

**ANVESHANA'S INTERNATIONAL JOURNAL OF RESEARCH IN  
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**Message**

It gives me monstrous delight that Anveshana Educational and Research Foundation is sorting out a NATIONAL LEVEL CONFERENCE ON RECENT CHANGES IN LIFE SCIENCES, Hyderabad. The focal subject NLCRCLS gives a chance to meeting of International Researchers, Engineers, Scientists and masters in the different innovative work fields of Engineering and Technology. The meeting offers a reason for worldwide specialists to accumulate and connect seriously on the themes of Electrical and Electronics, Electronics and Communication, Computer Science and Information Technology. I trust prominent speakers will cover the topic computer generated reality from alternate points of view. I am special to state that this meeting will offer appropriate answers for the worldwide issues. The accomplishment of this Conference is exclusively on the commitment and endeavors of multitudinous individuals who began taking a shot at the arrangements for close to 12 months from multiple points of view to cause this Conference to turn into a reality. In the end I express my exceptional thanks and gratefulness to all. I want NLCRCLS 2018 to enjoy all that life has to offer for its prosperity.

**Dr. A. Sagar Kumar**  
**Professor, Sri Venkateshwara College of Engineering and Pharmacy**

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**Message**

It gives me a tremendous joy to be a piece of the NATIONAL LEVEL CONFERENCE ON RECENT CHANGES IN LIFE SCIENCES (NLCRCLS-2018). I firmly accept that this gathering will give apparatuses and information to beat huge issues showing up in our industry and society by distinguishing inventive thoughts and advances presented by the scientists and understudies. The achievement of this gathering will energize us in presenting a lot more activities for creative patterns in the coming years. I wish the NLCRCLS-2018 an extraordinary achievement..

**Dr. D. Sucharitha, Director AERF**

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**Message**

I am pleased to know that Atharva College of Engineering is organizing national level conference (NLCRCLS - 2018). The institution is creating a platform for the industrialist, professionals, researcher and students to share and express their views on Innovative and Advanced Technologies in Engineering. It is absolutely essential to nurture the innovative capabilities of students as they are the future of our country and in that context it is very relevant that Anveshana Educational and Research Foundation, Hyderabad has organized this conference.

**Dr. GUNTUPALLI CHAKRAVARTHI,**

**PROFESSOR & PRINCIPAL- COLLEGE OF PHARMACY, KLU**

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**Message**

It gives me joy to realize that AERF is sorting out National Level Conference on "Ongoing CHANGES IN LIFE SCIENCES". I am certain that the collaboration of members all through the globe, broadly prestigious partners will go far in information sharing to support Industry, Society to develop and to contend all inclusive. This meeting will be an excellent achievement and broaden my all the best for the accomplishment of this gathering. I compliment the Institute on going before this superb advance.

**Dr.R.SUBHAKAR RAJU,**

PROFESSOR, COLLEGE OF PHARMACY, KLU

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## **LEVAN PRODUCTION BY HALOMONAS VARIABILIS (MTCC 3712) ON AGRI-INDUSTRIAL RESIDUES AS SUBSTRATES**

**Paper ID - BT1001**

**A Paper Presented by: V Nikhil Reddy, V S Ramakrishna Ganduri\***

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur- 522502,  
A.P., India.

### **Abstract:**

Agri-industrial residues like Misiri (concentrated sugar candy), coconut water and coconut milk contain high sucrose concentrations. The present study was aimed to utilize these residues to produce Levan from *Halomonas variabilis* (MTCC 3712) under batch conditions. Fermentation medium composed of sucrose and these residues yielded more quantities of Levan. Fermentation medium variables viz, carbon substrate concentration, pH, NaCl concentration, inoculum size was screened using Plackett-Burman design and the screened variables were analyzed for their variance in among them, by central composite design. Synthesized Levan was compared with standard Levan using Fourier Transform InfraRed (FTIR) spectroscopic analysis to confirm the functional groups present in Levan.

**Keywords:** Agri-industrial, ANOVA, FTIR, *Halomonas variabilis*, Levan, PBD.

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## **SUBMERGED FERMENTATION OF PENICILLIUM FUNICULOSUM FOR XYLANASE PRODUCTION**

**Paper ID - BT1002**

**A Paper Presented by: P Sri Vinuta Sai, G Sailja, V S Ramakrishna Ganduri\***

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur- 522502,  
A.P., India.

### **Abstract:**

The current study was aimed to study the utilization of glucose as sole carbon source to produce xylanase by *Penicillium funiculosum* in submerged fermentation. The fermentation media was composed of increased (10, 20, 30, 40 & 50) glucose concentration (g/L); Yeast Extract-1.0; Ammonium sulphate-9.0; Potassium di-hydrogen phosphate-1.0; Sodium nitrate-1.0;  $MgSO_4 \cdot 7H_2O$ -1.0;  $CaCl_2 \cdot 2H_2O$ -0.3 and maintained at pH  $8.0 \pm 0.2$ . The filter paper activity (FPA), xylanase activity was conducted to study the performance of fermentation. The optimization of the cultivation media favors microorganism growth and increases the enzyme concentration. The xylanase activity was also determined because for the application of these enzymes to the hydrolysis of biomass, the presence of xylanases contributes to an increase in the yield of sugar liberation.

**Keywords:** submerged, glucose, *Penicillium funiculosum*, xylanase, yield.

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## **THERAPEUTIC POTENTIAL OF PROBIOTICS FOR ANTI-AGING AND STRESS TOLERANCE ATTRIBUTES FOR DEVELOPMENT OF DIETARY SUPPLEMENTS**

**Paper ID - BT1003**

**A Paper Presented by: Suresh Chandra Phulara\***

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur-522502,  
Andhra Pradesh, India.

### **Abstract**

Aging and associated diseases have an ever-increasing economic impact on world health. It leads to a progressive decline of metabolic functions and results into the loss of memory, compromised immune system, and uncoordinated motor response, etc. Therefore, in this civilized world, which is now occupied with toxicants and adulterants, an intense social interest has increased to prolong the "health-span" of an individual to delay/prevent age-dependent decline in tissue functions. The amenability of *C. elegans* to genetic analysis, has underpinned major advances in biology/medicine. Its short lifespan, transparent appearance and ease of culturing/handling have established *C. elegans* as a pre-eminent model for studying the effects of genes and diet on ageing. In addition to ethical considerations, large numbers of isogenic animals can be cultured under controlled conditions, which enables the rapid screening of interactions between *C. elegans* host and large numbers of different microbial strains. There is ever-increasing evidence that gut microbes play important role in determining the host health. Indeed, anti-infective and other health-promoting effects of several probiotic microbial strains have been successfully investigated by utilizing the advantages of *C. elegans*. However, the molecular mechanisms behind such effects remains poorly understood. Fermented food products, possess antioxidant activity and bestow several health benefits due to the presence of several health-promoting microbes i.e. probiotics. The health-promoting probiotic strains from various fermented food/food products used in Andhra Pradesh household could be screened using *C. elegans* in very short time-span. Effect of probiotic supplementation on ROS accumulation and attenuation of age-dependent decline of physiological parameters (such as pharyngeal pumping, chemotaxis, lipofuscin accumulation) can be examined under microscope. The gene specific mutants and the GFP-tagged transgenic strain provide additional advantage to elucidate the molecular mechanism behind beneficial effect mediated by probiotics. High-throughput molecular biology tools can be utilized to determine how probiotics induce beneficial effects against ROS and other stresses, and to validate this approach towards developing pro-biotic based nutraceuticals against aging and age-associated ailments.

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## **METABOLIC ENGINEERING FOR THE PRODUCTION OF ISOPENTENOL FROM ENGINEERED MICROBES**

**Paper ID - BT1004**

**A Paper Presented by:**\*Suresh Chandra Phulara,  
Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur-522502,  
Andhra Pradesh, India.

### **Abstract**

Terpenoid are amongst the largest class of secondary metabolites comprising of more than 55,000 cyclic and acyclic compounds. Due to their tremendous functional and structural diversity, they possess a wide array of application including flavor, fragrance and pharmaceuticals. Terpenoid have also been foreseen as an alternative to petroleum derived fuels, due to their low hygroscopicity and high energy content. Therefore, past two decades have seen extensive advancement to produce terpenoid from microbiological routes. Isopentenol (prenol and isoprenol) are C5 compounds and one of the primary and simplest products of terpenoid pathway. They are derived from the dephosphorylation of isopentenyl pyrophosphate (IPP) and dimethylallyl pyrophosphate (DMAPP) by several endogenous phosphatases and pyrophosphatases. Naturally, these compounds are not accumulated in significant amount in microorganisms. Past decade, extensive researches have been done to investigate the possibility to overproduce isopentenols from minor modifications in native pathway to engineer heterologous pathway and genes in new hosts. Majority of the microbes synthesize their isoprenoid backbone via deoxyxylulose-5-phosphate (DXP) pathway from glyceraldehyde-3-phosphate and pyruvate. To enhance prenyl precursor flux towards isopentenol production key DXP pathway enzymes such as dxs, ispD, ispF and ispG could be overexpressed in various combinations under different promoters using ‘‘multivariate modular pathway engineering (MMPE)’. This approach would be helpful to deduce the best possible combination of gene expression for the high-yield production of prenyl precursors. Simultaneously, in-silico and in-vitro screening of endogenous pyrophosphatases could be utilize for the efficient conversion of prenyl precursors into isopentenol. The screened pyrophosphatases and phosphatases could be modified to increase their specificity towards prenyl precursors. Finally, the newly engineered pyrophosphatases and phosphatases can be co-expressed with best combination of DXP pathway genes for the development of high-yield producing microbial strains.

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## **UTILIZATION OF SAGO WASTE WATER AND HAMPAS FOR THE PRODUCTION OF BIO SURFACTANTS – TOWARDS ZERO WASTE DISCHARGE FROM SAGO INDUSTRIES**

**Paper ID - BT1005**

**A Paper Presented by: Dr.C.Arun**

Associate Professor, Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram,  
Guntur- 522502, A.P., India.

### **Abstract**

The bio-surfactants have application include detergency, emulsification, foaming, dispersion, wetting, penetrating, thickening, microbial growth enhancement (e.g., oil-degrading bacteria), antimicrobial agents, metal sequestering, and resource recovering (oil recovery). They are renewable substrates which are lower toxicity, biodegradability and ecological compatibility. Recently interest in bio-surfactant has increased because of its diversity, flexibility in operation, and eco-friendly than chemical surfactant. Bio-surfactants have many environmental applications such as bioremediation and dispersion of oil spills, enhanced oil recovery and transfer of crude oil. On other hand nearly 200 sago industries are located in and around Namakkal district and they are the major producers of sago (Starch) and the same was exported to various countries over the globe. The sago industries required large quantity of water, for the conversion of cassava tapioca tubers into commercial sago. Sago effluent is highly rich in organic matter in both dissolved and suspended state. The sago effluent has very high chemical oxygen demand, biological oxygen demand, obnoxious odour and unpleasant colour. When these sago effluents (Liquid waste-rich in carbon based compound) and sago hampas (solid waste-rich in nitrogen compounds) dispose into surrounding environment, it affects the soil, air and water (both surface and underground). Subsequently an environment-friendly and sustainable technology at low cost is needed for the management of sago effluents and hampas. Therefore by considering all the above statements the prime objective of present study to utilize the pre-treated solid and liquid waste of sago industries as carbon and nitrogen culturing medium for the bio surfactant producing microbes to produce bio surfactant in large quantity in ecofriendly way.

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**PRODUCTION OF BIO-BUTANOL FROM PRE-CONSUMER ORGANIC WASTE USING  
ALCOHOL AND THERMO TOLERANT MICROORGANISMS**

**Paper ID - BT1006**

**A Paper Presented by: Dr.C.Arun**

Associate Professor, Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram,  
Guntur- 522502, A.P., India.

**Abstract**

Recently major researches are dynamically increasing in the area of production of higher alcohols from cane molasses using alcohols and thermo tolerant yeast strains. This kind of study is to produce higher alcohols using alcohols and thermo tolerant yeast strains not reported so far. Higher alcohol augmentation in fermenter will be studied using yeast strain at various high alcohol concentrations with elevated temperatures. This type of technology and strain development is important and required to convert lower alcohols to higher alcohols. Therefore in the present study efforts will be made to carry out this study using sugar, alcohols and thermo tolerant bacterial strains using cheap organic raw materials.

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## **STUDY OF ABIOTIC AND BIOTIC DEGRADATION OF POLYETHYLENE BY FUNGAL ISOLATE ASPERGILLUS ORYZAE**

**Paper ID - BT1007**

**A Paper Presented by: Vishal A, Koteswara Reddy G**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation (Deemed to be  
University), Green Fields, Vaddeswaram-522502, Guntur, Andhra Pradesh, India.

### **Abstract**

Synthetic polymers (plastics) are widely used in industry and agriculture. Because of their high durability, they accumulate in the environment at a rate of 25 million tons per year. Plastics are not normally biodegradable until they are degraded into low molecular products which can be assimilated by microorganisms. In the present study fungal strain, *A. oryzae* isolated from HDPE film (buried in soil for 3 months) utilized abiotically treated polyethylene (LDPE) as a sole carbon source and degraded it. The films were incubated with the fungal isolate for 3 months complete degradation of carbonyl and carboxylic groups was achieved in FTIR analysis. Scanning electron microscopy of untreated and treated LDPE films also revealed that polymer has undergone degradation after abiotic and biotic treatments. This concludes Photo-oxidation and thermo-oxidation treatment accelerated degradation in the polyethylene film and this resulted in biodegradation due to the consumption of carbonyl and carboxylic groups by *A. oryzae* which was evident by reduction in carbonyl peaks

**Key words:** Photo-oxidation; *Aspergillus Oryzae*; Biodegradation, Polyethylene.

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## CINNAMON EXTRACT PROTECTS HIGH CARBOHYDRATE AND LOW FAT-INDUCED NON- ALCOHOLIC FATTY LIVER DISEASE (NAFLD) IN MICE

Paper ID - BT1008

A Paper Presented by: G. Kanuri

Department of Biotechnology, K L University, Vaddeswaram, Andhra Pradesh,

### Abstract

**Background and aims:** Results of human and animal studies suggest that water or alcohol based cinnamon extracts may have a positive effect not only on the development of acute alcohol-induced liver but also on type 2 diabetes and non-alcoholic fatty liver disease (NAFLD). The aim of the present study was to test if an alcohol-based cinnamon extract has a positive effect on the development of high carbohydrate and low fat-induced (HCLF)-NAFLD in mice and if so, to identify possible molecular mechanism involved. **Methods:** Female C57Bl/6J mice fed with low fat and high carbohydrate diet (10% kcal from fat, 70% kcal from carbohydrate in the diet) ± cinnamon extract, vehicle (70% ethanol solution) or water for 6 weeks. Markers of liver damage, inflammation and hepatic triglycerides were also determined. Immunohistochemical staining was performed to determine 4-hydroxynonenal (4-HNE) protein adducts and endotoxin levels were determined in portal plasma. **Results:** Despite similar caloric intake hepatic lipid accumulation was reduced in mice fed with cinnamon extract in comparison to mice fed with only HCLF diet or HCLF diet plus alcohol (control<ethanol<cinnamon). This protective effect of the cinnamon extract was associated with significantly lower plasma endotoxin levels as well as MyD88 and TNF $\alpha$  mRNA expression in the liver. Markers of inflammation such as macrophage infiltration and number of neutrophils were also significantly lower in mice fed with cinnamon extract. Furthermore, levels of 4-HNE protein adducts, hepatic NF $\kappa$ B activity was significantly reduced in mice fed with cinnamon extract in comparison to mice fed with HCLF diet or HCLF diet plus alcohol. **Conclusion:** Taken together, these data suggest that an alcohol based cinnamon extract may protect the liver from early steatosis through mechanisms involving the alterations at the level of intestine and intestinal barrier function.

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## **APOPLAST PROTEOMIC ANALYSIS REVEALS DROUGHT STRESS-RESPONSIVE PROTEINS IN HOT PEPPER (CAPSICUM ANNUUM L.)**

**Paper ID - BT1009**

**A Paper Presented by: N. Jaswanthi<sup>1</sup>, MSR Krishna<sup>1</sup>**

<sup>1</sup> KLEF deemed to be University, Guntur, Andhra Pradesh-522502

### **Abstract**

Drought is one of the major environmental constraints that limit plant performance worldwide. Plant apoplast which acts as connecting link between environment and plant protoplast carries multiple functions in plant metabolism and signalling. To investigate the drought induced changes in apoplast we carried out proteome analysis in combination with antioxidant enzyme activity changes in chilli (*Capsicum annuum* L). Water deficit induced increase in phenol content, phenyl alanine ammonia lyase, peroxidase activities while there observed a decrease in catalase activity in apoplast proteome. In LC-MS analysis, Drought induced up-regulation of 43 proteins were identified. These proteins include, stress related proteins such as defensins, peroxidases, polygalacturonase inhibitor protein, superoxide dismutase proteins. Unlike control, twenty unique proteins were identified to be present in proteome of drought treated plants. Qualitative and quantitative changes in apoplast proteome reveal dynamics of plant apoplast and its role in drought stress. This work would provide insights into drought induced proteomic changes in apoplast and also will prove to be useful for protein phenotyping for drought plant responses.

**key words:** Antioxidant, *Capsicum annuum*, LC-MS, Proteomic changes, Water stress

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## **IN SILICO DOCKING STUDIES OF VOLATILE COMPOUNDS FROM OCIMUM BASILICUM FOR POTENTIAL INTERACTION WITH 3Q8I PROTEIN OF ANOPHELES GAMBIAE**

**Paper ID - BT1010**

**A Paper Presented by: MSR Krishna<sup>1</sup>**

<sup>1</sup> KLEF deemed to be University, Guntur, Andhra Pradesh-522502

### **Abstract**

Mosquitoes play a major role in spreading of several dreadful diseases world wide. Complete eradication of mosquitoes is virtually not possible as they multiply very fastly. Preventing mosquitoes from biting us is the only method to protect ourselves so research is being done at a fast pace to find out the compounds that help in repelling the mosquitoes. Though many commercial synthetic compounds have been produced, efforts are being placed to find natural repelling components in a view to safeguard environment and health of the individual using them. The main objective of the present work is to identify the novel insect repellent compounds from Ocimum species by GC-MS and to screen effective insect repellent compounds by molecular docking with 3Q8I receptor using MAESTRO 9.2. The obtained results were compared with commercially available mosquito repellent DEET. Docking results showed that the best compound that exhibited high binding affinity with Odorant binding receptor protein 3Q8I of Anopheles gambiae was stigmata-5-22-dien-3-ol, caryophyllene oxide from Ocimum basilicum L. It is proved to be more effective than commercially available synthetic compound DEET. Further several such compounds can be identified and can be used in combinations to improve the effectiveness.

**Key Words:** Insect repellent compounds, GC-MS, MAESTRO 9.2., molecular docking.

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## **IDENTIFICATION OF NOVEL MOSQUITO REPELLENT COMPOUNDS IN OCIMUM SANCTUM BY GC-MS AND MOLECULAR DOCKING STUDIES**

**Paper ID - BT1011**

**A Paper Presented by: MSR Krishna<sup>1</sup>**

<sup>1</sup> KLEF deemed to be University, Guntur, Andhra Pradesh-522502

### **Abstract**

Mosquitoes which cause many diseases like malaria, yellow fever and dengue. Synthetic mosquito repellent compounds have wide range of side effects is in use. Plant based allelochemicals have been attaining a fascinated approval among the consumers as they are safe and ecofriendly in nature. Ocimum sanctum had evoked the attention of researchers with its rich source of essential oils possessing mosquito repellent properties. GC-MS analysis of Ocimum sanctum leaf extract exposed all the 29 volatile compounds were identified. Molecular docking studies revealed predominantly three compounds had good affinity with odorant binding protein 4( 3Q8I) of Anopheles gambiae. Docking results were compared with reference compound DEET using Schrodinger software maestro 9.3 version. The glide score -7.04 Stigmasta-5-22-dien-3-ol, Stigmast-5-en-3-ol, Ergost-5-en-3-ol-3-beta are the three potent natural compounds which showed good binding affinity with protein exhibiting a glide score value(> -9.0) higher than DEET score. Based on the present investigation ergost-5-en-3-ol-3-beta can be used as a natural insect repellent compound for the control of Anopheles gambiae .

**Key words:** Ocimum sanctum, GC-MS analysis, Molecular docking, DEET, Ergost-5-en-3-ol-3-beta.

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## **CAFFEINE EXTRACTION FROM VARIOUS PRODUCTS**

**Paper ID - BT1012**

**A Paper Presented by: Maheswara Reddy Mallu**

Department of Biotechnology, Centre for Bioprocess Technology, KLEF, Vaddeswaram, Guntur, Andhra Pradesh, India

### **ABSTRACT**

Caffeine is a bitter, white crystalline purine. It is found in seeds, nuts, or leaves of a number of plants native to Africa. Caffeine is most commonly found in products like coffee, black tea, green tea, cola soft drinks in various concentrations. Caffeine is most commonly used to improve mental alertness and also used in treating migraine headaches. Extraction of caffeine from Tea will be done through DCM Method by using distillation and Bio separation apparatus. Extraction of caffeine from coffee will be done by using Sodium carbonate through Bio separation. Similar process will be followed for all the products of various manufacturing companies. After this process caffeine will be extracted in crystalline form and content will be compared and analysed among various products.

**Key words:** Caffeine, Dichloro methane, Sodium carbonate, Distillation.

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## **BIOCHEMICAL, FATTY ACID, ANTIMICROBIAL AND FTIR ANALYSIS OF FLOWER PETALS AND LEAVES OF DIFFERENT MEDICINAL PLANTS.**

**Paper ID - BT1013**

**A Paper Presented by: Maheswara Reddy Mallu**

Department of Biotechnology, KL University, Vaddeswaram, Guntur District, Andhra Pradesh, India.

### **Abstract**

The Biochemical characterization, Fatty Acid, FTIR and Antimicrobial analysis for five selected medicinally important plants (*Millingtonia hortensis*, *Bauhinia purpurea*, *Couroupita guianensis*, *Cassia fistula* and *Spathodea campanulata*) were performed. The total carbohydrate, protein, anti microbial and fatty acid analysis was studied. The ethanolic extraction of leaves and flowers of these selected plants were used to perform biochemical and FTIR analysis. The carbohydrate content present in *Millingtonia hortensis* (Leaf:1.569 (mg/ml), Petal:3.88 (mg/ml)), *Bauhinia purpurea* (Leaf:2.19 (mg/ml), petal:5.584 (mg/ml)), *Couroupita guianensis* (Leaf:4.808 (mg/ml), Petal:3.456 (mg/ml)), *Cassia fistula* (Leaf:3.11 (mg/ml), Petal:1.672 (mg/ml)), *Spathodea campanulata* (Leaf:5.038 (mg/ml), Petal:2.967 (mg/ml)). The protein content for different plants in are *Millingtonia hortensis* (Leaf :54.89 (mg/ml), Petal:70.29 (mg/ml)), *Bauhinia purpurea* (Leaf:40.59 (mg/ml), Petal:55.99 (mg/ml)), *Couroupita guianensis* (Leaf:57.09 (mg/ml), Petal:53.79 (mg/ml)), *Cassia fistula* (Leaf:65.89 (mg/ml), Petal:50.49(mg/ml)), *Spathodea campanulata* (Leaf:61.49 (mg/ml), Petal:59.39 (mg/ml)). Fatty acid profiles of some selected plants had shown the presence of some medicinally important free fatty acids like  $\gamma$ -Linolenic acid in highest percentage of 13.1% in *Spathodea campanulata* petal extract and highest percentage of  $\alpha$ -Linolenic acid is found in *Couroupita guianensis* leaf extract as 20.3 %. Antimicrobial analysis was performed for selected plants among which *Millingtonia hortensis* showed antimicrobial activity against *Bacillus subtilis* with zone of inhibition 0.9cm in ethanol leaf extract ,0.85cm in methanol leaf extract. FTIR analysis reveals the presence of functional groups like C-H bond stretching, C-F Stretching.

**Keywords:** Antimicrobial, Zone of inhibition , FTIR,  $\gamma$ -Linolenic Acid.

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## **PRODUCTION AND STABILITY STUDIES OF THE BIOSURFACTANT ISOLATED FROM ACHROMOBACTER XYLOS GSR-21**

**Paper ID - BT1014**

**A Paper Presented by: GOLAMARI SIVA REDDY**

Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
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### **Abstract**

Biosurfactants have picked up an impressive consideration as of late because of their potential uses in an expansive scope of use territories, including environmental remediation, agriculture, biofilm formation, quorum sensing, textile, pharmaceuticals, cosmetics, and the food, oil, and petrochemical industries. A potential biosurfactant delivering strain, *Achromobacter xylos* GSR-21 was disengaged from the Andhrapradesh of India. Culture conditions including varieties in carbon and nitrogen sources were analyzed at steady pH, temperature and rotations per min (rpm), with the point of expanding efficiency all the while. The biosurfactant generation was trailed by estimating the surface pressure, emulsification test and emulsifying index  $E_{24}$ . Upgraded biosurfactant generation was completed utilizing dextrose as the carbon source and  $NH_4NO_3$  as the nitrogen source. The greatest generation of the biosurfactant by *Achromobacter xylos* GSR-21 happened at a C/N proportion of 2:1 and the advanced bioprocess condition was pH 8.0, temperature 35°C and salt fixation 5%. The creation of the biosurfactant was development subordinate. The surface strain was lessened up to 31 mN/m and additionally the emulsification index  $E_{24}$  was 45% out of 6 to 9 days. Properties of the biosurfactant that was isolated by corrosive precipitation were researched. The biosurfactant movement was steady at high temperature, an extensive variety of pH and salt focuses therefore, demonstrating its application in bioremediation, sustenance, pharmaceutical and cosmetic industries.

**Key words:** *Achromobacter xylos* GSR-21, Carbon source, Nitrogen sources, pH, Temperature, Rotations per min (rpm).

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## **STATISTICAL OPTIMIZATION OF MEDIUM COMPONENTS FOR BIOSURFACTANT PRODUCTION BY ACHROMOBACTER XYLOS GSR21**

**Paper ID - BT1015**

**A Paper Presented by: GOLAMARI SIVA REDDY**

Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
(Deemed to be UNIVERSITY), GREEN FIELDS, Vaddeswaram, Guntur, Andhrapradesh, INDIA-522502.

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### **Abstract**

This work, for the first time reports the optimization of the critical medium components for biosurfactant production by achromobacter xylos strain GSR21 using statistical experimental design was studied. Response surface methodology (RSM) was employed to determine the optimal level of the four medium variables (agar powder, yeast extract,  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$  and  $\text{KH}_2\text{PO}_4$ ). Central composite design (CCD) of RSM was applied to study the four variables at five levels and biosurfactant concentration was measured as response. Regression coefficients were calculated by regression analysis and the model equation was determined.  $R^2$  value for biosurfactant (g/L) was calculated as 0.7222 and it indicates that the model was well fitted with the experimental results. Surface plots were made and the maximum biosurfactant production (achromobacter xylos strain GSR21) (10.20 g/L) was predicted at the optimized values of agar powder 90 g/L, yeast extract 5 g/L,  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$  0.05 g/L and  $\text{KH}_2\text{PO}_4$  0.15 g/L. The obtained mathematical model was verified by performing the experiment with the predicted optimized values and the yield of bio-surfactant was found to be 9.69 g/L. Validation of the predicted model was fitted 96.9% with the experimental results conducted at the optimum conditions. Results of this statistical analysis showed that agar powder and yeast extract had found significant medium components for biosurfactant (achromobacter xylos GSR21) production.

**Key words:** Achromobacter xylos, biosurfactant, central composite design, response surface methodology.

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## **DEVELOPMENT OF GEL EXTRACTION PROCESS FROM ALOE VERA LEAVES**

**Paper ID - BT1016**

**A Paper Presented by: A.Devi Prasanna, P.Bhavana, Sarada Prasanna Mallick**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Guntur, India-522502

### **ABSTRACT**

Aloe vera is a succulent belongs to the Liliaceae family. It is a native, chiefly to the warm dry areas of South Africa, but cannot survive freezing temperatures. The cultivation of Aloe vera has acquired great commercial importance for medicinal products and cosmetics processing but information are scarce about processing of this crop. This investigation is aimed at standardizing important process parameters with the specific objective of developing an appropriate process technology for extraction of gel from Aloe vera leaves. The principle of centrifugation is employed for the extraction of gel from Aloe vera leaves. The treatments is done both in absence of acetone and in presence of 10 % acetone at 5, 10 and 32 °C (Ambient), three level of centrifuge speed i.e. 2000, 5000 and 10000 rpm and three level of centrifuge duration i.e. 10, 20 and 30 min with 3 replications. The optimum proportion of acetone, temperature, speed and duration was decided on the basis of quality parameters of gel. The results obtained are analyzed statistically. The effect of acetone, temperature, speed and duration on quality parameters like gel recovery (%), optical density of gel are studied. The combined effect of the different extraction parameters such as proportion of acetone addition to pulp, centrifuge temperature, speed and duration are also studied. Physical properties of Aloe vera leaf such as length, width, thickness, weight and pulp weight are measured.

**Keywords:** Aloe vera, medicinal, cosmetics, acetone

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**ISOLATION AND PURIFICATION OF PROTEINS FROM DATURA STRAMONIUM SEEDS AND  
DETERMINATION OF ITS ANTIMICROBIAL ACTIVITY AGAINST VARIOUS PATHOGENIC  
MICROBES**

**Paper ID - BT1017**

**A Paper Presented by: Tegegnework Mekoneen, Sarada Prasanna Mallick**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Guntur, India-522502

**Abstract**

Datura is also known as thorn apple or devil's weed. It is a member of the family Solanaceae. All Datura plants contains tropane alkaloids such as scopolamine, hyoscyamine, and atropine, primarily in their seeds and flowers .Use of plants as a source of medicine has been inherited is an important component of the health care system. It has been reported in ancient texts that Datura exhibits antimicrobial activity. The in-vitro antibacterial and antifungal activity of seed extracts from Datura stramonium was studied by disc diffusion method. The above mentioned articles also delineate to isolate proteins from Datura stramonium seeds, to purify isolated proteins, and to determination of anti-microbial activity of purified proteins against various pathogenic microbes.

**Keywords:** Datura, scopolamine, anti-microbial, pathogenic microbes

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## **CHITOSAN OLIGOSACCHARIDE BASED HYDROGEL: AN INSIGHT INTO THE MECHANICAL DRUG DELIVERY AND ANTIMICROBIAL STUDIES**

**Paper ID - BT1018**

**A Paper Presented by: Abhinav Gayatri, Yashwanth Kunaal, C Naresh, Sarada Prasanna Mallick**  
Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Guntur, India-522502

### **Abstract**

Hydrogel is a macromolecular polymer gel constructed of a network of crosslinked polymer chains. Chitosan Oligosaccharide is a biomaterial that has antibacterial properties and is used to prepare hydro gels for efficient drug delivery. Chitosan Oligosaccharide (CO) is combined with Carboxy Methyl Cellulose (CMC) to produce a hydrogel in different compositions for the best suitable option where the drug delivery and the biocompatibility are most efficient. After the hydrogel is prepared, it is subjected to a series of tests, i.e. Microscopy, Hemocompatibility, Mechanical strength, Drug release, antimicrobial activity which involves usage of Salicylic acid. The cross linking is achieved by adding the mixture of glutaraldehyde, alcohol and distilled water. Thus the best composition of the mixture of the two compounds – Chitosan oligosaccharide and the Carboxy Methyl Cellulose is determined and used for efficient drug delivery.

**Keywords:** Hydrogel, Chitosan Oligosaccharide, Carboxy Methyl Cellulose, Hemocompatibility.

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## **CHARACTERIZATION OF CHITOSAN AND PCL BASED SCAFFOLDS FOR TISSUE ENGINEERING APPLICATIONS**

**Paper ID - BT1019**

**A Paper Presented by:** Bindu Bhargavi<sup>1</sup>, Abhinav Malladi<sup>1</sup> & Nadeem Siddiqui<sup>1</sup>,  
KLEF deemed to be University Vaddeswaram, Guntur-Andhra Pradesh, India-522502

### **Abstract**

Tissue engineering involves the use of an artificial extra cellular matrix known as scaffold, stem cells and growth factors for healing a tissue damage or defect. In tissue engineering the developing therapeutic strategies aimed at the replacement, repair, maintenance, or enhancement of tissue function. Bone Tissue Engineering (BTE) is a complex and dynamic process that initiates with migration and recruitment of osteo-progenitor cells followed by their proliferation, differentiation, matrix formation along with remodeling of the bone. Among a pool of biomaterials, Chitosan (CS) is selected because of its natural abundance, biocompatibility and anti-microbial activity. However, due to its low mechanical strength, and fast degradation rate, the usage of CS is restricted in the area of BTE. In this regard, Polycaprolactone (PCL), synthetic aliphatic polyester, will be used to prepare composite CS/PCL scaffolds with improved mechanical property. There exist many methods for the preparing scaffolds, such as, methods Electrospinning, Phase-separation, Freeze-drying, Self-assembly etc. The chosen methodology for this application is Freeze-drying owing to its simplicity and the ability to remove the residual solvent to the maximum extent.

The developed scaffolds have been characterized in-detail for their morphology (SEM), structural (FT-IR), phase (XRD), swelling (Dw), degradation (SBF with lysozyme) and the scaffolds obtained are with interconnected porous structure, mechanical strength and decelerated degradation which are the key points in the success of any implant designed for Bone Tissue Engineering.

**Keywords:** Bone tissue engineering, Chitosan, PCL, Freeze drying

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## **PREPARATION AND CHARACTERIZATION OF PCL BASED SCAFFOLD FOR BONE TISSUE ENGINEERING**

**Paper ID - BT1020**

**A Paper Presented by:** Simran Asawa<sup>1</sup>, Supraja Reddy<sup>1</sup> & Nadeem Siddiqui<sup>2</sup>

<sup>1</sup>Department of Biotechnology, NIT Warangal, Telangana, India-506004

<sup>2</sup>Department of Biotechnology, KLEF deemed to be University Guntur-Andhra Pradesh, India-522502

### **ABSTRACT**

A plethora of orthopaedic problems are a major concern in the field of medicine. The conventional treatment procedures for these involve invasive risky procedures, long term yet less efficient recovery. To overcome the same, tissue engineering and regenerative medicine provides excellent approach for bone tissue repair. An important part of bone tissue repair procedure is quality of scaffold. A number of scaffolds are explored for better biocompatibility, sufficient strength and proper structure. In this study, we prepared PCL-based scaffolds for bone tissue engineering (BTE) applications. The scaffold was prepared by salt leaching method. Further, to observe the quality, we performed various characterizations to evaluate physicochemical (SEM and FT-IR), swelling (deionised water), mechanical (UTM) and degradation (PBS with lysozyme).

**Key words:** PCL, Chitosan, Mechanical strength, Lysozyme

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## **PCL BASED COMPOSITE SCAFFOLD MATRICES FOR TISSUE ENGINEERING APPLICATIONS**

**Paper ID - BT1021**

**A Paper Presented by:**Nadeem Siddiqui<sup>1</sup>, Simran Asawa<sup>2</sup>, Bhaskar Birru<sup>2</sup>, Sreenivasa Rao<sup>2</sup>

<sup>1</sup>Department of Biotechnology, KLEF deemed to be University, Guntur-Andhra Pradesh, India-522502

<sup>2</sup>Department of Biotechnology, NIT Warangal, Warangal, India.

### **ABSTRACT**

Scaffolds developed by using biomaterials are a major aspect of Tissue Engineering (TE) applications. Recent advances in TE has led to the development of suitable scaffold architecture for tissue defects. In this narrative review on polycaprolactone (PCL), we discuss in detail about the various properties of PCL, surface modification procedures, most recent advances of using PCL and PCL blended with either natural or synthetic polymers and ceramic materials for TE applications. Further, various forms of PCL scaffolds such as porous, films and fibrous have been discussed along with the stem cells and their sources employed in various tissue repair strategies. Overall, the present review provides an insight into the properties and applications of PCL in various tissue engineering applications.

**Key words:** Scaffolds, PCL, Composite, Stem cells and tissue engineering

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## **IMPROVEMENT OF CELLULAR RESPONSES OF GENIPIN CROSS-LINKED CHITOSAN COMPOSITE SCAFFOLDS**

**Paper ID - BT1022**

**A Paper Presented by:** N. Siddiqui<sup>1</sup> and K. Pramanik<sup>2</sup>

<sup>1</sup>Department of Biotechnology, KLEF deemed to be University, Guntur-Andhra Pradesh, India-522502

<sup>2</sup>Department of Biotechnology, NIT Rourkela, India-769008.

### **ABSTRACT**

In this study, genipin cross-linked freeze-gelled chitosan/nano  $\beta$ -TCP composite scaffolds were successfully modified by using fibrin and characterized to make them more effective towards bone tissue regeneration. The modified scaffolds possess adequate pore size and desired porosity ( $72.0 \pm 3.8\%$ ) for bone tissue engineering applications. There is no significant change in compressive strength of scaffolds was observed before ( $2.78 \pm 0.14$  MPa) and after ( $2.80 \pm 0.13$  MPa) fibrin coating. Notably, in-vitro cell culture study revealed the enhanced cellular responses such as cell attachment (Field emission-scanning electron microscopy), proliferation (DNA quantification assay) and differentiation (Alkaline phosphatase activity, estimation of Glycosamino glycan and expression of osteogenic specific genes) of seeded human mesenchymal stem cells (hMSCs). Further, the fibrin coating has added advantage of having fibrillar network facilitating transport of nutrients and metabolic waste to the seeded cells. Altogether, results indicate the potentiality of developed fibrin conjugated composite scaffolds for bone tissue engineering applications.

**Key Words:** Chitosan; Fibrin; Freeze Gelation; Bone Tissue Engineering.

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## **LOW CONCENTRATION AGAROSE VS POLYACRYLAMIDE GELS IN ANALYSIS OF HIGH MOLECULAR WEIGHT NUCLEIC ACIDS.**

**Paper ID - BT1023**

**A Paper Presented by:** Praveen Kumar Vemuri, Khyathi Dondapati, Greeshma Nimmagadda  
Department of Biotechnology, KLEF, Guntur District, Andhra Pradesh, India

### **ABSTRACT:**

Electrophoresis through agarose or polyacrylamide gels is a standard method used to separate, identify and purify nucleic acids, since both these gels are porous in nature. Agarose gels can be used to resolve large fragments of DNA. Polyacrylamide gels are used to separate shorter nucleic acids. In this work, we prepare various concentration of agarose gels (0.2% to 0.8%) and polyacrylamide gels (4% to 10%) to study the differential mobility of nucleic acids. Commercially available pure form of DNA will be used to conduct side-by-side comparison of the mobility of bacterial genomic DNA and human genomic DNA. In conclusion, since the adoption of agarose and polyacrylamide gels in the 1970s for the separation of DNA, it has proven to be one of the most useful and versatile techniques in biological sciences research.

**KEYWORDS:** Agarose, Polyacrylamide, DNA, Electrophoresis

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## **ISOLATION, IDENTIFICATION AND PHYTOCHEMICAL ANALYSIS OF MARINE STREPTOMYCES FROM EAST COAST OF BAY OF BENGAL, ANDHRA PRADESH**

**Paper ID - BT1024**

**A Paper Presented by: Rajasekhar Pinnamaneni**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur,  
Andhra Pradesh-522 502

### **ABSTRACT:**

Marine Streptomyces are rich source of secondary metabolites like alkaloids, flavonoids and antibiotics with potential clinical significance. The present study demonstrated the isolation, identification and characterization of Streptomyces from sediment of different locations of East coast of Bay of Bengal, Andhra Pradesh. Primary screening of 19 sediment samples using spread plate method demonstrated the chalky like appearance, a characteristic feature of Streptomyces in 5 samples from Visakhapatnam and Kakinada. Secondary screening of these isolates by subculture technique leads to isolation of single discrete colonies. The phytochemical analysis of crude extract from these isolates indicates that alkaloid content is rich in the isolate obtained from Kakinada. Further, quantification of alkaloids using Bromocresol Green methods indicate the isolate was rich in alkaloids with 3g ATE/100g dry mass. Structural characterization of isolate using Gram's staining reveals that the isolate is Gram positive and rod shaped bacillus. Further, biochemical characterization using gelatin and starch hydrolysis, Simmon citrate, MRVP, catalase, urease, H<sub>2</sub>S production tests indicating that the isolate was with gelatin and Simmon's citrate positive. Finally, BLAST search using 16S ribosomal RNA sequencing identified the isolate as Aciditerrimonas ferrireducens strain IC-180. The crude extract also exhibited 90% DPPH reducing activity with IC<sub>50</sub> value of 55.5mg/ml which attributes to its antioxidant activity.

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## **A STUDY OF TOTAL PHENOLS AND PHYTOCHEMICALS OF SELECTED CASSIA SPECIES**

**Paper ID - BT1025**

**A Paper Presented by: Rajasekhara Pinnamaneni**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur,  
Andhra Pradesh-522 502

### **Abstract**

In response to stress conditions, plants synthesize secondary metabolites mostly phenolics that improve resistance. These plant phenolics may be soluble and insoluble and complex in nature. Phenolic compounds in fruits, vegetables, spices and herbs are prominent source of antioxidants for humans. Cellular oxidation and free radicals are implicated in various chronic diseases, degenerative processes of aging and antioxidants protect from these illnesses. Cassia is a genus of flowering plants in the legume family: Fabaceae (subfamily: Caesalpinioideae). This genus comprises of 580 species of herbs, shrubs and trees that are widely distributed throughout the world and 45 species are indigenous to India. Cassia species occur in a range of climates and some are reported as ornamental plants. The selected plants of Cassia sp. are used as culinary purposes; the fruit of some species are edible. In the present study-phytochemical constituents, antioxidant property and total phenols of Cassia tora, C. auriculata, C. occidentalis, C. sophera, and C. fistula were evaluated. The plants were identified by using flora and herbarium was prepared. The parameters analyzed were organoleptic characters, extractive values, phytochemical constituents (alkaloids, flavonoids, saponins, tannins, glycosides, and amino acids). The total phenolic content of extracts was evaluated spectrophotometrically by using Folin-Ciocalteu phenol method and expressed in gallic acid equivalents (GAE) Antioxidant activity varied in different solvents for the test plant species. C. sophera ethanol extracts showed high antioxidant activity, is due to phenol content. This study reveals the extracts are moderate potential source of natural antioxidants.

**Keywords:** alkaloids, flavonoids, phenols, saponins, tannins, glycosides, and amino acids

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## **TRANSCRIPTIONAL MODULATION OF DXP PATHWAY OF BACILLUS SUBTILIS FOR ISOPENTENOL PRODUCTION**

**Paper ID - BT1026**

**A Paper Presented by: Suresh Chandra Phulara\***

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Andhra Pradesh, India.

### **Abstract**

Concerns like diminishing agricultural land, food security and threat to extinction of valued plant species, have driven global interest towards sustainable production of isoprenoid-based aromatics, flavors, pharmaceuticals and nutraceuticals from microbes. Soil bacterium, *Bacillus subtilis* is an excellent alternate due to its GRAS (Generally Regarded as Safe), fast growth rate. In the present study, 1-deoxy-D-xylulose-5-phosphate (DXP) pathway of *B. subtilis* was engineered for the production of hemiterpene-based alcohol, isoprenol. The key DXP pathway enzymes *dxs* and *ispD* were over-expressed to enhance isopentenyl pyrophosphate (IPP) supply. An endogenous *nudF* enzyme was also over-expressed to convert excess IPP into isoprenol. Two-fold increase in isoprenol titer was observed in recombinant strain genetic modulation. Lowering incubation temperature to 25°C enhanced isoprenol titer another 1.4-fold in recombinant strain. Further, optimization of other culture conditions with fine-tuning multiple gene expression can improve production of commercially important isoprenoids-based flavors and pharmaceuticals in *B. subtilis*.

**Key Words:** *B. subtilis*, DXP pathway, hemiterpene, isoprenol, overexpression.

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## **ISOLATION AND CHARACTERIZATION OF LACCASE PRODUCING ENDOPHYTES FROM FRUITS SOURCES**

**Paper ID - BT1027**

**A Paper Presented by:** K. kavya Sri<sup>‡</sup>, Yannamani Anusha<sup>‡</sup>, Desaboina Sai Sucharitha<sup>‡</sup>, M. Hanu Akshita<sup>‡</sup>,  
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Andhra Pradesh, India.

<sup>‡</sup> These authors contributed equally in this work

### **Abstract**

It well known that microbes can exist in free-form inside almost all plant organs. The group of such microbes is known as endophytes that posses several biological potentials such as probiotics, antimicrobial and enzyme (Laccase, cellulose etc.) production. Laccases (E.C.1.10.3.2; benzenediol: oxygen-oxidoreductase) are multi-copper oxidoreductase enzymes having broader substrate affinity over vast array of phenolic, aniline and aromatic amines compounds. Endophytes from fruits might have high laccase activity due to the high content of aromatic, polyphenolic and carotenoid compounds inside fruits. In this present work, we have isolated endophytes from kiwi and plum fruits. Isolates from both kiwi and plum survived in high dye concentration. However, highest dye removal activity was shown by endophytes from kiwi fruit. The endophytes will be identified and characterized by 16s rRNA sequencing. Several other biochemical tests such as indole, citrate, nitrate reduction tests, and fermentation of sugars will also be performed using these isolates. The culture broths will be investigated for laccase activity and laccase positive broths will be subjected to enzyme purification. Purified laccase will be characterize by SDS-PAGE and other biochemical assays. Further, the purified laccase will be utilized for the decolorization of textile dyes, and biodegradation of environmental pollutants

**Key Words:** fruits; endophytes; laccase; dye removal

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## **ISOLATION AND CHARACTERIZATION OF EPS PRODUCING ENDOPHYTES FROM FRUITS SOURCES**

**Paper ID - BT1028**

**A Paper Presented by:** K. kavya Sri<sup>‡</sup>, Yannamani Anusha<sup>‡</sup>, Desaboina Sai Sucharitha<sup>‡</sup>, M. Hanu Akshita<sup>‡</sup>,  
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Andhra Pradesh, India.

<sup>‡</sup> These authors contributed equally in this work

### **Abstract**

Endophytes are living microorganism that present in free form inside almost all plant parts. This tremendous class of microorganisms has several biological potential, such as production of secondary metabolites, secretory enzymes and exopolysaccharides (EPS). The EPS secreted by microbes is a wide group of capsular polysaccharides that can be found as a bound form to the microbial cell surface or microbes can release them as an extracellular slime in their surroundings. These biomolecules have a wide array of food and non-food applications. Here, we have isolated endophytic microorganisms from common Indian fruits like banana, kiwi and plum. The isolate from banana (BAN-1) is rich in EPS secretion; however, endophytes from kiwi and plum did not produced EPS. Further, the BAN-1 will be identified and characterize by 16s rRNA sequencing and EPS produced by it will be characterized by several biochemical and high-throughput approaches. The EPS will be purified and utilized to fabricate biological-absorbents for the removal of heavy metal contamination from water.

**Key Words:** fruits; endophytes; exopolysaccharide; heavy metal removal

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## **C. ELEGANS: A TOOL FOR AGING AND NEUROLOGICAL STUDIES**

**Paper ID - BT1029**

**A Paper Presented by: Suresh Chandra Phulara\***

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur-522502,  
Andhra Pradesh, India.

### **Abstract**

For the understanding of aging mechanism, the field of bio-gerontology has explored plenteous model organisms including *E. coli*, *S. cerevisiae*, *C. elegans*, *D. melanogaster* and *M. musculus*. The *C. elegans* is a free living soil nematode that has a simple, well-described and fully-annotated nervous system consisting of 302 neurons. In the early 1960s, Sydney Brenner recognized it as a potential genetic model organism. Since then, it has provided immense contribution to upgrade our understanding about the pathogenesis of aging and age-associated neurological disorders. The transparent appearance of *C. elegans* along with well-established green fluorescent protein (GFP), human A $\beta$  and  $\alpha$ S expressing transgenic strains provide easy and quick manipulations of bio-gerontological studies in whole organism using simple light and fluorescent microscopy. In addition, it has short life-span (3-4 weeks) and life cycle (approx. 3 days at 20°C), ease in culture, generic traceability and tractability, a high similarity with the aging mechanism in human and an impressive collection of genetic and epigenetic tools. Together these remarkable features make this model organism a suitable host for performing systematic and accurate investigation of the underlying mechanism behind aging and neurodegenerative disorders in short course of time.

**Keywords:** *C. elegans*; aging, neurology, lifespan

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## **ANTI-AGING AND NEUROPROTECTIVE ATTRIBUTE OF MEDICINAL AND AROMATIC PLANTS OF ANDHRA PRADESH**

**Paper ID - BT1030**

**A Paper Presented by: Suresh Chandra Phulara\***

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur-522502,  
Andhra Pradesh, India.

### **Abstract**

Aging and associated diseases lead to a progressive decline of cellular and metabolic functions and have an ever-increasing economic impact on world health. The increased amount of toxicants and adulterants in consumer products and in environment has worsened the situation. Therefore, there is an intense social interest to prolong the lifespan and health-span by means of natural products. Medicinal and aromatic plants are rich source of bioactive compound and have been used traditionally for the treatment of various age-associated ailments. However, there are several plant species whose antiaging potential have not been investigated yet. The *C. elegans*, a free-living soil nematode has established itself at the forefront of aging studies due to its short lifespan, transparent appearance and ease of culturing/handling. There are ever-increasing evidences that plant extracts and phytochemicals play important role in determining the host health. In the present work, phytoextracts of medicinal and aromatic plants of Andhra Pradesh will be screened using *C. elegans* for their longevity promoting effects. Effect of extract supplementation will also be investigated on ROS accumulation and several other age-associated physiological parameters. The best performing extract will be characterized and their metabolite profile will be investigated. The lead molecules of the extracts will further investigated for their antiaging and stress tolerance attributes. The metabolites will also be investigated for their neuro-protective effects by utilizing several transgenic strains of *C. elegans* such as NL5901, CL4176 etc. With the help of gene specific mutants and the GFP-tagged transgenic strains, molecular mechanism behind protective effects mediated by dietary interventions will be elucidated. Finally, the results will be validated by studying the real-time expression of longevity-associated genes after dietary interventions.

**Key Words:** Aging; reactive oxygen species; probiotics; *C. elegans*

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**EXTRACTION AND COMPARISON OF DNA FROM VARIOUS COCONUT ENDOSPERM**

**Paper ID - BT1031**

**A Paper Presented by:** V. Praveen Kumar, M. Hari Vandana, N. Kusma, R. Sai Rekha, D. Pratyusha, K. Hemalatha Reddy  
Department of Biotechnology, KLEF, Guntur District, Andhra Pradesh, India

**Abstract:**

DNA can be isolated from the cells by the phenol extraction method. The cell wall is denatured and chelated by SDS (sodium dodecyl sulfate) or SLS (sodium lauryl sulfate). The Tris acts as a buffer, pH of the medium will be very low (about 0.3) due to the presence of Tris. Action of nucleases can be minimized by using EDTA. Phenol-chloroform treatment denatures DNA. Isopropanol or ethanol is necessary for the proper precipitation of DNA, which after being renatured by sodium acetate, is precipitated by cold absolute ethanol.

**Key words:** DNA, Isopropanol, EDTA, Precipitation, SDS.

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## **MOLECULAR CHARACTERIZATION OF TSDEL6/TSER GENE POLYMORPHISM IN COLORECTAL CANCER PATIENTS OF INDIAN POPULATION**

**Paper ID - BT1032**

**A Paper Presented by:** V.Praveen Kumar, G.Siva Priya, G.Sai Pujitha, D.Chandra Lekha, Sk.Javeed  
Department of Biotechnology, KLEF, Guntur District, Andhra Pradesh, India

### **Abstract:**

The present study aimed to determine whether thymidylate synthase (TS) polymorphisms is an independent prognostic marker in selecting CRC patients and the influence of thymidylate synthase (TS) on the disease-free survival and overall survival of cancer patients. Our attempt also involves to evaluate the relationship between controls and male/female colon cases (age, BMI, smoking and alcohol drinking). It has been found that TSER length polymorphism is correlated to malignancy risk and was proven for CRC patients in Hungarian population. The enzyme has been of interest as a target for cancer chemotherapeutic agents. It is considered to be the primary site of action for 5-fluorouracil, 5-fluoro-2-prime-deoxyuridine, and some folate analogs. TS genotypes will be determined from the peripheral blood of about 10 patients by polymerase chain reaction–polyacrylamide gel electrophoresis and restriction fragment length polymorphism methods.

**KEYWORDS:** Thymidylate synthase, TSER, Polymorphism, p53, RFLP, Cancer

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## **ASSESSMENT OF ACCUMULATION OF PARACETAMOL IN HUMAN BLOOD STREAM**

**Paper ID - BT1033**

**A Paper Presented by:** V.Praveen Kumar, E.Pavithra, T.Jahnavi, D.Vyshnavi  
Department of Biotechnology, KLEF, Guntur District, Andhra Pradesh, India

### **Abstract:**

Paracetamol (acetaminophen) is a pain reliever, fever reducer and is generally considered as an inhibitor of the synthesis of prostaglandins. The usual dose of Paracetamol is one or two 500mg tablets at a time. The objective of this study is to assess the accumulation of Paracetamol in blood stream. Different human blood samples were collected based on the usage of Paracetamol at different time periods. From the isolated blood samples, serum was separated and subjected for analysis of Paracetamol concentration within them.

**Keywords:** Paracetamol, Blood Stream, Centrifugation, Thin Layer Chromatography, High Performance Liquid Chromatography.

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**EXTRACTION OF PEROXIDASE FROM WASTE BRASSICA OLERACEA (STEM) USED FOR  
THE TREATMENT OF AQUEOUS PHENOL IN SYNTHETIC WASTE WATER**

**Paper ID - BT1034**

**A Paper Presented by: C. Arun\* ,**

\*Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
(Deemed to be UNIVERSITY), GREEN FIELDS, Vaddeswaram, Guntur, Andhrapradesh, INDIA-522502.

E.mail: carun@klniversity.in

**Abstract**

In this study peroxidase was extracted and partially purified from waste Cauliflower stem. Optimal temperature, pH and ionic strengths for Cauliflower stem extract were found using pyrogallol/H<sub>2</sub>O<sub>2</sub> substrate and used to catalyze the oxidation and polymerization of phenolic compounds in synthetic waste water. Further, the effect of H<sub>2</sub>O<sub>2</sub>, Enzyme concentration, initial phenol and polyethylene glycol (PEG) concentrations were investigated on the phenol removal process. In the presence of PEG the phenol removal increased dramatically from 35% to >90% and FT-IR study on phenol samples before and after the peroxidase treatment showed that the phenol radical formation and decrease in phenol concentration after the treatment with enzyme.

Keywords: Waste Cauliflower stem; Peroxidase; Phenol; Polyethylene glycol.

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## **SUSTAINABLE UTILIZATION OF BIO CAKE FROM BIODIESEL FOR BIOGAS PRODUCTION**

**Paper ID - BT1035**

**A Paper Presented by: C. Arun\* ,**

\*Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
(Deemed to be UNIVERSITY), GREEN FIELDS, Vaddeswaram, Guntur, Andhrapradesh, INDIA-522502.

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### **Abstract:**

Ecofriendly production is the need of the hour for a sustainable environment. To obtain a sustainable future, possible only way is through converting the Waste to Energy .In the world where demand cannot meet with the existing requirements it is necessary to go on with the natural resources prevailing. The biodiesel occupies a unique place to satisfy the expectations and fit perfectly for automobile transportation and power generation. In the present study we proposed a Bio methanation process at paper and pulp industries with the bagasse wash water for an ecofriendly energy production using waste Bio-Cake obtained from the Biodiesel production plant and the sludge outlet after bio methanation can be used as the Manure to enrich soil naturally.

**Keywords:** Waste to Energy, power generation, waste Bio-Cake ,Bio methanation

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## **EXTRACTION OF NATURAL FOOD COLOUR FROM PAPAYA PEELS**

**Paper ID - BT1036**

**A Paper Presented by:G.JAGADEESWARI\* MANI KUMAR\* C. Arun\* ,**

**\*Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
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### **Abstract**

Food processing application various types of synthetic or chemical based color compounds are used, especially red and orange based color used to increase the attraction among the customers. The above colour compounds are produced normally using chemicals which result in pollution and cause damage to human cells and environment both physically and economically. Now awareness of using natural derived colour compounds from organic materials are increase significantly. Papaya Peels having Beta carotene pigments helps to produce a red and bright orange color pigments. Therefore in the Present Study, the papaya peels (Solid waste) was taken to extract natural food color for food processing application and to perform the extraction of the pigments from papaya peels using sonication and liquid liquid extraction process.

**Keywords:**Papaya peels, sonication, liquid liquid extraction, beta carotene.

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## **CONVERSION OF PLASTIC WASTE INTO VALUABLE FUEL PRODUCTS BY HYDROTHERMAL LIQUEFACTION BY PYROLYSIS**

**Paper ID - BT1037**

**A Paper Presented by: C. Arun\* ,**

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### **ABSTRACT**

Waste plastics management is a major problem around the world on long duration degradability of plastic materials. Plastics also pollute the air on direct burning and destroy the agricultural lands while burying under the earth. Enhanced method of hydrothermal liquefaction is an advanced technique to convert plastic waste into valuable fuel products. Plastic under high pressure and temperature can be converted into fuel using continuous flow reactor. Further process of plastic fuel like hydrogenation and isomerization will enhance the product value. Characterization methods to analyze the feed stock and products are TGA, FTIR, GC (FID) and HPLC. This method will be an advanced technique to convert waste into valuable fuel products in future.

**Keywords:** Plastic, Hydrothermal Liquefaction, Fuel

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## **REDUCTION OF NITROGEN AND PHOSPHORUS FROM DAIRY WASTE ACTIVATED SLUDGE USING DIFFERENT TYPES OF GARBAGE ENZYME**

**Paper ID - BT1038**

**A Paper Presented by: C. Arun\* ,**

\*Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
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### **Abstract:**

The disposal of organic waste which decomposes easily, to landfill produces greenhouse gases and leachate which affects the atmosphere and the water environment in a larger extent. Currently different types of methods are involved to recover value added products from organic waste. In the present study, garbage enzyme a value added product produced by the fermentation of vegetable or fruit waste or their combination along with molasses and water in ratio 3:1:10 respectively. The environmental characteristics of different types of garbage enzyme produced were analysed. Dairy waste activated sludge (DWAS) contains large amount of nutrients like nitrogen and phosphorus. Therefore the effect of garbage enzyme on removal of soluble COD, TKN (Total Kjeldahl Nitrogen) and Total Phosphorus (TP) content of DWAS evaluated. DWAS treated with 15% of the garbage enzyme solution shows 80-95% of nitrogen and phosphorus removal. This substantial results show that the garbage enzyme has the potential to alleviate the industrial waste activated sludge for further degradation.

Key words: Organic waste, Garbage enzyme, Total Kjeldahl nitrogen, Total Phosphorus.

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## **PHYTOCHEMICAL, ANTIOXIDANT ANALYSIS AND DETERMINATION OF GENETIC DIVERSITY OF HIBISCUS ROSA- SINENSIS**

**Paper ID - BT1039**

**A Paper Presented by: S Karthikeyan**

entre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
(Deemed to be University), Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, INDIA-522502

### **Abstract**

Hibiscus rosa-sinensis is commonly grown as an ornamental and medicinal plant. The Hibiscus rosa-sinensis leaves used as emollient, anodyne, and laxative. In this study, qualitative analysis of phytochemical, quantitative analysis of antioxidant and genetic diversity of nine varieties of Hibiscus rosa-sinensis were studied. The phytochemical tests were carried out to analyse the presence of alkaloids, flavonoids, saponins, tannins, phenols, proteins, cardiac glycosides, terpenoids, carbohydrates and quinones from the leaves extracts. The quantity of antioxidant property were analysed by DPPH free radical scavenging activity. The genetic diversity among nine varieties were analysed by RAPD-PCR technique. In comparison with both the solvents, methanol extract shows the best antioxidant activity than ethanol extract and presence of phytochemicals were identified. The genetic diversity of nine varieties of Hibiscus rosa-sinensis were determined by dendogram.

**Keywords:** Hibiscus rosa-sinensis, antioxidant, ethanol, phytochemicals

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## **GROWTH OF CATHARANTHUS ROSEUS IN COAL ASH BLENDED SOIL**

**Paper ID - BT1040**

**A Paper Presented by: S Karthikeyan**

Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
(Deemed to be University), Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, INDIA-522502

### **Abstract**

Coal ash is the residue formed after burning of coal in a steam power plant. Though coal ash contains toxic components, it is also rich in nutrients. The growth of *Catharanthus roseus* plants was studied in 0%, 5%, 10%, 15%, 20% and 25% coal ash blended soils. Growth of plants was monitored regularly after every month up to two months from the date of planting. Based on the data obtained, it is found that 5% to 10% coal ash- soil blending concentrations improved the physical properties of soil and also contributed to better growth and yield of *Catharanthus roseus* plants. The present work shows the possibility of use of coal ash by blending with soil for better plant growth. Thus utilization of coal ash in agriculture may provide a feasible alternative for its safe disposal without serious deleterious effects and may save on the cost of fertilizers and help the farmers if used in proper ratio by blending.

**Keywords:** Coal ash, *Catharanthus roseus*, steam power plant, fertilizers

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## **MICROALGAE AS A RENEWABLE SOURCE FOR BIOFUEL PRODUCTION**

**Paper ID - BT1041**

**A Paper Presented by: S Karthikeyan**

Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
(Deemed to be University), Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, INDIA-522502

### **Abstract**

Biofuel production from renewable sources is generally regarded one of the most sustainable solutions to petroleum-based fuels and a feasible means of sustainability for the environment and the economy. Algae is a very promising source of biomass in this context as it sequesters a significant quantity of carbon from atmosphere and industrial gases and is also very competent in utilizing the nutrients from industrial effluents and municipal wastewater. Algae are among the fastest growing plants in the world, and about 50%-70% of dry algae weight is oil. Microalgae produce about ten times more oil than oleaginous plants and then can be grown in systems like open ponds and photo bioreactors. Algae-based biofuel definitely has the potential to revolutionize the energy industry and will play a leading role in the fight against greenhouse gas emissions, and climate change. So biofuel production from algae could be one of the surprising competitors in the alternative energy market in not so long future, especially if oil prices continue to grow. In this review, we present an overview about microalgae use for biodiesel production, including their cultivation, harvesting, and processing.

**Keywords:** Biofuel, Microalgae, biodiesel, municipal wastewater

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## **EVALUATION OF ANTI CANCER ACTIVITY OF CURCUMIN ON HELA CELL LINE USING MTT ASSAY**

**Paper ID - BT1042**

**A Paper Presented by: S Karthikeyan**

Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
(Deemed to be University), Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, INDIA-522502

### **Abstract**

Curcumin is a polyphenolic yellow color pigment; derived from the rhizome of turmeric (*Curcuma longa*). It is the major compound in turmeric. As a natural product, curcumin has been used in ayurvedic medicine for centuries. It is nontoxic and has several therapeutic properties such as anti-oxidant, anti-inflammatory, analgesic, and antiseptic activity. It has been also studied for its anti cancer activity on several cancer cell lines. In our study, anti cancer activity of curcumin was analyzed on the HeLa cell line, which is a cervical cancer cell line and the  $IC_{50}$  value of curcumin was determined. Curcumin was also analyzed for induction of apoptosis in the HeLa cell line and the result shows that curcumin has effective anti cancer activity on HeLa cell line and the  $IC_{50}$  value of curcumin was determined at the concentration range of 0.0125% to 0.025%. This result suggests that the curcumin can make the HeLa cells undergo apoptosis and the least concentration of curcumin could be used to treat the cancer cells.

**Keywords:** Curcumin, anti-oxidant, HeLa cell line, anticancer, apoptosis

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## **COMPARATIVE ANALYSIS OF NOVEL CALCIUM PHOSPHATE BASED MACHINABLE BIOCERAMIC COMPOSITES**

**Paper ID - BT1043**

**A Paper Presented by: Rupita Ghosh**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur  
District, Andhra Pradesh, India 522502

### **Abstract**

Calcium phosphates are widely used in various fields of biomedical applications as implant materials, mainly due to their chemical similarity to the inorganic component of bone. In many of the applications the dimensional accuracy is critical and implants need to be shaped, sized and machined as per requirement. But, being a ceramic material with strong atomic bonding, they have high hardness, brittleness and thus a limited ability to be machined and shaped to an accurate dimension required for many critical surgical applications. Hence, these ceramic based materials cannot compete with the other metal or polymers based systems and are less popular in such applications with dimensional accuracy and strictness. Therefore, novel machinable calcium phosphate based ceramics composites, namely, hydroxyapatite and beta tri-calcium phosphate containing rare earth phosphates is manufactured and are characterized for its mechanical, machinability study and biological activity.

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## **GREEN AND CHEMICALLY SYNTHESIS OF ZNO NANOPARTICLES AND ITS BIOLOGICAL APPLICATION**

**Paper ID - BT1044**

**A Paper Presented by:**Zerihun Beyene, Rupita Ghosh

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur  
District, Andhra Pradesh, India 522502

### **Abstract**

Nanotechnology is being applied in almost all disciplines. Antimicrobial activity of zinc oxide nanoparticles (ZnO-NPs) has received significant interest worldwide particularly by the implementation of nanotechnology to synthesize particles in the nanometer region. ZnO is a bio-safe material that possesses photo-oxidizing and photocatalysis impacts on chemical and biological species. There are numerous applications of zinc nanoparticles due to their antibacterial, antineoplastic, wound healing, ultraviolet scattering and angiogenic properties. Antimicrobial effect of zinc oxide (ZnO) nanoparticles on pathogens that cause mastitis in dairy and its antibiofilm properties will be examined. In the present study Zinc nanoparticles will be synthesized both by chemical method and green synthesis method and the nanoparticle will be characterized and examined for its antimicrobial activity against mastitis causing pathogens in dairy industries and will also be examined for its antibiofilm activity

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## **SEAWEEDS –A DIETARY THERAPEUTIC FOR BREAST CANCER**

**Paper ID - BT1045**

**A Paper Presented by: D.V.Nagini, Research Scholar, Department of Biotechnology, KLEF, Guntur, AP**

### **Abstract**

Prevention is better than cure “as said by Desiderius Erasmus is the best way to be eradicate a disease before it reaches us. The incidence of breast cancer in women has increased dramatically over the last decade. The studies have found that breast cancer is the second leading cancer causing mortality in women. However, in the metropolitan cities like Mumbai, New Delhi and in many other cities, breast cancer is highly prevalent. The reason for more number of breast cancer cases in the metropolitan cities is because of the presence of PAH's. Polycyclic aromatic hydrocarbons (PAH's) exist and persist in the atmosphere due to the incomplete combustion of fossil fuels, and are established human carcinogens. However, the influence of PAH's on the development of breast cancer, the most commonly diagnosed cancer in women worldwide, remains unclear. Current treatments including surgery, radiotherapy, adjuvant chemotherapy, and/or hormone therapies are useful for treating breast cancer, but there is still no effective cure for most patients suffering from advanced breast cancer. In the few decades natural products from higher plants were mostly investigated for anticancer activities, while other groups (algae, fungi) were not given much attention. However the marine macrophytes, as a good source of anticancer compounds have been reported, mainly for the polysaccharides. Thus investigation is required to study the effect of dietary seaweeds as a source of anticancer compounds against breast cancer.

**Keywords:** Breast cancer, PAH's, Seaweeds, Polysaccharides

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## **EVOLUTIONARY TRACKING THE CONSERVED RESIDUES OF DXP SYNTHASE IN BACTERIA**

**Paper ID - BT1046**

**A Paper Presented by:** Megha Varshini Chimakurthi, T.Harsha Sai, M.Vandana, Movva Varsha, Ashish Runthala\*

Department of Biotechnology, Koneru Lakshmiiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, India -522502.

### **Abstract**

DXS synthase is the protein is involved in step 1 of the sub pathway that synthesizes 1-deoxy-D-xylulose 5-phosphate from D-glyceraldehyde 3-phosphate and pyruvate. To obtain the conserved residues in bacterial gene we need to predict the basic information related to sequences and structural motifs are from bioinformatic tools like- NCBI,CONSURF,IQTREE and molbiol are used for studying the phylogenetic relationship of various sequences in DXS gene and for obtaining the conserved residues (identical or similar sequences).After identifying the conserved motifs then compare them with structural motifs(which are conserved among different residues having same function).For tracking the evolutionary sequences construction of phylogenetic tree is necessary in identifying relationships of genes.

**Keywords:** 1-deoxy-D-xylose-5-phosphate synthase (DXS), Bioinformatics analysis, Motif, Evolution, Glycolysis

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## **STRUCTURAL AND FUNCTIONAL ANALYSIS OF PS1 , PS2 GENES THAT PLAY AN IMPORTANT ROLE IN ALZHEIMER DISEASE**

**Paper ID - BT1047**

**A Paper Presented by:**L. Sivani Chowdary, M.Sanjay, M.Abhishek, SK.Samrin, Ashish Runthala\*  
Department of Biotechnology, Koneru Lakshmiah Education Foundation, Vaddeswaram, Guntur, Andhra  
Pradesh, India -522502.

### **Abstract**

Alzheimer's disease is not reversible, gradual brain disorder that slowly damages memory and ability to think, and eventually the capacity to carry out the small tasks. In most people with Alzheimer's, symptoms first appear in their mid-60s. Later it was found out that they both(ps1 and ps2) also play a major role in causing alzheimer's because they are the part of alpha secretase enzyme which results in the mutation of APP gene and further results in alzheimer's. we are going to design structure for ps1 and ps2 which we assume them to be stable structure or models using various software tools like modular 9 version 6,swiss model, Itesser Up to now no one predicted the correct models of ps1 and ps2 and also no one patented in the PDB so we are assuming our stable structure of ps1 and ps2.we take the Known Sequence of ps1 and ps2 from NCBI, By using the blast software we get the similar sequences, We will take these similar sequences and insert in different modelling softwares, After output was generated we take best possible structures (4-5) and from it we apply Ramachandran plot and energy minimization, We will find out the stable and constant structure and make it as final later we do several functional analysis, Functional analysis includes the amount of GC content and what are the conserved domains if any present then which drug has possibility for binding and also the bond angle and bond strength

**Keywords:** Alzheimer's disease, ps1, ps2, APP gene, Ramachandran plot

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## STRUCTURE OF TWO GENES ARHGAP31 INVOLVED IN THE METABOLISM OF GTPASE- ACTIVITY FOR ADAMS OLIVERS SYNDROME

Paper ID - BT1048

A Paper Presented by:SV Sai Pushpa, YE Sulohitha Pravidya and Ekklesia Sesham\*

Department of Biotechnology, KLEF (Deemed To Be University), Vaddeswaram, Guntur-522502, A.P, India

### Abstract

GTPase activity of  $G\alpha$  subunits measured during multiple cycles of GTP hydrolysis depends on both GTP hydrolysis and guaninenucleotide exchange for product (GDP) removal. Thus, steady-state GTPase activity can only be measured under assay conditions where GDP release and GTP binding are not rate limiting. In practice it is the release of GDP that is usually rate-limiting, and thus increases in GTP hydrolysis by the presence of RGS proteins result in only small increases in measured steady-state GTPase activity. This is particularly true for steady-state GTPase measurements with  $G\alpha$  subunits such as  $G\alpha_q$  that bind GDP tightly in the basal state. In contrast, if guanine nucleotide exchange is promoted by GPCR activation, GTP hydrolysis now becomes rate-limiting and remarkably large increases in GTPase activity are observed due to the [catalytic activity](#) of RGS proteins. This work aims for modelling of ARhgap31 and dock6 structure using homology modelling, considering the available structure of Dock6 as a reference. Since arhgap31 is important in GTPase activity against the disease, the three dimensional protein structures was modelled by using Modeller 9.17, a simulator that would help in perceiving the modelled structure better. The ARhgap31 and Dock 6 sequences when aligned using BLAST P, showed significant similarity. Comparative modelling of Arhgap31 helps in the study of gene suppression for the adams olivers disease.

**Keywords:** GTPase, ARhgap31, dock6, Modeller 9.17, Comparative modelling

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## **COMPARATIVE MODELING OF PATHOGENESIS RELATED PR5 PROTEIN OF MUSA ACUMINATA WITH THE THREE-DIMENSIONAL STRUCTURE OF 1ZQ3 OF MUSA PARADAI SIACA.**

**Paper ID - BT1049**

**A Paper Presented by: D Malakonda Reddy, GS Akash, and MS Ekklesia Sesham\*.**

Department of Biotechnology, KLEF (Deemed To Be University), Vaddeswaram, Guntur-522502, A.P, India

### **Abstract**

The objective of this work is to perform comparative modelling of pathogenesis related protein (PR5) of *Musa acuminata* with the three dimensional structure of chain A protein (1ZQ3). Pathogenesis related proteins are associated with the defensive mechanism, of plants, during pathogenic attack. Usage of antifungal agents, containing PR5 protein, against bacteria and pathogens, will help in increasing the crop yield. This work aims for modelling of PR5 structure using homology modelling, considering the available structure of 1ZQ3 of *Musa paradaisiaca* as a reference. Since PR5 is important in pathogenic activities in plants, against the fungi and bacteria, the three dimensional protein structures was modelled by using Modeller 9.17, a simulator that would help in perceiving the modelled structure better. The PR5 and 1ZQ3 sequences when aligned using BLAST P, showed significant similarity. Comparative modelling of PR5 helps in the study of defensive mechanism in the *Musa acuminata* and its structural integrities.

**Keywords:** *Musa acuminata*, PR5, 1ZQ3, *Musa paradaisiaca*, Modeller 9.17

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## **ESTIMATION OF AFLATOXINS CONTAMINATION LEVELS IN INFANT PROCESSED FOODS BY RP-HPLC**

**Paper ID - BT1050**

**A Paper Presented by: Srinivasulu Kamma**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh-522 502

### **Abstract**

Aflatoxins are polyketide based potent liver carcinogenic, mutagenic and immunosuppressive compounds, primarily produced by food-borne fungi. There are almost 20 different types of aflatoxins identified until now, among these B1, B2, G1 and G2 are more prominent while AFB1 is considered to be the most toxic.

The aim of this study was, therefore, to provide information about aflatoxin levels in processed infant marketed foods by immune-affinity cleanup column assisted RP-HPLC method with fluorescence detection. Representative sample was taken in a conical flask; mixed with 20mL of extraction solvent (acetonitrile: water; 84:16 v/v) and shaken for 90 min. The extract was filtered using Whatman filter paper No. 4 and the filtrate was evaporated under reduced pressure. The evaporated samples were diluted with 20mL of deionized water and passed through immuno-affinity column at a flow rate of 2mL/min. The retained aflatoxins were eluted from the column by passing 2mL of methanol. The samples thus obtained were dried under Nitrogen pressure. To the dried aflatoxin residues samples 200µL n-hexane was added and vortexed for 30 seconds to remove the fat, then 50µL of TFA (Trifluoro acetic acid) was added and the sample mixture vortexed again for 30 seconds followed by addition of 2µL of water: acetonitrile (9:1). The sample mixture was finally vortexed for 20 seconds and used for HPLC analysis. An HPLC apparatus and C18, 250 × 4.6 mm, 5 µm; Isocratic mobile phase consisting of acetonitrile: methanol: water ratio (22.5:22.5:55 v/v) was used at a flow rate of 1mL/min. The elute was detected using spectrofluorometer detector set at emission wavelength 440 nm and excitation wavelength 360 nm. Triplicate samples were prepared and data thus obtained was analyzed statistically to calculate the level of significance of various parameters using analysis of variance.

The results obtained in this study showed that the magnitude of AFB1 contamination varied widely among processed infant foods. The levels of aflatoxins in the processed foods intended for infant consumption was found to be higher than the permissible limits set by the European Union. This can be more hazardous for infants, who are more sensitive and prone to exposure and toxic effects of such highly carcinogenic food contaminants. The results of the present study may provide awareness regarding the aflatoxins in processed infant foods, from the point of view of food safety.

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## **BIOANALYTICAL METHOD DEVELOPMENT AND VALIDATION OF IMIQUIMOD IN RABBIT PLASMA BY RP-HPLC AND ITS APPLICATION TO PHARMACOKINETIC STUDY**

**Paper ID - BT1051**

**A Paper Presented by: Srinivasulu Kamma**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation,  
Vaddeswaram, Guntur, Andhra Pradesh-522 502

### **Abstract**

A reverse phase liquid chromatography (RP-HPLC) method has been developed and subsequently validated for the determination of Imiquimod in Rabbit plasma. Separation was achieved with an Agilent TC-C18 4.6 x250 mm 5 $\mu$ m Column and pH 4.6 phosphate buffer and Acetonitrile (20:80) v/v as mobile phase at a flow rate of 0.8 mL/min and the Column temperature was maintained at 25 °C. UV detection was performed at 244 nm with a run time of 10 min. The method is simple, rapid, and selective. The described method of imiquimod is linear over a range of 5 ng/mL to 600 ng/mL and with correlation coefficient of 0.992. The below 2.0% RSD shown for an assay determination was precised. The method enables accurate, precise, and rapid analysis of imiquimod. This validated method was successfully applied into the pharmacokinetic study of rabbit plasma.

**Key words:** RP-HPLC, Imiquimod, Skin cancer, Rabbit plasma, Pharmacokinetic study

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**REMOVAL OF METHYLENE RED FROM AQUEOUS SOLUTION BY ADSORPTION TECHNIQUE**

**Paper ID - BT1052**

**A Paper Presented by: Rajasekhar Pinnamaneni**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh-522 502

**Abstract**

The main objective of this research work is the study of adsorption of dye solution methylene red using low cost adsorbent like neem leaf powder. Batch adsorption studies are carried out by observing the effect of experimental parameters, namely amount of adsorbents, dye concentration and contact time. Spectrophotometric technique was used for the measurement of concentration of dye before and after adsorption. The equilibrium time was found to be 50 min for 75 mg/L dye concentration. A maximum removal of 50% was attained for an adsorbent dose of 0.05 gm at 75 mg/L dye concentration. The results can be used for determination of optimum conditions for adsorption of dye in aqueous solutions.

**Keywords:** Methylene red, Adsorption, spectrophotometric analysis, dye concentration

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## **DO POLYPHENOLIC ACIDS PRODUCE ANTIOXIDANT ACTIVITY?**

**Paper ID - BT1053**

**A Paper Presented by: Rajasekhar Pinnamaneni**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh-522 502

### **Abstract**

The selected phenolic acids are plant secondary metabolites naturally present in almost all plant materials, including food products of plant origin and other substances such as propolis. Many biological effects of these compounds, such as anti-inflammatory, antiviral, antibacterial, antiatherogenic, and anticarcinogenic properties have already been reported. These properties have been attributed to their antioxidant potential. Hence, the present study was carried out to screen the total antioxidant activity of these polyphenolic acids like ellagic acid, syringic acid, shikimic acid, cinnamic acid, quinic acid and glycyrrhizic acid by phosphomolybdate method in vitro. The antioxidant activity of each polyphenolic acid was expressed as ascorbic acid equivalents. All the polyphenolic acids showed antioxidant property at lowest concentrations whereas higher concentrations showed erratic response. Among all the polyphenolic acids strongest antioxidant activity was showed by ellagic acid (4 fold) followed by glycyrrhizic acid (3 fold) and cinnamic acid and shikimic acid (2 fold). The present study revealed that none of the polyphenolic acids can be potential candidate for natural source of antioxidants.

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**ANTICOAGULANT PROTEIN FROM INDIAN SPECTACLED COBRA VENOM**

**Paper ID - BT1054**

**A Paper Presented by: Chandrasekhar Chanda**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, India – 522502

**Abstract:**

A fibrinolytic protein (66 kDa) purified from monocle spectacled cobra (*Naja naja*) venom showed fibrinolytic activity by slowly cleaving the A $\alpha$ -chain of bovine fibrinogen followed by digestion of both B $\beta$  and  $\gamma$  chains. It was found to be a modestly heat-stable metallo-protease. Toxin (40 $\mu$ g / ml blood suspension) strongly inhibited ADP, thrombin and arachidonic acid induced platelet aggregation. However, it did not interfere with collagen or ristocetin induced platelet aggregation. Very strong inhibition of ADP induced aggregation by toxin suggests competition with ADP for the P2Y receptors, which are targets of ADP.

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## **AN ANTIPLATELET PEPTIDE FROM NAJA NAJA VENOM**

**Paper ID - BT1055**

**A Paper Presented by: Chandrasekhar Chanda**

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, India – 522502

### **Abstract:**

Naja naja venom is primarily neurotoxic, but it also shows coagulopathy in bite victims to a minor extent. Several hemotoxins of varying molecular weight were observed in our study. A low Molecular weight (9 kDa) fibrinolytic peptide has been purified from the spectacled cobra (Naja naja) venom. It is a  $\alpha$ -fibrinogenase which cleaves the A $\alpha$  chain of fibrinogen in a dose dependent and time dependent manner. It was found to inhibit ADP, collagen and ristocetin dependent platelet aggregation process in whole human blood. From the present data we conclude that It exhibits its anticoagulant activity by interfering in both intrinsic and extrinsic pathway of blood coagulation. It inhibits platelet plug formation by either binding with P2Y1/ P2y12 receptors or by digesting fibrinogen molecules binding platelets with each other to form platelet plugs. However, the rate of fibrinogen digestion is too slow to explain its fast platelet aggregation inhibition activity.

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## **STOCK UP ON SOME FRIENDLY BACTERIA AND YOGURT AS BEST PROBIOTIC**

**Paper ID - BT1056**

**A Paper Presented by:**Srideepthi Repalle<sup>1</sup>, U.L. Sahitya<sup>2</sup>, Dr. M.S.R. Krishna\*,  
1, 2\*, Department of Biotechnology, KLEF, Vaddeswaram, Guntur.

### **Abstract**

Probiotics are an important part of the complex world of foods that are good for health. Probiotics are foods that contain live bacteria. It is the bacteria and metabolites, which they produce that give these probiotics their health promoting properties. The best known example of a probiotic is yogurt. The experimental data for yogurt is still not as conclusive as one would like, but human studies related to the consumption of yogurt show increased milk digestibility, quicker recovery from certain types of diarrhea, enhanced immune function, reduction in certain cancers, and possible lowering of blood cholesterol levels.

### **No colonization**

The bacteria, which are found in probiotic products such as yogurt, kefir and fermented vegetables, aren't normally found in the human intestine. In fact, the intestinal environment is often a hostile one for these foreign bacteria. Because of this, bacteria eaten in probiotic products don't colonize the intestine but are flushed through and eliminated quickly from the body. Because some bacteria have specific nutrient requirements it has been proposed that adding these particular foods or nutrient to the diet could be a way of increasing the numbers of specific bacteria. That is what prebiotics are. Prebiotics are foods or nutrients that are used by specific bacteria and that can be added to the diet to increase the chances of these particular bacteria growing and thriving in the intestine. Fructooligosaccharides (FOS) have been known as prebiotics for some time, but have been joined by galactooligosaccharides and other digestion resistant carbohydrates. FOS are compounds made up of fructose sugar molecules linked together in long chains. They can be found naturally in such foods as Jerusalem artichoke tubers, onions, leeks, some grains and honey. People, who eat yogurt, therefore have a probiotic in their diet. Others who eat foods that contain FOS and have a prebiotic in their diet. Recently a yogurt has hit the market that contains both live bacteria and FOS. So now it is possible to eat a probiotic that contains a prebiotic. This should increase even more the beneficial effects of eating yogurt. The concept of a prebiotic is one that could be included in many food products and it is likely that in the future we will be eating foods that are probiotics that also contain prebiotic ingredients.

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## **ADSORPTION OF BROMOBENZENE ON ACTIVATED CARBON FROM AGRICULTURAL WASTE MATERIALS**

**Paper ID - BT1057**

**A Paper Presented by: GOLAMARI SIVA REDDY and MALLU MAHESHWARA REDDY**

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### **Abstract**

This investigation handles the adsorption of Bromobenzene from agricultural waste using activated carbon. Effects of different parameters such as agitation time, adsorbent size, adsorbent dosage, initial concentration of Bromobenzene in agricultural waste, volume, pH of agricultural waste on removal of Bromobenzene are determined. From these investigations, one gram of activated carbon powder of 82.5 $\mu$ m size is found to remove 80% of 20 mg/l Bromobenzene from 30ml of agricultural waste in 30min. These results indicate that adsorption of Bromobenzene is increased with an increase in adsorbent dosage and decrease in adsorbent size. A significant increase in percentage removal of Bromobenzene is observed as pH value increased from 4 to 7.28 and percentage removal is marginally increased from 1 to 4. The percentage removal decreased as P<sup>H</sup> value increased beyond 7.28. Freundlich and Langmuir isotherm models describe the adsorption data very well indicating favorable adsorption of Bromobenzene adsorbent. Freundlich isotherm is relatively more suitable than Langmuir isotherm. Hence based on results obtained it is found that Activated carbon powder is effective in Bromobenzene removal and can be appreciably considered as most versatile, economical and feasible adsorbent for removal of Bromobenzene from agricultural wastes.

Keywords: Bromobenzene, Activated carbon, Biosorption, Langmuir and Freundlich isotherm.

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## **OPTIMIZATION OF THERMO-PHYSICAL PROPERTIES FOR THE BINARY SYSTEM OF ACETONE–WATER AT 303.15-318.15 K BY RESPONSE SURFACE QUADRATIC MODEL**

**Paper ID - BT1058**

**A Paper Presented by: GOLAMARI SIVA REDDY and MALLU MAHESHWARA REDDY**

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### **Abstract**

Densities, viscosities, ultrasonic velocity, refractive indices and surface tension values for acetone (1) + water (2) mixtures were measured at temperatures of 303.15K to 318.15K for the whole composition ranges and atmospheric pressure. These experimental values have been used to calculate the respective excess properties along with some acoustic properties. The experimental data and excess properties have been used to calculate the interacting coefficients and standard deviations from different existing models. Also the new model equations have been developed by using Design Expert program (response surface quadratic model) for density, viscosity, ultrasonic velocity, refractive indices and surface tension. Experimental results were analyzed on the basis of molecular interactions between component molecules with the help of FT-IR spectrum.

**Keywords:** Density, viscosity, ultrasonic velocity, refractive indices, intermolecular interactions, FT-IR spectrum.

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## **ISOLATION AND CHARACTERIZATION OF BIOSURFACTANT PRODUCING BACTERIA FROM HYDROCARBON POLLUTED SOIL**

**Paper ID - BT1059**

**A Paper Presented by: GOLAMARI SIVA REDDY and MALLU MAHESHWARA REDDY**

Centre for Bioprocess Technology, Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
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### **ABSTRACT**

Biosurfactants play an important role in oil recovery, and production, heavy metal removal from water during petroleum refinery process. Biosurfactant producing bacteria found to be abundant in hydrocarbon-polluted soil samples; it is due to more amounts of hydrocarbons present in the soil. These bacteria found to be soil and region specific. Therefore, in this paper we made an attempt to identify and characterize biosurfactant producing bacteria from local soil samples of Andhrapradesh, India. A battery of screening techniques was employed such as blood hemolysis, drop collapse tests, emulsification assay, emulsification index ( $E_{24}$ ), foaming activity, lipase activity, haemolytic assay, oil spreading, and tilted glass slide to select biosurfactant producing bacteria. Thin-layer chromatography (TLC), FTIR and gas chromatography mass spectrometry (GC-MS) analyses were used to identify and characterize the biosurfactant produced. The biosurfactant produced was applied on selected hydrocarbons to determine its emulsifying capacity. Finally, the biosurfactant producing bacteria was identified based on phylogenetic analysis using 16S rRNA sequence.

**Keywords:** Biosurfactant, Hydrocarbon-polluted soil, *Achromobacter xylosoxidans* strain GSR21, glycolipid, dodecanoic acid-undecyl ester.

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## **ARTIFICIAL BLOOD – A CURRENT REVIEW**

**Paper ID - BT1060**

**A Paper Presented by:V. Harika Lakshmi**

Department of Biotechnology, KLEF, Vaddeswaram, Guntur.

### **Abstract**

Since the 17th century, blood transfusions have been attempted to offset blood loss from trauma and childbirth or as a therapeutic modality during leeching or bloodletting. Until the identification of is agglutinating antibodies, however, transfusions were fraught with significant early complications. These early complications sparked interest in using hemoglobin as an oxygen carrier in plasma. Early trials of these solutions proved disastrous as well, with significant immediate complications resulting from infusions of stroma-free human hemoglobin solutions. Artificial blood is a product made to act as a substitute for blood for the transportation of oxygen and carbon dioxide throughout the body. The most promising blood products under development as blood substitutes are perflouorocarbons and hemoglobin based oxygen carriers. PFCs are long chain compounds similar to Teflon having oxygen carrying capacity. The hemoglobin based oxygen carrier's works on hemoglobin's unique oxygen binding capacity and the lack of blood type antigen. The delivery of oxygen by the two distinctly different classes of oxygen carriers has both benefits and risks which are unique to its class. If all the research that is being put into blood substitutes and synthetic blood products turns to be a success, then these can possibly serve as an alternative to eliminate the side effects associated with blood transfusions.

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## **BACTERIAL GHOST AS DRUG DELIVERY SYSTEMA**

**Paper ID - BT1061**

**A Paper Presented by:U.L.Sahitya,MS.R.Krishna**  
Department of Biotechnology, KLEF, Vaddeswaram, Guntur.

### **Abstract**

Bacterial ghosts are non-denatured bacterial cell envelopes that are produced by the plasmid encoded gene E mediated lysis. They are usually obtained from Gram-negative bacteria with fully intact surface structures for specific attachment to mammalian cells. They have a natural outer surface make-up which provides them with the original targeting functions of the bacteria they are derived from and are thus able to bind to and are taken up by specific cells or tissues of animal, human or plant origin. The loaded drug is usually non-covalently associated with the bacterial ghosts and the drug delivery vehicles themselves represent a slow release system. These bacterial ghosts offer traditional advantages over vaccines. They are effectively administered orally and aerogenically as drug carriers. The potency, safety and relatively low production cost of bacterial ghost offer a significant technical advantage over currently utilized vaccine technologies.

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## **PYRAZINAMIDE RESISTANCE IN MYCOBACTERIUM TUBERCULOSIS USING NICOTINAMIDE**

**Paper ID - BT1062**

**A Paper Presented by: SriDeepthi Repalle**  
Department of Biotechnology, KLEF, Vaddeswaram, Guntur.

### **Abstract**

Drug-resistant *Mycobacterium tuberculosis* poses a significant threat to the treatment of tuberculosis (TB). The current susceptibility testing for the first-line TB drug pyrazinamide (PZA) is not only time-consuming but also difficult, due to the requirement for acid pH for drug activity. Predominantly, resistance to PZA in *M. tuberculosis* is caused by mutations in the *pncA* gene, and the detection of *pncA* mutations can be an indicator of PZA resistance. In this study, the use of a previously developed microarray method for the rapid detection of PZA-resistant *M. tuberculosis* based on identifying mutations in the *pncA* gene was evaluated. The results showed that all mutations in PZA-resistant strains identified by DNA sequencing could be unambiguously detected by the microarray method. It is concluded that the microarray method is a valuable tool for the rapid screening and genetic identification of potential PZA-resistant *M. tuberculosis* strains. The nitrate reductase assay (NRA) for the rapid detection of pyrazinamide resistance in *Mycobacterium tuberculosis* using nicotinamide resistance as a marker of pyrazinamide resistance in Löwenstein–Jensen (LJ) medium at neutral pH. None of the sensitive strains had any mutations, apart from silent mutations, whereas all but one resistant strain showed *pncA* mutations. By using sequencing as a means of early resistance detection, the inconsistency of phenotypic pyrazinamide assays can be circumvented.

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## **DESIGN AND OPTIMIZATION OF NSAID LOADED NANOPARTICLES**

**Paper ID - BT1063**

**A Paper Presented by:**Srideepthi Repalle, Dr. M.S.R. Krishna,  
Department of Biotechnology, KLEF, Vaddeswaram, Guntur.

### **Abstract:**

The objective of the study was to design and evaluate NSAID loaded Nanoparticles drug delivery system, where Flubiprofen (model drug) Nanoparticles with suitable size range are envisaged to concentrate at inflammation sites due to increase fragility of blood vessels at those sites and increased aggregation and prostaglandin synthesis. Materials used were surfactant (pluronic F68) and polymer (poly lactic co glycolic acid; PLGA). The flubiprofen loaded nanoparticles were prepared by solvent diffusion nano-precipitation method. Experiment was carried out following 32 factorial designs, where drug polymer ratio was varied to optimize the formulation. From I.R studies no drug-polymer interaction was found. Particle size analysis was done using Malvern Mastersizer. Two parameters, namely, drug polymer ratio and solvent-nonsolvent ratio were chosen for optimization following the factorial design. Amount of drug loading and surfactant were kept constant and one polymer load was varied. The in-vitro drug release profile from nano particles was found to follow Higuchi square root kinetics implying a diffusion dependent release as is expected of an insoluble, non swellable nature of PLGA. It indicated that nano particles formed were matrix in nature, in which flubiprofen dispersed uniformly. Suitable polynomial models were generated and statistically validated using ANOVA for the different responses, namely drug released (maximization) and particle size (minimization). Those models were solved numerically and simultaneously to optimize the required formulation. Optimized formulation were found to have a polymer - drug ratio of 18.89:1 and manufactured at a nonsolvent -solvent ratio of 4:1 to maximize released after 8 hrs and minimize particle size. The methodology avoids the use of organic solvent and thus provides a safe, reproducible and fast method of production of nano particles. The study collaborates on the feasibility and suitability of aqueous polymeric drug delivery system, employing statistical design to develop a clinically useful nano particle system with targeting potential.

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## **DIABETIC THERAPY CUTS PANCREATIC CANCER RISKS**

**Paper ID - BT1064**

**A Paper Presented by:K.S.L Ramya Krishna**  
Department of Biotechnology, KLEF, Vaddeswaram, Guntur.

### **Abstract**

Metformin is a drug used in the treatment of type-2 diabetes. Metformin is the first epidemiological study in the cancer population especially pancreatic cancer. It reduces type-2 person's risk of pancreatic cancer by up to 62%. It has been observed that people with type-2 who take metformin have a much lower cancer incidence than those who do not. Now it appears that metformin can treat breast cancer as well. A study on mice with breast cancer generated from human breast cancer cells has found that they remained tumor free for nearly 3 months on metformin combined with standard cancer chemotherapy. Metformin selectively kills cancer stem cells. Stem cells which make 5-10% of tumor's cells are resistant to chemotherapy. Standard chemotherapy kills the mature cancer cells; it cannot vanquish the cancer stem cells. But the combination of chemotherapy and metformin appears to be very powerful. It works by increasing the cellular sensitivity to insulin and decreasing its circulating level in diabetics. Insulin also seems to have a growth promoting effect in the cancer. Metformin activates AMP kinase which is a cellular energy sensor. Recent publications have described that AMP kinase also plays an important role in the development of cancer by controlling cell division and growth. Metformin prevents pancreatic tumor development, as well as numerous epidemiologic studies in the diabetic population that showed taking the drug reduced the risk for cancer.

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**PRODUCTION OF BIOETHANOL**

**Paper ID - BT1065**

**A Paper Presented by: M. Sudhamani  
KLEF, Vaddeswaram, Guntur**

**Abstract**

With the fossil fuels depleting and the accompanied threat of pollution due to their usage, has directed focus on bioethanol which is supposed to be carbon neutral. The use of abundant forage/agricultural waste can act as feedstock for ethanol production. Several studies have also used other algal biomass and waste paper. Ethanol has been recommended for gasoline blending and in Direct ethanol fuel cells (DFEC). The technologies for ethanol production, challenges and present status will be discussed.

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**PRODUCTION OF RARE SUGARS**

**Paper ID - BT1066**

**A Paper Presented by: M. Sudhamani,  
KLEF, Vaddeswaram, Guntur**

**Abstract**

Rare sugars have varied applications in pharmaceutical, food, flavor or cosmetic industries. Examples include L-ribose, L-galactose, L-xylose, D-tagatose. Owing to their rare occurrence in nature, their production assumes importance. Carbohydrates contain multiple chiral carbons. Hence their production is laborious. The enzymatic synthesis is preferred due to the high stereo specificity of enzyme catalysis. Various examples of production of rare sugars will be discussed.

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## **SWITCHABLE DNA AT CIS-REGULATORY ELEMENTS OF GENES**

**Paper ID - BT1067**

**A Paper Presented by:** Venkata Rajesh Yella  
Department of Biotechnology, Koneru Lakshmaiah Education Foundation  
Guntur-522502, Andhra Pradesh, India

### **Abstract**

Genetic transcription is the most crucial step in the regulation of gene expression for cellular processes along with sequence-dependent structural features of DNA in promoter regions. DNA which is generally known to persist in B-form however through genetic mechanisms may sometimes be switch to other forms such as cruciform DNA, G-quadruplexes, intercalated motifs (i-motifs), triple-helical DNA (H-DNA), slipped DNA and Z-DNA known as non-B DNA forms that have a role in the crucial various process of gene expression. Hence the current study, we focused on cis-regulatory regions of various non-B DNA forms from prokaryotes to higher eukaryotes. Results obtained presented that thermophile organisms had the significant percentage of non-B DNA motifs and more precisely found at gene start site and it also observed that the position of non-B DNA does not have any relationship with DNA structural features. This study explains that non-B DNA possess a cis-regulatory role in transcription.

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**THE P53 PROTEIN BINDING TO DNA IN NORMAL AND CANCER CELLS**

**Paper ID - BT1068**

**A Paper Presented by:** V.Nikitha, CH.Sai Priya, M.Vijayalaxmi, Akkinapally Vanaja and Venkata Rajesh Yella  
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**Abstract**

The genome guardian p53 protein regulates several phases of the cell cycle and specialized in tumor suppression activities. Its primary function is to bind response elements upstream of genes involved in physiological processes. In this work, we attempted to reveal the difference in binding preferences of responsive elements in normal cells and cancerous cells. The locations of response elements extracted from the literature and UCSC Genome Browser utilized to retrieve the sequences. Here we employed shape studies of DNA instead of primary sequence. High throughput DNA shape computation is done by using the DNA shape tool developed at Roh's lab. DNA shape feature, namely minor groove shape, roll, helical twist, and propeller twist, were compared for response element sequences of two kinds of cells. Here we compare and contrast the features.

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## **UNDERSTANDING EUKARYOTIC REPLICATION BY USING DNA STRUCTURAL FEATURES**

**Paper ID - BT1069**

**A Paper Presented by:** Venkata Rajesh Yella and Akkinapally Vanaja  
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Genetic replication is various regulatory factors implicitly modulate a crucial process for inheritance. The replication fork start from the replication starts sites. The sequences elements are not conserved as expected, like other cis-elements such as promoters and enhancers. The current study focused on revealing the differences in replication sites in several eukaryotic genomes the primary sequence information for these sites extracted with the help of genome browsers and experimental studies the primary sequences information converted to physicochemical property profiles. The properties with cellular environment existence such as propeller angle, stability, flexibility, and groove shape were analyzed. Yeast replication starts to prefer lower stability, less flexibility, and narrow minor groove preferences compared to genomic sequences surrounding origins. Meanwhile, invertebrate and vertebrate replication sites prefer opposite trends in structures.

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