivalent. It has been found that Ocimum basillium leaves extract is rich in minerals like copper, magnesium, calcium, zinc, sodium, and potassium. Further, Ocimum basilicum leaves extract increases the uptake of glucose through the translocation of GLUT 4 in rat L6 myotubes. The observed glucose uptake potential may be attributed due to the presence of biologically active ingredients present in the Ocimum basilicum leaves extract

Published: February 2018.

Target Identification and Screening of BRCA1 Gene Involved In Breast Cancer

Praveena P[1*]

[1]PG and Research and Department of Microbiology, Mohamed Sathak College of Arts And Science, Sholinganallur Chennai.

[*]Corresponding author e.mail:praveenaloy@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP20**

ABSTRACT

Certain variations of the BRCA1 gene lead to an increased risk for breast cancer. Researchers have identified hundreds of mutations in the BRCA1 gene, many of which are associated with an increased risk of Breast cancer. The 3D structure of protein brca1 is retrieved from PDB.Then the new drug is designed by obtaining similar features from the cyclophosphamide and then that structure is chemically modified using Chemsketch.The various biochemical parameters are checked by Log p,Molsoft,Lipinski,ADMET properties etc.Finally the newly designed drug was allowed to dock with the protein and the energy score was calculated.Finally the tabular column was drawn to compare the Energy score.The lowest free Energy Binding has high Energy score.Thereby From the tabulation,the newly designed structure can also be used in the treatment of Breast cancer.Further modification of ligand molecule can increase the property of active site binding.

Published: February 2018.

Evaluation of biological activities and characterization on commercial plants of *Boerhaavia diffusa* and *Carica papaya*

Balamurugan V[1]

[1]PG and Research Department of Biotechnology, Sri Vinayaga College of Arts and Science, Ulundurpet-606 107, Villupuram District, Tamilnadu, India.

*Corresponding author e.mail: balakal78@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP21**

ABSTRACT

In the present examine of the biological activities and characterization of *Boerhaavia diffusa* and *Carica papaya*. The plant samples were extracted and polarity for screening radical scavenging activity by using DPPH assays method. In the qualitative analysis of phytochemical profile revealed the presence of highest amount of phenolic compounds from the three extract of *Boerhaavia diffusa*. However, the *Carica papaya* of petroleum ether extract showed the presence of alkaloids, coumarin, sugars, terpenoids, flavonoids, protein glycosides and carboxylic acid. In the screening of anti-microbial activity for three extract revealed anti-microbial potency towards 12 test organisms. According to the GC-MS results, ethanol extract of *Boerhaavia diffusa* was subjected to study of medicinal properties and *Carica papaya* holds potent anti-oxidant, anti-microbial, phytochemical constituents and marginal anti-cancer activity were presence in the phytocomponents in the plants material. So the present study, concluded to expose that the plant has quite a number of chemical constituents, which may be responsible for many pharmacological actions and have protective or disease preventive properties.

Published: February 2018.

Antibacterial Effect of Plant Aqueous Extracts against Cariogenic and Biofilm Forming Microrganisms

Sneha U[1], Karthikeyan R[2]

[1] Research Scholar, School of Life Sciences, B.S. Abdur Rahman University, Chennai

[2] Associate Professor, School of Life Sciences, B.S. Abdur Rahman University, Chennai

[*]Corresponding author e.mail: snehavarier@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP22**

ABSTRACT

Dental caries is aninfectiousbiofilm-forming disease which can be prevented. It is a main source of concern worldwide.The main biofilm forming cariogenic microorganisms are*Streptococcus mutans, Lactobacillus casei*and *Actinomyces viscosus.*The dried powders of *Acacia Arabica* (bark), *Terminalia Chebula* (fruits), *Terminalia bellerica* (fruits) and *Emblica officinalis* (fruits) have the potential to cure oral diseases and these four plant powders have been used in traditional tooth powder formulas in India for more than 100 years. The objective of the present study was to investigate the antimicrobial effect of an aqueous extract of these four plant materials against thecariogenic microorganisms. The Minimum Inhibitory Concentration, Minimum Bactericidal Concentration, kinetics of killing, and adherence assay of the aqueous plant extracts against the different microbes were determined. The results showed that the combined decoction of plant extracts had a high bactericidal activity against all the biofilm forming cariogenic microorganisms. Further studies in this regard would lead to the formulation of a mouth wash having anti caries property.

Published: February 2018.

Antibacterial activity of fruit extracts of *Terminalia chebula* and *T. bellerica* against imipenem resistant *Pseudomonas aeruginosa* clinical isolates

Bharani T[1*], Nirmala P[1*]

[1] PG and Research Department of Microbiology, Mohamed Sathak College of Arts and Science, Chennai – 600119, Tamilnadu, India.

[*]Corresponding author e.mail: nirmala_dineshkumar@yahoo.com; bharani_vt@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP23**

ABSTRACT

Pseudomonas aeruginosa is the most common disease causing species according to Centre for Disease Control and Prevention (CDC). It is associated with major clinical syndromes like pneumonia, cystic fibrosis, external otitis, soft tissue infections in severe burns and swimmer's ear. The drug resistance in *P. aeruginosa* is increasing in nosocomial setup especially through porin loss with AmpC and carbapenemase production. Since Ayurvedic medicine is the alternative choice, this study was aimed at examining the antibacterial activity of aqueous and ethanolic extracts of *Terminalia chebula* and *T. bellerica* fruits against imipenem resistant *P. aeruginosa* clinical isolates. Out of the 26 *P. aeruginosa* isolates collected, 12 were found to be resistant to impenem (MIC: 2 to >32 µg/mL) and were taken for this study. The crude aqueous and ethanolic extracts of *T. chebula* and *T. bellerica* fruits were prepared and reconstituted with 5% dimethylsulfoxide (DMSO). Minimum inhibitory concentration of the extracts was determined by agar dilution method using different concentrations of the fruit extracts. Both the ethanolic fruit extracts showed good antibacterial activity (MIC: 0.8 – 6.25 mg/mL) compared to the aqueous extracts (MIC: 1.6 – 12.5 mg/mL). Among the extracts, *T. chebula* showed better antibacterial activity than *T. bellerica.* Since the treatment options are limited for imipenem resistant *P. aeruginosa,* this can be considered in therapeutic point of view to treat the nosocomial infections caused by them.

Published: February 2018.

Synthesis and Characterization of silver nanoparticles from *Cynodon dactylon* and evaluation of its proton potassium ATPase inhibitory activity

Gayathri K[1*], Annapoorani B[1],

[1]Department of Biochemistry, Vels University, Pallavaram, Chennai – 117, Tamil Nadu

[*]Corresponding author e.mail :gayathri.sls@velsuniv.ac.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP24**

ABSTRACT

Nowadays, nanoparticles and nanotechnology is a leading research area. Scientific evaluation of traditional herbs for their pharmacological activities lead nano researchers to synthesize nanoparticles from herbs. In this study, silver nanoparticles are attempted to be synthesized from aerial parts of Cynodon dactylon and evaluate its anti-ulcer activity by proton potassium ATP ase inhibitory activity. Green synthesis of silver nanoparticles has been synthesized and characterized by UV, FTIR spectroscopy and SEM imaging. Anti-ulcer activity of synthesized nanoparticle has been evaluated by Proton potassium ATP ase inhibitory activity in In-vitro condition.UV spectrum shows maximum absorption of synthesized silver nanoparticle at 432 nm. The change in colour from yellow to brown and decrease in pH, SEM imaging further confirms the structure of synthesized nanoparticle. Nanoparticle inhibits proton potassium ATPase is significantly potent than that of aqueous extract of *Cynodon dactylon*.

Published: February 2018.

Submerged Fermentation Studies of β –D – Fructofuranoside from environmental isolates of *Saccharomyces cerevisiae*

Jayalakshmi K[1], Nirmala P[2*]

[1]Dept of Microbiology, Prince Shri Venkateshwara Arts and science college, Gowrivakkam, Chennai -73, Tamilnadu, India.

[2]PG and Research Department of Microbiology, Mohamed Sathak College of Arts and Science, Chennai – 600119, Tamilnadu, India.

[*]Corresponding author e.mail: nirmala_dineshkumar@yahoo.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP25**

ABSTRACT

Enzymes are the biocatalyst which accelerates the biochemical reactions. B-D-Fructofuranosidase (Invertase) hydrolyses sucrose and produces two equimolar mixtures of glucose and fructose (Invert sugar). It is produced from wide variety of microbial, animal or plant sources. Most enzyme production relies on microbial source. The increasing demand for invertase has stimulated its production from microbial sources. Most microbial enzymes are produced by aerobic submerged fermentation which allows greater control of growth factors, it gives greater yields, requires less man power and environmental friendly. In the present study invertase producing yeast *Saccharomyces cerevisiae* was isolated from various environmental sources like fruits, curd, soil, etc., by using serial dilution and plating procedure on SDA. Submerged fermentation was carried out in SYP broth. Enzyme production was screened and assayed by Millers method. Maximum producer was further grown in controlled environmental and nutritional conditions. Produced enzyme is used for further studies of characterization and purification. Purified enzyme is having wide variety of applications in food, confectionaries (as sweetener, preservative), pharmaceuticals (sweeteners for diabetic individuals, used in digestive tablets) and in industries (lactic acid, ethanol production).

Published: February 2018.

Antidiabetic potential of *Enicostemma littorale* leaves extract studied in HFD-STZ induced experimental diabetic rats

Selvam R[1], Muruganantham K[1], Subramanian S[1*]

[1]Department of Biochemistry, University of Madras, Guindy Campus-600 025

[*]Corresponding author e.mail: subbs2020@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP26**

ABSTRACT

Diabetes mellitus is a metabolic syndrome characterized by chronic hyperglycemia associated with absolute or relative deficiency in insulin secretion and/or action. Traditional antidiabetic plants provide a useful source of new oral hypoglycemic compounds for development as pharmaceutical entities or as simple dietary adjuncts to existing therapies. *Enicostemma littorale* (*Gentianaceae*), a perennial herb that belongs to the family *Gentianaceae* has been reported for its wide array of pharmacological properties. The present study was aimed to evaluate the antidiabetic potentials of *Enicostemma littorale* leaves extract in HFD-STZ induced experimental diabetes in rats. Phytochemical analysis revealed the presence of alkaloids, flavonoids, saponins, tannins, phytosterol, triterpenoids, glycosides and phenols. The total phenolic and flavonoid content were found to be 16.72 ± 1.13 µg Gallic acid equivalents and 10.05 ± 0.16 µg quercetin equivalents. Oral administration of *E. littorale* leaves extract (250 mg/kg b.w./rat/day) for a period of 30 days indicated the hypoglycemic nature of the leaves extract. Diabetic rats orally treated with *E. littorale* leaves extract for 30 days resulted in significant ($p < 0.05$) decrease in the levels of blood glucose, glycosylated hemoglobin, blood urea, serum uric acid, serum creatinine and diminished activities of pathophysiological enzymes such as aspartate transaminase (AST), alanine transaminase (ALT) and alkaline phosphatase (ALP). The antihyperglycemic nature of *E. littorale* leaves extract is also evidenced from the improvement in the levels of plasma insulin and hemoglobin. The results obtained are comparable with metformin. The observed antidiabetic nature of the leaves extract may be attributed to the presence of biologically active ingredients present in the leaves extract.

Published: February 2018.

Biosensors - An Innovative Apporach in Cancer Diagnosis

Geetha S[1*], Ashmitha Babu[1]

[1] Department of Biochemistry, School of Life Sciences, Vels Institute Of Science, Technology & Advanced Studies (Vistas)

[*]Corresponding author e.mail: geetha.sls@velsuniv.ac.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP27**

ABSTRACT

Infectious diseases are emerging as the most devastating disease globally that serves a life threat in many developing countries. An alarming increase in various types of cancersand the associated fatalities remains a major threat to mankind. The main reason for cancer related deaths are due to late detection of the disease and many of them are diagnosed only after invasion of secondary symptoms throughout the body. Biosensors are emerging as a rapid advanced field, which helps in early detection and diagnosis of cancer.It detects a specific biological marker of affected cells and converts it to an electrical signal and analyzes it. It serves as a promising technology in early detection, diagnosis and monitoringof various types of cancer. This could improve the chances of early detection ofcancer outbreaksand improves the treatment and prognosis of the affected patients.Biosensor technology holds vast potential in diagnosis by providing fast, accurate results and isalso cost effective. This review article provides insight into the new era of biosensor technology which holds promising revolution in the early diagnosis and treatment of cancers.

Published: February 2018.

Nutraceutical and Pharmaceutical Role of *Chlorella*

Bhuvana P[1], Sangeetha P[1], Anuradha V[1*]

[1]Department of Biochemistry, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai-119.

[*]Corresponding author e.mail: vanuradha2712@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP28**

ABSTRACT

Nutraceuticals are nutrients from food grade products which are commercialized not only as supplementary to the natural diet but also promote pharmacological and immune modulatory activities within the biological system towards preventing the illness or disease of the mankind. An increased global interest has arisen in these substances due to their documented role in health enhancement. Algae have been used as a food source and for treatment of various ailments for over two thousand years. Algae are diversified autotrophic organisms that possess many vitamins and minerals. *Chlorella vulgaris* (Chlorophyta) is unicellular green algae that can be grown / cultured on fresh and marine waters. Chlorella has been used as a food source for centuries and continues to grow as a valuable product in various industrial sectors. Besides Polysaccharides, they are specifically rich in essential aminoacids and poly unsaturated fattyacids. Omega 3 PUFAs and pigments were the major pharmacologically active components. Due to the presence of high nutrient content and beneficial compounds, they act as excellent antioxidants and thereby explored for antimicrobial, anti-inflammatory and anticancer activity.

Published: February 2018.

Phytochemical analysis of *Borassus flabellifer* Linn. immature fruits

Renuka K[1], Neeli Parvathi[1], Subramanian S[1*]

[1] Department of Biochemistry, University of Madras, Guindy Campus, Chennai-25

[*]Corresponding author e.mail:subbs2020@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP29**

ABSTRACT

Borassus flabellifer Linn. commonly known as Palmyra palm belongs to the family *Arecaceae*. It is widely distributed in the tropical regions of Asia and African countries. It is a robust tree capable of living more than 100 years and is referred to as the tree of life with more than 800 uses including food, beverage, medicinal and timber. Due to special contemporary significance, the palm tree is decreed as the official tree of Tamilnadu in 1978 and it is being depicted in the state emblem. The trunk can grow to a maximum height of 40 meters and 12 leaves unfurl per year. The crown is capable of possessing up to 40 leaves and the longevity of the unfurled leaves was approximately 4 years. The trees are widely used to tap toddy and its unique fruits. Normally a female palm tree produces 5-8 inflorescences with a total of 100-150 fruits. Though, the ripen fruits are more useful in terms of nutritional as well as economic value, immature or unripened fruits were used for cattle feed and immature endosperms are used for their gelatinous mass. Based on the folklore use in the treatment of various ailments, an attempt has been made to qualitatively identify the major phytochemicals present in the immature palm fruits. The data obtained revealed the presence of flavonoids, steroids, glycosides, saponins and tannins in the delipidated and ethanolic extracted immature palm fruits. Thus, the presence of biologically active phytoingredients may account for the pharmacological properties of immature palm fruits.

Published: February 2018.

Multifunctional Magnetic Nanoparticles – Preparation and Characterization

Shalini T[1], Weslen S Vedakumari[1*]

[1] Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam, Chennai-603103, Tamil Nadu.

[*]Corresponding author e.mail:drweslenv@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP30**

ABSTRACT

Iron oxide (IO) nanoparticles have received great attention owing to their ease of synthesis and biocompatible property. IO nanoparticles have been studied extensively for distinct applications in molecular tracking, cell separation, tissue-specific drug delivery and hyperthermia. In the present study a facile method was developed to prepare protein conjugated magnetic nanoparticles (MN). The MN were characterized using UV-Vis spectrophotometer and particle size analyzer. The MN will further be studied for their role in imaging and drug delivery.

Published: February 2018.

Safety Evaluation of Synthetic Compounds- Key role in Drug Discovery

Ashwin Prakash karurkar[1], Anuradha V[1*]

[1] Department of Biochemistry, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai-119.

[*]Corresponding author e.mail: vanuradha2712@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP31**

ABSTRACT

Bringing drugs from bench to market is a multistage complex process with intricate involvement of investors, industry, academia and regulatory authorities. To bring a successful drug candidate through the drug discovery and development process several years of expertise efforts and huge fund is required. Where inherent drug discovery and development process based challenges effect the drug productivity, widespread industry focuses also on other factors like pipeline quantity, heightened regulatory scrutiny and an increasing focus of pharmaceutical company investment in areas of unmet medical needs, unexploited biological mechanisms where there is a high risk of failure add to the drug attrition rates. Apart from the potential medicinal/bioactivity of the lead compounds, the predominating factor resides in ensuring safety and lack of toxicity of the drug candidates. Hence, this article identifies the key stages of drug discovery and development process and attempts to review the various approaches to mitigate the loss of potential drug candidate at each stage.

Published: February 2018.

An investigation on antimicrobial activity of silver nanoparticles (Ag NPs) from probiotic bacteria against multidrug resistant UTI (urinary tract infection) pathogens.

Umasankari J[1*], Vigneshwaran M[2], MohanPrakash RL[3]

[1,3] PG and Research Department of Biotechnology, Jaya college of Arts & Science,Thiruninravur, Chennai-602024, India.

[2] PG student PG and Research department of Microbiology, Mohamed Sathak College of Arts & Science, Shollinganallur, Chennai-600119, India.

[*]Corresponding author e.mail: sankariuma26@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP32**

ABSTRACT

Urine tract infection is one of the most important causes of morbidity, infrequently becoming life threatening infection. Urinary tract infections are caused by the invasion of the genitourinary tract microorganisms such as *E.coli*, *Klebsiella sp*, *Proteus sp* and *Pseudomonas sp*.Our study investigated the antimicrobial activity of Ag NPs synthesized from *Lactobacillus* against multidrug resistant UTI pathogens. Fifty urine samples were collected and the samples were processed using standard method. All theclinical isolates were subjected to antibiotic susceptibility test.Among the 30 isolates, 16.6% of *E. coli* strains (Ec-3& Ec-6) were multidrug resistant strain. The extra cellular synthesis of (Ag NPs) occurred during the exposure of *Lactobacillus* culture extract to 1Mm (AgNPs). Characterization of Ag NPs was done by UV-Visible spectroscopy exhibited absorption peak at 200-300nm. Scanning electron microscopy (SEM) image and X-ray diffraction (XRD) pattern showed the size of the NPs were 10 to 50nm with cubic and hexagonal shape. Microbial NPs showed strong inhibition against Multi drug resistant *E.coli* (Ec6) 23±0.4 & (Ec3) 18±0.6. This study was concluded that microbial (Ag NPs) could be a potential therapeutic approach for the treatment of infection with multi drug resistant bacteria in UTI infection.

Published: February 2018.

Ameliorative effect of ethanolic extract of *Madhuca longifolia* leaves on experimental adjuvant-induced arthritis in rats.

Devi N[1], Sangeetha R[1*]

[1] Department of Biochemistry, School of Life Sciences, VELS Institute of Science, Technology and Advanced Studies, Chennai.

[*] Corresponding author e.mail : sangeetha.sls@velsuniv.ac.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP33**

ABSTRCAT

As a folk medicine, *Madhuca longifolia* (Sapotaceae) has been used for the remedy of diverse inflammatory diseases. Nevertheless, the therapeutic effect of *Madhuca* on rheumatoid arthritis remains to be unknown. This work was aimed to investigate the anti-arthritic effect of *Madhuca longifolia* on complete freund's adjuvant (CFA) – induced arthritis in rats. Arthritis was induced in wistar albino rats by intradermal injection of complete Freund's adjuvant (0.1ml) into the foot pad of right hind paw. Group I rats served as a control group received only saline. Group II animals served as disease control, while the group III, group IV and group V arthritic rats were treated with standard drug diclofenac sodium (10 mg/kg) and EEML (200 and 400 mg/kg) for 21 days after administration of complete Freund's adjuvant. The severity of arthritis was evaluated by symptoms, biochemical, haematological and histopathological assessment. In FCA induced arthritic rats, there was significant increase in paw volume and decrease in body weight increment, whereas EEML treated groups, showed significant reduction in paw volume and normal gain in body weight. The altered haematological and biochemical parameters in the arthritic rats were significantly brought back to near normal by the EEML treatment at the dose of 400 mg/kg body weight. Histopathological studies too confirmed cartilage regeneration and near normal joint in EEML treated rats. It can thus be concluded that ethanolic extract of *Madhuca longifolia* possesses significant antioxidant and anti-arthritic potential. The results of the current investigation concluded, ethanolic extract of *Madhuca longifolia* leaves possess a significant anti-arthritic activity against Complete Freund's adjuvant induced arthritis and justifying its prophylactic role in arthritic condition.

Published: February 2018.

Astaxanthin and its Derivatives as Anticancer Agents

Suganya V[1], Anuradha V[1*]

[1]Department of Biochemistry, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai-119.

[*]Corresponding author e.mail: vanuradha2712@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP34**

ABSTRACT

Astaxanthin, a member of the carotenoid family, is a dark-red pigment which is the main carotenoid found in the marine world of algae and aquatic animals. It is the xanthophyll carotenoid, which is founded in *Haematococcus pluvialis, Chlorella zofingiensis, Chlorococcum,* and *Phaffia rhodozyma.* It accumulates up to 3.8% on the dry weight basis in *Haematococcus pluvialis*. Astaxanthin is also present in many types of seafood, including salmon, trout, red sea bream, shrimp and lobster, as well as in birds such as flamingo and quail. Astaxanthin had higher antioxidant activity when compared to various carotenoids such as lutein, lycopene, α-carotene and β-carotene. Numerous studies in animals and in human cell lines have demonstrated the benefits of astaxanthin in various types of cancer. Astaxanthin showed significant antitumor activity when compared to other carotenoids like canthaxanthin and β-carotene. Its derivatives enhanced gap junctional communication between mouse embryo fibroblasts. It also inhibited the growth of fibrosarcoma, breast, and prostate cancer cells and embryonic fibroblasts. Nitroastaxanthin and 15-nitroastaxanthin are the products of astaxanthin with peroxynitrite; 15-nitroastaxanthin anticancer properties were evaluated in a mouse model. Thus, in this review role of astaxanthin and its derivatives against different cancer has been demonstrated.

Published: February 2018.

Evaluation of Siddha Drug Gowri Chinthamani Chendhooram for its toxicological activities in Swiss Albino Mice

Ronald Darwin C[1], Mohamed Rizwan K[2*], Sundhararajan R[3], Raman S G

[1]Department of Pharmacology, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[2] Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[3]Department of Pharmaceutical Chemistry, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[*]Corresponding author e.mail: mnrizwan1996@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP35**

ABSTRACT

The aim of the present study was to evaluate the acute and sub-acute toxicity of *Gowri Chinthamani Chendhooram* .Acute toxicity studies were carried out according to the OECD guidelines 423. Healthy female Wistar mice of 25-30g were selected for oral administration of single doses of *Gowri Chinthamani Chendhooram* was done aseptically by suspending in 1% SCMC (Sodium Carboxy Methyl Cellulose). The sub-acute toxicity studies were carried out according to the OECD guidelines 407 and mice were divided into 2 groups of 10 animals each. *Gowri Chinthamani Chendhooram* was administered to mice at the dose of 30 & 60 mg/kg/day for 28 days. The toxic symptoms such as signs of toxicity, mortality and body weight changes were monitored. The mice were anesthetized with ether at the end of the treatment period and the blood samples were collected from the retro-orbital plexus. The animal is sacrificed after the blood collection. Finally the haematological, biochemical parameters, and the histopathological examinations were conducted. Thus the repeated oral doses of *Gowri Chinthamani Chendhooram,* experienced no significant changes in general behavior and hematological and biochemical parameters. No significant changes were observed in organ weights, and histopathological results showed normal profile suggesting no morphological alterations. Collectively, the results indicate that formulation is non-toxic when given orally.

Published: February 2018.

Folklore uses of Date palm

Vijayabharathi S[1], Farhanaz B H[1], Anuradha V[1*]

[1]Department of Biochemistry, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai-119.

[*]Corresponding author e.mail: vanuradha2712@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP36**

ABSTRACT

Phoenix pusilla is a dioceious plant, endemic to South India and Srilanka. This plant is usually seen in dry lowlands and ridges. Every part of this tree has application- leaves to make mats, baskets and fans, Seeds to make soap and kohl eyeliner. Seeds are also used as vermifuge with cow milk. Pith is used in the treatment of gonorrhea, gleet, fractures and as an antidote for snake bite. Roots are antibacterial and used as a disposable toothbrush. Fruits are used in urinary tract infections. Rural community people of Karaikal district found to use the fruits of *Phoenix pusilla* for treating respiratory disorders. In Kerala, dwarf date-palm is also used as an ingredient to prepare the Ayurvedic medicines like: Ashoka Ghrita, Drakshadi Kashayam, Chandanasavam. In general, this plant pacifies vitiated vata, pitta, burning sensation, fever, cardiac debility, peptic ulcer and general weakness.

Published: February 2018.

Evaluation of antioxidant, anti Inflammatory and anti microbial potential of *Punica Granatum* Linn (Peels And Leaves) Extract

GowriS[1] , Saravanan D[1*]

[1] D.G.Vaishnav College, Chennai.

[*] Corresponding author e.mail: gowrisathyamoorthy@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP37**

ABSTRACT

Plant based drugs continue to play an essential role in the primary health care of 80% of the world's under-developed as well as developed countries. Nearly two-third of the world's population relies on the curative power of plant based natural medicines for the reasons of their traditional use, belief, availability, accessibility and affordability. However, most of the medicinal plants have not received proper scientific scrutiny. Punica granatum is one such plant traditionally used for medicinal purposed known to possess wide array of pharmacological actions and has been widely used for medicinal purposed known to possess wide array of pharmacological actions and has been widely used for various ailments. Among the various studies, the extract of Punica granatum has been shows a presence of phytochemical constituents like alkaloids, flavonoids, tannis, glycosides, proteins, saponins, terpenoids and anthraquinones ethanolic extract and the various pharmacological activities which include: antioxidant, anti inflammatory, antibacterial and antifungal. Furthermore, due to the presence of good antioxidant potential in this plant it is suggested that pomegranate may be included in the diet for a healthy lifestyle.

Published: February 2018.

Identification of New Target and Drug against *Salmonella typhi*using Homology and Docking Studies

Subramaniam Sivakumar[1*], Poongothai S[2]

[1]Associate Professor, Department of Biochemistry, Sri Sankara Arts and Science College (Autonomous), Enathur – 631 561.

[2]Research Student, Department of Biochemistry, Sri Sankara Arts and Science College (Autonomous), Enathur – 631 561.

[*]Corresponding author e.mail: sivabio@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP38**

ABSTRACT

Typhoid feveris caused by *Salmonellaenteric* subspecies *enteric serovar Typhi* (*Salmonellatyphi*). It is transmitted by the fecal-oral route, mainly via contaminated food and water in the developing world. The proteome of this bacterium was analyzed. All known protein sequences were collected from Genpept database. From these seuqnences, 99 annotated protein sequences were retrieved from Genpept database. From the annotated protein, genes with targets filtered. From the retrieved targets, based on similarity between filtered genes and targets, three targets selected. Drugs for these targets derived from drugbank. Tertiary structure for the filtered genes predicted and structure for the drugs derived from drugbank. Docking was carried out between targets and drugs. Molecular properties for the drugs were predicted through molinspiration tool. In the current study the consolidation of subtractive proteomics methodology, structural prediction and docking has been performed to discover possible drug targets in *Salmonellatyphi*to enhance the future treatment administration. From the docking scores and Lipinski's Rule of Five, best drug Cidofovir was selected. However, wetlab studies have to be performed to confirm the role of Cidofovir in control of *Salmonella typhi*.

Published: February 2018.

In vitro Antigenotoxic Effect of Methanolic Extract of Microalgae-*Nannochloropsis sp*

Sangeetha P[1], Anuradha V[1*]

[1]Department of Biochemistry, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai-119.

[*]Corresponding author e.mail: vanuradha2712@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP39**

ABSTRACT

Microalgae strains are nowadays recognized as excellent sources of proteins, carbohydrates, lipids, and vitamins, to beh used and feed additives, for more than 40 years. However, the importance of microalgae in aquaculture is large because they start the food chain. The nutritional value, related to the biochemical composition, makes *Nannochloropsis oculate* well appreciated for feeding rotifers and fish hatcheries. In recent years, genotoxicity testing has become more and more important in the process of early screening for potential development compounds. In the present study, the methanolic extract of *Nannochloropsis oculate* was tested using *Salmonella typhimurium* TA98 in the absence of S9 using a standard plate incorporation assay. The mutagenicity assay was performed with five dose levels (0.312, 0.625, 1.25, 2.5 and 5.0 mg/ml) in the absence of metabolic activation system. Inhibition of background growth of non-revertant bacteria was not found at any of the five dose levels. The in vitro chromosomal aberration test is also carried out to assess the mutagenic potential that cause structural chromosomal aberrations in cultured mammalian cells. The results proved that the methanolic extract is antimutagenic and can be safe without inducing any genetic damage.

Published: February 2018.

Isolation and Characterization of pigments from microorganisms isolated from marine soil

Senthamilselvi P[1*], Priyalyer[1]

[1] PG and Research Department of Biotechnology, Women`s Christian College, Chennai-600006.

[*]Corresponding author e.mail: senthamil_selvi92@yahoo.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP40**

ABSTRACT

Bacterial pigments have many applications in current day to day life. The pigments produced by chromobacteria can be used for applications in dairy, pharmaceutical, food etc. In the current study, 3 pigments were isolated, FLUORESCENT ORANGE: *paracoccus spp*, FLUORESCENT YELLOW: *pseudomonas spp*, PINK: *serratia spp* pigmented bacterial isolates obtained from the soil, were used for pigment extraction and study.To isolate and characterize the pigment producing bacteria from marine soil. This work was to study the pigment producing bacteria and to identify the colour producing pigments. Soil samples from Pondicherry, Cuddalore, and Chennai & Andhra sea coast were collected and used for isolation of microbes producing pigments. Purification of extracted pigments by column chromatography, identification and characterization of purified pigment by UV visible spectrophotometry and GC/MS analysis etc. The pigment isolated from bacteria was used for antimicrobial activity, antioxidant, anticancer activity and transformation studies. The bacterial extract of carotenoid pigment extracted and was used as natural colorants for food products and for dyeing of cloth.

Published: February 2018.

Insulin-secretagogue action of the traditional antidiabetic plant *Coccinia grandis* Voigt in rat insulinoma cell line RINm5F *in vitro*

Meenatchi P[1,2], Purushothaman A[2], Maneemegalai S[1*]

[1] Department of Biochemistry, Bharathidasan University Constituent College for Women, Orathanadu-614 625, Tamil Nadu, India.

[2] PG & Research Department of Biochemistry, Mohamed Sathak College of Arts and Science (*Affiliated to the University of Madras, Approved by UGC and AICTE, and Reaccredited by NAAC with "B" Grade*), Chennai-600119, Tamil Nadu, India.

[*]Corresponding author e.mail: maneedevi@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP41**

ABSTRACT

Diabetes mellitus is a metabolic disease affecting millions of individuals worldwide, characterized by absolute or relative deficiencies in insulin secretion and/or insulin action associated with chronic hyperglycemia and disturbances of carbohydrate, lipid and protein metabolism. The total predicted increase in numbers of people with diabetes from 2012 to 2030 is about 180 million, an astonishing increase of 48% from 2012 at an annual growth of 2.7%, which is twice the annual growth of the total world adult population. The revived scientific interest in natural product-based drug discovery, new approaches for the identification, characterization, and resupply of natural products are crucial for the development of plant-based therapeutics. *Coccinia grandis*, Voigt (Cucurbitaceae family) is widely used in traditional treatment of diabetes. The fruits are used for culinary purposes as a vegetable. Hence, this study was aimed at investigating the phytochemical constituents as well as to examine the effect of *Coccinia grandis* Fruit extract (CGF) on insulin secretion using insulin-secreting Rat insulinoma clone m5F (RINm5F) cells *in vitro*. Phytochemical screening of CGF extract revealed the presence of flavonoids, alkaloids, glycosides, saponins, steroids, terpenoids, tannins and phenolic compounds. It is well known that phenolic compounds belong to the bioactive components of plant products and have good health-promoting activities. Further, CGF extract at 0.250 mg/mL and 0.50 mg/mL concentrations has significantly increased insulin secretion to 1.28 and 1.71- fold, respectively. Present findings provide experimental evidence that the fruits of *C. grandis* have potential antidiabetic activity which might be used as a functional food and safe remedy for the treatment of diabetes and associated complications. This study also revealed that the plant can be a promising source for development of natural novel insulin secretagogues.

Published: February 2018.

Role of metal and metal oxide nanoparticles as diagnostic and therapeutic tools for highly prevalent viral infection

Gunalan S[1*] , Sathyanarayanan K S[2*]

[1] Research Scholar, AMET University.

[2] Assistant Professor, MEASI Institute of Management, Royapettah, Chennai – 600 014,

[*]Corresponding author e.mail: sgunalanpillai@gmail.com, alivalamsathya@gmail.com.

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP42**

ABSTRACT

Nanotechnology is increasingly playing important roles in various fields including virology. The emerging use of metal or metal oxide nanoparticles in virus targeting formulations shows the promise of improved diagnostic or therapeutic ability of the agents while uniquely enhancing the prospects of targeted drug delivery. Although a number of nanoparticles varying in composition, size, shape, and surface properties have been approved for human use, the candidates being tested or approved for clinical diagnosis and treatment of viral infections are relatively less in number. Challenges remain in this domain due to a lack of essential knowledge regarding the in vivo comportment of nanoparticles during viral infections. This review article provides a broad overview of recent advances in diagnostic, prophylactic and therapeutic applications of metal and metal oxide nanoparticles in human immunodeficiency virus.

Published: February 2018.

Characterization of recombinant flagellin (rFliC) produced by *Lactobacillus rhamnosus*

Richard P[1*], Nirmala P[1*]

[1] PG and Research Department of Microbiology, Mohamed Sathak College of Arts and Science, Chennai – 600119, Tamilnadu, India.

[*]Corresponding author e.mail: nirmala_dineshkumar@yahoo.com, microsrich@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP43**

ABSTRACT

Flagellin is the major protein constituent of *Salmonella sp.* flagella, and a mammalian toll-like receptor 5 (TLR5) agonist. Previous research indicates that antibodies against the FliC protein can provide protection against *Salmonella* challenge in mice. In our study we cloned the flagellin (FliC) gene of *Salmonella enterica serovar Typhi* into *Lactobacillus rhamnosus* (MTCC 1408). In the present study, we characterized the recombinant flagellin (rFliC) produced by *L. rhamnosus*. The rFliC protein was secreted in the culture medium. It was purified and separated by SDS-PAGE. The results indicated that the rFliC containing 527 amino acids with a predicted molecular mass of 55.3 kDa. The immunogenicity of the protein was recognized by the reaction with antibodies produced by typhoid patients. rFliC protein was reacted with the typhoid antiserum. The findings of the present study indicated that the *L. rhamnosus* expressing the FliC protein could be used as a vaccine against *Salmonella* infections. Preclinical studies are in progress to test the in vivo efficacy and safety profiles of the recombinant FliC-expressing *L. rhamnosus* as an oral typhoid vaccine.

Published: February 2018.

Bacteriocin Isolated From *Lactobacillus paracasei*

Shalini Priyadarishini C[1*], Priya R Iyer[1]

[1] PG & Research Department of Biotechnology, Women's Christian College, Chennai.

[*]Corresponding author e.mail: shalinipriyadarishini@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP44**

ABSTRACT

Probiotics are live microorganisms that are intended to have health benefits. Research suggest that probiotics might help to prevent or treat a variety of health problems such as digestive disorders (diarrhoea, irritable bowel syndrome and inflammatory bowel disease), tooth decay, colic in infants and allergic disorders. *Lactobacillus* and *Bifidobacteria* are the predominant organisms that are categorized under probiotics. *Lactobacillus paracasei* is a gram positive, rod shape, non-motile facultative aerobe. Lactobacillus paracasei was isolated from probiotic drink, Yakult. The sample was serially diluted and spread plated on MRS agar medium and incubated under anaerobic condition. Various biochemical and invitro tests are done. Pure colony was inoculated in MRS broth and incubated under anaerobic conditions. The broth was then centrifuged and the supernatant contains the crude bacteriocin, which was the subjected to Lowry's method of protein estimation. The crude bacteriocin was then subjected to partial purification- Ammonium sulphate precipitation followed by dialysis. Anti-bacterial activity was performed to test the efficiency of the bacteriocin against pathogenic strains. The bacteriocin was characterized (pH, temperature and anti-bacterial activity). The bacteriocin can be further purified and structural studies done to identify the bacteriocin and further study its applications.

Published: February 2018.

Acute and 28 Day Sub-Acute Toxicity Studies of Hydroalcoholic Extract of *Blepharis maderaspatensis (L.) Heyne Ex Roth* in Wistar Albino Rats

Vijayalakshmi[1], Kripa K G[1*]

[1] Department of Biochemistry, School of Life Sciences, Vels University, Pallavaram, Chennai- 600 117

[*]Corresponding author e.mail: kgkripa.sls@velsuniv.ac.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP45**

ABSTRACT

Blepharis maderaspatensis L. Roth (Acanthaceae) popularly known as creeping *Blepharis* has been well cited in folklore medicine. Despite its numerous therapeutic benefits, its toxicological manifestations are yet to be documented. The present study was aimed to establish the safety profile of hydroalcoholic extract of *Blepharis maderaspatensis L. Roth* (HEBM) by performing acute and sub-acute oral toxicity studies in Wistar Albino rats of both sexes in accordance with OECD guidelines. In the acute toxicity study (OECD 420),first group (n = 6) served as control group which received distilled water while the second group (n = 6) was treated with HEBM at the dose of 5000 mg/kg body weight per orally. All the animals were closely observed for 14 days. Mortality, food and water consumption and other clinical signs were monitored throughout the experimental period. In the sub-acute toxicity studies (OECD 407), the first group served as the control group while the other three groups (n = 6) received repeated oral administration of HEBM at three different doses of 100, 200, and 400 mg/kg b.w/day respectively for 28 days. Body and organ weights, hematological and biochemical parameters, and histopathological changes were evaluated. The results obtained from acute toxicity study showed no adverse effects or mortality after the oral administration of 5000 mg/kg of HEBM. Food and water intake were normal. Sub-acute toxicity study proved that the 28 day oral exposure of various dosages of HEBM to Wistar rats of both sexes did not produce significant changes with respect to organ weight, haematological parameters, and biochemical parameters. Statistical Analysis was performed using Duncan's multiple range test (DMRT). Our results clearly depict that acute exposure of 5 g/kg b.w of HEBM proved safe as it did not cause mortality and the oral sub-acute administration of HEBM for 28 days did not cause toxicity risks as confirmed by biochemical investigations and histopathological examinations. To conclude, the hydroalcoholic extract of *Blepharis maderaspatensis L. Roth* extract may be considered non-toxic and safe for therapeutic use.

Published: February 2018.

In vitro Anti-Arthritic activity of *Nyctanthes Arbortristis Linn* Leaf extract

Deepalakshmi J[1*], Edet Love Mendie[1].

[1]PG & Research Department of Biochemistry,Mohamed Sathak College of Arts and Science, (Affiliated to University of Madras) Sholinganallur, Chennai, India.

*Corresponding author e.mail: trishabaskaran@yahoo.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP46**

ABSTRACT

Phytochemicals and promising pharmacological activities are widely distributed in medicinal plants. *Nyctanthes arbortristis Linn* is one of the most useful plant in India, it is used extensively in ayurvedic medicine for the treatment of various disease.In the present study fractions of ethanol, ethyl acetate and chloroform extracts of leaf of *Nyctanthes arbortristis Linn* was pharmacologically validated for its anti arthritic properties using *in vitro* inhibition of protein denaturation model in various concentration (ie) 200, 400, 600, 800, 1000µg/ml. All the extracts showed positive response compared to standard diclofenac sodium.The ethanol extract showed significant protection against denaturation of protein. The order of effect of different extract were represented as follows ethanol> ethylacetate> chloroform. Thus we conclude that the anti-arthritic activities may be due to the effect of the phytochemicals present in the plant.

Published: February 2018.

Antimicrobial Activity of Betle Leaf In Precluding Complications of Preeclampsia

Padmini E[1], Chithra B[2*]

[1] Associate Professor and Head, Department of Biochemistry, Bharathi Women's College, Chennai – 600 108,India

[2] Assistant Professor, Department of Biochemistry, Bharathi Women's College, Chennai – 600 108, India

[*]Corresponding author e.mail:bchithrabwc@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP47**

ABSTRACT

Intrauterine infection is the vertical transmission of pathogens during pregnancy affecting fetus, by causing structural and functional abnormalities like low birth weight babies, preterm delivery, intra uterine growth retardation and still birth. Ascending bacterial infections of the placenta by the organisms like, *Escherichia coli,* group B *streptococci*, and *Ureaplasma urealyticum* is usually the most common infectious cause of stillbirth. Women with bacterial vaginosis are more prone to ascending bacterial infection, causing decidual and chorioamnionitis related inflammatory response. Since bacteria and most other infectious agents reaches the fetus through the placenta and treatment with synthetic medicines during pregnancy are toxic, finding of herbal source enriched with antimicrobial function is of high demand. Betle leaf is known for its antimicrobial/antiseptic properties in Indian folkloric medicine and the phytochemical screening of betle leaf found to contain polyphenolic compounds, flavonoid, alkaloids and total antioxidant. The present work, aimed to evaluate the antimicrobial activity with different extracts of *Piper betle* leaves against human pathogenic bacteria, like *Pseudomonas aeruginosa, Escherichia coli, Staphylococcus aureus* and *Ureaplasma urealyticum.* Salivary and diastase extract showed maximum zone of inhibition against *Ureaplasma urealyticum* followed by other microorganisms. The study shows the promising potential use of *P. betle* extracts against both Gram-positive and Gram-negative especially *U*. *urealyticum* infection associated with preeclampsia. Results suggest that the extract of betle leaf may be a practicable to sweep over the complications associated with preeclampsia and may be effective in precluding still birth/preterm birth.

Published: February 2018.

Pyrazinamide Drug Resistant *Mycobacterium tuberculosis* In HIV Patients & Antituberculosis Activity of *Withania Somnifera* Dunal on Resistant Strains

Bharathi B[1 *], Sathiavathy[2]

[1] Department of Microbiology, MMM College of Health Sciences, Chennai -600 037, India

[2] Department of Microbiology, PRIST University, Thanjavur

[*]Corresponding author e.mail: bharathikarnan@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP48**

ABSTRACT

Tuberculosis is an infectious disease caused by the bacillus *Mycobacterium tuberculosis* affecting nearly one-third of the global population. Transmission of multidrug – resistant strains of *Mycobacterium tuberculosis* (MDR-TB) presents a serious problem for TB control, particularly in the context of co-infection with the human immunodeficiency virus (HIV). MDR-TB has been well studied in outbreaks in settings of low endemicity in developed countries. However, the characteristics of MDR-TB in the community with high endemicity such as India have not been well investigated. This study was designed to isolate and characterise *pncA* gene from a clinical isolate of pyrazinamide drug resistant TB patients co-infected with HIV and to analyse the antituberculosis activity of *Withania somnifera* Dunal on the pyrazinamide drug resistant strains of M.tb. The blood sample obtained was first subjected to CD4 analysis using Partec Flow Cytometry for RT-PCR analysis to confirm HIV positive. The serum albumin was separated by 10% SDS – PAGE and then the suspected protein spot was sequenced using Nano LC/MS. The DNA was isolated from the pyrazinamide resistant *M. tuberculosis* culture, which was used for the amplification of the *pnc A* gene using primers by PCR technique. The PCR product was subjected to electrophoresis on 2% agarose gel and desired gene product was eluted by the gel cleanup kit. The *pncA* gene PCR purified products were analysed in the bioanalyser electrophenerogram to detect the molecular weight and was directly sequenced at Bioserve, Bangalore. The BLASTn and BLASTx search tool was used to compare the suspected DNA sequence for detecting the mutation to confirm the drug resistance. Then the pure culture of *M. tuberculosis* was then subjected to phylogenetic analysis using 16s rRNA primer by PCR technique. The 16s rRNA PCR purified products was sequenced in the automated DNA sequencer. The MEGA search tool was used to compare and differentiate the 16s rRNA sequence from H_{37}Rv wild strain and other *Mycobacterium* sp. Treatment of tuberculosis is more difficult in immunodeficient patients such as those infected with HIV due to the resistance problem. The hexane and methanolic extracts of herbal plant *Withania somnifera* Dunal were assayed in vitro for antitubercular activity against M. tuberculosis H37Rv and clinical isolates of pyrazinamide resistant M. tuberculosis. The antimycobacterial activity and percentage reduction in relative light units (RLU) were

Published: February 2018.

calculated using luciferase reporter phage (LRP) assay showed the highest inhibition of the resistant spp with *Withania somnifera* methanolic extracts.

Published: February 2018.

Homeopathic Preparation of *Berberis Vulgaris* – A Therapeutic Agent of Hyperoxaluria In Urolithic Rats

Bhavani Tamilarasan[1], Periandavan Kalaiselvi[1*]

[1]Department of Medical Biochemistry, Dr. ALMPGIBMS, Taramani Campus, University of Madras, Chennai - 600113.

[*]Corresponding author e.mail: pkalaiselvi2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP49**

ABSTRACT

Oxalate induced renal calculi formation and the associated renal injury were considered as the cause of free radicals. An in vivo model was used to investigate the effect of homeopathic preparation of Berberis vulgaris, a well-known antioxidant, against calcium oxalate urolithiasis. Male Wistar rats were divided into four groups. Hyperoxaluria was induced in two of these groups by intra-peritoneal infusion of sodium oxalate (70 mg/kg) and a pretreatment of homeopathic preparation of Berberis vulgaris(20µl/kg body weight) was given for 7 days to one group of sodium oxalate infused rats. The anti-urolithic nature of the drug was evaluated by the assessment of urinary risk factors and light microscopic observation of urinary crystals. Renal tubular damage as divulged by urinary marker enzymes and histopathological observations indicated that renal damage was minimised in drug-pretreated group. Oxalate levels and lipid peroxidation in kidney tissue were significantly controlled by drug pretreatment, signifying the ability of homeopathic preparation of Berberis vulgaris to quench the free radicals, thereby preventing the lipid peroxidation mediated tissue damage and oxalate entry which accounts for the prevention of CaOx stones. Thus, the present analysis revealed the antioxidant and antiurolithic potential of homeopathic preparation of Berberis vulgaris thereby projecting it as a promising therapeutic agent against renal cell injury associatedkidney stone formation.

Published: February 2018.

Evaluation of oxidant and antioxidant status under xenobiotics stress in grey mullet

Padmini E[1], Radhika M[2*]

[1]Associate Professor and Head, Department of Biochemistry, Bharathi Women's College, Chennai 600 001, India.

[2]Research Scholar, Department of Biochemistry, Bharathi Women's College, Chennai 600 001 , India.

[*]Corresponding author e.mail: mradhika282@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP50**

ABSTRACT

Xenobiotics released into the estuaries may pose high toxicities on the aquatic organisms. Fish are more sensitive to toxicants and its response to the pollutants has been used as biomarkers of aquatic pollution. *Mugil cephalus*, a widely distributed freshwater fish that serve as a potential bio-indicator for estuarine contaminants. Kidney, an effector organ of the fish plays a vital role in ionic regulation, excretion of waste materials and active elimination of many bio-transformed derivatives of toxicants. The complex mixture of pollutants present in aquatic environment may mediate the formation of free radicals and cause oxidative damage to kidney. This is counter balanced by intricate antioxidant systems to maintain the redox homeostasis in the cell. Therefore the aim of the present study is to investigate the stress markers such as 4-HNE, Trx, HSP70, and TNFα in the kidney homogenate of *M.cephalus* from unpolluted (Control-Kovalam estuary) and polluted (Test-Ennore estuary) site. There was alteration in the level of 4-HNE, Trx, HSP70 and TNFα in polluted fish when compared to the unpolluted fish. The results suggest that the xenobiotic found in the Ennore estuary induced oxidative stress in fish kidney, however the induction of Trx and HSP70, plays a protective role against pro-oxidants by modulating the pro-inflammatory response via regulating TNFα and thus enhances the adaptability and survivability of fish under xenobiotic stress. The present study suggests that compensatory signaling proteins are triggered in renal system of grey mullets for sustainability in Ennore estuary.

Published: February 2018.

Production Of Gallic Acid From *Chebulic Myrobalan (Terminalia Chebula)* Fruits By *Aspergillus Niger* And *Penicillium Sp* And Evaluation Of Its Antibacterial Activity

Valli S[1*], Prem Kumar[1]

[1]Post Graduate & Research Department of Microbiology, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai – 600 119.

[*]Corresponding author e.mail: valli.ranjani@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP51**

ABSTRACT

Gallic acid is a phenolic compound, a potent anticarcinogenic, anti-oxidant and antimutagenic compound. The main objective of the present work was to produce gallic acid from chebulicmyrobalan fruits by submerged fermentation using *A.nigar* and *Penicilliums sp.* in a co-culture method. Soil samples were collected and processed as per standard method for the isolation of *A.niger* and *Penicillium sp.* submerged fermentation was performed for the production of gallic acid. Sample was collected daily from the fermentation broth and physico-chemical analysis like changes in the total tannin content and tannase enzyme assay were performed as per standard method. Tannase enzyme activity increased till 72hrs from (12-62 units/ml to 20-35 units/ml) beyond which there was a decrease in the enzyme activity. Initial tannin content was found to be 8.5 mg/ml of substrate which reduced till 72hrs of fermentation reaching 6.8gm/ml. after 72hrs there was no reduction in the tannin content.The breakdown of tannins to gallic acid was confirmed by assay of gallic acid and percentage yield was calculated.The concentration of gallic acid was estimated after 48hrs of fermentation. At 72hrs the concentration of gallic acid was found to be 5.73mg/ml and at 96hrs of fermentation the yield was 4.2mg/ml. Microbial production of gallic acid through submerged fermentation has been receiving more attention since the product finds wide application in pharmaceutical industry due to its varied biological activities (anti-oxidant, anti-apoptotic, antibacterial, antiviral, etc) and also being precursor of trimethoprim, propyl gallates and dyes.. Hence, an adequate dosage of gallic acid as a part of regular diet may be beneficial to human health and quality of life.

Published: February 2018.

Effect of Gymnemic acid in combating skeletal muscle mitochondrial derangements in Type-2-Diabetic rats.

Porkodi karthikeyan[1,2], Lakshmi Narasimhan Chakrapani[1], Pughazhendhi Kannan[1], Periandavan Kalaiselvi[1*].

[1*]Department of Medical Biochemistry, Dr. ALMPGIBMS, Taramani Campus, University of Madras, Chennai - 600113.

[2] Assistant Professor, Sri Sankara Arts andScience Collge, Enathur, Kancheepuram

[*]Corresponding author e.mail: pkalaiselvi2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP52**

ABSTRACT

Diabetes mellitus is a chronic multifactorial disease characterized by hyperglycemia resulting from either a lack of insulin production or resistance to insulin. Skeletal muscle is the largest Insulin-sensitive organ in humans accounting for more than 80% of insulin stimulated glucose disposal. Muscle mitochondrial metabolism is a tightly controlled process that involves the coordination of signaling pathways and factors from both the nuclear and mitochondrial genomes. Gymnemic acid, a saponin of triterpene glycoside is contained in leaves of *Gymnema sylvestre* has potent anti-diabetic properties. In the present study animals were divided in to five groups where Group-I serves as control, Group-II serves as diabetic control, Group-III serves as diabetic control supplemented with Gymnemic acid, Group-IV serves as Metformin control and Group-V serves as drug control. The main goal of this study is to evaluate the influence of type 2 diabetes on mitochondrial oxidative stress and to prove the efficacy of Gymnemic acid in enhancing antioxidant status in skeletal muscle. And to evaluate the potency of Gymnemic acid on altered lipid levels and mitochondrial enzymes (marker enzymes, TCA cycle enzymes and respiratory chain complex enzymes in Type 2 Diabetes. Key proteins concerned with biogenesis like AMPK, PPAR-γ, PGC1-α, NRF-1 levels were determined by immunoblotting and found to be boosted upon supplementation of Gymnemic acid in Group-III animals.Treatment with GA upregulated mitochondrial biogenesis and restores skeletal muscle integrity and its function.

Published: February 2018.

EGCG ameliorates diabetic cardiac myopathy in high fat diet and STZ induced Wistar Albino rats

Pramila Kasi[1], Thangarajeswari Mohan[2], Pugazhendhi Kannan[2], Julius[3*]

[1] Research and Development centre, Bharathiar University, Coimbatore- 641046.

[2]Department of Medical Biochemistry, Dr.ALMPGIBMS, University of Madras, Taramani Campus, Chennai.

[3]Professor and Head, Department of Biochemistry, Sree Balaji Dental College and Hospital, Chennai.

* Corresponding author e.mail: juliusamaldas@yahoo.co.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP53**

ABSTRACT

Recently many evidences suggest that most of the diseases are due to the “oxidative sress”. When the equilibrium between free-radical production and cellular antioxidant defences is disturbed in favor of more free radicals, it causes oxidative stress which can promote cellular injury. Oxidative stress has been suggested to play a role in the pathogenesis of diabetic cardiomyopathy. Due to the dominant role of cardiovascular disease and the dramatic rise of obesity and type 2 diabetes mellitus as major and interlinked healthcare problems, the effect of EGCG are increasingly being investigated in these areas. The present study was undertaken to evaluate the effect of Epigallocatechin-3-gallate (EGCG) is a major bioactive polyphenol derived from green tea that has been found to possess potent antioxidant and free radical scavenging properties. It has been well documented that EGCG exerts multiple beneficial effects on cardiovascular performance, rather than eliciting direct antioxidant effects, the study also focus on the mechanisms by which tea polyphenol express these beneficial properties appear to involve their interaction with cellular signaling pathways and related machinery that mediate cell function under both normal and pathological conditions. Animals were divided into four groups where Group-I serves as control, Group-II serves as diabetic control, Group-III serves as diabetic control supplemented with EGCG, Group-IV serves as drug control. Our results shows that EGCG significantly decreases the blood glucose levels, normalize the lipid profile and bolsters the activity of antioxidant. The present study concludes that EGCG supplementation significantly attenuated cardiac dysfunction in diabetic rats; hence it may have important clinical implications in terms of prevention and management of diabetic cardiomyopathy.

Published: February 2018.

Structure Prediction and validation of mutant kir6.2 genes

Jaya Mary A[1], Rohini M[1] , Mumtaj P[1*]

[1] Post Graduate and Research Department of Biotechnology, Mohamed Sathak College of Arts and Science.

[*]Corresponding author e.mail: mumtajpeermohammed@yahoo.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP54**

ABSTRACT

Diabetes is one of the leading causes of morbidity and mortality, consuming a significant proportion of public health spending. Several receptors (insulin-like growth factor receptor, glucose transporter, and kir6.2 and their associated signaling pathways have been elucidated and are involved in glucose regulation and diabetes. Kir6.2, a major subunit of the ATP-sensitive K+ channel, an inward-rectifying potassium ion channel, is an integral membrane protein that allows K+ to flow from the outside of the cell to the inside, which is controlled by G-proteins associated with sulfonylurea receptor (SUR), to constitute the ATP-sensitive K+ channel.Ten possible mutations affecting the regular mechanism of kir6.2 have been identified as probable causes of type 1 diabetes. Due to the unavailability of the crystal structure of kir6.2 protein, an attempt was made here to predict both the secondary and tertiary structures using *in silico* approach.

Published: February 2018.

Toxicological Evaluation of A Siddha-Medicine Based Poly-Herbal Formulation in Chang Liver Cell Line

Sankar M[1*], Sriram K[1], Johanna Rajkumar[1]

[1*] Department of Biotechnology, Rajalakshmi Engineering College, Rajalakshmi Nagar, Thandalam, Chennai-602105, Tamil Nadu

[*] Corresponding author e.mail**:** sankar.m@rajalakshmi.edu.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP55**

ABSTRACT

Drug-induced hepatotoxicity serves as a potential initiating factor favouring the onset of several hepatic diseases, and therefore urges for developing effective strategies of management. Although several years of molecular and clinical research have revealed that the sole modulation of drug-specific metabolic and signalling pathways can trigger the apoptosis and necrosis of hepatocytes, recent reports have suggested and strengthened the finding that initial upstream modulations and successive downstream attenuation of drug-specific molecular mechanisms, together supported by genetic, epigenetic and environmental factors shall synergistically promote and progress drug-induced hepatotoxicity. It often interferes with the uptake, excretion and conjugation of bilirubin and biliverdin, and leads to several other clinical complications like Liver Cirrhosis and Fibrosis, Chronic Hepatitis and Steatohepatitis, Hepatic Cytolysis, Cholestasis, Phospholipidosis, Fatty liver, and Hepatocellular Carcinoma. Anti-Tubercular drugs like Rifampin and Isoniazid continue being potential inducers of idiosyncratic hepatotoxicity worldwide. Pharmacological and toxicological investigations towards understanding the cellular susceptibility to anti-Tubercular drug-induced idiosyncratic hepatotoxicity have identified the generation and accumulation of highly-reactive free-radicals and cytotoxic metabolites, and have unravelled the cellular and extracellular factors that govern the antioxidant defence mechanism, which together determine the extent of hepatic cytolysis. Poly-herbal formulations have lately acquired greater scientific attention, accounted by their high efficacy even at low doses, assured safety even at high dosages, and broader therapeutic range against multiple targets and various diseases. The current work attempted to evaluate the cytotoxic effects of a Siddha-medicine based poly-herbal formulation in Chang Liver Cell line and compare its cytotoxicity with commercial anti-tubercular drugs over varying doses.

Published: February 2018.

Gymnemic Acid exerts its Anti-Diabetic Action By Modulating Dpp-4 Activity In Type 2 Diabetic Rats

Pugazhendhi Kannan[1], Porkodi karthikeyan[1,2], Lakshmi Narasimhan Chakrapani[1], Periandavan Kalaiselvi[1*]

[1] Department of Medical Biochemistry, Dr. ALMPGIBMS, Taramani Campus, University of Madras, Chennai - 600113.

[2] Assistant Professor, Sri Sankara Arts andScience Collge, Enathur, Kancheepuram

[*] Corresponding author e.mail: pkalaiselvi2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP56**

ABSTRACT

Diabetes mellitus is a multifactorial chronic metabolic disease characterized by hyperglycemia. Type 2 diabetes is the most common form of diabetes accounting for ~ 90% of diabetic cases and ~ 8% of the total. Plants have always been a prototypical source of drugs and many of the formerly available drugs have been derived directly or indirectly from them. Gymnemic acid is the primary active compound in leaves of *Gymnema sylvestre*, which has been traditionally used for treating diabetes. The present study aimed to investigate the role of gymnemic acid in lessening plasma DPP-IV activity in the Type 2 diabetes induced experimental animals. Young adult (4 months old) male Wistar albino rats (150-160g) were used for the study and they were grouped into four, Group-1 served as healthy control, Group-2 served as diabetic control, Group-3 served as diabetic control and GA (Gymnemic acid) supplemented treatment group and Group-4 served as drug control animals. Animals were induced with Type-2 diabetes by high fat diet and high fructose feeding. The effect of Gymnemic acid on islet cells in T2D in experimental animals was analysed by measuring the levels of free radicals, antioxidants. The effects of gymnemic acid on glycemic profile, lipid profile, c-peptide, insulin secretion, DPP4 activity and GLP-1were assessed. Oral administration of gymnemic acid for 30 days in T2D rats significantly lowered plasma glucose, DPP4 activity in serum. The efficiency of Gymnemic acid in inhibiting the DPP-4 activity and thereby preventing GLP-1 degradation, which is the key proliferative and anti-apoptotic peptide concerned with beta cell.

Published: February 2018.

EGCG - A promising therapeutic stratagem for diabetic nephropathy

Thangarajeswari Mohan[1], Kalaiselvi Periandavan[1]*

[1]Department of Medical Biochemistry, Dr.ALMPGIBMS, University of Madras, Taramani Campus, Chennai.

*Corresponding author e.mail: pkalaiselvi2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP57**

ABSTRACT

Diabetic nephropathy is characterized by glomerularhyperfiltration, thickening of glomerular basement membrane, mesangial matrix expansion and podocytes effacement that is associated with a decline of glomerular filtration rate and substantial proteinuria. Among the several factors associated with DN, hyperglycemia facilitates podocyte effacement via apoptosis leading to albuminuria. Although, a number of potential treatment strategies exist for diabetic nephropathy, considering the ease of use and bioavailability, phytochemicals stands distinct as the preeminent option. EGCG, a green tea catechin is one such phytochemical which possess hypoglycemic and anti-apoptotic activity. The present study aims to explore the potential of EGCG to prevent apoptosis in high-fat diet and STZ induced diabetic nephropathy in rats by analysing the cellular antioxidants and the protein expression of KIM-1, OPN, NOX2,WT-1 (podocyte specific marker). Our results validate EGCG as a potential anti-apoptotic agent evidently as it improves renal function by bolstering antioxidant status and up regulating WT-1, thereby maintaining the integrity of podocytes and consequently ameliorating diabetic nephropathy. In accordance, EGCG might be regarded as a prospective therapeutic candidate in modulating diabetic nephropathy.

Published: February 2018.

Effectiveness of *Portulaca quadrifida Linn.* powder as an adsorbent in the Phytoremediation of Lake Water

Anupriya S[1], Deepalakshmi J[2*]

[1] Assistant Professor, Prince Shri Venkateshwara Arts and Science College, (Affiliated to University Of Madras), Gowrivakkam, Chennai, India.

[2]Assistant Professor, PG & Research Department of Biochemistry,Mohamed Sathak College of Arts and Science, (Affiliated to University of Madras) Sholinganallur, Chennai, India.

*Corresponding author e.mail; trishabaskaran@yahoo.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP58**

ABSTRACT

Phytoremediation is the use of plants to partially or substantially remediate selected contaminants in contaminated soil, sludge, sediment, ground water, surface water, and waste water. It utilizes a variety of plant biological processes and the physical characteristics of plants to aid insite remediation. Heavy metals are dangerous because they tend to bioaccumulate. The abundance of organic compounds, toxic chemicals, nitrites and nitrates in water may cause unfavorable effects on human health especially cancer, other human body malfunctions and chronic illnesses. Heavy metal toxicity can result in damaged or reduced mental and central nervous function, lower energy levels, and damage to blood composition, lungs, kidneys, liver, and other vital organs. This work examined the phyto-remediating potential of the *Portulaca quadrifida linn.* plant powder in the treatment of lake water at different concentration (50 mg, 100 mg, 150 mg, 200 mg & 250 mg). Result showed a significant improvement in the treated water compared to crude water. It has been observed that plant powder was not only able to remove heavy metals such as chromium, lead and nickel, but is also capable of reducing total dissolved solids and other elements of water also. Present study reports revealed that the plant powder had positive effect in the treatment of lake water, so *P. quadrifida linn.* is a suitable remediating agent in the phytoremediation of lake water.

Published: February 2018.

Hesperetin Ameliorates Isoproterenol Induced Cardiac Hypertrophy: Role of Nfκb Pathway

Prema Velusamy[1], Shruthi Arun[1], Sapna Biswas[1], Lezy Flora M[1], Kalaiselvi Periandavan[1]*

[1]Department of Medical Biochemistry, Dr.ALMPGIBMS, University of Madras, Taramani Campus, Chennai.

*Corresponding author e.mail: pkalaiselvi2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP59**

ABSTRACT

The present study was aimed to study the role of hesperetin in modulating inflammation during isoproterenol induced cardiac hypertrophy. Latest epidemiological data has revealed that cardiac hypertrophy is a major predictor of heart failure, with a mortality as high as 80% for men and 70% for women within 8 years. Therefore, it is inevitable to develop therapeutic strategies that aim at modulating the hypertrophic remodeling of the heart by modulating inflammatory pathways. Cardiac hypertrophy was induced by subcutaneous injections of isoproterenol (5 mg/kg body weight) for seven days. Rats were pre-treated with hesperetin 30mg/kg body weight suspended in 0.5% methyl cellulose orally for 30 days. The HW/BW ratio, fetal gene expression and macromolecular damage were found to be increased in the isoproterenol administered rats, whereas, hesperetin treated rats showed a decline in the HW/BW ratio and fetal gene expression. The protein expression of inflammatory marker NF-κB was found to be decreased in the hesperetin treated rats when compared to the isoproterenol administered rats. This study suggests NF-κB as a potential target for anti-inflammatory therapy for cardiac hypertrophy and hesperetin modulated NF-κB expression, it therefore could be useful as an anti-inflammatory agent against cardiac hypertrophy.

Published: February 2018.

GC-MS/MS Analysis And *In Vitro* Anti-Diabtic Activity Of Leaves Of *Trigonella Foenum-Greacum*

Suganya G[1], Anuradha R[1]

[1] PG and Research Department of Biochemistry, Sengamala Thayaar Educational Trust Women's College, Sundarakkottai, Mannargudi-614 016. Tiruvarur (Dt), Tamil Nadu, South India.

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP60**

ABSTRACT

The nature has provided abundant plant wealth for all the living creatures, which possess medicinal virtues. Therefore, there is a necessity to explore their uses and to ascertain their therapeutic properties. Hence, the present study aims to open new avenues for the improvement of medicinal uses of *Trigonella foenum-greacum* (Leguminosae) leaves for the selected area for anti-diabetic activity. Dried (crude) ethanolic extracts of leaves of *Trigonella foenum-greacum* was subjected for *in-vitro* anti-diabetic activity. Diabetes mellitus is a heterogenous metabolic disease characterized by altered carbohydrate, lipid and protein metabolism. So many traditional herbs are being used by diabetic patients to control the disease. But very few studies are performed to investigate the efficacy of these herbs clinically. The results obtained indicate that the extracts possessed significant level of activity; the highest concentration of extract was high effective as an anti-diabetic agent. Gas Chromatography-Mass Specrometry analysis to determine the chemical constituents present in ethanol extract of leaves. Totally 32 different compounds from ethanol extract were identified. However, these effects need to be confirmed using *in vivo* models and clinical trials for its effective utilization as therapeutic agents.

Published: February 2018.

Antimicrobial Resistance: Risk Associated With Antibiotic Overuse and Initiatives to prevail over the challenges

Jason Clement Browne[1*], Uma Maheswari M[1], Karuna priyachitra[1]

[1] MMM College of Health Sciences, Mogappair, Chennai-600037

*Corresponding author e.mail: jasbro1998@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP61**

ABSTRACT

Antimicrobial resistance is a global public health challenge, which has accelerated by the overuse of antibiotics worldwide. Increased antimicrobial resistance is the cause of severe infections, complications, longer hospital stays and increased mortality. Overprescribing of antibiotics is associated with an increased risk of adverse effects, more frequent re-attendance. Antibiotic overprescribing is a particular problem in primary care, where viruses cause most infections. About 90% of all antibiotic prescriptions are issued by general practitioners, and respiratory tract infections are the leading cause of prescribing. Interventions should encompass the enforcement of the policy of prohibiting the over-thecounter sale of antibiotics, the use of antimicrobial stewardship programmes, the active participation of clinicians in audits, the promotion of delayed antibiotic prescribing strategies, the enhancement of communication skills with patients with the aid of information brochures and the performance of more pragmatic studies in primary care with outcomes that are of clinicians' interest, such as complications and clinical outcomes. However, in the case of ethical conflict, non-maleficence and justice take precedence. We know that we can reduce antibiotic prescribing in many of the infections that are currently unnecessarily treated without compromising our patients' health. Moreover, we know that antibiotics can stop being effective in the short and medium term. The use of the strategies discussed in this paper will help GPs to reduce prescribing of antibiotics. Our duty is to prescribe antibiotics only when they are necessary, i.e. in less than 20% of the infectious seen in primary care.

Published: February 2018.

Biosynthesis of silver nanoparticles using aqueous leaf extract of *Annona muricata*

Santhi Priya S[1*], Venkateswari R[2]

[1]IBMS, University of Madras.

[2] Assistant Professor, IBMS, University of Madras**.**

[*] Corresponding author e.mail:priyasanthi18@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP62**

ABSTRACT

Nanotechnology has emerged as a new area of research for last few decades, having its use in almost all aspects of modern field of science and technology whether it is electronics, mechanical, biomedicines or so. The present study involves the green synthesis of silver nanoparticles from the leaf extract of Annona muricata. Leaves contain the greatest concentration of active ingredients. One of such ingredients is Annonaceaeacetogenins, which has been widely studied for its anti-cancerous activities.5g of leaf powder dissolved in distilled water was boiled at 100ºC for 5 min. after cooling it was filtered, the filtrate was used. Five ml of the filtrate was added to silver nitrate. After incubation, Color changes and then its property was characterized using UV-VISIBLE, FTIR and XRD analysis.Formation of silver nanoparticles was confirmed by change in color of solution from transparent to reddish brown. UV visible spectrosvopy confirmed the stability of silver nanoparticles.the average crystalline size was found to be 20 nm by XRD analysis.The silver nanoparticles of 20nm size and spherical shape were synthesized using aqueous leaf extract of *Annona muricata*.It is also a better alternative to chemical synthesis, since this green synthesis is pollutant - free.

Published: February 2018.

Phytochemical composition of *Rosacentifolia* flower petals by GC-MS analysis

Akilandeswari K[1], Anuradha R[1], Priya R[2*]

[1]PG and Research Department of Biochemistry, Sengamala Thayaar Educational Trust Women's College, Sundarakkottai, Mannargudi-614 016. Tiruvarur (Dt), Tamil Nadu, South India.

[*]Corresponding author e.mail: devipriya.june24@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP63**

ABSTRACT

The flowers of *rosacentifolia* was extracted with ethyl acetate was subjected to preliminary phytochemical analysis. Flavonoids, alkaloids, carbohydrates, tannins, lignins, saponins, glycosides and fixed oil and fats were found to be present. The ethylacetate crude extract further fractionated with three different solvents. i.e, benzene, diethylether and ethyl acetate and the chemical composition of the ethyl acetate extract was determined by GC/MS analysis. The present investigation revealed the following major compounds from *rosacetifolia*. In this analysis 30 bioative phytochemical constituents were identified. Based on the peak area and molecular weight, the dibutyl phthalate and oleic acid was observed as the major constituents.

Published: February 2018.

Effect of Green Synthesized Silver Nanoparticles on Fresh Water Fish Mystus Gulio

Abirami T[1*], Kavitha V[1], Karthikeyan J[1]
[1] Department of Zoology, Presidency College (Autonomous), Chennai - 600005
[*]Corresponding author e.mail: abirami8590@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP64**

ABSTRACT

The objective of the present study is to analyze the toxic effect of green synthesized silver nanoparticles on the fresh water fish *Catla catla*. The silver nanoparticles were synthesized using aqueous leaf extract of *Madhuca longifolia* and characterized using UV-Vis Spectroscopy and Scanning electron microscopy. Fishes were exposed with sub-lethal concentration (0.4ppm) of silver nanoparticles for 15 days period. Activities of LDH, SDH, Na^+-K^+ ATPase, Ca^{2+} ATPase and Mg^{2+} ATPase were estimated in liver, kidney, brain, muscles and gills. A significant decrease in the level of LDH, SDH and ATPase was observed in the treated group of animals. The results revealed that the green synthesized nanoparticles exhibit toxicity in the aquatic organisms.

Published: February 2018.

A Study on Microalbuminuria Levels In Elderly Individuals With And Without Diabetes

Priya Pathibalan [1], Preethi Loganathan[2], Sampath Kumar Gasper[3], Suganthi Subramani[4*] Selvakumar Kandaswamy[3]

[1] Loyola College, Chennai

[2] Department of Biochemistry, Bhaktavatsalam Memorial College for Women, Chennai

[3] Department of Biochemistry, Billroth Hospitals, Chennai

[4] Associate Professor, Department of Biochemistry, Bhaktavatsalam Memorial College for Women, Chennai

[*] Corresponding author e.mail: ssuganthi25032015@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP65**

ABSTRACT

Microalbuminuria (MA) is a prognostic marker for renal out come in a patient with type 2 diabetes (T2D). Glycemic control reduces the microvascular complications of elderly individuals is based almost exclusively on forestall of microalbuminuria. The study was conducted random 233 (171 men and 62 women) patients age of 40 – 60 yrs at Billroth hospitals. To estimate microalbuminuria in Diabetic and non-Diabetic patients based on Glycated Haemoglobin (HbA1c) , estimate plasma Glucose, Serum Urea and creatinine levels for find out renal failure. Among 233, the 51 patients (42 male and 9 female) were having microalbuminuria positive this, cases divided into four groups. The first group was 12 % of controlled diabetes (HbA1c <6.0) .The second group was 26 % uncontrolled diabetes (HbA1c >7.0). The other group was 6% of diabetic with renal failure.Third group was 19% of renal failure. Group fourth is non diabetic and non renal failure of 12%. Based on this pilot study, we conclude that patients who are controlled in diabetes have a less chance to get renal failure even they are 65 – 85yrs. At the same time the results are proven that the patients are getting renal failure very earlier even at age of 41 – 50 if they are uncontrolled in diabetes. This study suggests the need to screen for MA early and active management of modifiable risk factors in particular hyperglycaemic and to reduce the burden of end stage renal disease in future.

Published: February 2018.

Efficacy Of *Wattakaka Volubilis* And Kaempferol On Mitochondrial Enzymes In Aluminium Sulphate Induced Hepatotoxicity In Rats

Usharani[1], Anuradha[1]

[1]PG & Research Department of Biochemistry, STET Women's College, Mannargudi.

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP66**

ABSTRACT

The aim of the present study is to evaluate the protective effect of *Wattakaka volubilis* and Kaempferol on Mitochondrial enzyme levels on male albino rats. The mitochondrial enzymes (Complex I – NADH dehydrogenase, Complex II – Succinate dehydrogenase, Complex III – Cytochrome reductase assay, Complex IV Cytochrome oxidase assay) levels of methanolic leaf extract of *Wattakaka volubilis* at a dose of 200 mg/kg and Kaempferol 10 mg/kg was evaluated during exposure to Aluminium sulphate. There was a significant decrease in mitochondrial enzymes such as (Complex I – NADH dehydrogenase, Complex II – Succinate dehydrogenase, Complex III – Cytochrome reductase assay and Complex IV Cytochrome oxidase assay was observed in aluminium sulphate treated rats. Therapeutic treatment with plant extract has significantly ameliorated to near normalcy in the curative group. These results of the study concluded that *Kaempferol* was found to be effective in preventing the biochemical abnormalities caused by toxins.

Published: February 2018.

Antibacterial efficacy of green synthesized silver nanoparticles against gram-positive and gram-negative bacteria

Kavitha V[1*], Abirami T[1], Karthikeyan J[1]

[1] Department of Zoology, Presidency College (Autonomous), Chennai – 600005

[*]Corresponding author e.mail: Kavithasarathy0507@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP67**

ABSTRACT

Microorganisms show higher degree of resistance to synthetic antibiotics these resistance strains of bacteria are the most serious threat to the treatment of infectious diseases. Hence, the present study intended to evaluate antibacterial activity of green synthesized nanoparticles using *Achyranthes aspera*. The silver nanoparticles were synthesized using aqueous leaf extract of *Achyranthes aspera* and characterized with UV-Vis spectroscopy, FTIR and Scanning electron microscopy. Antibacterial activities were assessed by disc diffusion method against *Proteus mirabilis, Bacillis subtilis, Klebsiella Pneumonia, Escherichia coli* and *Vibrio cholera*. Silver nanoparticles shows a potential bactericidal activity against both the gram positive and gram negative bacteria, highest significant activity was observed against *Proteus mirabilis* and *Klebsiella pneumonia.* The green synthesized silver nanoparticles show a potential antimicrobial activity against the tested organisms when compared with the solvent extracted leaf extracts of *Achyranthes aspera*.

Published: February 2018.

Anticancer Activity and Cytotoxicity Assay of *Citrus medica* Pulp – *In Vitro*

Sheela A[1*]
[1]Department of Biochemistry, Valliammal College for Women
*Corresponding author e.mail: sheelaasha@gmail.Com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP68**

ABSTRACT

The present study investigated the anticancer activity and cytotoxic activity using the pulp of citron fruits in *in vitro* method. The total antioxidant activity was determined using phosphomolybdenum method. MTT assay was carried out to study the anticancer activity of the fruit pulp. The result of the assay showed that the fruit pulp at high concentration caused maximum cell death in MCF-7 cell line. Trypan blue exclusion assay was carried out to count the total number of cells, Hence this preliminary study shows that citron fruit as a promising fruit for developing anticancer drug. The bioactive compounds in citron fruit may contribute for the anticancer activity. Further studies may be carried out to identify the bioactive compound.

Published: February 2018.

Nanotechnology a Growing Vision In Healthcare-A Review

Shanmuga Sundaram C[1*], Aarthi Monika B[1]

[1]Hindustan college of arts and science, Kelambakkam, Chennai – 603 103.

[*]Corresponding author e.mail: amudhashanmugam1977@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP69**

ABSTRACT

Constant population growth influences of health care stresses and wants for novel, more sophisticated systematic solutions. Traditional way of providing the health care services could be very stout. It requires new prototype and knowledge for more effective solutions. Rapid improvement in information and Nano technologies change the health care system on the whole. It gives to the health care system a new, universal domain – Internet of Nano Things (IoNT) and nanomedicine. These two concepts are beginning to change the foundations of disease diagnosis, treatment, and prevention. Future healthcare based on IoNT powered e-health systems will make health monitoring, diagnostics and treatment more personalized, appropriate and suitable. These improvements increase the availability and quality of medical care followed with radically reduced costs. Thus, analysis of this approach is highly important for future development of healthcare. Particles like gold and silver show high bioactive product for treatment of severe disorders.

Published: February 2018.

Antiproliferative and Antimicrobial activity of Vitis vinifera Seed Extract

Lakshmi S[1], Thiripurasundari B[1*]

[1] Department of Biochemistry, Valliammal College for Women

[*]Corresponding author e.mail: sudhamphil2003@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP70**

ABSTRACT

The medicinal and nutritional value of grapes has been heralded for thousands of years. Apart from the fruit grape seeds are believed to have antioxidant property due to its high polyphenol content. Hence the present study was designed to analyse the antiproliferative and antimicrobial activity of the seed extract of black variety of grapes. Phytochemical analysis of the methanolic extract of the seed showed the presence of steriods, tannins, proteins, phenols, terpenoids, cardiac glycosides and alkaloids. The extract also showed significant antimicrobial activity against selected bacterial and fungal species. The antiproliferative activity was determined by MTT assay. It was carried out using Hep G2 cell line. The result of the experiment showed that the seed extract decreased cell viability as the concentration was increased. The results of the present study shows that grape seed is rich in phytochemicals and may be considered as an effective agent against microorganisms and tumour cells.

Published: February 2018.

A Preliminary Study 0n The Phytochemical, Antioxidant and Antimicrobial Activity of Ethanolic Extract of *Solanum torvum*

Gomathy G[1*]

[1] Department of Biochemistry, Valliammal College for Women

[*]Corresponding author e.mail: m.gomathy87@Yahoo.Com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP71**

ABSTRACT

This study investigated the phytochemical, antioxidant and antimicrobial efficacy of ethanolic extract of the leaf of *Solanum torvum.* The phytochemical analysis of plant extract revealed the presence of tannins, saponins, flavonoids, alkaloids, steroids. The antioxidant activity was studied by DPPH and FRAP assay. The antimicrobial activity was determined by using disc diffusion method against 5 bacterial and 3 fungal species. The present study revealed that the ethanolic leaf extract of the plant has bioactive compounds which may be responsible for antioxidant activity and antimicrobial activity. Further studies may be carried out to study the anticancer property of the plant.

Published: February 2018.

Heavymetal tolerant algae for bioenergy production.

Vijaiyan Siva G*, Maneesh G, Akhila S
Department of Biotechnology,University of Madras,Chennai-600 025.
* Corresponding author e.mail: *gvsbio@gmail.com*

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP72**

ABSTRACT

Heavy metal pollution is of potential causes for environmental problems concern to freshwater ecosystem in Tamil Nadu as a result of tanning industries. The aim of the study was to investigate the effect of heavy metals to the green algae endemic to the fresh water bodies in Vaniyambadi District, Tamil Nadu, India. The effects of heavy metals on growth of algae were determined. Extracellular bound metal ion concentrations were estimated in terms of possible use of green algae with the metal ion at the cell surface for its potential use in bio energy production.

Published: February 2018.

Assessment of Antioxidant and Antimicrobial Activities of *Strobilathus Barbatus* against Organism Isolated from the Arthritic synovial fluids

Farzana Hilal[1], Aysha O S[2*]

[1]Research Scholar, PG and Research department of Microbiology, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai, Tamil Nadu, India.
[2]Head, PG and Research department of Microbiology, Mohamed Sathak College of Arts and Science, Sholinganallur, Chennai, Tamilnadu, India.
[*]Corresponding author e.mail**:** ayshamohamed786@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP73**

ABSTRACT

Rheumatoid arthritis (RA) is one of the most common inflammatory autoimmune diseases. It is characterized by persistent synovitis, systemic inflammation and production of autoantibodies. Rather than the molecular mechanisms and genetic factors; environmental factors like infection and smoking play a pivotal role in RA pathogenesis. Recently, various natural products have been shown to safely suppress pro-inflammatory pathway and control RA. Parallelly to prevent the destructive processes caused by oxidative stress caused by inflammation, antioxidants either in the form of raw extracts or their chemical constituents are very effective and essential. With all these facts, the present study was done to investigate the leaves of Strobilanthus barbatus for its antimicrobial and antioxidant activity. The obtained results showed that the ethanolic extract of *Strobilanthus barbatus* has 79.92% of inhibition in 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity,13.69mg/g GAE (Gallic Acid Equivalent) for phenolic content and most effective against various pathogens isolated than the chloroform extract.

Published: February 2018.

3D Printing Technology In Medicine- A Review

Komala M[1*], Sundararajan R[1], Gayathri S P[1], Ahamed Farid A N V[1],Vignesh Kumar M[1]

[1]Mohamed Sathak A.J. College of Pharmacy, Sholinganallur, Chennai-119

[*] Corresponding author e.mail: komala.pharmacy@gmail.com, miranasharma@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP01**

ABSTRACT

The dissimilarity between every human body is an increasing global obstacle when treating patients from different backgrounds with varied metabolism. Dose adjustment is frequently based on empirical methods. Hence, the chance of undesirable effects to occur is high. Three-dimensional printing (3DP) is the next great step in drug delivery; it is a unique prototyping technology that can revolutionize the field of pharmacokinetics with its customizability and the ability to fabricate complex solid dosage forms with high accuracy and precision. 3DP technology relies on computer aided designs providing unparalleled flexibility and exceptional manufacturing capability of pharmaceutical drug products. 3DP is gaining increasing attention in pharmaceutical formulation development as an effective strategy to overcome some challenges of typical pharmaceutical unit operations. The traditional manufacturing unit operation involving milling, mixing, granulation and compression can result in disparate final products with respect to drug loading, release and stability and pharmaceutical dosage form stability. 3DP got its recognition after FDA approval of 3D-printed Levetiracetam (SPRITAM®) tablets. 3D printing applications include but not restricted to personalized drug dosing, complex drug release profiles, printing living tissue, precise dose of each drug. 3D printing is still in its rudimentary level and requires intense research to expand its horizon to replace current production methods. The imperative areas that demand enhancements include optimization of the process, selections of appropriate excipients, post treatment method, 3D printed products' performance and to broaden the application range in novel drug delivery systems. The multiple opportunities 3D printing presents for the health care industry are being unveiled.

Published: February 2018.

Microbial synthesis of silver nanoparticles from *Aspergillus tamarii* and its antimicrobial activity

Seetha[1*], Janet Bertilla X[1] , Shanmugavel M[1] , Gnanamani A[1]

[1]Department of Biological Material Laboratory, CSIR - Central Leather Research Institute, Chennai - 600020, India.

[*] Corresponding author e.mail: n.seetha97@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP02**

ABSTRACT

Nanobiotechnology is a multidisciplinary field which commonly involves scientific and engineering principles in order to exploit materials and molecules at nanoscale. Development of reliable and eco-friendly process for synthesis of metallic nanoparticles is an important step in the field of application of nanotechnology. One of the options to achieve this objective is to use natural processes such as use of biological systems. In this work we have investigated extracellular biosynthesis of silver nanoparticles using the fungus *Aspergillus tamarii.* Among the microorganism fungi has been gaining a lot of consideration of the researchers due to its advantage over bacteria *viz.* posses high wall binding capacity, better intracellular metal uptake capabilities and require simple nutrient to grow. The synthesis process was quite fast and silver nanoparticles were formed within five hours of silver ion coming in contact with the cell filtrate. The AgNPs formed were characterized using UV–Visible spectrum, FTIR, and SEM, Zeta potential, DSC and TGA. And we also found that the synthesized silver nanoparticles are effective growth inhibitors in various microorganisms.

Published: February 2018.

Development and Standardization of Polyherbal Formulation in Diabetes Mellitus

Johnsy Mary F[1], Sundararajan R[2*], Janani N[3]

[1]Department of pharmacognosy,Mohamed sathak A.J. College ofpharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[2] Principal, Department of Pharmaceutical Chemistry, Mohamed sathak A.J. College of pharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[3] Student, Mohamed sathak A.J. College of pharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[*]Corresponding author e.mail: sharonangela2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP03**

ABSTRACT

In Traditional system of Medicine, many plants have been documented to be useful for the treatment of various systemic disorders. Many of the Traditional/Indigenous system of Medicine are effective but they suffer from lack of complete standardization which is one of the important challenges posed by the Traditional system of Medicine. The concept of Polyherbal Formulation is well documented in the ancient Literature. Compared to the single herb, the Polyherbal Formulation has better and extended therapeutic potential. Hence, the present study was planned to formulate and standardize a Polyherbal Formulation using plants having known anti diabetic potential. The most important challenges posed by herbal formulationsis their evaluation and standardization. Evaluation is necessary to ensure the quality and purity of the herbal product. For evaluation of raw materials and Polyherbal Formulation various parameters are studied as per the World health organization's guidelines and the Ayurvedic pharmacopoeia of India. The present study deals with Formulation the Polyherbal Formulation prepared from hydro - alcoholic (30:70) extracts of *Andrographis paniculata* (Stem and Leaves), *Asparagus racemosus*(root), *Ipomoea digitata* (Rhizome), *Tinospora cordifolia*(Stem) and *Withania somnifera*(root). To evaluate of raw materials include Physicochemical studies like ash values, extractive values, phytochemical studies and safety profiles which include heavy metal analysis, pesticide residue analysis and microbial load analysis. The preformulation parameters and parameters for finished product (hard gelatin capsule) include uniformity of weight, disintegration time, moisture content, PH, Phytochemical estimation and microbial load assay. The HPTLC finger print profile of finished product was also carried out.

Published: February 2018.

Antimicrobial effect of *Fabacea* and *Euphorbiaceae* plants - Case study

Sabari R[1*], Nazareth Arockiamary.S[1]

[1]Department of Biochemistry, Asan Memorial College of Arts and Science, Jalladampet, Chennai -600100

[*]Corresponding author e.mail: sharonangela2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP04**

ABSTRACT

The erge of search for drugs and dietary supplements derived from plants have accelerated in recent years. Ethanoparmacologists, botanist, microbiologist, biochemist and natural product chemist are combining the earth for phytochemicals which prevents or treat infectious disease while 25-50 % of current pharmaceuticals are derived from plants. Traditional healers have long used plants to prevent or cure infectious condition. Plants are rich in wide variety of secondary metabolites such as alkaloids, flavonoids which have been found *in-vitro* to have antimicrobial properties. The present study is focused on screening six plants of Fabaceae family namely – *Pisum sativa, Arachis hypogaea, Glycine max trifolium, Trigonella foenum-graecum, Tamarindus indica* and six plants of *Euphorbiacea family namely – Ricinus communis, Manihol esculenta, Cordium varigatum, Cydia deshisiana, Genus aclypha, Genus jatropha,* plants which are used in medicine to treat various disease like diahorrea, eye infection etc, was also found to posses antimicrobial effect against gram positive bacteria and fungi. The antibacterial and anti fungicidal effect of all the 12 plants were compared and discussed.

Published: February 2018.

Formulation and Standardization of Poly Herbal Syrup

Komala M[1], Sundararajan R[2], Hemamalini S[3*], Ramya V[3], Hanisha A[3], Nivetha K[3], Dhivya Bharathi[3], Vanitha[3]

[1] Department of Pharmaceutics, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[2] Department of Pharmaceutical Chemistry, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[3] Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[*]Corresponding author e.mail: komala.pharmacy@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP05**

ABSTRACT

The aim of this work is to prepare and evaluate the poly herbal cough syrup. This formulation contains *Solanum trilobatum, alpinia calcarata* and *glycyrrhiza glabra* which are unpalatable in nature and the study is aimed to increase the palatability as syrup formulation. The plants were authenticated and the extractions are carried out by the process of simple decoction. Then the extracts are subjected to preliminary phytochemical analysis for the presence of phytoconstituents by standard methods. The prepared formulations were evaluated for colour, odour, taste, pH, specific gravity and stability testing. The pH determination was carried out by using digital pH meter. Specific gravity was determined by using pycnometer. Stability testing was performed on keeping the samples at accelerated temperature conditions. Final syrup were taken in an amber coloured glass bottle were kept at various temperature at 4˚C, 37˚C, 47˚C. The samples were tested for all the physicochemical parameters, turbidity and homogenesity at the interval of 24 hrs, 48 hrs, and 72 hrs to observe any changes. The final syrup found to have pH 5.0 and specific gravity 1.1610g/ml, reddish grey colour, pleasant odour and sweet taste. The result of stability study of final syrup reveals that no changes were noticed in all the tested parameters. The prepared oral liquid polyherbal syrup formulation was highly palatable, thus the syrup could be suitable dosage form to treat cough.

Published: February 2018.

Utilisation of fruits waste for Citric acid production by Solid state fermentation technique.

Jayabharathi Thevar[1*]
[1] Department of Biotechnology, SRM university, Kattankulathur, Chennai.
[*]Corresponding author e.mail:spjbharu08@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP06**

ABSTRACT

Citric acid is the most important organic acid produced in tonnage and is extensively used in pharmaceutical industries. Earlier it was extracted from Lemon. Due to the increasing demand for it now it was totally produced by fermentation process using *Aspergillus niger* from different sources of carbohydrates such as molasses & starch based media. However alternative sources of carbon such as agro-industrial residues have perspective to its production. The potential of agricultural waste such as pineapple, mixed fruit, maosmi as a substrate was examined for citric acid production by *Aspergillus niger* using Solid state fermentation technique. Three main parameters were considered fro the effective yield: Temperature; low-molecular weight alcohol; Nitrogen source. The study has revealed that food waste material can be used for citric acid production by Solid state fermentation using Aspergillus niger. The use of the waste might represent an efficient method of reducing the environmental problem due to their disposal and also help in reduction of substrate cost.And also the production of Citric acid by fruit waste without addition of other nutrients could be of interest to possible, future industrial applications.

Published: February 2018.

Pharmacognostical Evaluation of Stem Bark of *Erythrina Stricta Roxb*

Ashok Kumar K[1], Johnsy Mary [1], Sundararajan R[3*], Asrar Ahamed[2]

[1] Student, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[2]Department of Pharmacognosy, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[3]Principal, Department of Pharmaceutical chemistry, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[*]Corresponding author e.mail: sharonangela2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP07**

ABSTRACT

The evaluation of quality and purity of crude drugs by means of various parameters is the most important aspect of pharmacognosy. Pharmacognostical studies of a plant helps in the proper identification of a drug and provides basis for authentication of crude drug. *Erythrinastrictaroxb* belongs to the family Fabaceae**.** It is commonly known as Indian coral Tree**.** It is an armed deciduous tree. This tree is found in the plains and found up to an altitude of 1000 meters. It is widely distributed in the Asian and south east Asian countries like India, Nepal, Burma, Thailand, Vietnam and china. The tree is 15 to 20 meter tall, branchlets apically stellate pubescent, basically glaberescent, densely prickled. The bark and flowers are known for medicinal properties such as Biliousness**,** Rheumatism**,** Asthma**,** Leprosy**,** Epilepsy and FeverLiterature survey showed that no detailed works on Pharmacognostical and development of standardization parameters have been done. The present work was carried out to perform the morpho anatomical and various physicochemical evaluations like Lossondrying**,** totalash**,** AcidinsolubleashandExtractivevaluewere determined by using air dried material. The bark of *Erythrinastrictaroxb*was collected in September 2014 from Gummidipundi**,** Tamilnadu**,** India**.** The plant was identifiedand authenticated by prof**.** Dr**.** P.Jayaraman, Director**,** Instituteofherbalbotany**,** PlantAnatomyResearchcenter**,** Tambaram**.** The Pharmacognostical studies were carried out in terms of organoleptic, macroscopic, microscopic and physicochemical parameters. This will help in the identification of plant and also detect any adulterants are substandard drugs.

Published: February 2018.

Identification and phylogenetic characterization of Methylene tetrahydrofolate reductase (MTHFR) gene varients among various genera

Vishal Kumar C [1], Akram Husain RS [2], Shiek SSJ Ahmed [3], Ramakrishnan. V[2*]

[1]Medical Biotechnology, Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam - 603103, Tamil Nadu, India.

[2]Genetics Lab, Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam - 603103, Tamil Nadu, India.

[3]Drug Discovery Lab, Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam - 603103, Tamil Nadu, India.

*Corresponding author e.mail: rkgenes@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP08**

ABSTRACT

Methylene tetrahydrofolate reductase (MTHFR) is a key regulatory enzyme involving in folate and homocysteine metabolism. MTHFR gene is located on chromosomes 1p36.22 and plays a vital role in chemical reactions and involving in vitamin-B9 metabolic pathways. Specifically, these enzymes convert 5, 10-methylene tetrahydrofolate to 5-methyl tetrahydrofolate. This product is used to convert homocysteine to methionine by the enzyme methionine synthase. MTHFR deficiency causes homocystinuria, thrombophilia and metabolic disorders. An MTHFR gene mutation has the ability to alter the metabolic process thereby converting important nutrients leading to changes in hormonal levels. The genetic variations in Homo sapiens do not stop at the boundaries of genus/species level and comparison of these variants may throw a light on better understanding in major diseases such as cancer, cardiac ailments and metabolic disorders. In this current study, an extensive literature search on MTHFR gene variants was performed on multiple databases, public repositories and bioinformatic analysis was executed to compare the variants across different genera (Homo sapiens, Chimpanzee, Rhesus monkey and Orangutan). The identification of these genetic variations provides us evidence on complex genetic diversity of human evolution.

Published: February 2018.

Pharmacognostical Evaluation of Roots of *Curcuma Angustifoli*a Roxb

Jayashree Sundaramoorthy[1], Johnsy Mary F[2], Sundararajan[3*], Sangeetha M[2]

[1] Student, Mohamed sathak A. J. College of pharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[2] Department of pharmacognosy, Mohamed sathak A. J. College of pharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[3] Principal, Department of Pharmaceutical Chemistry, Mohamed sathak A. J. College of pharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[*]Corresponding author e.mail: sharonangela2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP09**

ABSTRACT

Curcuma angustifolia roxb is also known as East Indian Arrowroot "Koova powder" in Malayalam and "Koova podi" in Tamilnadu. East Indian arrowroot is also used for medicinal purposes by the local herbalists. *Curcuma angustifolia roxb* is one of over 80 species belonging to the genus curcuma and family "Zingiberaceae". This species is native to the Indian subcontinent and is more commonly known as East Indian Arrowroot. The plant grows from 9 to 12 cm in height. *Curcuma angustifolia roxb* (Zingiberaceae) is traditionally used in the treatment of leprosy, asthma, fever, jaundice, anaemia, ulcers etc. The leaves are used as antifungal, antibacterial. The rhizomes are used in bone fracture, inflammation and intestinal disease. Since no pharmacognostical work has been carried on the roots of this plant, the present study is aimed at carrying out the pharmacognostical standardization on the roots of *curcuma angustifolia roxb*. The fresh roots of *curcuma angustifolia roxb* was collected from Kerala and authenticated by prof. p. Jayaraman, Botanist, Director of plant anatomy research Centre, Tambaram. The pharmacognostical standardization of roots which includes macroscopy, microscopy as well as WHO recommended physicochemical parameters the ash values, extractive values, loss on drying and foaming index, swelling index were performed according to the official methods prescribed in Indian pharmacopoeia and WHO guidelines on quality control methods for medicinal plant materials. The results of this standardization may be helpful for identification and judging the quality and purity of the plant. This will be useful to differentiate the plant from its other species and detect the adulterants.

Published: February 2018.

Phytotoxic effects of raw and treated tannery effluents on germination, growth and yield parameters of Cow pea [*V. unguiculata* (L.) Walp.]

Sujatha D[1*], Rose C[1], Mani U[1], Balasaraswathi K[1], Shanmugavel M[2]

[1]Department of Biochemistry & Biotechnology, CSIR- Central Leather Research Institute, Chennai600020, Tamil Nadu, India

[2]Department of Biological Material Laboratory, CSIR- Central Leather Research Institute, Chennai600020, Tamil Nadu, India

[*]Corresponding author e.mail: shreesujatha16@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP10**

ABSTRACT

Leather production is a major industry in India with significant foreign exchange earnings. Enormous amounts of water are discharged as effluent from leather industries. Tannery effluent (TE) is ranked as the highest pollutant among all industrial wastes. This study was carried out to characterize TE and investigate its effect on germination, growth and yield of *Vigna unguiculata,* (Cow pea), in raw (RE) and treated effluents (TTE). Effluent samples from highly polluted area of Ranipet, Vellore District, Tamilnadu, India were examined for physico-chemical properties. RE showed several fold increase in BOD and COD values along with increased level of pollution parameters compared to TTE. Several parameters are far greater than the permissible limits even in TTE. Cr, for instance, displayed a 16.6 fold decrease after treatment, but it is still 70 times higher than the permissible values. Chromium is a toxic heavy metal that causes serious life threatening damages to all organisms including plants. Exposure of seedlings to RE and TTE for 7 days exhibited significant Increase in Phytotoxicity(%) and reduction in germination%, shoot length, root length, biomass, Vigour index in RE than TTE exposed seedlings revealing the existence of variety of toxic substances especially Cr^{6+} in RE than TTE. Reduction in yield parameters such as number, size and weight of fruits also confirmed the influence of toxic substances that interfere the metabolic activities of seedlings under effluent stress. Thus, it is needed that tannery effluents should be properly treated to bring down their adverse effects within tolerable limits.

Published: February 2018.

In silico docking studies and computational approach of *Dopamine Receptor D3* (DRD3) gene analyzing binding efficiency of Paliperidone palmitate and Ziprasidone drug

Kamal Raj N[1], Gnanakkumaar P[2], Akram Husain RS[2], Ramakrishnan V[3], Shiek SSJ Ahmed[2*]

[1]Medical Biotechnology, Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam - 603103, Tamil Nadu, India

[2]Drug Discovery Lab, Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam - 603103, Tamil Nadu, India

[3]Genetics Lab, Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam - 603103, Tamil Nadu, India

[*]Corresponding author e.mail: shiekssjahmed@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP11**

ABSTRACT

Schizophrenia (SZ) is a complex psychiatric disorder which leads to abnormal behavior such as hallucinations and delusions. It affects nearly 5% of the population worldwide and regarded as a major public health problem ranked nine in the global disease burden of World Health Organization. The pathophysiology of SZ shows dysregulation of dopaminergic and glutamatergic neurotransmitter signaling. Recent studies have reported that DRD3, a dopaminergic receptor, as a potential therapeutic target for SZ. It regulates T-cells, macrophages through G-protein coupled receptors signaling pathways. Receptor-ligand binding determines the effective cellular response to external stimuli and it is used to determine efficacy of drug candidate. In this study, an attempt has been made through computational docking methods to evaluate the binding efficiency of dopamine receptors binding drugs. Molecular docking was implemented in AutoDock 4 software, receptor-ligand Docking was carried out for DRD3 receptor with Paliperidone palmitate and Ziprasidone (FDA approved therapeutic antagonist) along with its natural ligand (L-dopamine). Binding energy of both drugs was compared with L-dopamine.

Published: February 2018.

Pharmacognostical And Phytochemical Evaluation Of Black Turmeric-An Endangered Medicinal Herb

Sangeetha P T[1*], Sundararajan R[2], Mohamed Hammad S[3], Monisha B[3], Kalaivani M[3]

[1]Department of Pharmacognosy , M.S. A.J.College of Pharmacy, Chennai-119

[2]Department of Pharmaceutical chemistry, M.S. A.J.College of Pharmacy, Chennai-119

[3]M.S A.J.College of Pharmacy, Chennai-119

[*]Corresponding author e.mail: sangeethakannadasan05@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP12**

ABSTRACT

"Black Turmeric" known as Karimanjal in Tamil is one of the medicinal plant belonging to Zingiberaceae family. The biological name is "*Curcuma caesia Roxb*. This rare species is widely distributed in moist deciduous forests mostly in Bengal, North east and central India. It has been regarded as endangered herb by the central forest department of India due to biopiracy. The height of the plant is about 1.2 m. Flowers are pale yellow, reddish at the outer border. The mostly used species of turmeric is *curcuma longa*.Roots are used as rubefacient. Rhizomes of *Curcuma caesia* is of bluish black in colour and has been reported for its analgesic, antioxidant, antiasthmatic, antifungal, smooth muscle relaxant, antiulcer properties. Traditional healers use this black turmeric for treating various ailments like leucoderma, piles, bronchitis, asthma, tumors, enlargement of the spleen, epileptic seizures, inflammation and allergic eruptions. Owing to its high medicinal value black turmeric is termed as "Wonder Herb". Keeping this in view, our present study was designed to carryout the pharmacognostical evaluation and phytochemical screening of rhizomes of *Curcuma caesia Roxb*. The pharmacognostical evaluation includes organoleptic and microscopical evaluation, physical evaluation like determination of ash value, extractive value, loss on drying, crude fibre content and foreign organic matter. The phytochemical screening reveals the presence of alkaloids, amino acids, carbohydrates, tannins, flavonoids, steroids, proteins, glycosides and terpenes. Based upon the phytochemicals present in the crude powder further *in- vivo* and *in- vitro* pharmacological studies to be carried out.

Published: February 2018.

Phytofabrication of silver nanoparticles from weed plant of *Amaranthaceae* and its antimicrobial activity

Janet Bertilla X[1*], Seetha N[1], Shanmugavel M[1], Gnanamani A[1]

[1]Department of Biological Material Laboratory, CSIR - Central Leather Research Institute, Chennai-600020, India.

[*]Corresponding author e.mail: janetbertilla@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP13**

ABSTRACT

The synthesis of bio-inspired nanoparticles is an important branch in nanotechnology. Different biological methods are used for the production of silver nanoparticles due to their several applications. One of the most significant applications of silver nanoparticles is their use as an antimicrobial agent. In this work, we describe a cost effective and environment friendly approach to explore the synthesis of silver nanoparticles from leaf extract of weed plant Amaranthaceae. The synthesized nanoparticles have been characterized on the basis of Fourier transform infrared spectroscopy, UV–Vis spectroscopy, Scanning electron microscopy and Zeta potential. The presence of a characteristic surface plasmon resonance absorption band at 425 nm in UV–Vis reveals the reduction of silver metal ions into silver nanoparticles. The antibacterial property of silver nanoparticles has allowed its wide range of application from disinfecting devices. The synthesized silver nanoparticles showed antimicrobial activity against different microorganisms.

Published: February 2018.

Metabolic reprogramming in the drug-resistant *P. aeruginosa* by polyphenols: Examining the possibilities in adjuvant therapy with antibiotics.

Rekha Yamini K[1*], Mohd Ashique[1], Soumen Bera[1]

[1] School of Life Sciences, B.S.A.Crescent Institute of Science and Technology, Vandalur, Chennai.

[*]Corresponding author e.mail: rekha@basuniv.ac.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP14**

ABSTRACT

Acquisition of antibiotic resistance by the pathogenic bacteria is the major concern to the scientific community. *P. aeruginosa* is the causative organism for hospital-borne diseases and respiratory tract ailments. Moreover, this organism is responsible for rapidly developing resistance to antibiotics by mechanisms which include overexpression of drug metabolizing enzymes, enhancing drug efflux rates or developing drug resistant biofilms. Polyphenols like Gallic acid and tannic acid hold good potential in combating microbial diseases. Our previous data indicated that Gallic acid improves the antibiotic sensitivity of the ampicillin resistant *P. aeruginosa* strains where inhibition of the drug efflux plays an immense role. Here we have studied two polyphenols – Gallic acid and tannic acid - in modulating the metabolic profile and the membrane potential of *P. aeruginosa* in order to understand the mechanisms behind the drug efflux alterations. Results have shown that Gallic acid increases the oxygen consumption rate as well as modulates the membrane potential of the cells. A major challenge remains as to link the observed changes with the antibiotic resistance phenotype and the drug effluxes. Further studies needed to establish whether dietary polyphenols can be used in supplementing the patients with antibiotic therapy for the purpose of increasing the latter's efficacy.

Published: February 2018.

Evaluation of Anthelmintic Activity and Antimitotic Activity of Ethanolic Extract of *Leucas diffusa*

Sangeetha P T[1], Sundararajan R[2], Vinodhini D[3*], Vijayalakshmi D[3], Shyamala Devi B[3], Mohamed Rizwan K[3]

[1]Department of Pharmaceutical Chemistry, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[2]Department of Pharmacognosy, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[3]Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

*Corresponding author e.mail:sangeethakannadasan05@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP15**

ABSTRACT

The plants of the genus "Leucas" have been found to be useful in various diseases. *Leucas diffusa* (LD) widely distributed throughout India as a weed in cultivated fields, wastelands & roadsides. The aerial parts of the plant were used for the purpose of evaluation. The plant material were extracted with ethanol by process of cold maceration and is collected.The anti mitotic activity were tested by the ethanolic extract of aerial parts of *Leucas diffusa* at doses of 100mg, 250mg, 500mg using mung beans (*vigna radiata*) of equal weight and the results were compared with reference standard drug Cisplatin (10mg) for 24 hours. The anthelmintic assays are carried out as per the method of Ajaiyeoba et al. (Ajaiyeoba et al., 2001) with minor modifications. Adult earthworms are used to study the anthelmintic activity. The earthworms (Phertima posthuma) weighing 0.8–3.04 g are used for all experimental protocols. The earthworms resembled the intestinal earth worm parasites of human beings both anatomically and physiologically. Albendazole is used as reference standard. Thus concluding we have demonstrated the Ethanolic extract of aerial part of *Leucas diffusa* extract exhibiting considerable activity (dose dependent) when compared with reference standard. The present research work showed the validity and the clinical use of Ethanolic extract of *Leucas diffusa* in the control of Anthelmintic activity and Anti mitotic activity.

Published: February 2018.

Assessment of haematological indices using aqueous extract of *Ocimum tenuiflorum* in Albino rats

Uma M[1*], Kalaiselvi P[2], Jasmin Lena P[1], Lakshmi Devi E[1], Sriranjani S[1]

[1]Department of Biochemistry, Prince Shri Venkateshwara Arts & Science College, Gowrivakkam, Chennai - 600073.

[2]Department of Biochemistry, Dr. ALMPGIBMS, Taramani Campus, University of Madras, Chennai - 600113.

[*]Corresponding author e.mail : umabaskar@yahoomail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP16**

ABSTRACT

*Ocimum tenuiflorum "*Queen of Herbs" is an aromatic plant in the family Lamiaceae which is native throughout the Old World tropics and widespread as a cultivated plant and an escaped weed. It is a potent herbal remedy for lot more disorders like, Hypoglycemic activity, Anti-hyperlipidemic activity, Anti-lipid peroxidative activity, Anti-oxidant activity, Anti-ulcer activity, Cardioprotective activity, Neuroprotective, Hepatoprotective activity, Hypotensive activity, Analgesic activity, Anthelminthic activity, Anti-bacterial activity, Anti-cataract activity, Anti-fertility activity, Anti-inflammatory activity Anti-stress activity and anti-toxic effect. Fresh leaves of the plant samples were collected, cleaned, washed, shade dried and used for studies. The leaf extract was prepared and its anti toxic effects were studied in different groups of Albino rats. The haematological indices such as haemoglobin content, RBC, WBC, Platelets, reticulocytes, neutrophils, lymphocytes, monocytes, basophils, MCV, MCH, MCHC were analysed and was not found to be significantly different from that of the control group. In conclusion the present study shows that the aqueous leaf extract of *Ocimum tenuiflorum* is safe and non-toxic.

Published: February 2018.

Calorie restriction triggers the ability of EGCG to boost Nrf2 in the hepatocytes of aged rat: can combination of CR with antioxidants enroute anti-aging?

Rajeswari Nagarajan[1], Malathi Manuel[1], Sevvilam Parithi[1], She Faiyaj She Moula[1], Kalaiselvi Periandavan[1]*

[1]Department of Medical Biochemistry, Dr.ALMPGIBMS, University of Madras, Taramani Campus, Chennai.

*Corresponding author e.mail: pkalaiselvi2011@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP17**

ABSTRACT

Aging is caused by the accumulation of damage inflicted by reactive oxygen species (ROS) and their harmful effects are seen typically as a result of compromised signaling, rather than due to direct damage to cellular machinery. Curtailing energy intake or calorie restriction will have a greater impact on the oxidative stress, obesity and thus aging. Albeit, calorie restriction could reduce the ROS production, the produced ROS might not be effectively detoxified as the endogenous antioxidant machinery is malfunctioning during aging. Therefore, this study aims to comprehend the combinatorial efficacy of EGCG along with calorie restriction on the status of Nrf2, a transcription factor involved in the regulation of antioxidant defense system in male Wistar rats. The results showed that EGCG up-regulates the antioxidant status in the *ad libitum* fed rats. However, its beneficial effect can be enhanced when combined with a calorie restricted diet. This preliminary finding paves a way for combinatorial approach in replenishing the antioxidant status during aging and thereby reducing the risk for age associated degenerative diseases.

Published: February 2018.

Herbal Drugs To Treat Psoriasis

Rajalakshmi G[1*], Sundararajan R[1], Swetha C[1*]

[1] Mohamed Sathak A J College of Pharmacy, Sholinganallur, Chennai - 600119.

[*]Corresponding author e.mail:rajalakshmig67@gmail.com; swethaimmanuel@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP18**

ABSTRACT

Human skin, the outer covering of the body, is the largest organ in the body. It also constitutes the first line of defense and performs many functions to safe guard the body. Skin disease is a common ailment affecting neonates to the elderly people causing harm in number of ways. Among them psoriasis is a noncontagious , auto immune chronic inflammatory dermatosis affecting 2% of the world population .It is characterized by recurrent episodes of red and scaly skin plaques that are sharply demarcated from adjacent normal skin. It is a serious skin disease that affects a person's daily life on many levels including professional and social life with cutaneous and systemic manifestations. It causes rapid build up of skin cells which lead to scaling on skin's surface on skin, joints or both. Immune system and genetic are the causes of the psoriasis. Herbals can possibly cure various types of skin maladies .More than 80% of individuals in India rely on distinctive plant based items for curing skin related issues. Contrasted and the routine allopathic medications, they have moderately minimal effort and can be of incredible advantage to the number of inhabitants in India. The discovery of new immunological factors and a better understanding of psoriasis have turned to the use of immunological pathways and could develop new biological drugs against specific immunological elements that cause psoriasis. Herbals are more secure and can be used for the treatment.Aloe, cardio spermum halica cabum, berberis vulgaris, ammi majus, capsicum frutescens, cayenne, neem, oregon grape, turmeric, milk thistle are the natural products that reduces the symptoms of psoriasis. There is promising evidence in a number of the studies of multi-herb formulations. This review cast light on various medicinal plants and its constituents used to treat psoriasis.

Published: February 2018.

Impact of Nanotechnology in Tissue Engineering Applications and in Regenerative Medicine

Joanna Grace Herald[1], Drusilla Blessey[1], Swathi M[1], Umaparvathi L[1], Geoprincy G[1]*

[1]Department of Biomedical Sciences, Faculty of Biomedical Sciences, Technology and Research, Sri Ramachandra Medical College and Research Institute, Porur, Chennai-600 116

*Corresponding author e.mail: princy_geo2004@yahoo.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP19**

ABSTRACT

The influence of nanotechnology on the healthcare industry is substantial, particularly in the areas of diagnosis and treatment. Recent investigations in nanotechnology for drug delivery and tissue engineering have delivered high-impact contributions in translational research. The scope of biomaterials has undergone a notable expansion with the advent of electrospinning and the processing of natural or semi-synthetic macromolecular structures. The focus of biomaterial synthesis is targeted towards the development of implants based on interfacial reactions, biomechanics, and fracture mechanics. Further it is extended for drug delivery systems, drug/polymer interactions, and use of reabsorbable bioactive particulates or porous networks to activate mechanisms of tissue regeneration *in vivo*. The surface modification of biomaterials includes the creation of biomimetic materials to imitate natural processes and structures, and the design of sophisticated 3D architectures to produce well-defined patterns for diagnostics. Therefore, biomaterials consist of both simple devices and highly complex functional materials to control biological interactions. Our investigation focuses on the versatile application of transplantation technology with the use of biomaterials synthesized through electrospinning and electrospraying methods. This includes approaches like the restoration of infarcted heart, periodontal regeneration, wound dressing, surgical sutures, neuronal regeneration, blood vessels, coated stents etc.

Published: February 2018.

Novel approaches to drug design for the treatment of schizophrenia

Pragathishri S S[1*], Suryasree Y[1], Subathiradevi P[1]

[1]Department of pharmacology, C.L.Baid Metha College of Pharmacy, Thoraipakkam, Chennai -600097, India.

[*]Corresponding author e.mail : pragathipuzhal@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP20**

ABSTRACT

Schizophrenia is an important health issue affecting almost 1% of the population withsignificant unmet medical needs. The classical drug targets for the treatment of schizophrenia are dopamine D2 receptors.Second generation ("Atypical") drugs block more receptors of the GPCR class 1 (e.g. Clozapineis a D(2)-5HT(2) antagonist). Here, new targets for GPCR as well as ligand-gated ion channelsare presented. An analysis of the opportunities for drug design offered by the structures solvedrecently is also presented. For drug design the availability of these protein structures, or the possibility to build highquality models, allows to shift the paradigm from ligand-based to target-based drug design. Theanalysis of drugs on the market and under development shows that numerous targets are beingconsidered which may reveal anambiguity on the ideal drug target. This situation might besimplified in the future thanks to integrative projects started recently: the 'Human Brain Project'and the 'Brain Activity Map' that aim at modeling the brain as well as the Allen Atlas. G-Protein Coupled Receptors and Ligand-Gated Ion Channels are potential targets to treat Schizophrenia. Structures have become available in the recent years for most of LGIC and GPCR receptors that are potential targets to treat schizophrenia.Structurebased drug design is tractable on these receptors.GPCR and LGIC are allosteric proteins.Integrative projects may help discriminate between the numerous potential targets in thefuture.

Published: February 2018.

Nanocrystals – A Review

Rajalakshmi G[1*], Sundhararajan R[1], Mahesh Kumar B[1*], Mohammed Akram Khan K[1], Vigneshwaran S[1]

[1]Mohamed Sathak A. J. College of Pharmacy, Sholinganallur, Chennai-119.

*Corresponding author e.mail: rajalakshmig67@gmail.com, magistricmahi007@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP21**

ABSTRACT

The word 'Nano' became an integral part in day today life. Almost in all the fields nanotechnology has marked its foot print. Owing to its smaller size, (10^{-9} meter)nanoparticle research is currently an area of intense scientific research. Many miracles are being happened in the nanoworld. They bridge gap between bulk materials and atomic or molecular structures. They are zero-dimensional, possessing nanometric dimensions in all the three dimensions. Development of nano crystals emerged amid various shortcomings of existing delivery techniques for targeted therapy. Nanocrystals are drug crystals with particle size ranging from dozens to a few hundreds of nanometers, while in some cases, pure drug crystals may be physically stabilized by surfactants and/or polymers. Absence of any carrier chemicals offer a maximum drug loading, reduced toxic side effects, increased stability of Nano crystals.It circumvented many instability issues of excipients and surfactants. Drug nanocrystals constitute a versatile formulation of the pure poorly water-soluble drug without any matrix material to enhance the pharmacokinetic and pharmacodynamic properties and to resolve the problems of low solubility and low bioavailability. Nanocrystals are of best choice of a drug design due to its platform stability, high drug loading capacity, ease in scaling-up of crystals and its advantage in the enhancement of saturation, solubility, dissolution velocity and adhesiveness to surface/cell membranes. However, stabilization of nanocrystals remains a major challenge in the development of nanocrystals which includes increase in particle size, agglomeration, crystal transformation and chemical instabilities. The present review illustrates the details about drug nanocrystals its merits and demerits, method of production, special properties and current nanocrystal products.

Published: February 2018.

Antimicrobial Peptides A Survey From Marine Sources - Review

Rhea Thomas Thommana[1*], Trishala Gopikrishna[1], Sumitha R[1]

[1]Department of Biomedical Sciences, Sri Ramachandra Medical College & Research Institute, Porur, Chennai 600 116

[*]Corresponding author e.mail: rheathms98@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP22**

ABSTRACT

Antimicrobial peptides (AMPs) are promising candidates in future therapeutics. In addition to their broad array of antimicrobial activity, these peptides show multiple initiation function to human health. Though there is a rapid success of antimicrobial expansion, against the pathogenic bacteria there is also evolution of resistance to predictable antibiotics calls for an amplified focus on the developing new antimicrobials. AMPs have peptides which are three dimensional structures with α-helix structures, β-sheets and cysteine residues, peptides enriched for modified amino acids; rare amino acid and ring structured amino acids. Various structures of AMPs have numerous properties which are antibacterial, antiviral, antifungal, insecticidal, antitumor, anticancer, and immunomodulatory functions. Most AMPs reacts with the inner or the outer membranes and can be cytotoxic due to instability in order to reach the target inside the cell. The interaction between the peptides and the biological membrane is modulated by the lipid components of the membrane. The marine environment is inadequately explored in terms of potential pharmaceuticals. It contains a tremendous organism diversity which would be a good source of novel Antimicrobial peptides. It is also known as host defence peptides or alarmins are among the innate immunity against infection in a range of organisms. Such biologically active chemical compounds like phenols, alkaloids, terpenoids, polyester and secondary metabolites are isolated from marine sponges, bacteria, dinoflagellates and seaweeds. This review will give an insight towards the bioactive peptides derived from marine organisms and their biological activities with potential applications in diverse vicinity towards human health care.

Published: February 2018.

Role of Marine Sponges in Drug Design

Durga B[1], Usha M[2], Sandhiya[2]

[1]Assistant Professor, Department of Biochemistry, Prince Shri Venkateshwara Arts and Science College, Gowrivakkam Chennai -600073.

[2]Department of Biochemistry, Prince Shri Venkateshwara Arts and Science College, Gowrivakkam, Chennai -600073.

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP23**

ABSTRACT

Marine sponges have been considered as a drug treasure house with respect to great potential regarding their metabolites. Most of the studies have been conducted on sponge's derived compounds proved to have antibacterial, antiviral, antifungal, antimalarial, antitumor, immunosuppressive and cardiovascular activity.Sponges producedifferent kinds of chemical substances with numerous carbon skeletons which have been found to be the main component interfering with human pathogenesis at different sites .The fact that different diseases have the capability to fight at different sites inside the body can increase the chances to produce targeted medicines. First natural marine human synovial phospholipase A2 inhibitor was isolated from Palauan sponge and was found to have analgesic activity and anti – inflammatory activity. Commercialized products from marine organisms include antibiotic Cephalosporin from marine fungi, cytostatic cytarabine from sponge, anthelmintic insecticide Kanic acid from red alga , anti – viral compound Ara – A (active against Herpes virus) and anti – tumour compound Ara – C (effective in acute lymphoid leukemia) were some of the marine compounds isolated and are in clinical use. Progress has been made in identifying novel drugs from marine sources, great endeavours are still needed to explore these molecules for future clinical applications.

Published: February 2018.

Marine Natural Products

Rajalakshmi G[1*], Sundhararajan R[1], Raghavi R[1*], Tamilarasi B[1], Thilagavathi. P[1]

[1] Mohamed Sathak A. J. College of Pharmacy, Sholinganallur, Chennai-119.

[*] Corresponding author e.mail: rajalakshmig67@gmail.com; raghavi9799@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP24**

ABSTRACT

The Oceans are called Mother of origin of life.70% of earth surface is covered by ocean which contain 95% of the earth's biosphere. It was over 3500 million years ago that organisms first appeared in the sea. Over time, they have evolved many different mechanisms to survive the various harsh environments. The marine environment is a rich source of biological and chemical diversity. Ocean contains more than 80 % of diverse plant and animal species which contains unique chemical compounds that are potential for industrial developments such as pharmaceuticals, nutraceuticals, cosmetics, agrochemicals, molecular probes, fine chemicals. Marine organisms such as sponges, tunicates, fishes, soft corals, nudibranchs, sea hares, opisthobranch molluscs, echinoderms, bryozoans, prawns, shells, sea slugs, and marine microorganisms are becoming therapeutically important in recent days. Marine natural products such as antibacterial, antifungal, antiviral, anti-parasitic, anti-inflammatory, neuro protective, anticancer, analgesic, antimicrobial, anti-malarial. Terrestrial environment was the source of research traditionally, to treat many dreadful diseases naturally. But the recent development in the newer technologies and the thirst of the researchers has shed light on the marine environment. Various pharmacological activities were reported in algae, invertebrates and microorganisms of the oceans. Marine pharmacognosy and marine pharmacology were in the infant stage till the recent modern technologies extend its hand for the extraction of these biomedical compounds. The present review briefly illustrates the availability of pharma products and the current status of research of in marine biodiversity.

Published: February 2018.

Enhancement of Growth and Bioactivities of Probiotic bacterium *Streptococcus thermophillus* as Influenced by Lactalbumin hydrolysate and Inulin Supplementation in Skimmed milk medium

Aparajitha[1], ShyamSundar[1], LalithaVaidyanathan[1*]

[1] Sri Ramachandra Medical College and Research Institute, Porur, Chennai-600 116

[*] Corresponding author e.mail: lalithav@sriramachandra.edu.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP25**

ABSTRACT

This article aims on the probiotic potential of *Streptococcusthermophillus* by studying the effect of supplementation in the production medium on growth and the bioactivity profile under different conditions. The different parameters taken into consideration were specific growth rate,yield coefficient,anti-oxidant,anti-adhesive and anti-pathogenic activities,anti-biotic and drug resistance and acid pH tolerance. *S.thermophillus*is a probiotic treatment not only for gut microbial diseases but also for its effects on nasal canal and skin as a topical probiotic, by release of biosurfactants which provide anti-adhesive property against several bacterial and fungal species.Inulin,which belongs to the class of fructans is one of the commonly used prebiotics. *S.thermophillus* NCDC 74 was exposed to three media formulations such as enriched milk medium of skimmed milk powder (SKM) and two synthetic media of two carbon sources,of which SKM showed maximum growth.Inulin and Lactalbumin hydrolysate showed increase in both specific growth rate and yield coefficient. The biosurfactant released,lead to increase in anti-adhesive property not only in gut but also inflammatory and other infections in lungs.At decreased pH it showed high anti-microbial activity and much resistance to many anti-biotic and anti-fungal drugs when exposed. The pH tolerance potential increased exponentially and it showed huge probiotic potential properties at pH 2-4. One of the promising approaches is the encapsulation techniques to prevent bacteria in human gut. These results may be scaled up for industrial scale production of *S.thermophillus* with increased bioactivity resulting in an efficient strain production.

Published: February 2018.

A Role of Nanotechnology In Biomedical Applications

Raja Lakshmi G[1*], Sundararajan R[2], Else Christal J[3], Logeswari S[3], Janaki D[3], Jeevitha A[3*], Sandhiya P[3], Prinkha B[3]

[1] Department of Pharmaceutics, Mohamed sathak A.J. College of pharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[2] Principal, Mohamed sathak A.J. College of pharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[3] Student, Mohamed sathak A.J. College of pharmacy, Medavakkam Road, Sholinganallur, Chennai-119, India.

[*]Corresponding author e.mail: rajalakshmig67@gmail.com, jeeevithaadhi12@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP26**

ABSTRACT

Nanotechnology is the application of Nano science which is the study of Nanometer size material below 1 micrometer (1µm) size. Nano scale is defined in Nano meter (10^{-9}). In recent years Nanotechnology is the most active research field and it has the ability to control and manipulate matter in Nano size. Nanotechnology is combine knowledge from the fields of Physics, Chemistry, Biology, Medicine, Engineering and informatics. All field interaction nanoparticles deal about less than 100 nanometers. Naturally, some particles are obtained such as minerals, catalysis and some porous materials they have same properties, particularly the Nano scale features. Some nano material can be artificially produced and used for multiple applications. One of the major fields of benefit is biomedical applications. This article is analyzed specifically for biological applications of nanotechnology. A list of some specific biological applications of nanotechnology is Smart drug delivery system, gene therapy, drug therapy, MRI contrast enhancement. Progress in nanotechnology and its application in medicine have provided new opportunities and different smart systems. Such systems can improve the intracellular delivery of the drugs due to their multifunctionality and targeting potential. In drug therapy, we face problems of inefficacy or nonspecific effect hence; nanosystems are developed for target drug therapy. In gene therapy using non-viral systems, nanotechnology is used so that non-viral systems can be developed that are as effective as viral systems in gene transfection. Nano-MRI drastically expands the capabilities of traditional MRI down to the nanometer scale.

Published: February 2018.

Virtual Screening of Surface Receptors of Breast Cancer Cells with Acquired Endocrine Resistance

Sriram K[1*], Sakthi Abbirami G[1], Johanna Rajkumar[1]

[1]Department of Biotechnology, Rajalakshmi Engineering College, Rajalakshmi Nagar, Thandalam, Chennai-602105, Tamil Nadu

[*] Corresponding author e.mail**:** sriram.k.2012.bt@rajalakshmi.edu.in

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP27**

ABSTRACT

Three-fourth of the total breast cancer cases are observed to be estrogen- and/or progesterone-receptor responsive, where hormonal estrogen and progesterone act as the principal extracellular stimulants, constitutionally promoting the growth and proliferation of these tumours. Therefore, targeted suppression of hormone-stimulated signalling pathways through appropriate endocrine therapy has emerged to be the mainstream of treatment for hormone-responsive breast cancers. Regardless of its appreciable advantages, endocrine therapy has frequently been associated with acquired resistance against hormone-antagonists in several clinical cases, and urges for designing effective methods for prevention and treatment. During the past few years, molecular and clinical researchers have laid significant emphasis on delineating the molecular mechanisms that govern the development of endocrine resistance in breast cancers, and proposing prospective strategies for their prevention, as well as developing appropriate approaches for predicting the likelihood of developing resistance to endocrine therapy. The fundamental molecular mechanisms underlying the development of endocrine resistance will include: somatic mutations successively resulting in conformational modifications and differential responsiveness of the hormone-receptors, acquired hypersensitivity to suboptimal levels and/or residual reserves of natural hormones, activation of hormone-independent signalling pathways that stimulate the growth and proliferation of these tumours, molecular cross-talk between innate growth-factor signalling pathways that supplement these tumours with alternate survival signals. The current study attempted to screen and identify using appropriate computational techniques, the polymorphic surface receptors on breast cancer cells that have acquired endocrine resistance to common hormone-antagonists. The results shall be helpful in predicting the responsiveness of breast cancers to common endocrine therapeutics.

Published: February 2018.

EMT - An emerging axis of evil in the war on cancer

Mohan.D[1*], Vignesh U[1]

[1]Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. (Cambria, 11 Point)

[*]Corresponding author e.mail:dhanasekarmohan98@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP28**

ABSTARCT

Tumors are cellularly and molecularly heterogeneous, with subsets of undifferentiated cancer cells exhibiting stem cell-like features (CSC_s). Epithelial to mesenchymal transitions (EMT) are transdifferentiation programs that are required for tissue morphogenesis during embryonic development. The EMT process can be regulated by a diverse array of cytokines and growth factors, such as transforming growth factor (TGF)-β, whose activities are dysregulated during malignant tumor progression. Thus, EMT induction in cancer cells results in the acquisition of invasive and metastatic properties. Recent reports indicate that the emergence of CSC_s occurs in part as a result of EMT. Recent studies implicating the function of TGF-β-regulated noncoding RNA_s in driving EMT and confirms that EMT may contribute to drug resistance, as well as therapeutic to overcome this clinically.

Published: February 2018.

Anticancer polysaccharide in Marine Algae

Kavya P Nair[1*], Nazareth Arokiamary S[1]

[1]Department of Biochemistry, Asan Memorial College of Arts and Science, Jalladampet, Chennai-600100

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP29**

ABSTRACT

Marine floras such as bacteria, actinobacteria, cyanobacteria, fungi, microalgae, seaweeds, mangroves and other halophytes are taxonomically diverse, largely productive, biologically active, and chemically unique offering a great scope for discovery of new anticancer drugs. The marine floras are rich chemicals predominantly belonging to *polyphenols* and *sulphated polysaccharides*. The chemicals have displayed an array of pharmacological properties especially antioxidant, immunostimulatory, and antitumour activities. These phytochemicals activate macrophages, induce *apoptosis*, and prevent oxidative damage of DNA, thereby controlling *carcinogenesis*. Nowadays, algae have been imparted as a constituent of dietary supplements due to their *antimutagenic, anticoagulant and antitumor* properties. The current study is focused on various antitumoral polysaccharides like *Fucoidan*, *Laminarans, Alginic acid* obtained from Brown algae*, Carrageans* from Red algae and *Ulvans* obtained from green algae.

Published: February 2018.

Facile Preparation of Graphene Oxide Nanoparticles for Biomedical Applications

Iyswariya K[1], Rubiya R[1], Weslen S[1], Vedakumari[1*]

[1]Medical Bionanotechnology, Faculty of Allied Health Sciences, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education, Kelambakkam, Chennai-603103, Tamil Nadu.

*Corresponding author e.mail: drweslonv@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP30**

ABSTRACT

Graphene oxide (GO) based biomaterials have been widely utilized for multiple applications, ranging from electronics to biomedicine. Protein Conjugated GO nanocomposites are of great importance in stimuli-responsive drug delivery and controlled release therapy. In the present study, GO was modified by carbodiimide-induced covalent cross-linking with protein by a simple two-step strategy. The prepared modified graphene oxide (GO) nanocomposites were characterized using UV-Vis spectrophotometer and particle size analyzer. The GO nanocomposites can be exploited for their use in drug delivery, tissue engineering and bio-sensing applications.

Published: February 2018.

Evaluation of Antidiabetic Activity and Antioxidant Activity of Ethanolic Extract of *Withenia Somenifera Linn*

Madhu S[1*], Sundararajan R[2], Ashwin R V[3*], Mohamed Yasin A[3], Kamal Raj M[3], Praveen Kumar[3]

[1] Department of Pharmacology, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[2] Department of Pharmaceutical Chemistry, Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

[3] Mohamed Sathak A.J. College of Pharmacy, Medavakkam road, Sholinganallur, Chennai-119.

*Corresponding author e.mail: madhupharm2006@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP31**

ABSTRACT

The present study is based on the investigation of the phytochemical screening and evaluation of In-Vitro anti diabetic and anti oxidant activity of ethanolic extract of *Withenia somenifera Linn*. The plant is a small, woody shrub of Solanaceae family which grows widely in India. The leaves were used for the process of extraction done by continuous hot extraction process using ethanol as a solvent. The extract was subjected to preliminary phytochemical analysis which is performed by standard methods and it was found to contain constituents such as alkaloids, saponins, glycosides, flavanoids, etc. The In-Vitro anti diabetic activity was performed by inhibition of alpha amylase enzyme, the substances at different concentration were examined and the results are tabulated comparing with the standard Ascorbic acid. The extract is then taken to In-Vitro anti oxidant activity testing by DPPH radical scavenging activity. Comparing anti oxidant activity of the ethanolic extract and Ascorbic acid's activity, the ethanolic extract of *Withenia somenifera Linn* shows dose dependent inhibition of DPPH activity. Thus concluding we have demonstrated the Ethanolic extract of aerial part of *Withenia somenifera Linn* extract exhibiting considerable activity (dose dependent) when compared with reference standard. The present research work showed the validity and the clinical use of Ethanolic extract of *Withenia somenifera Linn* in the control of Anti Diabetic activity and Antioxidant activity.

Published: February 2018.

Nanosponge based haemostatic material –An application of Biotechnology

Dhanavardhini K[1], Breghatha M[1], Weslen S Vedakumari[1*], Koyeli Girigoswami[1]

[1] Faculty of Allied Health Sciences, Chettinad Hospital and Research Institute (CHRI), Chettinad Academy of Research & Education (CARE), Kelambakkam, Chennai 603 103, INDIA

*Corresponding author e.mail: drweslonv@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP32**

ABSTRACT

Nanosponges are an emerging drug delivery system which was originally developed for topical delivery of drugs. These are constituted of tiny sponges with a size of about a virus (250 nm -1 µm), which consists of cavities that can be filled with a wide variety of drugs. The sponge acts as a three dimensional network or scaffold which consists of the backbone known as polyester. It is mixed in solution with cross linkers to form the polymer. The polyester is biodegradable so it breaks down gradually in the body thereby slowly releasing the drug loaded into it. There can be a precise control on the release rates or target drugs to a specific body site through nanosponges. It consists of nano or micro porous beads loaded with active agents that release the drug at the specific site in a confined manner which lasts for more than four hours. This nanosized delivery system has definite advantages for the purpose of drug delivery because of its high stability, non toxic nature, high carrier capacity and feasibility of incorporation of both hydrophilic and hydrophobic substances. The nano sponges can easily be detected by using X –Rays and helps to trace the location of the drug. Thus they can be used for an initial step for hemostatic activity.

Published: February 2018.

Phytochemical and *in vitro* Anti-Diabetic Activity of Ethanolic Extract of *Psidiium Guajava Linn*

Madhu S[1], Sudhararajan R[2*], Ahamed Farid AN[3]

[1]Mohamed Sathak A.J College of pharmacy, Medavakkam road, Sholinganallur, Chennai-119

[2]Department of Pharmaceutical Chemistry, Mohamed Sathak A.J college of pharmacy, Medavakkam road, Sholinganallur, Chennai-119

[3]Department of pharmacology, Mohamed Sathak A.J college of pharmacy, Medavakkam road, Sholinganallur, Chennai-119

*Corresponding author e.mail: madhupharm2006@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP33**

ABSTRACT

Diabetes mellitus is a disease due to hyperglycemia.The body needs a special sugar called glucose as its main source of energy.The glucose is carried around the body in the blood and the glucose level is called glycaernia.Insulin is a hormone secreted by the pancrease,a gland that lies in the curve of the duodenum.Diabetes occurs due to deficiency ofinsulin,lower efficacy of produced insulin.Diabetes mellitus is classified into type1-juvenile onset diabetes,type2-deficiency of insulin diabetes.The anti diabetic are found naturally from the plant extracts and are used worldwide,*Psidium guajava Linn.* possesses useful medicinal benefits. It has been recognized as the medicinally essential phytoconstituents, such as pheno-lic, flavonoid and carotenoid. Numerous pharmacological investigations have confirmed that the ability of this plant is to exhibit antimicrobial, antidiabetic, cardioprotective, neuroprotective, hepatoprotective, antioxidant and anticancer activities. This is a comprehension of the phytoconstituents and pharmacological benefits.The study of ethanolic leaf extracts of *psidium guajavalinn* in loweing the blood glucose level shows the effect mediated through inhibiting alpha-glucosidase and alpha- amylase.The phytochemical screening shows the presence of several bioactive compounds like alkaloid,flavones,tannins and phenols which could be responsible for versatile medicinal properties of this plant.The technique used for the extraction process is by soxhlet apparatus which gives the percentage yield of 10.15%.The phytochemical constituents alkaloids, saponins, carbohydrate, tannins, flavonoids, steroids are done and confirmatory tests are done.

Published: February 2018.

Antimicrobials and Related Compounds

Akila S[1*], Aishwarya S[1]

[1]Department of Biochemistry, Valliammal College for Women

[*] Corresponding author e.mail: akiladivya.s020@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP34**

ABSTRACT

An anti microbial is an agent that kills microorganism or stops their growth. Anti microbial medicines can be grouped according to the micro organisms. They act against for bacteria are antibiotics and for fungi is anti fungals were the anti microbials used. The main classed of anti microbial agents are disinfectants anti septics and anti-biotics. Currently microbial infections have become an important clinical treat. Therefore methods of anti microbials susceptibility testing and discovering novel anti-microbial agents have used and continued to be developed.

Published: February 2018.

Chemistry of Natural Products

Sharulatha K[1*], Suba C[2]
[1]Department of Biochemistry, Valliammal College for Women
[*]Corresponding author e.mail: kumarbhavani1006@gmail.Com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP35**

ABSTRACT

Natural product is a chemical compound or substance produced by a living organism that is found in nature. Natural products can also be prepared by chemical synthesis (both semi synthesis and total synthesis) and have played a central role in development of the field of organic chemistry. The term natural products has also been extended for commercial purposes to refer to cosmetics, dietary supplements, foods produced from natural sources without added artificial ingredients. Within the field of organic chemistry natural sources are produced by primary or secondary metabolism. In the field of medical chemistry many secondary metabolites are cytotoxic and have been selected and optimized through evolution for use as "chemical warfare" against prey, predators etc. Natural products sometimes have therapeutic benefit as traditional medicines for treating diseases, components as lead compounds for drug discovery. Natural product has inspired numerous U.S food and Drug administration approved drugs. Drug development has received declining attention by pharmaceutical companies' intellectual property concerns, seasonal or environmental variability of composition and loss of sources due to rising extinction rates.

Published: February 2018.

Bioinformatics and Drug Designing

Sri Mithali Choudary[1], Kanimozhi D[1*]
[1]Department of Biochemistry, Valliammal College for Women
[*]Corresponding author e.mail : kanipriya67@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.
Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP36**

ABSTRACT

Drug design, often referred to as rational drug design or simply rational design, is the inventive process of finding new medications based on the knowledge of a biological target. The drug is most commonly an organic small molecule that activates or inhibits the function of a biomolecule such as a protein, which in turn results in a therapeutic benefit to the patient. In the most basic sense, drug design involves the design of molecules that are complementary in shape and charge to the biomolecular target with which they interact and therefore will bind to it. Drug design frequently but not necessarily relies on computer modeling techniques. This type of modeling is sometimes referred to as computer-aided drug design. Finally, drug design that relies on the knowledge of the three-dimensional structure of the biomolecular target is known as structure-based drug design. In addition to small molecules, biopharmaceuticals and especially therapeutic antibodies are an increasingly important class of drugs and computational methods for improving the affinity, selectivity, and stability of these protein-based therapeutics have also been developed.

Published: February 2018.

Antimicrobials and Related Compounds

Aparna Jothi Banu[1*], Ramya R[1]
[1]Department of Biochemistry, Valliammal College for Women
[*]Corresponding author e.mail: aparnajyothibanu@gmail.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP37**

ABSTRACT

An antimicrobial is an agent that kills microorganism or stops their growth. For example, antibiotics are used against bacteria and antifungals are used against fungi. The use of antimicrobial medicines to treat infection is known as antimicrobial chemotherapy. The main classes of antimicrobial agents are disinfectants, antiseptics, antibiotics. Antibiotics do not include antimicrobial substances that are synthetic or semi synthetic. Several bioassays such as disk- diffusion, well diffusion and agar and broth dilutions are common methods. The antimicrobial activity of plant extracts and phytochemicals was evaluated with antibio susceptible and resistant microorganism. In additon, the possible synergistic effects when associated with antibiotics were studied. Eventhough pharmacological industries have produced a number of new antibiotics. A method using scanning electron microscope to study the morphology of the bacterial and fungal microbes determines antimicrobial activity.

Published: February 2018.

Marine Biotechnology

Keerthana V[1], Ahshiya V P[1*]

[1]Department of Biochemistry, Valliammal College for Women

[*]Corresponding author e.mail : keerthanaravi0697@g.mail.Com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP38**

ABSTRACT

Marine biotechnology is an innovative field of research in science and technology concerning the support of living organisms with marine products and tools. To understand the *omics* of the living species: it is novel way to produce genetically modified food, drugs, and energy to overcome global demand. The exploitation of biotechnology for drug discovery, including enzymes, antibiotics and biopolymers, chemical compounds from marine sources are deliberated. The concepts of marine microbiology are explored extensively. Biomedical applications of marine biomaterials such as tissue engineering, drug discovery gene delivery and biosensor areas are thoroughly discussed. Bioenergy from marine sources is a ground breaking achievement in the field of marine biotechnology.

Published: February 2018.

Antimicrobials and Related Compounds

Shantha S[*], Prabhavathy R[1*]
[1]Department of Biochemistry, Valliammal College for Women
[*]Corresponding author e.mail: prabhavathydass21@gmai.com

From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.
American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **PP39**

ABSTRACT

Antimicrobial is an agent that kills micro organism or stops their growth. The environmental medicines which trader infection is called antimicrobial chemotherapy, while the medicine which prevent the infection is known as antimicrobial prophylaxiS The anti.microbial activity of nanoparticles present situation and prospects for the future. The utilisation of nano particles in antibacterial coatings for implantable devices and medicinal materials to prevent infection and promote wound healing and to control bacterial infections. The development of new antimicrobial agents against resistant pathogens is increasing. Therefore, the types of extract from different parts of the medicinal plants were evaluated for antimicrobial activity. A co ordinated program that promotes the appropriate use of antimicrobial including antibiotics improves patient outcomes, reduces microbial resistance and decreases the spread of infections caused by multidrug resistant organism.

Published: February 2018.