INTERNATIONAL JOURNAL OF CURRENT RESEARCH AND ACADEMIC REVIEW

ISSN - 2347 - 3215

VOL-5 SUPPLEMENT-1
SEPTEMBER-2017

www.ijcrar.com

EP
JOURNALS

INTERNATIONAL CONFERENCE
ON
“Molecular Signature – GenNxt”
(IJCRAR 2017)

ABSTRACT PROCEEDINGS

Organised by

Departments of Microbiology, Biochemistry
and
PG Departments of Applied Microbiology &
Bioinformatics & Clinical Trial Management

Dr. MGR Janaki College of Arts and Science for Women

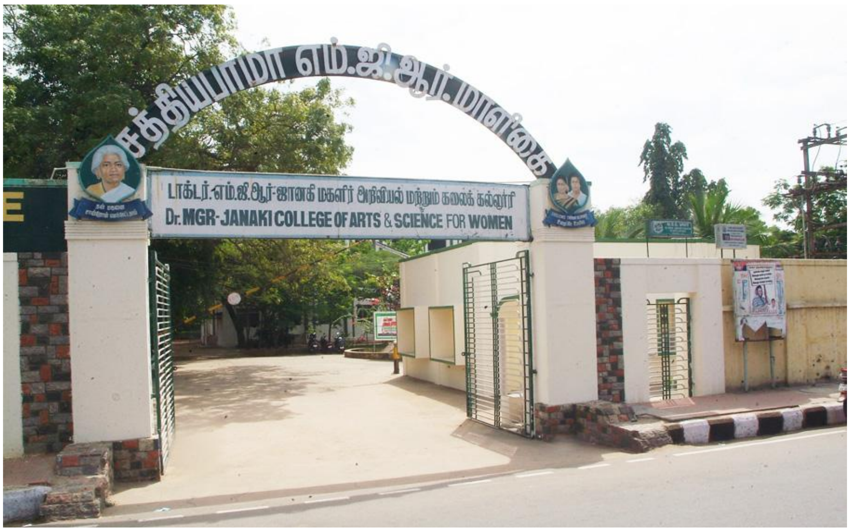
“Sathyabama MGR Maligai” 11 & 13, DurgabaiDeshmukh Road,
RA Puram, Chennai – 600028

ABOUT THE COLLEGE

Dr. MGR Janaki College of Arts and Science for Women has been founded in memory of the former Chief Ministers of Tamil Nadu, Bharat RatnaDr. M.G. Ramachandran and his wife Smt. Janaki Ramachandran. The college has been functioning effectively under the aegis of the correspondent Dr.Smt. LathaRajendran. Dr. MGR Janaki College was established in August 1996 with a modest student strength of 70 and a teacher strength of 12, with the noble aim of imparting quality higher education and empowering women. The College is affiliated to the University of Madras and has been approved by the Government of Tamil Nadu and reaccredited by NAAC

“Excellence through Diligence” – the college motto implies a value-based system of education, which imparts not only knowledge and skills, but also creates an ambience in which learners imbibe the importance of perseverance, the joy of working with a purpose and the ethics of healthy competition.

The college believes that economic independence is essential to empower women. Applied knowledge and acquiring of skills are essential, hence job oriented courses that are in demand in the job market are offered. It presently offers 13 graduate and 6 post graduate courses, (across two shifts) M.A. Natya a five year integrated course in music, dance and theatre is the first of its kind in the country. It has a student strength of over 3500. The college has also been credited as having the best well equipped laboratories for Microbiology, Bioinformatics, Biochemistry and Computer Science.



ORGANIZING COMMITTEE

Patrons:	**Dr.LathaRajendran**, Correspondent, Dr. MGR Janaki College forWomen **Dr. Kumar Rajendran**, Chairman, Dr. MGR Janaki College for Women
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Dr. MGR JANAKI
College of Arts and Science for Women
"Excellence Through Diligence"

Dr. Latha Rajendran
Correspondent

Dr. Kumar Rajendran
Chairman

MESSAGE FROM THE CONVENERS

I extend my best wishes for the International conference on "***Molecular Signature—GenNxt***".This Conference provides a unique opportunity for leaders in molecular biology and medicine from all over the world to come together and share most recent developments in their fields.The overarching long-term goal of this conference is to create a scientific environment conducive to cross-disciplinary discussion and exchange of new ideas by bringing together the world's leading researchers with junior scientists,to enhance understanding of the role of nucleic acids in biology,human health and disease.

By bringing together these eminent personalities we can continue to inch closer to the breakthroughs necessary to prevent genetic diseases as well as tackle the other vulnerabilities of the 21st century.I commend you all for the commitment to this incredibly important work.

MESSAGE FROM THE PRINCIPAL

I would like to congratulate the Department of Biochemistry, Microbiology, Bioinformatics and Clinical Trial Management for organizing the International conference on "***Molecular Signature-GenNxt***".The science of "Molecular signatures" or "gene-expression signatures" are used to predict patients' characteristics using data from coexpressed genes. Signatures can enhance understanding about biological mechanisms and have diagnostic use. Major achievements in this area have built expectations in the field of diagnostics. I am sure this conference will be an opportunity to understand the basics and applications of Molecular signature.

I congratulate the faculty and students for their contribution towards the journal. I wish them good luck in their endeavors.

Dr. R. Manimekalai

MESSAGE FROM THE ADVISORS

Dr. Lakshmi Balaji
Vice-Principal

Dr.V.C.Shanthi Lakshmi
Dean-Academics

Dr. ApithaSabābathy
Dean-Students

Hearty wishes to the departments of Microbiology, Biochemistry and Bioinformatics.

For organizing an International conference on "***Molecular Signature-GenNxt***".

Studies on the understanding the unique pattern of genes is claimed to be a vital area in research today that will lead to identifying remedies for several complications in multiple fields. Paradigm shifts are likely to occur as science reaches a new peak.As long as all research and scholarly work is guided by ethical considerations we can hope for progressive advances.

We hope that this seminar offers an opportunity for teaching faculty to consider the trajectory that research on specific areas is leading to and suitably guide students on new gained insights.

Dr.Wilson Aruni
Associate Research Professor,
Division of Microbiology and Molecular Genetics
Loma Linda University
California, USA

MESSAGE

I convey my hearty congratulations on the conduct of international conference "***Molecular Signatures –GenNxt***". It is very apt to conduct this conference at your college that will invite various guest invitees and participants.

I am indeed very happy to be a part of this conference and wish you all a big success.

With Best wishes,

Dr.Wilson Aruni

MESSAGE FROM THE ORGANISING SECRETARIES

Mrs. M. VictoriyaSalomi, **Head,** **Dept. of Biochemistry, Bioinformatics and Clinical Trial Management**	**Dr. P. Sumithira,** **Head,** **Dept. of Microbiology**

On behalf of the organizing Committee, we feel happy to organize the International Conference on "***Molecular Signature – GenNxt*"**. This Conference will bring together Academicians, Researchers, Industry Representatives, Research scholars and students to share and enhance their knowledge in recent trends in Biosciences.

In tune with the theme of the conference, the organizing committee has prepared an array of speakers of repute which will make the scientific sessions highly informative. This conference covers a number of plenary talks, oral presentation and poster presentation on newly emerging tools in the field of Health Science, which can sensitize and educate the educated.

First and foremost we thank our Management, Principal and staff for the strong support and guidance. We wish to place in record our gratitude to each and every individual who has lent their hand in bringing out the supplement issue in the journal.

With adequate impetus we hope this conference is staged with right perspective and we believe it will reach a successful outcome as expected.

International Conference

on

"Molecular Signature – GenNxt"

13 & 14 September 2017

SPECIAL LECTURES

S.NO	INVITED SPEAKER	TITLE
IJCRAR/PL/01	**Dr. G. Kumaresan** Assistant Professor and Head, Department of Genetics, Centre for Excellence in Genomics Sciences, Madurai Kamaraj University, Madurai	Gene expression based molecular signatures for advanced cancer diagnosis and targeted therapeutics
IJCRAR/PL/02	**Dr. G. Venkatesan** Senior –Business Development Manager – MBT Bruker India Scientific Pvt. Ltd., Chennai	MALDI TOF based microbial id for faster, accurate and effective diagnosis and treatment
IJCRAR/PL/03	**Dr. A. K. Munirajan** Professor, Department of Genetics, University of Madras, Chennai	Role of Noncoding RNAs in epithelial mesenchymal transition and cancer stemness
IJCRAR/PL/04	**Dr. M. Parthiban** Professor, Department of Animal Biotechnology, Madras Veterinary College, Chennai	Application of Sequencing Technology in Virology
IJCRAR/PL/05	**Dr. M. Michael Gromiha** Associate Professor, Department of Biotechnology, Indian Institute of Technology, Madras	Computational analysis and discrimination of driver and passenger mutations in Cancer
IJCRAR/PL/06	**Dr.Venkatesh Suresh Chinni** Senior Lecturer FAS, Department of Biotechnology, AIMST University, Malaysia	Identification and Characterization of novel non-protein coding RNAs in pathogenic microorganisms

INVITED ABSTRACTS (ORAL PRESENTATION)

Abstract No.	Author(s)	Title of the paper
IJCRAR/OP/01	**Achiffa Abdul Rahiman, AeliyaZehra M, Ushasri R and Anuswedha A**	**Novel Molecular Assays for Detection of Zika Virus**
IJCRAR/OP/02	**VictoriyaSalomi M, Vijayalakshmi N and Ananthi M**	**Discovery of Potential STAT3 Activator from *Murrayakoenigii* for Wound Healing**
IJCRAR/OP/03	**Janaki S, Madhanasundari A, Ushasri R and Anuswedha A**	**Biomarkers for Novel Targeted Cancer Therapy**
IJCRAR/OP/04	**Gowrishankar R and Sumithira P**	**Mutation Studies with *Citrobacterfreundii* for Enhanced Hydrogen Production**
IJCRAR/OP/05	**Aishwarya K, Shalini S, AnuSwedha A and UshaSri R**	**Molecular Diagnostics – An Imperative Tool in Determination of Antibiotic Resistance in Infectious Bacterial Diseases**
IJCRAR/OP/06	**Premila J, Vijayalakshmi K and Sangeetha R**	***Insilico* Docking Analysis of Capsaicin Alkaloids from Redchilliagainst Breast Cancer**
IJCRAR/OP/07	**VeenaGayathriKrishnaswamy and Rosette Mathew**	**Co-Metal (Chromium and Zinc) Removal by Acido-Tolerant Bacterial Strains from Heavy Metal Contaminated Site**
IJCRAR/OP/08	**Nithyakalyani V and Dhivyabharathi M**	**Antimicrobial Activity of Biosynthesized Silver Nanoparticles of *Tribulusterrestris* and *Indigo tinctoria***
IJCRAR/OP/09	**M. Reenaa and Gurpreet Kaur**	**Anti-enteric Potentials of Six Common Food Spices**
IJCRAR/OP/10	**PadminiR, Reshma K and SangeethaK**	***In Silico* Molecular Modeling and Docking Studies of *Catharanthusroseus* Derived Alkaloids against GLUT4**
IJCRAR/OP/11	**Jayanthi P and Vijayalakshmi K**	**Structural Prediction and Comparative Molecular Docking Studies of L-DOPA, Gastrodin, Baicalein, Tenuigenin on LRRK2 and Hsp90**
IJCRAR/OP/12	**Krishnaveni G and Renugambal K**	**Anti-CandidalActivitiy of Leaf Extracts of *Sansevieriaaethiopica*(thunb); A Medicinal Plant for theTreatment of Oral Candidiasis**
IJCRAR/OP/13	**KavithaYuvaraj and ArumugamGeetha**	**The Modulating Effect of Morus alba L. Root Bark Extract on Alcohol and Cerulein-Induced Toxicity in the Pancreas—**

		Biochemical and *In Silico* Studies
IJCRAR/OP/14	**Deepa S, Mahalakshmi M and Jayanthi D**	**Identification of Potent Inhibitor among Ligands of *Dicranopterislinearis* against Alpha-Synuclein using In-Silico Docking Analysis**
IJCRAR/OP/15	**VimiNingombam and Nandha E**	**Hitting the Target: An evaluation of the Novobiocin drug for Zika Virus**
IJCRAR/OP/16	**Krithika C and Vijayanandini G**	**Formation of Biofilm Using Azodye Degrading Bacteria and Impact of Wheat Bran as Inducer on Azodye Degradation**
IJCRAR/OP/17	**SangeethaVani G and Rajarajan S**	**Antiviral Effect of *Terminaliachebula* Extracts on Hepatitis B Virus**
IJCRAR/OP/18	**BrindhaBanu M and Jenifer K**	***In silico* Molecular docking study on the interaction between adenosine monophosphate-activated protein kinase (AMPK) and bioactive compounds *of Moringaconcanensis*Nimmo as a cure for Diabetes Mellitus**
IJCRAR/OP/19	**ParidhyVanniya S, Selvakumari M, Sharanya N and SrikumariSrisailapathy CR**	**Prevalence of the CDH23 Mutation p.D990N Among South Indian Hearing Impaired Individuals**
IJCRAR/OP/20	**Murugeswari A and Lakshmi priya D**	**Bioethanol Production from Neem Tree leaves (Azadirachtaindica) Using Saccharomyces cerivisiae as a fermenting agent**
IJCRAR/OP/21	**Vennila J, Meharunnisha Begum M and Fauzia Ahmed**	**Influence of Bone Marrow Derived Hematopoietic Stem Cells in the Treatment of Buerger’s Disease**
IJCRAR/OP/22	**Shoba G, Pavithra AS and Ananthi S**	**Molecular Interactions Analysis on Mutant H-Ras P21 and Bioactive Compounds from *Phyllanthusemblica* Linn**
IJCRAR/OP/23	**Ravanappan Srinivasan Ramya, ManickamAkila, Balaji Poojashree and Arunkumar Akshaya**	**An Assessment on the Iron Deficiency Anemia among College Going Teenagers Using CUSO4 Gravimetric Method**
IJCRAR/OP/24	**Aswini L and Swetha**	**Evaluating the Mycelial Characteristics of Ganodermalucidum to Make a Bulletproof Vest**
IJCRAR/OP/25	**P. Thenmozhi and T.V. Poonguzhali**	**Insilico—Docking Analysis of Crude Ethanolic Extract of Borreriahispida (L.) K. Schum against Breast Cancer Targets**

IJCRAR/OP/26	**Durga M, Jayanthi D and Mahalakshmi M**	**In Silico Analysis and Molecular Docking Studies of Alzheimer's Disease Biomarkers using Kaempferol**
IJCRAR/OP/27	**ShahiraBanu DA and Karpagam S**	**Proximate Analysis of Salaciachinensis Stem**
IJCRAR/OP/28	**Raja Lakshmi R and Vidhya Lakshmi R**	**Plant Based Culture Media for Rhizobacteria Using Aloe vera Extract**
IJCRAR/OP/29	**Thenmozhi A and Uma Ramaswamy**	**Cytotoxic Activity of Ethanolic Extracts of Imperatacylindrica (L) on HepG2 Cells of Human Hepatocellular Carcinoma Cell Line**
IJCRAR/OP/30	**VictoriyaSalomi M, Vijayalakshmi N andLinsaSanthosh**	**Interaction of MCP-1 with Carbazole Alkaloids from *Murrayakoenigii***
IJCRAR/OP/31	**Monisha M, Poornima VR and Uma Ramaswamy**	**Invitro Anti-coagulant, Anti-Inflammatory and Anti-bacterial Activity of Various Extracts of *Imperatacylindrica* (L)**
IJCRAR/OP/32	**Sumithira P and Divya**	**Comparative study of efficiency of common antibiotic and selected herbal extracts against *Vibrio* species from Shrimp**
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IJCRAR/OP/34	**Radhika R, Vijayalakshmi K and Premila J**	**Molecular Docking Studies of Phytocompounds from *Phyllanthusniruri* against HER-2**
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IJCRAR/OP/37	**Kalpana B and Prakash M**	**Anti-Candidal Activity of Leaf Extracts of Certain Medicinal plants of *Euphorbia heterophylla*, *Tamilnadiauliginosa* and *Capparissepiaria***
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		Profile of Growth Hormone in Japanese Quails
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IJCRAR/OP/41	**KumariNirmala A, Anbumalarmathi J and ArunaSharmili S**	**Assessment of physicochemical Composition and Nutritional Potential of Five Varieties of *Vignaradiata* (L.) Wilezek**
IJCRAR/OP/42	**Tobika R, VictoriyaSalomi M and Shoba G**	**Molecular Dynamics Simulation Study of Normal and Mutant FGFR2 Gene Causing Pfeiffer Syndrome**
IJCRAR/OP/43	**Priyanka Anbalagan and Veenagayathri Krishnaswamy**	**Screening of Phosphate solubilizing bacterial strains from rhizosphere soil of paddy and ground nut plant Tiruvallur District**
IJCRAR/OP/44	**Nithyakalyani V and MohanaDeepa G**	**Aquaponics – A Novel Approach for Farming**
IJCRAR/OP/45	**Devi J and Prakash M**	**Dynamics of Microbial Population during Vermicomposting of Three Organic Substrates by *Perionyxceylanensis***
IJCRAR/OP/46	**Deepika R, Premila J and Vijayalakshmi K**	**Reconstruction and Simulation of Alzheimer Disease Pathway Using Amyloid Precursor Protein and Hyper-Phosphorylated Tau Protein**
IJCRAR/OP/47	**Saranya P, ArunaSharmili S, and Anbumalarmathi J**	**Isolation and Characterization of Endophytic fungi from Bauhinia sp, Delonixregia and Crotolariasp**
IJCRAR/OP/48	**Muthumeena M and Lakshmi priya D**	**The Natural Antimicrobials as Food Preservatives**
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IJCRAR/OP/50	**ShanmugaPriya G and Padmini R**	**Ligand Based Pharmacophore Modelling and Virtual Screening of AKT Inhibitors against Breast Cancer**
IJCRAR/OP/51	**Meenakshi and Sumithira P**	**Antimicrobial Activity of Selected Marine Algae against Eye Infection Causing Microorganisms**
IJCRAR/OP/52	**Aishwarya R and Deepa S**	**Analysis of Pancreatic Cancer Based Datasets using Microarray Analysis**
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IJCRAR/OP/54	Vijayalakhsmi K, Premila J and Thelsinagomisebasti R	Molecular Docking Studies of Eupalitin in *Boerhavia diffusa* against mTOR Drug Target
IJCRAR/OP/55	Neenapriya J and Bhavani K	Biodegradation of Plastics by Bacteria
IJCRAR/OP/56	Roopavahini V and BrindhaBanu B	Development of Ligand Based Pharmacophore Model for Anti-Cancer to Treat Colorectal Cancer
IJCRAR/OP/57	Hemalatha P and Valli S	Influence of Vegetable Oils on Biosurfactant Production by Serratia sp Isolated from Soil
IJCRAR/OP/58	SaiAruna S and Durga M	QSAR and Docking Studies on Flavonols Derivatives for Alzheimer’s Disease
IJCRAR/OP/59	Kiran Sharma B and Jagadeeswari S	Antimicrobial Potential of Extracellular Metabolites Produced by *Streptomyces rochei*
IJCRAR/OP/60	Sofiya M and Vijayalakshmi N	QSAR and Docking Studies on Isoflavones Derivatives for Parkinson’s Disease
IJCRAR/OP/61	Maniraj A, Premkumar G, Venkatesan S, Muthuram Kumar S and Kannan M	Synthesis of Silver Nanoparticles (Ag-NPs) by Ficus benghalensis Plant Extract and Their Applications against Methicillin Resistant *Staphylococcus aureus* (MRSA)
IJCRAR/OP/62	VictoriyaSalomi M, Vijayalakshmi N and VishwaPriya M	In Silico Docking Analysis of Bioactive Compounds from *Murraya koenigii* against Activin-B
IJCRAR/OP/63	Krishnaveni G and Tamilarasi N	Wine Production in Pineapple—Characterisation of Volatile Aroma Compounds and Yeast Native Flora
IJCRAR/OP/64	Shoba G, Ananthi S and Pavithra AS	Molecular Docking Studies of B-Raf and Bioactive Compounds from Vitisvenifera (Grape Seed)
IJCRAR/OP/65	Mahalakshmi D and Nishanthi S	Study of Moringaolifera Extracts as a Natural Coagulant for Waste Water Treatment and Heavy Metals Removal
IJCRAR/OP/66	Padmini R and Sangeetha K	In-Silico Molecular Docking Analysis of Sirtuin 1 (SIRT1) with Bioactive Compounds of *Carica papaya*
IJCRAR/OP/67	Mahalakshmi D and ShahedaThabasoom	Silk Fibroin as a Carrier System for the Delivery of Fibrinogen and Thrombin as Coagulant Supplements

IJCRAR/OP/68	**Kalaivani N, Vijayalakshmi K and Premila J**	**Metabolic Pathway Reconstruction and Simulation of MAP KINASE (BRAF and NRAS) Pathway Involved in Melanoma**
IJCRAR/OP/69	**BanuRekha C, Umamaheswari R and Bhargavi G**	**Antimicrobial Efficacy of Water Stored in Copper Vessel against Escherichia coli**
IJCRAR/OP/70	**Elavarasi V and Victoria Salomi M**	**Molecular Dynamic Simulation Study of Normal and Mutant ACVR1 Protein Causing FibrodysplasiaOssificansProgressiva (FOP) Diseases**
IJCRAR/OP/71	**Hemamalini and Vidhyalakshmi R**	**Effect of Stimulating Agent and Extraction Solvents in Alginate Production by *Pseudomonas* Species**
IJCRAR/OP/72	**Shanthi M and M.Durga**	**Microarray Data Analysis of Alzheimer's Disease based Dataset**
IJCRAR/OP/73	**BanuRekha C, Sharmila S and Jothikodi**	**Screening of Actinomycetes from Marine Environment for Biosurfactant Production**
IJCRAR/OP/74	**Logeshwari S and Deepa S**	**Identification of Biomarker in Huntington Disease using Microarray Analysis**
IJCRAR/OP/75	**RamyaAnandan, Revathy and BharathyBalasubramaniyan**	**Isolation, Partial purification and Characterization of Uricase Enzyme Produced by a soil isolate- *Pseudomonas aeruginosa***
IJCRAR/OP/76	**Saranya N, Premila J and Vijayalakshmi K**	**Metabolic Pathway Reconstruction of Insulin Signalling Pathway Involved in Diabetes Type II**
IJCRAR/OP/77	**RamyaAnandan, Vasuki, GowriAparna, Preethika and Hemavathy**	**Influence of Various Media Components on Lipase Production and Its Partial Purification from A Soil Isolate—*Bacillus* species**
IJCRAR/OP/78	**Banu M and Shoba G**	**Molecular Dynamics Simulation of Normal and Mutant CFTR Protein Causing Cystic Fibrosis**
IJCRAR/OP/79	**RamyaAnandan, Ramya, Archana and Gayathri**	**Screening of Biosurfactantant Producing *Bacillus* species from Soil Isolates and Its Production Using Different Agroindustrial Waste**
IJCRAR/OP/80	**Viji Varghese and Vijayalakshmi N**	**QSAR Studies on Flavone Derivatives and Molecular Docking Studies of Alzheimer's Disease**
IJCRAR/OP/81	**Rita Jayaraj**	**Biochemistry of Embiidhaemolymphand Significance of Phylogenetic Relationships of the Order Embiopter**

IJCRAR/OP/82	**Aswini L, Thenmozhi M, Segashivanikanth D, Shalini D and MamtaChaturvedi**	**18S rRNA Sequence Analysis of *Rhinocladiella species* from Compost Soil**
IJCRAR/OP/83	**Preethi S and Vidya P**	**Impact of Microbial biofertilizers in growth and yield of home/ terrace garden plants**
IJCRAR/OP/84	**RamyaAnandan, Janani, Devika, Vasanthamalar and Rupavathy**	**Isolation of Azotobacter from Maize Fields and a Study of Its Potency as a Biofertilizer**
IJCRAR/OP/85	**RamyaAnandan, Akila, Angalammal and Shiny**	**Typing of Aeromonas species Isolated from Food Samples using 16S rRNA PCR—RFLP Method**
IJCRAR/OP/86	**Sumithira P, RamyaAnandan, Joshni, Sowmiya and Charumathy**	**Comparison of Antibacterial Activity of Green Tea and Black Tea Extracts with Antibiotics against Five Major Food Borne Pathogens**
IJCRAR/OP/87	**Aswini L, Sarojini D, Saranya T and Jayashree**	**Herbal Antibacterial Liquid Soap Development against Bacteria Causing Skin Diseases**
IJCRAR/OP/88	**Aswini L, Sandhiya, Hakeemunisa begum, Sangamithirai G and Manjula**	**Chromatographic Analysis of Carotenoid Pigment Produced By Exiguobacterium Species**
IJCRAR/OP/89	**RamyaAnandan, Sajitha kumara, Pushpalatha and Bhuvaneshwari**	**Effect of Application of Psuedomonasspp on Plant Growth and Study of Soil Parameter**
IJCRAR/OP/90	**Yuvarani A and Sugapriya S**	***Arabidopsis thaliana* in Climatic Changes**

INVITED ABSTRACTS (POSTER PRESENTATION)

Abstract No.	Author(s)	Title of the Poster
IJCRAR/PP/01	**Ragakeerthi K and Ajith M**	**When Oncogenetics and Molecular Virology Converge**
IJCRAR/PP/02	**Ameerunnisha S and FarheenBanu M**	**Ebola Virus Disease: Essential Clinical Knowledge on Manifestation and Diagnosis**
IJCRAR/PP/03	**BidishaMandal and Sruthi Y**	**Recent Methodologies in Biomolecular Research**
IJCRAR/PP/04	**Keerthana P and Jayabalaji A**	**Development of Phytochemical Profile and Assessment of Safety Parameters for a Polyherbal Formulation—RPVLE-01**

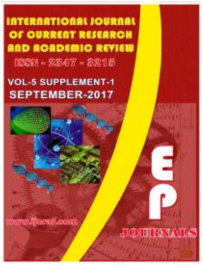
EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Lectures **IJCRAR/PL/01**

Gene Expression Based Molecular Signatures for Advanced Cancer Diagnosis and Targeted Therapeutics

Dr. G. Kumaresan

Assistant Professor and Head, Department of Genetics, Centre for Excellence in Genomics Sciences, Madurai Kamaraj University, Madurai, Tamil Nadu, India

E-mail: kumar@oncocellomics.org

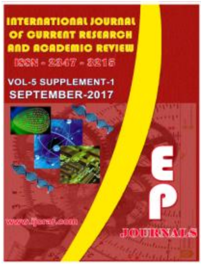
Abstract

Cancer is a global burden and it is being necessary to develop targeted therapeutics for the improved management of cancer patients. The current need for the improved clinical outcome of cancer patients is the stratification of patients into multiple novel subgroups. Compared to the classical molecular biological approaches wherein one or few genes are investigated, genomics approaches reveal the involvement of whole set of genetic factors involved in biological processes. Genome-wide approaches render an unbiased view and solution to the biological and biomedical problems. Compared to the conventional genomics often ends with list of genes up-regulated and down-regulated, the genomic and integrative functional genomic modeling offer great advantages in understanding the complexity of diseases as well as in thinking new therapeutic possibilities.

Gene signatures represent a group of genes in cells or tissues whose combined expression indicate the biological phenotype or clinical condition. The gene expression signatures are often defined from genome-wide expression data and are used to differentiate between different subtypes of a disease or a biological condition from another. In molecular classification of diseases, gene signatures are extremely used to predict the survival or prognosis of an individual. To date, several thousand gene signatures representing an array of biological conditions have been derived and are extensively useful from understanding the biology to various clinical applications.

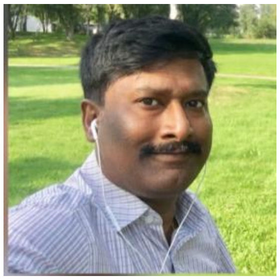
My group has analyzed the genome-wide copy number profiles, mRNA profiles, hundreds of cellular signaling pathways by in-vitro profiling and integrative functional genomic investigation in tumors and larger panel of cell lines. By comprehensive integrative functional genomic methods, we have derived many gene signatures representing clinical and biological conditions. These signatures reveal the possibility of stratifying tumors into multiple unorthodox sub-types based on the signaling pathways selectively activated across tumors. I will describe representative studies from my lab in these lines to illustrate the power and advantages of gene signatures in cancer research. These approaches open avenues not only to understand the functional complexities of cancer genomes but also to develop targeted therapeutics for cancers.

International Journal of Current Research and Academic Review
ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)
Journal home page: http://www.ijcrar.com
INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Lectures **IJCRAR/PL/02**

MALDI TOF Based Microbial ID for Faster, Accurate and Effective Diagnosis & Treatment



Dr. G. Venkatesan

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Abstract

Those days are gone, when you need several test tubes to do biochemical tests or several cards for microbial ID and inaccurate results. Now the whole outlook of microbiological lab is changed by the introduction of various automated and better solution right from plating, culturing, Identification to AST. One of the techniques which revolutionized the microbial ID is the Protein finger print of microbes using MALDI TOF Mass spectrometry. Bruker is the pioneer in introducing a commercially viable solution for Microbial ID using MALDI TOF MS. This technique enables faster, accurate and cost effective identification than conventional assays or sequencing. This technology generates a Protein based Molecular fingerprint (MS spectra) of the microbes which is used as a reference to identify the unknowns. This uses especially the Ribosomal Proteins and Cellular Proteins which falls in the range of 2000 to 20,000 Dalton. Currently this technique enables to identify Bacteria, Mycobacteria, Yeast and Filamentous Fungi. In addition, it can also be used for direct bacterial ID from blood culture without a need for subculturing, which saves ~12 to 24 hours of critical period of bacteremia patients and helps to bring down the mortality rates. Also, it can be used for the discrimination of MRSA strains as well as resistance strains of Beta lactamase group of antibiotics. I am sure, this technique will further open up avenues in microbial research for betterment of Human life.

International Journal of Current Research and Academic Review
ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)
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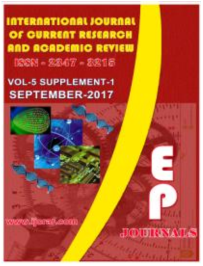

Invited Lectures IJCRAR/PL/03

Role of Noncoding RNAs in Epithelial Mesenchymal Transition and Cancer Stemness

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Abstract

Noncoding RNAs (ncRNAs) have been involved in regulation of complex cellular behaviours such as growth, differentiation and establishment of cell identity that are commonly deregulated in cancer. LncRNAs function *via* molecular and biochemical mechanisms that include *cis*‐ and *trans*‐ regulation of gene expression, epigenetic modulation in the nucleus and post‐ transcriptional/translational control in the cytoplasm, whereas miRNAs regulate gene expression in post-transcriptional level in the cytoplasm. Oral cancer is the sixth most common malignancy in the world, ranks number one among male and three among females in India. Despite recent advances in cancer diagnoses and therapies, the 5-year survival rate of oral cancer patients has remained at 50%. The major obstacles of oral cancer treatment are the development of resistance, disease recurrence, and metastasis. Epithelial-to-mesenchymal transition (EMT) is suggested to play an important role in oral cancer invasion and metastasis and also chemo–radio resistance. microRNAs are also components of the cellular signalling circuitry that regulates the EMT program. Downregulation of miR-200 family members and upregulation of ZEB transcription factor (TFs) family, BIM1, TWIST1, SNAIL1 and TGFβ signalling are hallmark signature of EMT. Through EMT and activation of stemness associated TFs cancer cells acquires dedifferentiation capabilities and display stem cells phenotype and markers. There cancer stem-like cells (CSCs) play a vital role in cancer relapse and resistance to therapy. Both EMT and stem cells play an important role in early embryonic stage and cell differentiation. Several ncRNAs including LINC-ROR and OIP5-AS1 and miR143/145 family in individual and in combination regulates the cell differentiation. Dysregulation of these critical regulators in oral cancer results in modulation of the pluripotency and differentiation of cancer cells *via* intervening the transcriptional and epigenetic regulatory networks to establish CSCs. Further, activation of EMT enables the CSCs to metastasis and form a CSC niche in distal site or organ to form secondary tumours. Nevertheless, the field of ncRNA research in stem cells/cancer has emerged and has been making progress towards a systematic understanding of their role. Researches in this area would eventually bring benefit to the understanding of ncRNA transcriptome and development of genomic-medicine.

International Journal of Current Research and Academic Review

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Invited Lectures **IJCRAR/PL/04**

Application of Sequencing Technology in Virology

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Abstract

DNA sequence is useful in basic research studying the fundamental biological processes as well as in applied field such as diagnostic or forensic research. Current automatic sequencing method can directly sequence only short (300–1000 nucleotides long) DNA fragments in a single reaction. The main obstacle to sequencing DNA fragments above this size limit is insufficient power of separation for resolving large DNA fragments that differ in length by only one nucleotide. Many of the new high-throughput methods use methods that parallelize the sequencing process, producing thousands or millions of sequences at once.DNA sequencing technology has wide array of application in the field of virology such as understanding the molecular epidemiology of the disease, differentiation of antigenically related viruses, identification of virulent nature of the virus, designing in primers for multiples PCR and LAMP assay, designing universal primers to amplify the all the serotypes of a particular virus, designing differential primers to develop serotype specific viruses, establish marker for differentiation of field and vaccine virus, identification of new genotype of virus based on sequencing data, identification of recombinant virus based on whole genome sequencing.

Int.J.Curr.Res.Aca.Rev.2017; 5(S1): S1-S100

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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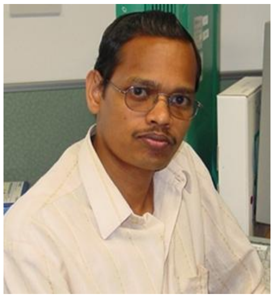
Invited Lectures **IJCRAR/PL/05**

Computational Analysis and Discrimination of Driver and Passenger Mutations in Cancer



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Abstract

The substitution of amino acid residues in a protein alters its structure, stability and function (1). In our earlier works, we have developed computational models for understanding the effect of mutations on protein folding and stability (2,3). On the other hand, somatic mutations such as missense, silent, insertions and deletions cause several diseases including the development of cancer. We have systematically analyzed the effect of these mutations at protein level in 41 different cancer types from COSMIC database on different perspectives (4): (i) preference of residues at the mutant positions, (ii) probability of substitutions, (iii) influence of neighboring residues in driver and passenger mutations and (iv) distribution of driver and passenger mutations around hotspot sites. We observed that R→H substitution is dominant in drivers followed by R→Q and R→C whereas E→K has the highest preference in passenger mutations. Further, we have developed a method for distinguishing between driver and passenger mutations in epidermal growth factor receptor in cancer, which showed an accuracy of 85% (5). The method has been utilized for identifying the potential driver and passenger mutations, which could be used for experiments. Further, we have explored the biological activities of different small molecules against mutants of EGFR and our models showed a correlation in the range of 0.72–0.91 on jack-knife test. The salient features of the results will be discussed.

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International Journal of Current Research and Academic Review

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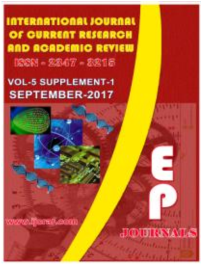

Invited Lectures **IJCRAR/PL/06**

Identification and Characterization of Novel Non-Protein Coding RNAs in Pathogenic Microorganisms

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Abstract

Purpose: Bacteria are well known for their rapid adaptation to the stress conditions. Bacteria undergo specific changes in the gene expression which enables us to understand their adaptation to the stress conditions. A transcriptome study was conducted to compare the differential gene expression of ncRNAs and mRNAs under normal and oxidative stress conditions of P. mirabilis and a similar study with S. typhi under normal and biofilm formation.

Methods: The total RNA was extracted during exponential phase in normal and oxidative stress conditions of P. mirabilis and exponential, intermediate and biofilm cells of S. typhi. These total RNA were sequenced via Illumina HiSeq 2000 platform. The fastQ format transcriptome sequences were analysed using Trimmomatic and Bowtie2. Un-annotated intergenic regions were screened for the possible novel ncRNA candidates using Artemis. Differential expression of mRNAs and ncRNAs was analyzed using HTSeq and DESeq software.

Results: A total 52 candidates were identified as potential ncRNAs in P. mirabilis. Interestingly, 26 ncRNAs are up-regulated while other 26 ncRNAs are down-regulated during oxidative stress conditions. Differential expression of 4 of these novel ncRNAs had been confirmed through Northern blot. Out of 3460 mRNA genes, 1693 and 1688 showed significantly up and down regulations respectively. Differential expression of ncRNAs and mRNAs during biofilm formation of S. typhi is in progress.

Conclusion: This transcriptome analysis data reveals both protein coding and non- coding genes are playing a major role in bacterial stress adaptation.

Acknowledgement: We are grateful to the Ministry of Higher Education Malaysia for financing this work under the Fundamental Research Grant Scheme FRGS/1/2014/SG03/AIMST/02/2 and Asia-Pacific Economic Foundation (APEF).

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International Journal of Current Research and Academic Review

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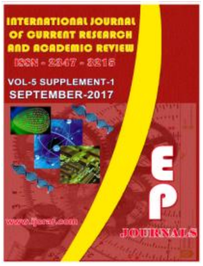

Invited Abstracts ***IJCRAR/OP/01***

Novel Molecular Assays for Detection of Zika Virus

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Abstract

Zika virus is an RNA virus belonging to Flaviviridae. Zika virus causes Zika disease in humans leading to the development of neurological disorders. Zika virus spreads rapidly worldwide and is a global concern. Zika virus is transmitted by mosquito bites, blood transfusion, sexual contact and vertical transmission. The main aim of the current study was to develop innovative molecular assays to diagnose Zika virus infection. The three modules studied were protein complexes, innate immune response and plasma proteins leading to activation and proliferation of glial cells Six DNA vaccines with frame shift mutations were developed from Brazil P ZIKV BeH815744 strain consisting of prM-Env-expressing plasmid which showed higher Env-specific antibody titres. The novel assays were used to target the membrane, envelope, nonstructural protein 1, NS2b, NS3 and NS5 genomic domains along with NS1 to detect Spondweni virus which is close to Zika virus and by reducing mismatches in 3 terminal region of oligonucleotides.

Keywords: Zika virus, DNA vaccines, Env-specific antibody

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Invited Abstracts *IJCRAR/OP/02*

Discovery of Potential STAT3 Activator from *Murraya koenigii* for Wound Healing

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Abstract

Murraya koenigii commonly known as curry plant belongs to the family Rutaceae. It is a medicinal plant which is native to India. The curry leaf is believed to have several pharmacological properties such as anti-diabetic, antioxidant, antimicrobial, anti-inflammatory, anticarcinogenic and hepato-protective activities. The plant is the rich source of carbazole alkaloids. The alkaloids obtained from naturally occurring sources have been the subject of extensive research, mainly because of their wide spread application in traditional medicine. Carbazole alkaloids from *Murraya koenigii* exhibit wound healing properties. Wounds are injuries that break the skin or other body tissues that include cuts, scars, scratches and punctured skin. Disruption of the integrity of skin, mucosal surfaces or organ tissue results in the formation of a wound. The process of wound repair requires a complex interplay of resident epithelial and mesenchyma cells with hematopoietic cells to accomplish the stages of wound healing. STAT3 (Signal transducer and activator of transcription-3) is one of the transcription factors, stimulated by IL-10. IL-10 is a 35-kDa homodimeric cytokine that is produced by a variety of cell types, including T-cells, monocytes and macrophages. It is known to be a major regulator in suppressing the inflammatory response. IL-10 binds to IL-10 R receptor and activates the STAT3 cascade, where phosphorylated STAT3 homodimers translocate to the nucleus within seconds to activate the expression of target genes. In the skin, keratinocytes have been shown to be capable of producing IL-10 after injury. Docking of various therapeutically important chemical entities to the specific target sites offers a meaningful strategy that may have tremendous scope in a drug design. The 3D structure of signal transducer and activator of transcriptor 3 (STAT3) is subjected to molecular docking with carbazole alkaloids from *Murraya koenigii*. The study indicates Bismahanine and Mukoeic acid exhibits least binding energy and hence they are considered as potential and natural therapeutic agents to heal wound.

Keywords: wound healing, carbazole alkaloids, *Murraya koenigii*, anti-inflammation, IL-10, STAT3, molecular docking

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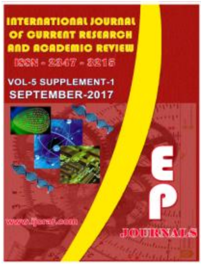

Invited Abstracts IJCRAR/OP/03

Biomarkers for Novel Targeted Cancer Therapy

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Abstract

Biomarker is an indicator used to measure and evaluate biological, pathogenic and pharmacological processes to interventional therapy. Biomarkers acts as biomedicines for treatment of wide variety of cancers. The main aim of this current study was to study the efficacy of biomarkers used for treatment of cancer. Rituximab, is a Biomarker used to treat B cell lymphoma disorders. Trastuzumab, a MoAb blocking Her2/neu is used as a bio medicine for breast cancer and gastric cancer. Bevacizumab, a MoAb binding vascular endothelial growth factor (VEGF) is a biomarker for colorectal, brain, kidney and non small cell lung cancer. Brentuximab vedotin (SGN-35) is a bio marker for anaplastic large cell lymphoma and Hodgkin lymphoma. SMIs including gefitinib, erlotinib, cetuximab, panitumumab are biomarkers for lung, colon, and pancreatic cancers. Crizotinib is a biomarker for ALK translocation. Vemurafenib is a biomarker for meloma cancer and JAK2 V617F mutation for myeloproliferative neoplasms.

Keywords: biomarkers, cancer therapy, biomedicines

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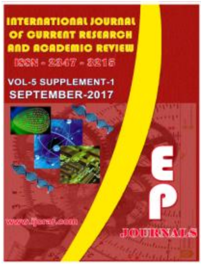

Invited Abstracts **IJCRAR/OP/04**

Mutation Studies with *Citrobacter freundii* for Enhanced Hydrogen Production

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Abstract

Strain improvement for amplifying the expression of desired metabolic activity or product is an actively pursued branch in microbial technology. Many physical and chemical methods are employed to generate mutants with desired characteristics. An attempt is being made in this study to genetically manipulate *Citrobacter freundii* for enhanced hydrogen production. In the present study, Citrobacter field isolate was characterised and select *C. freundii* isolates were mutagenized with ultra violet radiation (UV). Distinct morphological difference and tetracycline resistance (tetr) were used to differentiate mutants from the wild type *C. freundii*. Two mutants of *Citrobacter* namely *C. freundii* SPK02M, C. freundii SPK03M were found to exhibit higher hydrogen output over the wild type from a wide variety of carbon source. Environmental friendly renewable alternate to fossil fuels is actively perused worldwide. Microbe driven bio-fuels, bio hydrogen are increasingly becoming popular as the renewable energy source. Genetic manipulations of target microbial fuel cell should be pursued to maximize the scope of microbial bio-hydrogen for various applications.

Keywords: mutation, strain improvement, *Citrobacter freundii*, hydrogen, bio-energy

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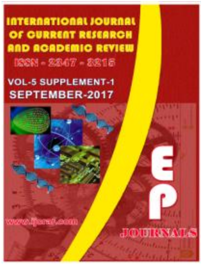

Invited Abstracts *IJCRAR/OP/05*

Molecular Diagnostics – An Imperative Tool in Determination of Antibiotic Resistance in Infectious Bacterial Diseases

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Abstract

Diagnostic molecular biology is one the fastest growing area of laboratory medicine and it has the potential for a major impact on clinical medicine within the next decade. As this area develops, so will our understanding of how structural variations in DNA and RNA are associated with the development of infectious bacterial diseases. Antibiotic resistance is now present in all parts of the world. According to WHO, new resistance mechanisms emerge and spread globally, hampering the ability of healthcare professionals to treat common infectious diseases. The four main classes of broad-spectrum antibiotics including carbapenems, extended spectrum beta-lactams, fluoroquinolones, and macrolides have become less effective against multidrug-resistant organisms (MDROs) such as *Escherichia coli*, methicillin-resistant *Staphylococcus aureus* (MRSA), Vancomycin resistant enterococci (VRE) and *salmonella*. The emergence and steady increase of MDROs presents a significant challenge because of the limited availability of therapeutic options. With standard treatments becoming increasingly ineffective, infections persist and more are likely to be passed on to others. Though there are phenotypic methods in identifying multidrug resistance in bacteria, molecular detection of specific antibiotic resistance genes confirms their occurrence. The major disadvantage of using molecular methods is that it is not cost effective but the chances of using other methods would delay the diagnosis and increase the risk of transmission of resistant disease in the community. Molecular techniques give quick results in comparison to the routine phenotypic tests which would otherwise take one to two weeks. Therefore, molecular diagnostics confirm to be an imperative tool in determination of antibiotic resistance in the diagnosis of infectious bacterial diseases.

Keywords: antibiotic resistance, MDRO, infectious bacterial diseases

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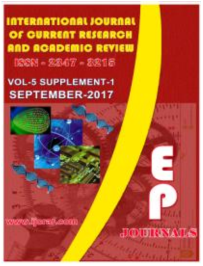

Invited Abstracts IJCRAR/OP/06

Insilico Docking Analysis of Capsaicin Alkaloids from Redchilli against Breast Cancer

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Abstract

Breast cancer is the second leading cause of cancer death in women next to lung cancer. BRCA1 is a human tumor suppressor gene. Genetic variations/mutations in the BRCA1 gene leads to overexpression of the BRCA1 protein which kicks off the uncontrolled cell duplication in humans. *Capsicum annum* (or) Chilli pepper are popular spices in many parts of the world. Their properties of aroma, flavor and pungency account for their extensive usage. Chilli pepper also contains many biological active compounds including capsaicinoids, which are pungent in nature. The chilli samples were found to possess seven identified compounds including Capsaicin, Dihydocapsaicin, Nordihydrocapsaicin, Nonivamide, Homocapsaicin, Homodihydrocapsaicin and n-Vnilyldecanamide. In addition, capsicum possess biological activities viz antioxidant, anticancer, antidiabetic etc. The potential ligand candidatewas identified from Pubchem database. Lipinski rule was employed to check the ligand likeliness of the compound. The 3D crystal structure of the protein was retrieved from Protein Data Bank (PDB) and protein binding sites of the compounds were identified. Protein active sites were identified using CASTp server and these active residues are used to find better inhibitor. The present study analyzed the molecular docking studies on the target protein BRCA1 which is responsible for breast cancer with the compound capsaicin which is evolved from red chilli. The docking studies was done by "AutoDock" software tool.

Keywords: BRCA1, capsicum, chili pepper, capsaicin, autodock

International Journal of Current Research and Academic Review

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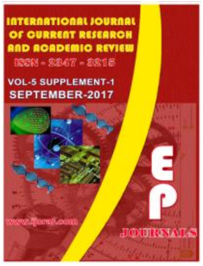

Invited Abstracts IJCRAR/OP/07

Co-Metal (Chromium and Zinc) Removal by Acido-Tolerant Bacterial Strains from Heavy Metal Contaminated Site

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Abstract

Heavy metal contamination in the environment is of huge concern globally due to their threat to human life and environment. This is mainly due to natural and anthropogenic sources. Heavy metal pollution occurs directly by effluent outfalls from industries, refineries and waste treatment plants and indirectly by the contaminants that enter the water supply from soil/ground water systems and from the atmosphere via rain water. Chromium (VI) is a heavy metal ion released into the environment mainly due to chrome tanning processes, electroplating, paint and pigmenting manufacturing industries. Compared to trivalent chromium, hexavalent chromium is highly toxic, mutagenic and carcinogenic. Zinc (Zn) is micronutrient which is essential for growth, but at excessive levels it is potentially harmful. This present study focuses on the remediation of mixed heavy metals by acido–tolerant bacterial co–cultures. The removal of heavy metals were analysed by UV spectroscopy and Atomic adsorption spectroscopy. Morphological identification was performed by Scanning Electron Microscopy. The acido-tolerant co-cultures were biochemically characterized and molecularly identified by 16s rRNA sequencing. The isolated bacterial co-cultures could remove mixed metals (Cr and Zn) at 50 mg/L concentration and efficiency was observed to be 81% and 80.5% for Chromium and Zinc, respectively.

Keywords: bioremediation, co-cultures, heavy metals

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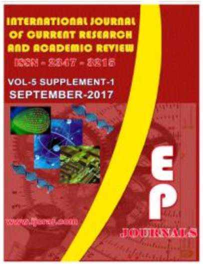

Invited Abstracts ***IJCRAR/OP/08***

Antimicrobial Activity of Biosynthesized Silver Nanoparticles of *Tribulus terrestris* and *Indigo tinctoria*

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Abstract

In the recent days, increased development of green synthesis of nanoparticles is inevitable because of its incredible applications in all field of science. Numerous work have been conducted based on the plant extract mediated synthesis of nanoparticles. In this present study, a novel approach for the biosynthesis of silver nanoparticles using plant fruit bodies were attempted. The plants *Tribulus terrestris* and *Indigo tinctoria* fruiting bodies are used in the study, where dried part was extracted and was mixed with Silver Nitrate. The reduced silver nanoparticles were characterised by Transmission Electron Microscope (TEM), XRD, FTIR and UV-Vis spectroscopy. The spherical shaped silver nanoparticles were observed and it was found to be 16-28 nm range of size. The diffraction pattern was also confirmed based on the higher percentage of silver with fine particles size. The antibacterial property of synthesised nanoparticles were observed by Kirby-Bauer method with clinically isolated multidrug resistant bacterial strains such as *Escherichia coli, Bacillus subtilis, Staphylococcus aureus, and Pseudomonas aeruginosa*. The plant material mediated synthesis of silver nanoparticles is comparatively less expensive and has wide application in the field of antibacterial therapy in the era of modern medicine.

Keywords: silver nanoparticles, *Tribulus terrestris*, *Indigo tinctoria*, green synthesis, antibacterial activity, plant extract

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International Journal of Current Research and Academic Review

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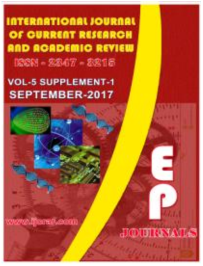

INTERNATIONAL JOURNAL OF CURRENT RESEARCH AND ACADEMIC REVIEW
ISSN - 2347 - 3215
VOL-5 SUPPLEMENT-1
SEPTEMBER-2017
JOURNALS

Invited Abstracts **IJCRAR/OP/09**

Anti-Enteric Potentials of Six Common Food Spices

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Abstract

Spices have been used for food flavoring since ancient times. They are also used as home remedies due to their medicinal properties. Food borne pathogens cause considerable acute and chronic illnesses in the human population. Indiscriminate and sometimes unwanted use of antibiotics to treat infections caused by these pathogens has resulted in a tremendous increase in bacterial drug resistance. Herbs and spices are safe as they have been in human consumption for centuries. In this study an attempt has been made to investigate and compare the antimicrobial properties of aqueous extract and oil extract of six commonly used Indian spices, garlic, cinnamon, clove, ginger, cardamom and cumin. Antibacterial activity of both the aqueous extract and oil extract of the six chosen spices were tested against three food borne pathogens, *Salmonella typhimurium*, *Escherichia coli*, *Pseudomonas aeruginosa*. Except cumin all the other five spices exhibited antibacterial activity against the test bacterial pathogens. Among these, garlic exhibited activity against all 3 test bacterial isolates in all test concentrations (9/9; 100%; $p < 0.05$) followed by clove and ginger. Aqueous extracts are relatively less effective against the test bacterium ($p < 0.05$) compared to oil extracts of spices especially at the lower test concentration (50µl/disc). Additional phytochemicals and pharmacology studies are recommended for the furtherance of the medicinal applications of these spices.

Keywords: spices, spice extracts, antibacterial activity, *Salmonella typhimurium*, *Escherichia coli*, *Pseudomonas aeruginosa*

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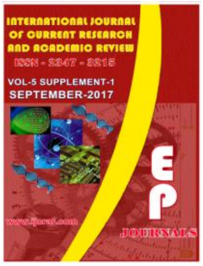
International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Abstracts **IJCRAR/OP/10**

In Silico Molecular Modeling and Docking Studies of *Catharanthus roseus* Derived Alkaloids against GLUT4

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Abstract

Diabetes is a complex disease associated with genetic and environmental factors. Type 2 Diabetes is the most common form of Diabetes which has become an emerging issue in developing countries which affects approximately 70% of the patients. Glucose transporter-4 (GLUT4) is the most important glucose transporters which plays a significant role in the progression of type 2 diabetes. Knowledge of the three dimensional structure of GLUT4 will provide the capacity to understand the mechanism of glucose transport and its regulation. Homology modeling was performed using MODELLER9.14 to predict the three dimensional structure of GLUT4. *Catharanthus roseus* belongs to the family apocynaceae and it has various medicinal properties. The plant has a rich source of alkaloids which is responsible for its medicinal purposes. The bioactive compounds present in the leaves shows antidiabetic activity. The bioactive compounds present in the leaves shows anti diabetic activity. The interaction studies of the compounds such as cathovaline, vindoline, yohimbine, vindolinine, lochnerine present in the leaves of Catharanthus roseus and modeled structure of GLUT4 was studied using AutoDock. Among these compounds cathovaline, vindolinine and lochnerine shows least binding energy with favourable Hydrogen bond interactions. This study paves the way for understanding the mechanism of these bioactive compounds against GLUT4 and it may act as a potential anti-diabetic agent followed by future studies.

Keywords: Type 2 diabetes, GLUT4, homology modeling, *Catharanthus roseus*, AutoDock

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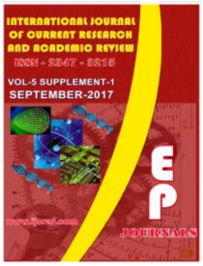

Invited Abstracts ***IJCRAR/OP/11***

Structural Prediction and Comparative Molecular Docking Studies of L-DOPA, Gastrodin, Baicalein, Tenuigenin on LRRK2 and Hsp90

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Abstract

Objective: Parkinson's disease is one of the neurodegenerative diseases. It is mainly due to the loss of dopaminergic neurons in the *substantia nigra*. Prolonged usage of L-dopa shows severe side effects in PD patients. PD patients may be treated with natural plant compounds to avoid side effects. Insilico docking study was performed to investigate the structural changes and binding configuration between target proteins such as LRRK2 and Hsp90 with L-DOPA, gastrodin, baicalein, tenuigenin.
Methods: The insilico docking study was carried out using autodock version 4.2. Rasmol tool used to visualize the protein structures.
Results: The target protein LRRK2 with L-DOPA showed binding energy -4.97 Kcal/mol, gastrodin -6.02 Kcal/mol, baicalein -7.4 Kcal/mol, tenuigenin -7.9 Kcal/mol. Hsp90 with L-DOPA -4.8 Kcal/mol, gastrodin -5.06 Kcal/mol, baicalein -6.24 Kcal/mol, tenuigenin -6.06 Kcal/mol.
Conclusion: These results indicates that the plant compounds possess high affinity for LRRK2 and Hsp90 proteins, than L-DOPA, the standard drug. Therefore natural plant compounds may be helpful in the treatment of Parkinson's disease.

Keywords: L-DOPA, LRRK2, tenuigenin, baicalein, gastrodin, Hsp90, PD

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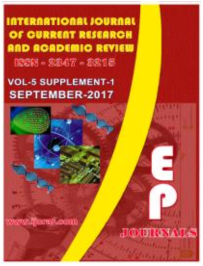

Invited Abstracts **IJCRAR/OP/12**

Anti-Candidal Activitiy of Leaf Extracts of *Sansevieria aethiopica* (thunb); A Medicinal Plant for theTreatment of Oral Candidiasis

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Abstract

Candida albicans infections are found to be resistant to most fungicide in recent times. Medicinal plants are used for the treatment of contagious and physiological diseases globally. The *Sansevieria aethiopica* (thunb) is a perennial shrub with tough and erected leaves used for the treatment of oral, ear and other fungal infections. In the present study, the effect of extracts of *Sansevieria aethiopica* on *Candida albicans* ATCC 10231 was performed.The Minimum inhibitory concentration (MIC) and Minimum fungicidal concentration (MFC) were determined using Macrobroth dilution method. The structural change in the fungus after the treatment with extract was determined by electron microscopy. The standard methods are used to determine the effect of the extract on proton pumping, intracellular pH and ergosterol synthesis on *Candida albicans* ATCC 10231. The extract treated cells showed alteration in cell morphology, wrinkled surfaces, shrinkages, tears and holes in the cell. While the proton pumping ability of fungi is crucial for the regulation of the internal pH (5-6) of a fungal cell, there is a decrease in the level of the ergosterol and DHE in the treated cell compared to control. The results indicated that the plant extract or plant derived compounds have been very effective against *Candida* species.

Keywords: *Candida albicans* ATCC 10231, *Sansevieria aethiopica*, ergosterol, proton pumping, inrtracellular pH, fungicide

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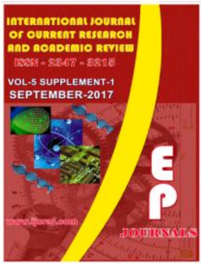

Invited Abstracts **IJCRAR/OP/13**

The Modulating Effect of *Morus alba* L. Root Bark Extract on Alcohol and Cerulein-Induced Toxicity in the Pancreas—Biochemical and *In Silico* Studies

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Abstract

Objectives: Pancreatitis is a necroinflammatory disease of the pancreas, where pro-inflammatory cytokines, formed by the action of caspase-1 on a multiprotein complex, NLRP3 inflammasome, play a major role and heat shock proteins (HSPs) influence the onset of inflammation. There is no complete therapeutic remedy for pancreatitis except supportive medicines such as non-steroidal anti-inflammatory drugs (NSAIDs).The present study investigates the pancreato-protective effect of Morus alba L., root bark extract against ethanol and cerulein-induced changes. The study also investigated whether Hsp70 could influence the inflammatory response induced by ethanol.

Methods: Methanolic extract of Morus alba root bark (MEMARB) was prepared. Male albino Wistar rats were administered alcohol (ethanol 0–36 %) and cerulein (20 µg/kg b. wt, i.p.) with or without MEMARB (300 mg/kg b. wt.). Serum lipase, amylase, caspase-1, lipid peroxidation products, glutathione and enzymatic antioxidants were determined. Histological assessment was done in the pancreas. The computational tool AutoDock was used to analyse the binding orientation of human NLRP3-ASC and HSP70 with Cudraflavone B, the lead component of MEMARB.

Results: Marked increase in the levels of serum amylase, lipase and caspase-1 was found in the pancreatitis-control rats than in MEMARB co-administered rats. Antioxidant status was restored in MEMARB co-administered rats. In pancreatitis-control rats, the stress protein Hsp70 level in serum was elevated. The histological examination showed that MEMARB significantly reduced the inflammatory changes. Binding energy of Cudraflavone B with target proteins HSP70 and NLRP3-ASC was –7.46 kcal/mol and –5.48 kcal/mol, respectively.

Conclusion: Morus alba root bark has potent anti-inflammatory property probably by influencing the activity of HSPs that could modulate the activity of NLRP3 inflammmasome, which activates pro-inflammatory cytokines.

Keywords: pancreatitis, *Morus alba*, NLRP3 inflammasome, HSP70

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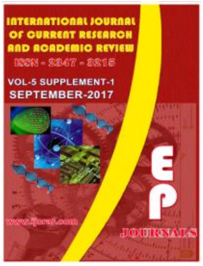

Invited Abstracts **IJCRAR/OP/14**

Identification of Potent Inhibitor among Ligands of *Dicranopteris linearis* against Alpha-Synuclein using I*n-Silico* Docking Analysis

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Abstract

Objective: Parkinson's disease (PD) is the chronic neurodegenerative disorder which is diagnosed with the dopaminergic neuronal loss in substantia nigra (SN). One of the pathological condition of PD is the presence of intracellular proteinaceous substances termed 'Lewy bodies' composed of aggregated alpha-synuclein which is responsible for its toxic effect on SN. The aim of the present study was to recognize strong inhibitors (ligands) from the *Dicranopteris linearis* which binds to α-synuclein and prevents self-association.

Methods: Molecular docking was performed using the molecular modeling software "Auto Dock". The studies were done to evaluate the binding affinity characteristics of α-synuclein with the *Dicanopteris linerasis* derived compounds (1) 3',4',7-Trimethylquercetin(2) Phytol (3)dioctyl adipate (4) dibutyl phthalate (5)triethyl citrate.

Results and Conclusion: The study revealed that the active site of α-synuclein is best fit with 3',4',7-Trimethylquercetin among the 5 compounds docked. The other compounds showed interactions but to a lower level. Hence 3',4',7-Trimethylquercetin with three interactions and one hydrogen bond may be developed as a potent drug against Parkinson's disease (PD).

Keywords: Parkinson disease, *Substantia nigra*, *Dicranopteris linearis*, molecular docking

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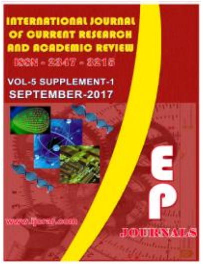

Invited Abstracts ***IJCRAR/OP/15***

Hitting the Target: An Evaluation of the Novobiocin Drug for Zika Virus

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Abstract

Zika virus (ZIKV) causes serious public health concerns because of its association with congenital malformations, neurological disorders in adults and recently death.

The impediment to scientific progress in finding the proper drug that combat the ZIKV has been continuing till today. However, Scientists from San Antonio Catholic University of Muscia, Spain recently found that Novobiocin, an aminocoumarin antibiotic used in dengue could stop infection by ZIKV in its tracks. These drugs bind to DNA Topoisomerase and block the ATPase activity. This also means that the bound proteins will no longer function in our cells. If this drug is used to fight ZIKV, how might these drugs accidently disrupt important biological processes in our bodies? With the use of bioinformatics tools, one can find out what non-target proteins that ZIKV might interact with, based on how similar the target protein is to the other protein. The current study indicates the list of the other similar non-target proteins that might disrupt the activity of the drug, which might later cause problems when prescribed to the ZIKV patients.

Keywords: Zika virus, DNA topoisomerase, ZIKV patients

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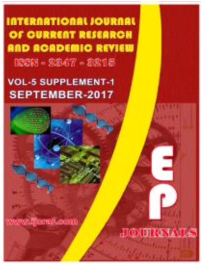

Invited Abstracts **IJCRAR/OP/16**

Formation of Biofilm Using Azodye Degrading Bacteria and Impact of Wheat Bran as Inducer on Azodye Degradation

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Abstract

Bioremediation of dye effluents have become a growing field since recent decades.The microbial community involved in such bioremediation process are better functional and protected from environmental stress by forming biofilms.The key motive of this study was to study biofilm formation by bacteria isolated from azodye effluent and its bioremediative impact on methylene blue and congo red dyes.Initially biofilm formation was studied on a coverslip and later the same was studied on a cloth.This study also featured the impact of wheat bran as a natural inducer to hasten the remediation process.The cultures, *Bacillus cereus* and *Pseudomonas aeruginosa* were the isolated strains successful in forming biofilm and biodegrading. Thus in the current study ,bioremediation process of methylene blue and congo red azo dyes was successfully achieved in less than half a week's time, wherein the inducer rice bran too played a key role by hastening the process and reducing the remediating time.

Keywords: bioremediation, bacteria, wheat bran

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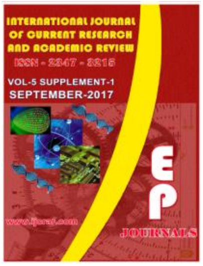

Invited Abstracts *IJCRAR/OP/17*

Antiviral Effect of *Terminalia chebula* Extracts on Hepatitis B Virus

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Abstract

Introduction and Objective: Hepatitis B is one of the major concern in developing countries like India where it develops HCC and liver cirrhosis in chronic patients. Many novel drugs of choice either singly or in combination helps in controlling infections. Even then chances of developing HCC and LC are high. Herbal medicines are widely used to treat various ailments including viral infections. This study is one such attempt in investigating the potent activity of *Terminalia chebula* on Hepatitis B virus.

Materials and Methods: The aqueous and ethanolic extracts of fruit rind of *Terminalia chebula* were seitz filtered and subjected to lyophilization. HepG2 cell line was used to study the cytotoxic concentrations of lyophilized extracts. The inhibitory effects of *Terminalia chebula* was analysed by HBsAg binding inhibition assay and HBV DNA polymerase inhibition assay.

Results: Both the lyophilized aqueous and ethanolic extracts were non cytotoxic at the concentrations of 500µg/ml. 55% of inhibition in the aqueous extracts and 60% in ethanolic extracts were observed in HBsAg binding inhibition assay. In HBV DNA polymerase inhibition assay, 70% inhibition in aqueous extracts and 74% in the ethanolic extracts were recorded.

Conclusion: This study confirms the activity of *Terminalia chebula* against Hepatitis B virus. In future, identification and isolation of the active compounds of *Terminalia chebula* may act as an alternative to the present drug in treating Hepatitis B with negligible or minimal side effects.

Keywords: *Terminalia chebula*, Hepatitis B, Antiviral activity, cytotoxicity assay

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International Journal of Current Research and Academic Review

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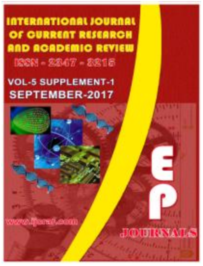

Invited Abstracts IJCRAR/OP/18

In Silico Molecular Docking Study on the Interaction Between Adenosine Monophosphate-Activated Protein Kinase (AMPK) and Bioactive Compounds of *Moringa concanensis* Nimmo as a Cure for Diabetes Mellitus

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Abstract

Type 2 diabetes is characterized by abnormal metabolism of glucose and fat, this is due to the resistance of insulin action in peripheral tissues. If untreated, it leads to several complications such as blindness, kidney failure, neuropathy and amputations. The benefits of exercises in diabetic patients is well known and that AMPK (Activated protein Kinase) plays a major role in this exercise related effect. AMPK is considered as a master switch, regulating glucose and lipid metabolism. The traditional medicinal plants contain more bioactive constituents and are the best source to obtain a variety of drugs to cure ailments. *Moringa concanensis* (Nimmo) is a medicinal plant, which possess anticancer, anti-diabetic and anti-inflammatory properties. Phytochemical studies on the leaves of this plant have shown the presence of large concentration of alkaloids and phenolic compounds. The crystal structure of AMPK was retrieved from the PDB. Molecular docking experiments were performed using AutoDock 4.2. Allyliponitrite, 2-prpanoic, 2-propanyl ester, 2, 2'-Bioxirane, DL-3, 4,-dimethyl3, 4-hexanediol showed high docking score with low binding energy of -5.98 was estimated. Molecular interactions of 2, 2'-Bioxirane, and DL-3, 4, dimethyl 3, 4-hexanediol with AMPK suggested that these compounds may act as potent anti-diabetic agent. Hence, compounds that augment insulin receptor activated protein kinase activity would be useful in the treatment of diabetes mellitus.

Keywords: Type 2 diabetes, AMPK, *Moringa concanensis* Nimmo, alkaloids, molecular docking

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International Journal of Current Research and Academic Review

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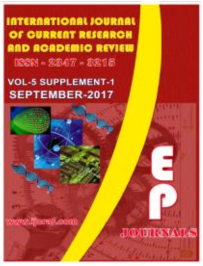

Invited Abstracts *IJCRAR/OP/19*

Prevalence of the CDH23 Mutation p.D990N Among South Indian Hearing Impaired Individuals

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Abstract

Objective: Cadherin-23, encoded by the gene CDH23, forms the upper part of the tip links of inner ear hair cells, and are crucial for normal hearing. Mutations in CDH23 are known to cause hearing loss that is often autosomal recessive and non-syndromic (DFNB12). The mutation p.D990N (c.2968G>A) occurring on the Ca2+ binding motif on extracellular domain 9 of Cadherin-23 is known to cause DFNB12. This mutation has been previously reported in Indian and Pakistani families; however, its prevalence in South India is unknown.

Methods: In order to study its occurrence and prevalence, screening for the CDH23 mutation p.D990N using a rapid and cost effective PCR-RFLP approach, among a cohort of 77 South Indian hearing impaired individuals recruited from deaf schools were performed.

Results: One individual, who had parental consanguinity, was found to be homozygous for the mutation accounting to a frequency of 1.3% in our study cohort, thus, suggesting its common occurrence among South Indian HI; no heterozygous individuals were identified. The p.D990N mutation positive proband had profound hearing loss, without any other associated abnormalities.

Conclusion: The gene GJB2 is known to be the most common causative factor in genetic deafness among South Indians (~20%); other genes account to 1-5% each. In such diseases with high genetic heterogeneity, identifying and screening for prevalent, population specific mutations would be a cost effective strategy to implement in genetic diagnostics.

Keywords: cadherin-23, autosomal recessive non-syndromic hearing loss, Ca2+ binding motif, South Indian hearing impaired

International Journal of Current Research and Academic Review
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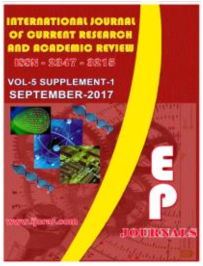

Invited Abstracts *IJCRAR/OP/20*

Bioethanol Production from Neem Tree Leaves (*Azadirachta indica*) Using *Saccharomyces cerivisiae* as a Fermenting Agent

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Abstract

Present work deals with the biotechnological production of fuel ethanol from different raw materials. The different technologies for producing fuel ethanol from sucrose containing feedstocks (mainly sugar cane), starch materials and lignocellulosic are described along with the major research trends for improving them. The following study was aimed to investigate the potential of neems tree leaves (*Azadirachta indica*) in bioethanol production using Baker's yeast (*Saccharomyces cerevisiae*) as fermenting agent. After fermentation at 30◦c for 48 hours ethanol was purified and estimated by modified dichromate method. For estimation 10 ml of acid dichromate solution was taken in BOD bottle. The ethanol sample from fermented broth was kept in hanging position in 2 ml eppendorf for 24 hours. The ethanol from sample was converted into ethanolic acid by dichromate solution. Results indicated that this method is 99% effective in estimation of ethanol and can be used as one of the best method for ethanol production.

Keywords: bioethanol, *Saccharomyces cerevisiae*, sugar, starch,lignocellulose

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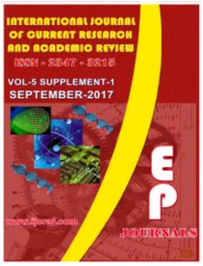

Invited Abstracts *IJCRAR/OP/21*

Influence of Bone Marrow Derived Hematopoietic Stem Cells in the Treatment of Buerger's Disease

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Abstract

Objective: The aim of the present study is to improve the outcomes in Buerger's disease using bone marrow derived stem cells using HARVEST SmartPReP Bone marrow concentrate system.

Materials and Methods: This study comprises of six patients affected with Buerger's disease. The concentrate is analyzed for differential cell counts of CD 34+ cells using Fluorescence activated cell sorting (FACS). Pain free walking distance, wound healing potential, tissue oxygen levels using TcPo2 & ABI, Visual Analog Score on pain relief were measured upto 26 weeks.

Results: The major findings in our study demonstrates the amount of cells required to get a positive therapeutic response. Patients who were injected above 800 CD34+ cells/µl have showed better response than patients who were given below 800 CD34+ cells/µl.

Conclusion: Thus the result has been concluded to provide a clinical insight for better outcomes with respect to dosage dependancy.

Keywords: Buerger's disease, critical limb ischemia, bone marrow aspirate concentrate system, fluorescence activated cell sorting

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International Journal of Current Research and Academic Review

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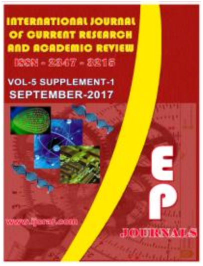

Invited Abstracts *IJCRAR/OP/22*

Molecular Interactions Analysis on Mutant H-Ras P21 and Bioactive Compounds from *Phyllanthus emblica* Linn

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Abstract

Phyllanthus emblica Linn is widely used for medicinal purpose, usually from the plant, fresh (or) dried fruits are used. There are many bioactive compounds including apigenin, gallic acid, ellagic acid, chebulinic acid, quercetin, chebulagic acid, corilagin, isostrictiniin, methylgallate, luteolin, emblicanin A, emblicanin B, phyllaemblicin B, punigluconin and pedunculagin are tannins in *Phyllanthus emblica*. *P.emblica* possess several biological effects such as anticancer, antifungal, antiulcerogenic, antioxidant, and antidepressant and so on. The activation of Ras/Mitogen Activated Protein (MAP) kinase in turn deactivates MEK, a member of the MAPK signalling cascade. The GTP-bound mutant form H-Ras (Harvey-Ras) protein are found in 30% of human tumors and caused due to point mutation at position 12, 13, 59 and/or 61 codon. Mutant forms of H-Ras protein is continuously involved in signal transduction for cell growth and proliferation through interaction of downstream regulated protein Raf. The analysis of mutated H-Ras p21 with nine compounds resulted in enormous intercations with many hydrogen bonds and least binding energy.

Keywords: malignant melanoma, H-Ras p21, molecular docking

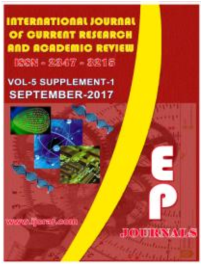
EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



INTERNATIONAL JOURNAL OF CURRENT RESEARCH AND ACADEMIC REVIEW
ISSN - 2347 - 3215
VOL-5 SUPPLEMENT-1
SEPTEMBER-2017
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JOURNALS

Invited Abstracts **IJCRAR/OP/23**

An Assessment on the Iron Deficiency Anemia among College Going Teenagers Using CUSO4 Gravimetric Method

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Abstract

Adequate iron intakes play a vital role in physical growth and development of teenagers and are key to a healthy system. Iron deficiency is the most common nutritional deficiency in the world. Iron deficiency anemia occurs when the body lacks sufficient amounts of iron, resulting in reduced production of the protein hemoglobin. Hemoglobin binds to oxygen, thus enabling red blood cells to supply oxygenated blood throughout red blood cells. Insufficient level of iron in the body may lead to poor growth, hence causing anemia. Teenagers between the age of 18–21 are found to be susceptible to anemia. As teenagers turns into a young adult, they undergo an intense physical and psychological transformation. Due to this sudden spurt of growth and transformation, they are merely susceptible to anemia. Iron is needed for many enzymes to function normally, so a wide range of symptoms may eventually emerge, either as the secondary result of the anemia, or as other primary results of iron. Iron deficiency may progress to anemia and worsening fatigue, thrombocytosis, or an elevated platelet count. A lack of sufficient iron levels in the blood is a reason that some people cannot donate blood. Around 300 college going teenagers were assessed for iron deficiency and eventually anemia. The analysis was carried out by CuSO4 gravimetric method, a standard operating procedure for blood bank to determine the iron deficiency status in both males and females. The present study indicated the number of individuals lacking iron content and teenagers with iron deficiency anemia and a detailed assessment of symptoms and causative factors were analyzed to intervene and overcome the deficiency by proper intake of dietary and medicative supplements.

Keywords: iron deficiency, anemia, teenagers, CuSO4, supplements

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International Journal of Current Research and Academic Review

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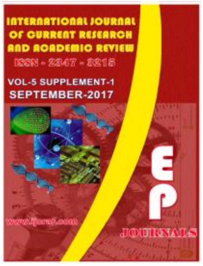
INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Abstracts **IJCRAR/OP/24**

Evaluating the Mycelial Characteristics of *Ganoderma lucidum* to make a Bulletproof Vest

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Abstract

Ganoderma lucidum is found to possess antimicrobial and anticancer activities. In addition the fungal mycelium can also be used for making versatile material with many attractive qualities. The aim of the study is to assess the indigenous *Ganoderma lucidum* grown on saw dust for its physical toughness and suitability to make a bullet proof vest. *Ganoderma lucidium* was procured from the mushroom cultivation centre DMR, Solan. Sterile saw dust was used as the growth base for fungal propagation and expansion. After incubation at 25ºC to 30ºC with 75% humidity for 13 -15 days, fungal mycelium grew well and two fungal mycelium placed adjacent to each other for 5 days potentially formed a strong mycelial bond which was be baked at 180ºC for 3 hours. Use of citrus oil and varnish will preserve the fungi from rottening when exposed to water, thereby increasing shelf life of vest. Mycelial brick with *Ganoderma lucidium* was demonstrated for physical toughness, sheer strength, elasticity, fire resistance, and bullet proof capabilities. The insulation properties of mycelia mat has its application prospect as insulating cable wires. Biovest made with *G.lucidium* offers renewable, cost effective and eco friendly alternative to expensive bullet proof jackets.

Keywords: *G.lucidum*, bulletproof vest, mycelial bricks, cost effective, biovest

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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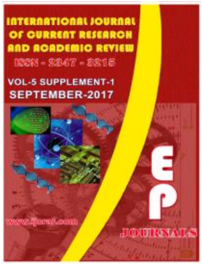
INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Abstracts IJCRAR/OP/25

Insilico—Docking Analysis of Crude Ethanolic Extract of *Borreria hispida* (L.) K. *Schum* against Breast Cancer Targets

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Abstract

Objective: Cancer is a neoplasmic deadly disease that involves unregulated cell division and tissue invasiveness. Existing lines of cancer treatment include surgery, radiation, and chemotherapy. These modern lines of treatment produce serious side effects. Recent studies established that herbs and herbal medicine are free from serious side effects. The aim of the present study is to subject ethanolic plant extract to GC-MS analysis and Docking.

Methods: In the present investigation, the GC-MS analysis revealed the presence of thirty two compounds. These compounds were subjected to pre ADMET analysis for identifying potent breast cancer leads. Breast cancer targets were downloaded from RCSB PDB for docking studies.

Results: Seven lead compounds were selected for docking studies based on preadmet *insilico* analysis. Using Discovery studio 4.0 the following compounds Bicyclo[3.1.1]heptane,2,6,6-trimethyl, Cyclohexane,1-methyl-4-(1-methylethenyl)-trans, 7-Thiabicyclo [4.1.0]heptane,2-methyl-, Cyclo-2,5- hexa-diene-1,4-dione, 2-methyl -5- (4-morpholinyl)-, Squalene, 2-Methyl-3-(3-methyl-but-2-enyl)-2-(4-methyl-pent-3-enyl)-oxetane, supraene, Benzene, 2-[(tert-butyldimethylsilyl)oxy]-1-isopropyl-4-methyl, Beta-Amyrin, Alpha-amyrin, Olean-12-ene, 3- Methoxy)-, Urs-12-ene and 9,19-cycloergost-24(28)-en-3-ol,14-dimethyl-,(3.beta., 4.alpha., 5.alpha)- docked with breast cancer targets.

Conclusion: The phytochemicals present in the ethanolic extract of *Borreria hispida* shows anticancer activity against breast cancer.

Keywords: *Borreria hispida*, GCMS analysis, docking and breast cancer.

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International Journal of Current Research and Academic Review

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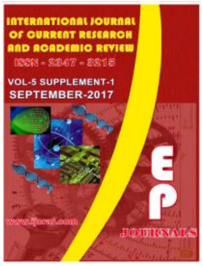

Invited Abstracts *IJCRAR/OP/26*

In Silico Analysis and Molecular Docking Studies of Alzheimer's Disease Biomarkers using Kaempferol

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Abstract

Objective: Kaempferol is a flavonoid which is present in many fruits and vegetables. It has various health benefits due to its anti neurotoxic and antioxidant role. The current research explores the possible reasons and mechanisms for its neurotoxic activity through the procedure of molecular docking.

Methods: Molecular Docking was performed using the molecular modeling software "AutoDock". The studies were done to evaluate the binding affinity characteristics of kaempferol with the proteins associated to Alzheimer's disease (AD) Amyloid beta 42(Aβ42) and tau, antioxidant markers such as Superoxide dismutase (SOD), Catalase (CAT), Glutathione S transferase (GST), and pro-inflammatory markers like tumor necrosis factor alpha (TNF-α) and Interleukin-6 (IL-6), in an attempt to understand the mechanism of action of kaempferol.

Results and conclusion: The docking energy and hydrogen bonds were tabulated. Docking Scores indicated the application of kaempferol as a potential, natural therapeutic agent for the Alzheimer's disease (AD).

Keywords: Alzheimer's disease, kaempferol, anti-neurotoxic, antioxidant, molecular docking, binding energy.

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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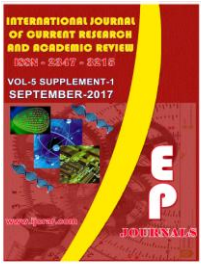
INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Abstracts ***IJCRAR/OP/27***

Proximate Analysis of *Salacia chinensis* Stem

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Abstract

The physic chemical parameters for the dry powder of *Salacia chinensis* stem were carried out as per WHO guidelines (WHO, 1998). The samples were analysed for visual description of dried stem extract, loss of drying, pH, total ash content, acid insoluble ash, bulk density, tapped bulk density (1250 times tapped), tapped bulk density (100 times tapped), particle size distribution (ASTM 250 micron),moisture content, protein and carbohydrate content. The proximate composition revealed the visual description of dried extract stem (light brown), loss of drying (4.80 ± 0.56%)), pH (5.94 ± 0.00), total ash content (8.30 ± 0.36%)), acid insoluble ash (2.90 ± 0.46%), bulk density (0.39 ± 0.07), tapped bulk density (1250 times tapped) (0.65 ± 0.08), tapped bulk density (100 times tapped) (0.57 ± 0.04), particle size distribution (ASTM 250 micron) (10.00 ± 1.00), moisture content (11.79 ± 0.43%), protein (127.91 ± 0.31 mg/g) and carbohydrate (74.53 ± 1.01 mg/g), respectively. The plant showed higher levels of protein and carbohydrate content, moderate levels of total ash content and moisture content and relatively low levels of acid insoluble ash.

Keywords: *Salacia chinensis*, physico chemical parameters,WHO guidelines, proximate composition

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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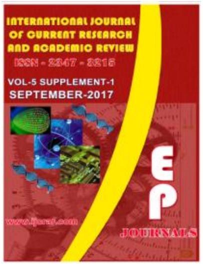
INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Abstracts **IJCRAR/OP/28**

Plant Based Culture Media for Rhizobacteria Using *Aloe vera* Extract

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Abstract

Plant based culture media seems to be economical for cultivating plant and soil associated microbes especially microbes of rhizosphere area. This work is an approach for development of plant based culture media for cultivating rhizobacteria. Rhizobacteria are Gram negative, motile, non-sporulation rods that are root colonizing bacteria forming a symbiotic relationship with plants. It infects the roots of leguminous plant to form root nodules and fix atmospheric nitrogen to plants. The media is prepared with Aloe Vera extracts and this provide high nutrient source of carbon and nitrogen along with effective good inhibitory action on other possible contaminants (fungi and bacteria). Chemically synthetic culture media like Nutrient agar, Nitrogen deficient and Carbon source medium are also used for cultivating rhizobacteria. Both culture media were compared for growth support for isolated rhizobacteria.

Keywords: plant-based culture media, rhizobacteria, *Aloe vera* gel

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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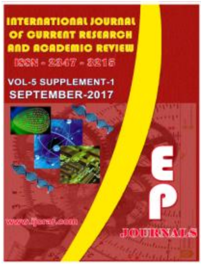

Invited Abstracts *IJCRAR/OP/29*

Cytotoxic Activity of Ethanolic Extracts of *Imperata cylindrica* (L) on HepG2 Cells of Human Hepatocellular Carcinoma Cell Line

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Abstract

Objective: *Imperata cylindrica* belongs to the family Poaceae, called as "Dharbai pullu" in tamil possess higher concentrations of bioactive compounds which includes phytosterols, terpenes, flavonoids and phenols.The objective of the study was to evaluate the cytotoxic activity of ethanolic extracts of *I. cylindrica* (EEIC) on HepG2 cells.
Methods: In the present study aqueous ethanolic extracts of I.cyilndrica were tested using human hepatocellular carcinoma cell line, HepG2 cells for its effect on cell viability and growth inhibition by MTT assay. Diphenyl picryl hydrazyl radical (DPPH) scavenging activity was determined. DNA fragmentation analysis was done by agarose gel electrophoresis.Fluorescence activated cell sorter (FACS) analysis was carried out to find the cell cycle arrest.
Results: DPPH radical scavenging potential increased with increase in concentration of the extract in dose dependent manner. The MTT assay demonstrated that ethanolic extract (EEIC) inhibited the growth of HepG2 cell line with IC50 value of 12.5 µg/ml. Cell growth inhibition was mainly due to apoptosis proved by DNA fragmentation analysis. Cell death occurred at R2 phase (77.8%) of cell cycle in HepG2 treated cells with EEIC and it was confirmed by FACS.
Conclusion: The results suggested that the EEIC could be a promising drug for hepato cellular carcinoma with high anti proliferative activity.

Keywords: HepG2 cells, *Imperata cylindrica* (L), MTT assay, DNA fragmentation, FACS

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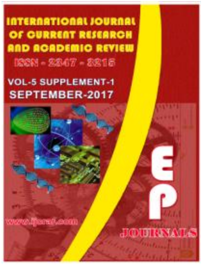
International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15


INTERNATIONAL JOURNAL OF CURRENT RESEARCH AND ACADEMIC REVIEW
ISSN - 2347 - 3215
VOL-5 SUPPLEMENT-1
SEPTEMBER-2017

Invited Abstracts *IJCRAR/OP/30*

Interaction of MCP-1 with Carbazole Alkaloids from *Murraya koenigii*

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Abstract

Murraya koenigii is an ethno medicinal plant, native to India which exhibits diverse biological activities. In ancient systems of medicine including Ayurveda, Siddha and unani, *M. koenigii* has vast number of therapeutic applications. Carbazole alkaloids are the major constituents of the plant which are known to exhibit cytotoxic, antioxidative, antimutagenic and anti-inflammatory activity. They are abundantly present in its stem, leaf and root extracts. Carbazole alkaloids from *M. koenigii* possess wound healing property. Wounds are the disruption of normal anatomic structure and function of tissues. It is an injury to the body that involves damage to underlying tissues. Wound healing is a normal biological process achieved through hemostasis, inflammation, proliferation and remodeling. It is a complex series of reactions and interactions among cells and "mediators". The Monocyte/Macrophage chemoattractant protein-1 [MCP-1] contribute to the development of mature vessels and collateral arteries. It plays a key role in extravascular wound healing following injury. They induce monocytes to leave the blood stream and mediate the recruitment of monocytes in inflammatory process. Many growth factors are involved in wound healing. A beneficial growth factor which is widely used in scarless wound healing is FGF-2. It is a member of a large family of protein which stimulates the growth and development of new blood vessel [angiogenesis] that contribute to normal wound healing and tissue development. The blood vessel formation is potentiated by the MCP-1 protein. The ideal way to reduce the wound healing is to enhance the activity of MCP-1. The 3D structure of MCP-1 is subjected to molecular docking with Carbazole alkaloids from *M. koenigii*. Docking scores indicates mahanimbilol in *M. koenigii* which shows three interactions with MCP-1 protein, hence it is considered as effective and natural therapeutic agent to heal the wounds.

Keywords: wound healing, carbazole alkaloids, *Murraya koenigii*, MCP-1, molecular docking

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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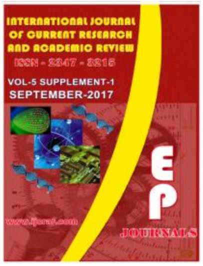

Invited Abstracts **IJCRAR/OP/31**

Invitro Anti-coagulant, Anti-Inflammatory and Anti-bacterial Activity of Various Extracts of *Imperata cylindrica* (L)

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Abstract

Objective: The objective of the study was to evaluate the anti-coagulant, anti-inflammatory and anti-bacterial potential of leaf and stem extracts of *Imperata cylindrical* (L).

Methods: The aerial part (stem and leaf) extracts of *Imperata cylindrica* was prepared using different solvents which includes ethanol, water, ethylacetate and acetone by soxhlet method. *I.cylindrica* extracts at various concentrations (0.1, 0.2, 0.5 and 0.75 mg/ml) were tested on plasma by invitro prothrombin time test. Membrane stabilizing activity was determined by using erythrocyte heat induced hemolysis method. Anti-bacterial activity of extracts of *I. cylindrica* was carried out by agar disc diffusion method.

Results: Aqueous and acetone extracts of *I.cylindrica* exhibited greater potency with prolonged clotting time of 16.50 and17.10 minutes at 0.75 mg/ml concentration, respectively. Aqueous, ethylacetate and ethanol extracts of *I.cylindrica* possess significant membrane stabilizing activity at a concentration of 0.15mg/ml. Aqueous and ethanol extracts of *I.cylindrica* showed potent antibacterial activity against gram positive bacteria(*Staphylococcus aureus* and *Bacillus subtilis*) and gram negative bacteria(Escherichia coli and *Klebseilla pneumoniae*).

Conclusions: Aqueous and ethanol extracts of *I.cylindrica* have protective anti-coagulant, anti-inflammatory and anti-bacterial potentials followed by ethylacetate and acetone extracts. This may be attributed due to the high concentration of phenols, phytosterols, cardiac glycosides and flavonoids.

Keywords: *Imperata cylindrica* (L), anti-coagulant, anti-bacterial, anti-inflammatory activity

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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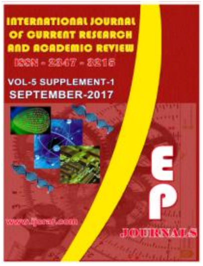

Invited Abstracts ***IJCRAR/OP/32***

Comparative Study of Efficiency of Common Antibiotic and Selected Herbal Extracts against *Vibrio* Species from Shrimp

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Abstract

Food borne illness is an ever-present threat that can be prevented with proper care and handling of food products. One of the most consistent aspects of *Vibrio* infections is a recent history of sea food consumption. For the cultivation of shrimp, the farmers used 10% of antibiotics in feed. In order to reduce the cost and increase the shrimp production herbal products could be used which is cost effective compared to the antibiotic treatment. Herbal medicine plays an important role in the ancient as well as modern systems of medicine. World Health Organization (WHO) estimates that 80% of the world population use herbal medicine for primary health care. In view of increasing the importance of herbal medicine, in this study *Vibrio cholerae*, *Vibrio parahaemolyticus* and *Vibrio alginolyticus* were isolated from marine shrimps and evaluated for antibacterial activity. The isolates were mostly susceptible to the selected antibiotics when compared with the leaf extracts of *Ocimum sanctum* and *Anacardium occidentale* which showed a maximum antibacterial activity against the *Vibrio* species isolated from shrimp. This study clearly opened up the vistas for plants as the source of wide variety of novel drug molecules as a better approach and mostly cost effective compared to the antibiotic treatment.

Keywords: *Vibrio*, shrimp, antibacterial treatment, herbal

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International Journal of Current Research and Academic Review

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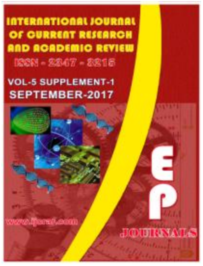

Invited Abstracts

IJCRAR/OP/33

Ecofriendly Synthesis and Characterization of Copper Nanoparticles of Aqueous Extracts of *Marsilea minuta* Linn and Its Biological Activities

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Abstract

Objective: The present study deals with the biosynthesis and characterization of copper nanoparticle (CuNP) using aqueous extract of *Marsilea minuta* Linn and its anti-oxidant and anti-bacterial activities.

Methods: Aqueous extract of Marsilea minuta was prepared by boiling 10 g of leaves with 100 ml of distilled water for 30 minutes at 80ºC. Green synthesis of CuNP was prepared by treating 10 ml of aqueous extract of *M.minuta* with 50 ml of 1 mM CuSO4.5H2O solution at 37ºC and allowed to stand for 48 hours. CuNP's were characterized by using UV Visible spectroscopy, scanning electron microscopy and Fourier transform infrared spectroscopy. Anti-oxidant scavenging activities which includes superoxide dismutase, ferrous chelating and hydroxyl radical activity of CuNP was determined. Anti-bacterial activity of CuNP's of *M.minuta* was carried out by agar disc diffusion method.

Results: Surface plasmon resonance occurred at 520 nm for1 mM CuNP's. SEM analysis showed the presence of CuNP in spherical shape, dispersed and the size ranged from 57–82 nm. FTIR spectra revealed the presence of reducing groups in the extracts, respectively, for CuNP's. The synthesized CuNP exhibited SOD, ferrous chelating and hydroxyl radical scavenging activity. CuNP demonstrated antibacterial activity against *Enterococcus*.

Conclusions: In this study simple, ecofriendly and biological procedure have been developed to synthesize the copper nanoparticles of *M.minuta*. Plant derived CuNP exhibited anti-oxidant and anti-bacterial activity.

Keywords: *Marsilea minuta* Linn, copper nanoparticles, anti-bacterial, anti-oxidant activity

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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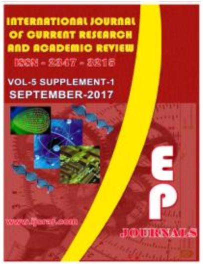

Invited Abstracts ***IJCRAR/OP/34***

Molecular Docking Studies of Phytocompounds from *Phyllanthus niruri* against HER-2

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Abstract

Phyllanthus niruri is an important plant of Indian ayurvedic system of medicine. It is used for problems of the stomach, genitourinary system, liver, kidney, and spleen. It is a widespread tropical plant commonly found in coastal area, known by the common names gale of the wind, stone breaker or seed-under-leaf. It has wide variety of phytochemicals and pharmacological properties. Some of the most intriguing therapeutic properties include anti-tumour, anti-hepatotoxic, anti-lithic, anti-hypertensive, anti-HIV and anti-hepatitis B. The compounds with anti-cancer activity in *Phyllanthus niruri* are ethylbrevifolin carboxylate, corilagin, estradiol, phyllochrysine, dimethylenedioxy, β-sitosterol and quercetin. Breast cancer is the most common invasive cancer in women. HER2 protein is one of the molecular abnormalities linked to the development of breast cancer. HER2-positive breast cancer accounts for 20–30% of hormone receptor-positive breast cancer. It relates to the overexpression of HER2/neu protein. HER-2 positive treatment breast cancer is a breast cancer that tests positive for a protein called human Epidermal Growth Factor Receptor-2 (EGFR-2), which promotes the growth of cancer. The human epidermal growth factor receptor-2(HER2) is a validated target in breast cancer therapy. The bioactive compounds from *Phyllanthus niruri* were docked against HER-2 protein using Auto Dock software. The docking studies shows high interaction with HER-2 and hence it may be considered as effective and natural therapeutic agents to combat breast cancer.

Keywords: *Phyllanthus niruri,* anti-cancer activity, breast cancer, HER2, docking studies

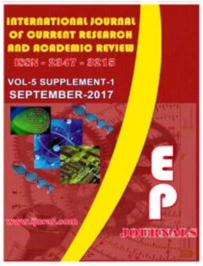
EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



INTERNATIONAL JOURNAL OF CURRENT RESEARCH AND ACADEMIC REVIEW
ISSN - 2347 - 3215
VOL-5 SUPPLEMENT-1
SEPTEMBER-2017
JOURNALS

Invited Abstracts **IJCRAR/OP/35**

Evaluation of Antioxidant and Anti-inflammatory Potentials of Avocado Seed Extract: An *In Vitro* Approach

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Abstract

Avocado (*Persea americana*), a fruit which belongs to the family Lauraceae has gained popularity because of increasing consumer awareness of the dietary value of avocado, which is largely monounsaturated fatty acid content and exceptional mineral, vitamin, and other beneficial anti-oxidant phytochemical contents.

Objectives: Phytochemical screening of avocado seed extracts in polar solvents, quantitative estimation of phenolics, assay of antioxidant capacities, study of anti inflammatory activity were performed.

Methods: Qualitative phytochemical analysis was done by Harboren *et al.* method. Total antioxidant capacity using ascorbic acid as standard, FRAP and TBARS assay by Halliwell Gutteridge, (1999) Inhibition of heat induced hemolysis and heat induced albumin denaturation by Mizushima Y and Kobayashi M. (1968) was used to assess anti-inflammatory potential.

Results: Phytochemical screening of avocado seed extracts indicated the presence of biological ingredients such as alkaloids, flavonoids, saponins, tannins, triterpenoids and phenol. The total phenolic and flavonoids content were found to be 77.33±7.5 mg of gallic acid eq/200mg of dried extracted material and 15 ± 1 mg of quecertin eq/200 mg of dried extracted material, respectively. The ethanolic extract was found to exert antioxidant potential which was evident from total antioxidant capacities, FRAP and TBARS assay. A maximum of 87.5% inhibition of heat induced albumin denaturation was observed in the ethanolic extracts at a concentration of 1 mg/ml. The seed extracts inhibited the heat induced hemolysis of RBCs at concentration as low as 100 µg/ml.

Conclusion: The present study paves a new way to identify natural anti-oxidants from materials that are currently treated as waste.

Keywords: avocado, phytochemical, anti-oxidant, anti-inflammatory

International Journal of Current Research and Academic Review
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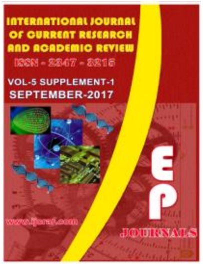

Invited Abstracts **IJCRAR/OP/36**

Pesticides resistant and utilization profile of *Pseudomonas* and *Bacillus* soil isolates

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Abstract

Soil contamination by xenobiotic chemicals has become a serious worldwide problem, not only because it reduces the value of land for crop production and habitation, but also because these chemicals are sources of water pollution. Indiscriminate use of these chemicals especially in excess often poses a serious threat to the environment. In this background, native bacterial isolates were screened for their resistance to commonly used farm chemicals. Heterotrophic bacterium isolated from an active farm land soil were characterized and tested for their pesticides resistance and utilization pattern against commonly used pesticide namely, endosulfan, dimethoate and fenvalerate. *Pseudomonas* sp. and *Bacillus* sp. were able to utilize the chosen pesticides as a sole nutrient at lower concentrations. Concentration dependent tolerance can be found through growth pattern analysis. Among the three pesticides, endosulfan was toxic to both the test bacterial isolates. The data presented in this study demonstrates the bioremediation potentials in native soil bacterium.

Keywords: xenobiotic, pesticide, *Pseudomonas*, *Bacillus*, endosulfan

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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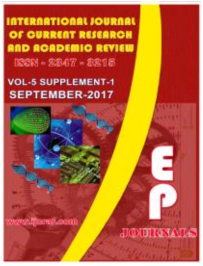
INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Abstracts IJCRAR/OP/37

Anti-Candidal Activity of Leaf Extracts of Certain Medicinal plants of *Euphorbia heterophylla*, *Tamilnadia uliginosa* and *Capparis sepiaria*

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Abstract

Ethanol, acetone and benzene leaf extracts of the medicinal plants, *Euphorbia heterophylla*, *Tamilnadia uliginosa* and *Capparis sepiaria* have been tested for anti-fungal activity against *Candida albicans* using broth dilution technique. Clotrimazole was used as positive control. The minimum inhibitory concentration (MIC) and the minimum fungicidal concentration (MFC) of the different extracts ranged between 800–1400 µg/ml and 1500–2000 µg/ml, respectively, whereas clotrimazole showed 10 µg/ml MIC and 30 µg/ml MFC. Among the different extracts tested, ethanolic extract of *Tamilnadia uliginosa* leaves showed higher activity. A least MIC of 800 µg/ml was observed in ethanolic leaf extract followed by 900 µg/ml in benzene leaf extract of *Tamilnadia uliginosa*.

Keywords: anti-fungal activity, *Candida albicans*, leaf extracts, medicinal plants, minimum inhibitory concentration

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International Journal of Current Research and Academic Review

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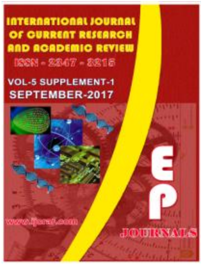

Invited Abstracts ***IJCRAR/OP/38***

Molecular Docking Studies of Bitter Gourd Compounds against P53 Drug Target

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Abstract

Momordica charantia L commonly known as bitter gourd is widely distributed throughout tropical and subtropical regions in all continents belonging to the family *cucurbitaceae*. *Momordica charantia* has antioxidant, antihypoglygemic, antifungal, anticancer, antitumour, antidiabetic, antimicrobial, antibacterial, and antiparasitic activity. The compounds with anticancer activity present in *Momordica charantia* are triterpene, carotenoid, cucurbitacin, and momordin. Lung cancer is one of the most common disease in the world. p53 involves in the regulation of cell cycle and apoptosis. Smoking leads to uncontrolled p53 mechanism of regulation of cell cycle and apoptosis which leads to overexpression of p53 in lung cancer. Human p53 core domain structure was downloaded from PDB database which was docked with compounds from *Momordica charantia* using AutoDock 4.2 software. Docked structure was visualized using PyMOL molecular viewer. From the four compounds, momordin demonstrated drug like properties endowed with higher binding affinity and can be further complemented by *in vitro* drug testing against lung cancer.

Keywords: anticancer activity, *Momordica charantia*, lung cancer, p53, overexpression, molecular docking.

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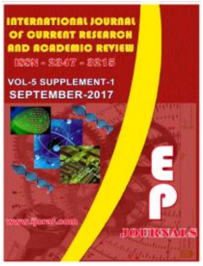

Invited Abstracts *IJCRAR/OP/39*

Effect of Dietary Supplementation of Microalgae (I) on Gene Expression Profile of Growth Hormone in Japanese Quails

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Abstract

Poultry, egg and meat are important sources of high quality proteins, vitamins and minerals to balance the human diet and thus the industry has become an important economic activity in the recent years. The Japanese quail is a very popular research animal model. The scientific name for Japanese quail is Coturnix japonica and it is widely distributed in the Asiatic region. The present study focusses on the expression profile of growth hormone of Japanese quails when fed with Chlorella vulgaris which is proved to be a potent growth promoter and immune stimulator. For this purpose, three hundred numbers of one day old Japanese quails were individually weighed and distributed into five treatments which in turn had three replicates of twenty chicks each. The microalgae (Chlorella vulgaris) were fed at four different concentrations of 0.5 %, 1.0%, 2.0% and 4.0% along with the basal diet throughout the study period. Brain (diencephalon) samples were collected from one male and one female day old experimental Japanese quails per replicate selected at random (six samples from each treatment) and also from 6th week and 12th week old Japanese quails for gene expression study for GH adopting RT-PCR (Reverse Transcription Polymerase Chain Reaction).

Keywords: gene expression, Japanese quail, growth hormone

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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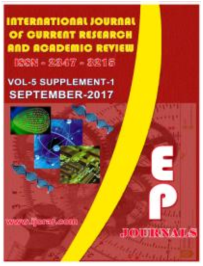

Invited Abstracts **IJCRAR/OP/40**

Identification of Microbes Involved in Degradation of Walnut and Analyzing Their Characteristics using Chicken Droppings as Inoculums

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Abstract

The waste generated from walnut (*Tetracarpidium conophorum*) creates environmental pollution as it degrades slowly and chicken droppings contain huge amount of phosphorous and nitrogen which can speed up the degradation of walnut shells. This study was aimed at determining the microbial load of boiled and raw walnut shell and chicken dropping which can be used as inoculums in biodegradation process in order to solve the problem of agro waste pollution in the environment. The nuts were sorted and washed with tap water and divided into two lots. The first lot was boiled for 1.5 hours. The second lot was used raw. The raw and the boiled nuts were then unshelled and the shells were dried at 60˚C for 5days in the oven. The dried shells were ground and analyzed. Bacterial and fungal evaluations of the shell from nut were done using the agar diffusion technique with serial dilutions of the grind shell and the same process for chicken droppings. The grond walnut shell and chicken droppings was done in ratio 1:1 and 2:1. Microorganisms were isolated and identified. The microbial analysis revealed that the boiled shell accommodated a large number of microorganisms compared to that of raw shell and chicken litter which could effectively speed up the degradation process.

Keywords: walnut shell, chicken litter, biodegradation, agro waste pollution

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International Journal of Current Research and Academic Review

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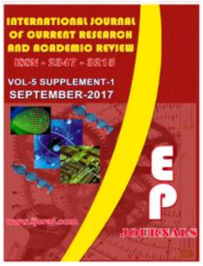

Invited Abstracts **IJCRAR/OP/41**

Assessment of physicochemical Composition and Nutritional Potential of Five Varieties of *Vigna radiata* (L.) *Wilezek*

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Abstract

Five different varieties of the pulse, *Vigna radiata* (L.) *wilezek* (viz., CO 8, ADT 3, SML-1082, TM11-07, TM11-18) were analyzed for the physical properties, functional properties, proximate composition, certain amino acids and phytic acid composition. The major findings of the study were as follows: the hundred seed weight of the green gram varieties were recorded to be 23.9 to 34.7g, bulk density 0.263 to 0.936 w/v, water absorption index 135.6 to 142.1g/100g, water solubility index 17.2 to 22.2 g%. Oil absorption capacity of green gram varieties in ground nut oil was recorded to be 42.1 to 65.2 ml/ 100 g and the oil absorption capacity of green gram varieties in gingelly oil was recorded to be 50.3 to 60.2 ml/ 100g. The moisture values were in the range of 9.7 to 13.5 g/100g, ash 4.7 to 6.3 g/100g, fat 3.7 to 5.5 g/100g, protein 4.2 to 8.2mg/100g. Amino acids such as tryptophan was ranged from 0.5 to 0.70 mg/ 100g, methionine 0.16 to 0.82mg/100g and alanine was ranged from 0.03 to 0.16mg / 100g. Phytic acid was ranged from 0.5 to 2.2 mg/ 100g. ADT 3 variety was found to be the best in physical properties. TM11-07 and CO 8 was found to be the best in functional properties. TM11-18 and ADT3 was found to be the best in proximate composition. CO 8 and ADT 3 variety was found to be high in estimated amino acid content. The lowest phytic acid was found in ADT 3. The information on these properties is important for developing new products using green gram flour. ADT 3 and TM11-18 were observed to have good physicochemical characteristics and are hence suitable for further breeding and processing as value added products.

Keywords: *Vigna radiata* (L.) *wilezek*, physical properties, functional properties, proximate composition, amino acids and phytic acid composition

International Journal of Current Research and Academic Review
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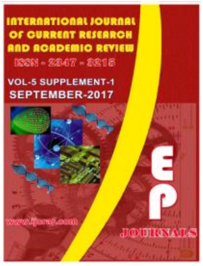

Invited Abstracts *IJCRAR/OP/42*

Molecular Dynamics Simulation Study of Normal and Mutant FGFR2 Gene Causing Pfeiffer Syndrome

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Abstract

Mutations in human genes can change the sequence and structure of a protein, impair its function, and could lead to disease.Disorders caused by the inheritance of a single defective gene are known as monogenic diseases or single gene disorders.Pfeiffer syndrome is a genetic disorder characterized by the premature fusion of certain bones of the skull which affects the shape of the head and face.Pfeiffer syndrome is most commonly caused by mutations in the FGFR2 gene than in FGFR1 gene.A mutation in either the FGFR1 or FGFR2 gene alters the function of the respective protein, causing prolonged signaling, which can promote the premature fusion of skull bones and affect the development of bones in the hands and feet. The FGFR2 protein spans the cell membrane, so that one end of the protein remains inside the cell and the other end projects from the outer surface of the cell. When growth factors attach to the FGFR2 protein, the receptor triggers a cascade of chemical reactions inside the cell that instruct the cell to undergo certain changes, such as maturing to take on specialized functions. The FGFR2 protein plays an important role in bone growth, particularly during embryonic development. The detected mutation in FGFR2 protein is A172F which is responsible for Pfeiffer syndrome. A powerful method to investigate dynamic properties of a protein at the atomic level is provided by molecular dynamic (MD) simulation. Simulation were performed of native and mutant form of FGFR2 protein and insights into regions of structural stability and instability in the FGFR2 protein structure by using GROMACS 4.5.5 software package. In the current research, we find that the normal gene is stable when compared to mutant gene. If the mutated gene is unstable then it may be revert back to normal form at any stage. If this happens the responsible gene for the disease causing will not be affected and the disease may said to be very rare one.

Keywords: Pfeiffer syndrome, FGFR2 protein, stability, molecular simulation, GROMACS

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International Journal of Current Research and Academic Review

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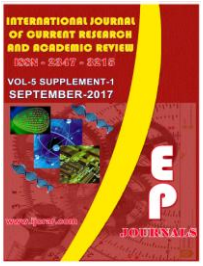

Invited Abstracts **IJCRAR/OP/43**

Screening of Phosphate Solubilizing Bacterial Strains from Rhizosphere Soil of Paddy and Ground Nut Plant in Tiruvallur District

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Abstract

Phosphorus is an essential macronutrient for growth and development of plants involved in most important metabolic pathways. Worldwide soils are supplemented with inorganic phosphorous as chemical fertilizers to improve crop production but repeated use of these fertilizers deteriorates soil quality. There are few phosphate solubilizing bacterial strains which could convert insoluble forms of phosphorus to an accessible form which is an important trait in plant growth for increasing crop yields. These phosphate solubilizing bacteria are used as inoculants to increases the phosphorous uptake by the plants. In this present study, twenty-four bacterial strains were isolated, 14 isolates were from ground nut rhizosphere soil, whereas the other 10 isolates were from root of paddy rhizosphere soil. The phosphate solubilizers were screened based on the formation of visible Halo/zone on PVK agar plates and insoluble inorganic phosphate in liquid media. The bacterial isolates were identified based on their phenotypic and 16S rRNA gene sequencing data as *Maricaulis virginensis*- APKVG-02, *Kosakonia oryzae* APKVG- 07, *Klebsiella pneumoniae* APKVG- 10. Such isolated phosphate solubilizing bacterial strains could be employed as bio inoculants for the increase of crop yield.

Keywords: phosphate solubilizing bacteria, bioinoculants, rhizosphere soil, plant growth promotion

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International Journal of Current Research and Academic Review

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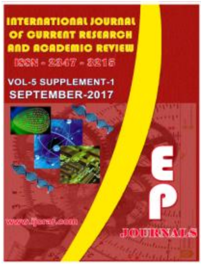

Invited Abstracts ***IJCRAR/OP/44***

Aquaponics—A Novel Approach for Farming

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Abstract

Aquaponics, the combination of hydroponics and aquaculture. Aquaponics systems are cheap and easy to build, often require the fish to be an important protein component of systems and this usually involves tilapia or other production fish. It is a portable agricultural system which uses less water, space and is purely organic. In aquaponics nutrients are especially fish poop. The fish poop water is also known as fish effluent. Aquaponics will reduce fresh drinking water consumption levels by being the most efficient use of water for growing vegetables. It has the most efficient use of nutrients out of all forms of agriculture. Aquaponic system can lead to cost effective, sustainable ways of organic farming independent of the need for comparable land space requirement. In the current study, an attempt was made to evaluate the farming effect of aquaponics through a less expensive approach by growing Goldfish in a fishtank and feeding green plants and vegetables from the recirculating water and the waste generated by the fish.

Keywords: aquaponics portable agricultural system, organic farming

International Journal of Current Research and Academic Review
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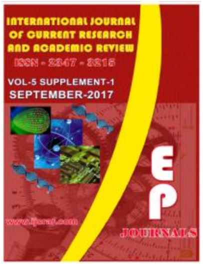

Invited Abstracts **IJCRAR/OP/45**

Dynamics of Microbial Population during Vermicomposting of Three Organic Substrates by *Perionyx ceylanensis*

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Abstract

Twenty one days pre-decomposed substrates, teak leaf litter (TLL), paper mill sludge (PMS) and pressmud (PM) in combination with cowdung was subjected to vermicomposting using the epigeic earthworm, *Perionyx ceylanensis* for 60 days. The vermicompost was analysed for pH, electrical conductivity, and total contents of organic carbon, nitrogen, phosphorus, potassium and C/N ratio. The total population of bacteria, fungi and actinomycetes were enumerated from each of the vermibed substrates from the start of the experiment (0 day) every ten days until the termination of the study (60th day). The vermicompost showed enhanced levels of nutrients and microbial population. The population of microbes initially showed steady growth rates until 30-40 days and then the population was maintained or slightly lowered.

Keywords: earthworms, microbial population, pre-decomposition, vermicompost

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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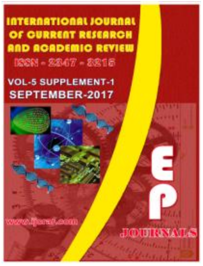

Invited Abstracts *IJCRAR/OP/46*

Reconstruction and Simulation of Alzheimer Disease Pathway Using Amyloid Precursor Protein and Hyper-Phosphorylated Tau Protein

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Abstract

Alzheimer’s disease (AD) is the most common form of neurodegenerative disorder, which is characterized by a progressive decline in cognitive function. It is significantly increased among people worldwide. It is mainly characterized by the presence of extracellular amyloid plaques and intracellular neurofibrillary tangles. Study of AD pathway *in vivo* is very difficult and almost impossible in circumstances, whereas constructing a comparable computational model which manipulates easier and executes results in a very short time. This provides a novel valuable tool for designing the studies on a systemic level with beneficial insight in improving therapeutic approaches. Targets such as APP and hyperphosphorylated Tau, which are major causes for the production of amyloid plaques and neurofibrillary tangles are identified from Genatlas database and literatures. The functional protein partners for APP and Tau are predicted using the STRING database. By using the targets and some of its functional partners, the pathway for Alzheimer’s disease was constru using CellDesigner software. The model was mathematically analyzed using Copasi software by merging available information concerning the model to investigate the behavior of the system. Although the model was preliminary it revealed good features of robustness and prediction and the model was trying to simulate the pathway similar to brain and brain cell. The biochemical reaction and the kinetics used are the starting point inorder to understand how such biochemical system and the computational bioinformatics tools works, as well as the information and parameters it needs inorder to be realistic. The model also showed the capacity for further detailed estimation by further extension of biochemical reaction and its behavioral studies.

Keywords: Alzheimer’s disease pathway, APP, pTau, protein- protein interaction, CellDesigner, Copasi, Simulation

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International Journal of Current Research and Academic Review

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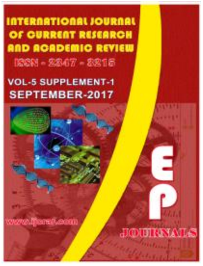

Invited Abstracts **IJCRAR/OP/47**

Isolation and Characterization of Endophytic fungi from *Bauhinia sp*, *Delonix regia* and *Crotolaria sp*

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Abstract

A total of 8 different endophytic fungi were isolated from the leaves of *Bauhinia sp*, *Delonix regia* and *crotolaria sp*., *Phoma sp* (AS1) and *Phomopsis sp* (brown colonies) (AS2) were isolated from leaf of *Bauhinia sp*. *Phoma sp* (AS3) and *Phomopsis sp* (white colonies) (AS4) were isolated from *Delonix regia*. *Drechslera biseptata* (AS5), *Nigrospora sphaerica* (AS6), *Phoma sp*, (AS7) and *Phomopsis sp* (white colonies) (AS8) were isolated from *Crotolaria*. The colonization frequencies of endophytic fungi obtained from the leaves of *Bauhinia sp* are *Phoma sp* 75% and *Phomopsis sp* 25% and those obtained from the leaves of *Delonix regia* are *Phoma sp* 63% and *Phomopsis sp* 37% whereas it was 61% *Drechslera biseptata*, 24% *Nigrospora sphaerica*, 12% *Phomopsis sp* and 3% *Phoma sp* from the leaves of *Crotolaria sp*. All the isolated endophytic fungi were able to produce amylase whereas *Phoma sp* and *Nigrospora sphaerica* are able to produce laccase and *Phoma sp* and *Phomopsis sp* (white) are able to produce protease. Ammonia which is a nitrogen source that helps their host plants for growth was produced by the isolated endophytic fungi. *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* was inhibited by *Phoma sp*, *Phomopsis sp* (white), *Phomopsis sp* (brown), *Drechslera biseptata* and *Nigrospora sphaerica* at a concentration of 5mg/ml. *Proteus mirabilis* was inhibited by all the isolates except *Drechslera biseptata*.

Keywords: antibacterial activity, *Bauhinia sp*, *Crotolaria sp*, *Delonix regia*, endophytic fungus, enzymes

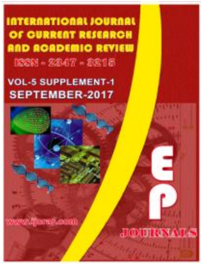
EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Abstracts *IJCRAR/OP/48*

The Natural Antimicrobials as Food Preservatives

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Abstract

Food preservation is becoming more complex. New food products are being introduced on to the market. Generally these require long shelf-lives and greater assurance of freedom from food borne pathogenic organisms. Consumer–led trends have fuelled a renewed interest in the development of “more natural” preservatives for extending the shelf-life and maintaining the safety of foods. Although the antimicrobial properties of many components from plant, animal and microbial sources have been reported, their potential for use as natural food preservatives has not been fully exploited. There is considerable interest in the possible use of such natural alternatives as food additives either to prevent the growth of food borne pathogens or to delay the onset of food spoilage. In this paper, the possible uses of natural antimicrobial compound as food preservatives, used either singly or in combination, are explored. The result of trials with a range of potential natural preservatives including lytic enzymes, bacteriocins from lactic acid bacteria and plant antimicrobials in laboratory media and in a variety of foods and beverages including juice, fresh fruit slices, milk, meat are discussed. Factors influencing the antimicrobial activity of such agents are discussed including extraction methods, molecular weight and agents origin. These issues are considered in conjuction with the latest developments in the quantification of the minimum inhibitory (and non inhibitory) concentration of antimicrobials and / or their components. Natural antimicrobials can be used alone or in combination with other novel preservation technologies to facilitate the replacement of approaches.

Keywords: antimicrobial, plant extract, bacteriocins, food preservative

EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

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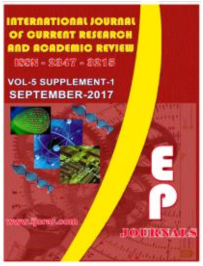

Invited Abstracts **IJCRAR/OP/49**

Comparative Proteomics of Lymphoid Tumour

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Abstract

Objective: The present study was undertaken to elucidate the protein sequences related with lymphoid tumor of different species using various bioinformatics tools.

Methods: The protein sequences were retrieved from NCBI data base for BCL-2, BCL-6, BCL-10, BCL-11, BCL-W, BCL-XL and CD-20. Protein sequence was analysed using bioinformatics tools such as PROTPARAM, SOPMA, Clustal W and MEGA 4. The secondary structure prediction of the protein was analyzed for alpha helix, Beta sheet, coil region and sequence length to analyze seven protein sequences.

Results: The protein BCL-6 weighed more than the other proteins (1040860.0 kDa). The instability index showed BCL-W to be the most stable protein, which had the value of less than 40 (33.17). All the other proteins were unstable. Proline was found in all the proteins of lymphoid tumor and in the species taken for the study.

Conclusions: From this it could be inferred that the amino acid proline might be responsible for causing lymphoid tumor. Close resemblance of CD 20 of phylogenic tree could be used for further research in humans. More research needs to be done to target proline amino acid to find out effective and efficient drug candidates to cure lymphoid tumor.

Keywords: BCL protein, NCBI, SOPMA, PROTPARAM

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15

Invited Abstracts ***IJCRAR/OP/50***

Ligand Based Pharmacophore Modelling and Virtual Screening of AKT Inhibitors against Breast Cancer

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Abstract

Cancer is a group of disease that is caused by uncontrolled growth or proliferation of the normal cell. Breast cancer is a type of cancer which develops in the inner lining of the breast tissue. In breast cancer, AKT plays an important role. AKT is a protein which is mainly responsible for glucose metabolism, cell survival, growth, proliferation and apoptosis process. The inhibitors Triciribine, A-674563, KT-5720 were retrieved and docked against protein by using Pubchem and Autodock 4.2 respectively. The pharmacophore modelling studies were done with the Ligandscout 3.1 software to generate the pharmacophore model based on the features like hydrogen bond donor, hydrogen bond acceptor and aromatic ring. The model was compared with the zinc database to get the best compounds based on the pharmacophore fit score and that hits were docked against the protein. Based on the fit score the best hit compound was selected and docked against the protein to view the interactions and hydrogen bond formation. The visualisation process was done by using the Pymol viewer. The sources of (Levodopa) hit compound are broad beans and cowhage seeds. It shows the minimal side effect of the Levodopa. Hence, the Levodopa maybe considered as a strong inhibitor of AKT protein against cancer.

Keywords: breast cancer, AKT, Ligandscout, Zinc database, levodopa

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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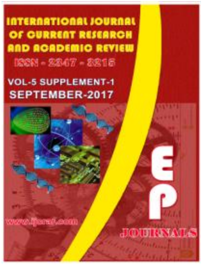

Invited Abstracts *IJCRAR/OP/51*

Antimicrobial Activity of Selected Marine Algae against Eye Infection Causing Microorganisms

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Abstract

Research on natural products from marine algae has increased dramatically since last few decades. Marine natural products provide a rich source of chemically diverse compounds which have significant potential to be developed as novel therapeutic agents. Marine algae are prokaryotic or eukaryotic photosynthetic microorganisms that produce carbohydrates, as a result of photosynthesis. They constitute one of the commercially important living and renewable resources. Algae are a very interesting natural source of novel compounds and many of them possess antioxidant, antimicrobial and antiviral activities. In the present study, marine algae were collected from the coastal area of Kovalam, Chennai. They were identified and screened for potential antibacterial activity against eye infections causing bacterial conjunctivitis. The antibacterial assay was performed by using bioactive compounds extracted from the marine algae. When compared with antibiotics, the bioactive compounds extracted from the marine algae showed higher sensitivity against bacterial pathogens.

Keywords: marine algae, antibiotics, bioactive compound, antibacterial, sensitive

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International Journal of Current Research and Academic Review

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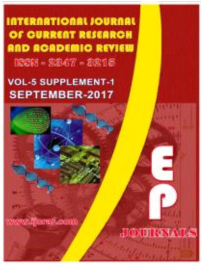

Invited Abstracts ***IJCRAR/OP/52***

Analysis of Pancreatic Cancer Based Datasets using Microarray Analysis

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Abstract

The current study identified differentially expressed genes (DEGs) between pancreatic cancer (PC) tissues and normal tissues, and assessed genetic factors associated with the pathogenesis of PC. The mRNA expression microarray dataset, GDS4102, containing tumor and normal tissue samples was downloaded from gene expression Omnibus. Raw data were normalized and DEGs were identified. Subsequently, clustering was performed, protein-protein interaction networks were drawn and functional and pathway enrichment analysis of the DEGs were performed. A total of 2,194 DEGs between PC and normal tissues were identified, including 1,380 up regulated and 814 down regulated DEGs. The pancreatic cancer pathway was connected to the DEGs of EFG and TGFα. These results suggested the significance of the DEGs in pathogenesis of PC. EGF and TGFα may be used as potential therapeutic targets for the treatment of PC. However, further clinical trials are required to validate these conclusions and hypothesis. Also the hyper expression of DEGs involved in pancreatic secretion namely, PRSS2, PNLP and CPA were found to be associated with the clinical manifestation of PC condition. These genes are highly specific for pancreatic cancer and efficient than existing biomarker C19-9. Thus the microarray gene expression analysis is raising the possibility of their applications as biomarkers in PC diagnosis and screening.

Keywords: microarray data analysis, pancreatic cancer, biomarker, differentially expressed genes, upregulated genes, pathway enrichment

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International Journal of Current Research and Academic Review

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INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15

Invited Abstracts ***IJCRAR/OP/53***

Cosmeceuticals from Marine Algae—Kelp

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Abstract

A brown algae known as Kelp belongs to order Laminariales within the family of Phaeophyceae. It is grown among the coastal ocean floor. It contains 60 minerals and 12 vitamins. It indicates bioactive components that has gained much importance in cosmeceutical product. Hence the term “cosmeceuticals” is derived from “cosmetics and pharmaceuticals”. It is commonly used as cellulite cream and conditioners. The extraction of these components was done by using 80% ethanol in Soxhlet apparatus. Kelp has been widely used even in food industries because of high iodine content and also medicinally to treat thyroid problems, as a natural diuretic and detoxifying agent. The present study will emphasize on its predominant use in cosmetic industries.

Keywords: Kelp, cosmeceuticals, bioactive components

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International Journal of Current Research and Academic Review

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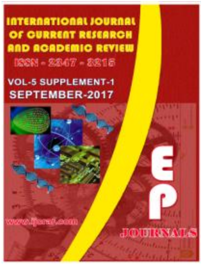

Invited Abstracts **IJCRAR/OP/54**

Molecular Docking Studies of Eupalitin in *Boerhavia diffusa* against mTOR Drug Target

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Abstract

Boerhavia diffusa (common name: punarnava) is a species of flowering plant belonging to the family *Nyctaginaceac* and it is widely distributed throughout India, pacific and southern United States. Punarnava is a herb used for cancer treatment. *Boerhavia diffusa* have anti-microbial, anti-bacterial, anti-cancer, anti-inflammatory, anti-oxidant, immunomodulatory, anti-fertility, cystological, and anti-stress activity. *Boerhavia diffusa* has anti-cancerous compounds like boeravinone-B, boeravineone-G, coccineone-B, coccineone-E, eupalitin. Breast cancer is the most common cancer among women that develops from breast tissue. Mechanistic target of rapamycin (mTOR) is involved in regulation of cell proliferation, cell differentiation and cell survival. The inhibitors of mTOR as anticancerous agents are undergoing active evaluation in various malignancies including breast cancer. mTOR pathway is considered to be a central regulator of protein synthesis. The docking study of mTOR with eupalitin exhibits high interaction values and this indicates that they can be considered as therapeutic agent to breast cancer treatment.

Keywords: *Boeharvia diffusa*, mTOR, breast cancer, molecular docking

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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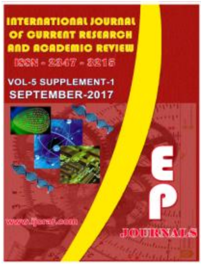

Invited Abstracts **IJCRAR/OP/55**

Biodegradation of Plastics by Bacteria

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Abstract

Extensive use of plastics in recent years posed an imminent threat to all life forms. There are various types of plastics widely used in different forms have accumulated in the environment. However, several methods have been employed to degrade plastics. The use of microorganisms especially bacteria obtained from soil showed much improved outcome. Bacteria are actively involved in the process of degradation by its enzymes effectively. Enzyme assays was calculated by spectrophotometric analysis. An attempt was made in this study by screening bacteria for effective biodegradation of plastics of soil origin and its influence of enzymes in the biodegradation.

Keywords: plastics, biodegradation, bacteria, enzymes

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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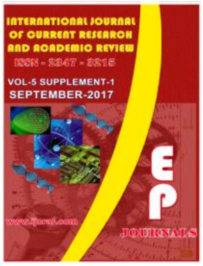

Invited Abstracts *IJCRAR/OP/56*

Development of Ligand Based Pharmacophore Model for Anti-Cancer to Treat Colorectal Cancer

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Abstract

The computational modeling and high throughput screening techniques have been used to identify small molecules that specifically target functional surface sites of the VEGFR2 in colorectal cancer. Pharmacophore modeling, Virtual screening, docking based analyses is used for development of new chemical entities. Bevacizumab, Pazopanib and Sunitinib are the commonly used drugs approved by the Food and Drug Administration (FDA) as VEGFR2 targeted therapy in colorectal cancer treatment. The research studies states that the uses of these drugs are associated with side effects. The aim of the current study was to identify non toxic, naturally available lead molecule with pharmacophore features relevant to the FDA approved drugs with the evidence of pharmacophore modeling and comparative docking analysis using Ligand scout and AutoDock softwares respectively. The results obtained from the present study suggested that the application of ligand based pharmacophore could assist in selection of potential leads for rational design of VEGFR2 receptor inhibitors in colorectal cancer therapy.

Keywords: pharmacophore modeling, virtual screening, docking, VEGFR2, Ligand Scout, Zinc database, AutoDock

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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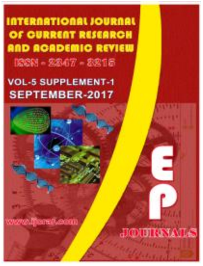

Invited Abstracts **IJCRAR/OP/57**

Influence of Vegetable Oils on Biosurfactant Production by *Serratia sp* Isolated from Soil

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Abstract

Biosurfactants are the surface active molecules synthesized by microorganisms. The present study was focused on production of biosurfactants using various vegetable oils by *Serratia* sp isolated from soil .The isolated bacterial strain was screened for biosurfactant production by oil spreading method ,drop collapse test and emulsification test .Different vegetable oils at various concentration was used individually as sole carbon source for the production of biosurfactant.The best carbon source was found to be gingelly oil at a concentration of 1ml/100ml which was measured by dry weight of biosurfactant(0.44g/100ml).The obtained biosurfactant from gingelly oil medium had a good emulsification activity with kerosene and also had higher activity with toluene

Keywords: biosurfactant , *Serratia sp,* vegetable oils, emulsification

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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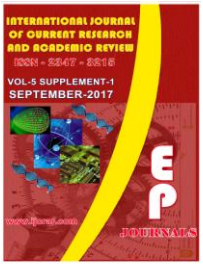

Invited Abstracts *IJCRAR/OP/58*

QSAR and Docking Studies on Flavonols Derivatives for Alzheimer's Disease

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Abstract

Alzheimer's disease (AD) is a chronic neurodegenerative disease. Current therapies of AD are only symptomatic, therefore there is a need for the development of new therapies to treat Alzheimer's effectively. The flavonols and its derivatives are potent anti-Alzheimer agents, and these compounds inhibits β-amyloid (Aβ42) and Presenilin 1. A study of quantitative structure-activity relationship (QSAR) was applied to a set of 50 molecules derived from flavanols, in order to predict the anti-Alzheimer biological activity of the test compounds to find a correlation between the different physio-chemical parameters (descriptors) of these compounds and its biological activity, using Multiple Linear Regression (MLR), Principle Component Regression (PCR). Accordingly a quantitative model (non-linear and linear QSAR models) was proposed, and we interpret the activity of the compounds on the multivariate statistical analysis. A good correlation was found between the experimental activity and those obtained by MLR and PCR respectively such as (R = 0.951, R^2 = 0.9042 and Q^2 = 0.885) and (R = 0.841, R^2 = 0.7081 and Q^2 = 0.673). The best compounds were selected and docked. The binding energies reveal that morin was most significant drug to treat Alzheimer's disease.

Keywords: Alzheimer's disease, flavonols derivatives, QSAR, MLR, PCR

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International Journal of Current Research and Academic Review

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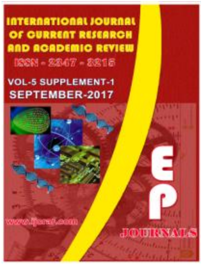

Invited Abstracts　　　　*IJCRAR/OP/59*

Antimicrobial Potential of Extracellular Metabolites Produced by *Streptomyces rochei*

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Abstract

Objective: This study aims at isolation, screening, extraction and characterization of antimicrobial compound from Streptomyces rochei obtained from the seashore soil of Dhanushkodi, Tamil Nadu, India.

Method: The morphological, biochemical and physiological properties of the bioactive compound producing strain isolated from marine soil was characterized characterized based on Bergey's manual of systematic bacteriology and International Streptomyces Project (ISP). The isolate was further characterized by 16s rRNA sequencing and the same was submitted to NCBI (GenBank Accession No. MF767527). The antimicrobial activity of the bioactive compound isolated from Streptomyces rochei was tested by agar well diffusion assay and MIC after partial purification by solvent extraction and TLC. The antimicrobial compound was further characterized by UV spectroscopy and FTIR. Protein and nucleic acid leakage studies were conducted to determine the damage induced by the active extract on test organisms.

Results: The potent strain identified as Streptomyces rochei was visualized with spiral sporophore and smooth spore surface morphology under scanning electron microscope. The antimicrobial metabolite produced by this strain exhibited activity against Gram positive and Gram negative microorganisms with MIC value of 260 µg for S. aureus and E. coli. The bioactive compound displayed a maximum absorption peak at 221 nm whereas IR absorption bands at 1775 cm-1 and 1724 cm-1 confirmed the presence of carbonyl group. Lysis of the bacterial cells resulting in leakage of proteins and nucleic acids was induced by the active extract.

Conclusion: If advanced purification and chemical characterization of this antimicrobial compound is carried out, then it can serve as a potent commercial antibiotic.

Keywords: antimicrobial compound, FTIR, SEM, *Streptomyces*, TLC

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International Journal of Current Research and Academic Review
ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)
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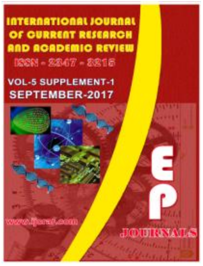

Invited Abstracts IJCRAR/OP/60

QSAR and Docking Studies on Isoflavones Derivatives for Parkinson's Disease

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Abstract

Parkinson's disease is caused due to enhanced dopaminergic activity in the substanitia nigra, a region of the midbrain. Isoflavones constitute the largest group of natural isoflavonoids. Soy and soy foods are rich sources of isoflavones, diphenolic plant compounds that have been shown to possess several biological activities. QSAR analysis is one of the most useful techniques for optimizing lead compounds, quantitatively predicting the interaction between a isoflavone derivative and the active site of a specific target alpha synuclein. The study were performed on a set of 50 isoflavone derivatives using BUILDQSAR program by using Multiple Linear Regression (MLR), Principal Component Regression (PCR) and Partial Least Squares (PLS) Regression methods. Among these methods, Multiple Linear Regression (MLR) method has shown very promising result as compared to other two methods. The best model has the highest correlation. Statistically significant models with $R = 0.742$; $s = 0.269$; $F = 8.167$; $p < 0.0001$; $Q2 = 0.058$; SPress = 0.390; SDEP = 0.364 were obtained. MLR model was selected on the basis of its statistical significance and predictive potential. The model was derived from the superposition of docked conformation with AutoDock. Out of seven compound, 5-hydroxyl-7-methoxyisoflavone interacts with alpha synuclein and the binding energy is -5.83 kcal/mol. The data obtained from this present QSAR study may be useful in the design of more potent substituted isoflavone derivatives. Results from isoflavone will be useful for activity prediction of anti Parkinson's capacity.

Keywords: QSAR, molecular docking, isoflavone derivatives, alpha synuclein, Parkinson's disease

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International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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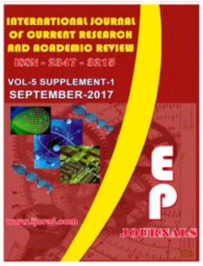

Invited Abstracts *IJCRAR/OP/61*

Synthesis of Silver Nanoparticles (Ag-NPs) by *Ficus benghalensis* Plant Extract and Their Applications against Methicillin Resistant *Staphylococcus aureus* (MRSA)

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Abstract

This study aims to investigate the silver nanoparticles (Ag-NPs) prepared by green synthesis method using *Ficus benghalensis* plant extract from which nanoparticles are in the range of 1 to 100 nm in size and unique properties. The Banyan plant leaves were selected and extracted by the addition of 100 ml deionized water to the leaves and boiled for 15 min in a water bath. The mixture was filtered to obtain extract for the green synthesis of nanoparticles. The biosynthesized nanoparticles were characterized by UV–Vis Spectrophotometer, FTIR, XRD and SEM.

The results of various characterizations indicated that the sample of Ag have the optimum morphology and structure. The major applications of silver nanoparticles in the medical field include antimicrobial property that is being majorly explored. Silver nanoparticles are rampantly planned to use in many medical procedures and devices as well as in various biological fields. So the biosynthesized nanoparticles were tested against *Staphylococcus aureus.* The *Staphylococcus aureus* clinical isolates were challenged with two fold 100 nm nanosilver serial dilutions for 24h. Silver nanoparticles affected bacterial cellular viablility in a dose-dependent manner inhibit the biofilm formation of MRSA effectively.

Keywords: silver nanoparticle, synthesis, antimicrobial action, MRSA

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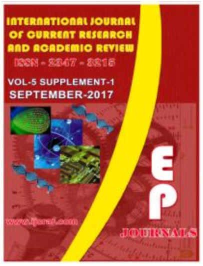
International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15



Invited Abstracts **IJCRAR/OP/62**

In Silico Docking Analysis of Bioactive Compounds from *Murraya koenigii* against Activin-B

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Abstract

Many plant species possess enormous importance in the field of medicine and *Murraya koenigii*, is a popular species which is highly appreciated for its pharmacological properties. *Murraya koenigii* (curry tree) leaves are rich in bioactive compounds such as flavonoids, alkaloids and coumarins. Carbazole alkaloids constitute an important class of naturally occurring heterocycles, isolated from the Rutaceae family. These alkaloids were isolated as natural products from *M.koenigii*. Tissue injury initiates a cascade of events, including inflammation, new tissue formation, and tissue remodeling, to reconstruct the wounded area. Remodeling is triggered by growth factors and cytokines, which stimulate the migration and proliferation of keratinocytes at the wound edge. One growth factor critical for re-epithelialization is activin-B, a member of the transforming growth factor-β family. Activin B efficiently stimulated the proliferation of keratinocytes and hair follicle cells at the wound area and promoted wound closure through the signaling pathway. The Mitogen-Activated Protein Kinase Kinase1 (MEKK1) mediates activin B signals. The activin B–MEKK1 pathway leads to the activation of the Jun NH2-terminal kinase MAPK and epithelial cell migration. The 3D structure of activin B is subjected to Molecular docking with carbazole alkaloids from *Murraya koenigii*. The docking scores hypothesized that the developmental activin-B–MEKK1 pathway is reactivated during tissue injury and that MEKK1 transduces signals required for wound reepithelialization and closure. The study indicates Koenimbine, Murrayanol and Bismahanine exhibits high interaction values and least binding energy, hence they are considered as potential and natural therapeutic agents to heal wounds.

Keywords: *Murraya koenigii*, carbazole alkaloids, wound healing, mitogen activation protein kinase, activin-B, molecular docking

EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

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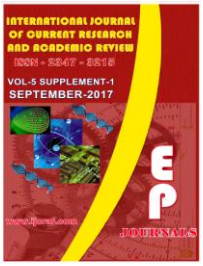

Invited Abstracts IJCRAR/OP/63

Wine Production in Pineapple—Characterisation of Volatile Aroma Compounds and Yeast Native Flora

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Abstract

The main aim of this study was pineapple vinification process through spontaneous fermentation to develop a process suitable for a quality beverage. Wines obtained with the conventional *Saccharomyces cerevisiae* strain, were analyzed by gas chromatography, and a total of 61 volatile constituents were detected in the volatile fraction and 18 as glycosidically bound aroma compounds. In pineapple wines, the presence of signification concentration of lactones, ketones, terpenes, nonisoprenoids and a variety of volatile phenols was noted. Eight native yeast strains were isolated from spontaneous batches. Three native strains (*Hanseniaspora opuntiae*, *H. Uvarum* and *Meyero zyma guilliermondii*) were selected with sensory potential to ferment pineapple fruits with increased flavor diversity. Flavor is the result of the interaction of chemical constituents with the consumer's sense of taste and smell and it’s composed of volatile and non volatile compounds that cause taste sensations. Results obtained here contribute to a better understanding of quality fermentation of pineapple.

Keywords: yeast, volatile aroma compounds, pineapple wine fermentation

EXCELLENT PUBLISHERS

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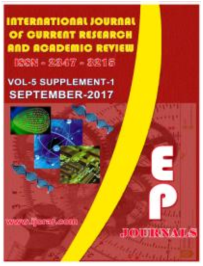

Invited Abstracts **IJCRAR/OP/64**

Molecular Docking Studies of B-Raf and Bioactive Compounds from *Vitis venifera* (Grape Seed)

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Abstract

Vitis vinifera (common grape vine) is a species of *Vitis*, native to the Mediterranean region, central Europe, and south-western Asia, from Morocco and Portugal north to southern Germany and east to northern Iran. A grape is a fruit, botanically a berry, of the deciduous woody vines of the flowering plant genus *Vitis*. Grapes can be eaten fresh as table grapes or they can be used for making wine, jam, juice, jelly, grape seed extract, raisins, vinegar, and grape seed oil. Grapes are a non-climacteric type of fruit, generally occurring in clusters. Grape seed extract (GSE) is a complex mixture of several compounds, mostly represented by polyphenols and phenolic acids. There are many bioactive compounds including anthocyanins, procyanidin, and proanthocyanidin are the most important grape polyphenols because they possess many biological activities, such as antioxidant, cardioprotective, anticancer, anti-inflammation and antimicrobial properties. The B-Raf mutation has been of a potential therapeutic relevance in melanoma and other cancers in the cancer research community. In general, due to alternative pathway actions and inter and intra patients melanoma genetic heterogeneity, various mechanisms of B-raf inhibition have been identified. In silico docking analysis were carried out against bioactive compounds from *Vitis vinifera* (Grape) seed extract with B-Raf (3C4C) using AutoDock 4.2 software. From the docking study, anthocyanins were identified as potential compound with least binding energy.

Keywords: grape seed, polyphenol, phenolic acids, anti-cancer activity, B-raf, melanoma tumors

EXCELLENT PUBLISHERS

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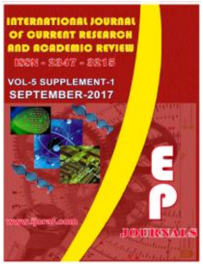

Invited Abstracts *IJCRAR/OP/65*

Study of *Moringa olifera* Extracts as a Natural Coagulant for Waste Water Treatment and Heavy Metals Removal

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Abstract

Moringa olifera also known as drumstick tree is recognized as a vibrant and affordable source of phytochemicals, having potential application in medicine, water purification and biodiesel production. These seeds are used as a primary coagulant in a drinking water clarification and waste water treatment due to presence of a water- soluble cationic coagulant protein which are able to reduce turbidity of treated water. Waste water treatment was done by paddle jar apparatus. Heavy metal removal tests were carried out using high-performance atomic absorption spectrometer (AAS). Heavy metals such as Fe, Cu, Cd were removed. Turbidity test of water samples were measured using biological oxygen demand (BOD) and chemical oxygen demand (COD). The antimicrobial activity was carried out to investigate the microbiological quality of water sample. These seeds exhibited high efficiency in the reduction and prevention of the microbial growth.

Keywords: *Moringa olifera*, water purification, heavy metals, seeds, efficiency

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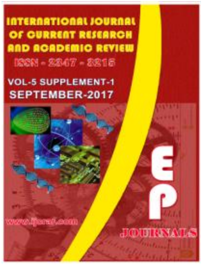

Invited Abstracts **IJCRAR/OP/66**

In-Silico Molecular Docking Analysis of Sirtuin 1 (SIRT1) with Bioactive Compounds of *Carica papaya*

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Abstract

Diabetes is a chronic condition associated with abnormal high levels of sugar (glucose) in the blood. This condition is due to inadequate production of insulin, or because of the body's cells that do not respond properly to insulin, or both. Approximately 90% of all cases of diabetes worldwide are type 2 diabetes. It is a long-term metabolic disorder that is characterized by lack of sensitivity to insulin by the cells of the body. Sirtuin 1 (SIRT1), a NAD+-dependent histone deacetylase which regulates glucose/lipid metabolism through its deacetylase activity on many substrates. SIRT1 plays a major role in regulating insulin secretion and protects cells from oxidative stress and inflammation. SIRT1 also manages adiponectin secretion, inflammation, glucose production, oxidative stress, mitochondrial function, and circadian rhythms. The activators of SIRT1 have beneficial effect in various metabolic pathways involved in diabetes. *Carica papaya* is a plant which is widely used in the traditional medicinal system of India. It is commonly known as “paw paw”. Carica papaya is a giant herbaceous plant. It is widely spread in tropical areas and it is well known for its various medicinal purposes. The leaves, fruits and seeds of papaya contained phenols, flavonoids, carotenoids, essential vitamins and minerals *Carica papaya* have various bioactive constituents such as carpaine, quercetin, kaempferol, pseudocarpain, dehydrocarpain I and II, cholin, carposide. The interaction studies of bioactive constituents of Carica papaya with SIRT1 was done by AutoDock 4.0 and the study reveals that Carpaine, Kaempferol, Quercetin shows interaction with SIRT1 protein. Among these, Quercetin shows favorable hydrogen bond interactions with least binding energy and further in vitro and in vivo studies paves the way to understand the beneficial effect of SIRT1to be a novel therapeutic target for the prevention of type 2 diabetes mellitus.

Keywords: *Carica papaya*, antidiabetic activity, SIRT1, diabetes mellitus, molecular docking

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International Journal of Current Research and Academic Review

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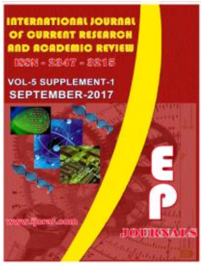

Invited Abstracts

IJCRAR/OP/67

Silk Fibroin as a Carrier System for the Delivery of Fibrinogen and Thrombin as Coagulant Supplements

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Abstract

Control of bleeding is one of most important process after a traumatic injury. The devices for delivering blood clotting accelerating factors such as fibrinogen and thrombin are used due to their increasing efficiency and their ease of application. In the present study, a method to incorporate these blood clotting accelerating factors into the silk fibroin as an effective carrier system which is done by mixing these coagulant supplements into aqueous silk solution followed by molding and freeze-drying was performed. The thrombin induced fibrin network formed a contact network with silk fibroin which enhances the blood clotting mechanism. The hemocompatibility of silk fibroin was determined by Platelets adhesion test, Plasma Recalcification Time (PRT), Prothrombin time. In combination, MTT assay resulted uniform cell adhesion and cytocompatibility of silk sponges respectively. Moreover, co-delivery of thrombin with fibrinogen via silk as carrier material offers a durable system as hemostatic devices.

Keywords: silk fibroin, carrier molecule, thrombin and fibrinogen, blood clotting mechanism

International Journal of Current Research and Academic Review

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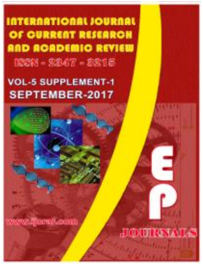

Invited Abstracts *IJCRAR/OP/68*

Metabolic Pathway Reconstruction and Simulation of MAP Kinase (BRAF and NRAS) Pathway Involved in Melanoma

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Abstract

Melanoma is a form of skin cancer that arises from the malignant transformation of pigment-producing cells, melanocytes. The major risk factor of melanoma is exposure to ultraviolet (UV) light and in people with fair skin the risk is greatly increased. Melanoma pathogenesis is also driven by genetic factors. In melanomas, the mutation rates of B-RAF are 50-70% and NRAS is 15-30%. Oncogenic NRAS mutations activate both effector pathways namely, Raf-MEK-ERK and PI3K-Akt-mTOR pathway. The Raf-MEK-ERK pathway may also be activated via mutations in the BRAF gene. The PI3K-Akt pathway may be activated through loss or mutation of the inhibitory tumor suppressor gene PTEN. The current study aims to design computational models to reconstruct the MAP-Kinase pathway for deep understanding of their role in melanoma cancer types. The MAPK pathway was reconstructed using cell designer software and simulation analysis was done with the help of COPASI software. From the study, it is clearly found that both NRAS and BRAF genes has increased kinase activity which keeps the gene always in an active state that leads to the uncontrolled cell proliferation which results in the melanoma cancer development. Also the decreased activity of PTEN gene due to the mutation was confirmed in melanoma cancer using systems biology approaches. Thus these *in silico* informations could be used as prominent evidence to aid in the *in vitro* and *in vivo* studies of targeted therapy for the treatment of melanoma cancer.

Keywords: MAPK, melanoma, celldesigner, copasi, NRAS, BRAF

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International Journal of Current Research and Academic Review
ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)
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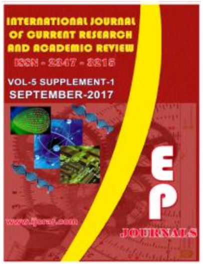

Invited Abstracts *IJCRAR/OP/69*

Antimicrobial Efficacy of Water Stored in Copper Vessel against *Escherichia coli*

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Abstract

Microbiologically-unsafe water is still a major concern in most developing countries. Although many water-purification methods exist, these are expensive and beyond the reach of many people, especially in rural areas. Ayurveda recommends the use of copper for storing drinking-water. Therefore, the objective of this study was to evaluate the effect of copper pot on *Escherichia coli* contaminated drinking-water. Total of 20 drinking water samples were collected from different places such as House (5), Railway station (5), Colleges (5) and Hotels (5). Standard plate count was done from the samples. MPN technique was done to enumerate the coliforms. Macroscopic and microscopic observations were performed. Inhibitory activity of copper vessel was checked by Standard plate count and by streaking on to the Selective media. Out of 20 drinking water samples from different places, E. coli were isolated and identified from 16 water samples, of which 12 isolates were inhibited by copper and 4 isolates were not inhibited by copper. Copper holds promise as a point-of-use solution for microbial purification of drinking-water, especially in developing countries.

Keywords: *Escherichia coli*, copper, drinking water

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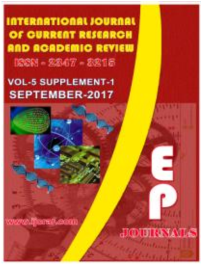

Invited Abstracts *IJCRAR/OP/70*

Molecular Dynamic Simulation Study of Normal and Mutant ACVR1 Protein Causing Fibrodysplasia Ossificans Progressiva (FOP) Diseases

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Abstract

A mutation is a sudden change that occur in our DNA sequence, either due to mistake. When the DNA is copied it lead to changes in the structure of an encoded protein or to a decrease or complete loss in its expression due to environmental factors such as UV light and cigarate smoke. Single mutated gene usually involves in a point mutation and leads to an altered amino acid sequence in the proteins that are coded in this section of the DNA was identified. Fibrodysplasia ossificans progressiva (FOP is a rare autosomal dominant genetic disorder that affects the soft tissues which transform into bone FOP. They occur due to mutation in activin receptor type1 protein (ACVR1) is found in many tissues of the body including skeletal muscle and cartilage. It helps to control the growth and development of the bones and muscles. The mutant ACVR1 protein has histidine in the place of arginine at position 206 which results in FOP. Molecular simulation is a very powerful tool to investigate and explore the structure of solid, liquid, and gas. It is a computer simulation method for studying the physical movements of atoms and molecules, and is thus a type of N-body simulation to simulate the interactions between atoms to understand the properties of materials In a fixed period of time giving a view of the dynamical evolution of the system the trajectories of atoms and molecules are determined by numerically solving Newton's equations of motion. In this study, the normal ACVR1 protein was mutated at the 206 position in SPDB viewer and the dynamic behavior of normal and mutant protein of ACVR1 was studied using GROMACS software.

Keywords: FOP, ACVR1, Molecular Simulation, GROMACS

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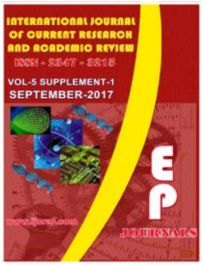

Invited Abstracts *IJCRAR/OP/71*

Effect of Stimulating Agent and Extraction Solvents in Alginate Production by *Pseudomonas* Species

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Abstract

Alginate finds its application in food industry, pharmaceutical industry and plays a major role in human health. This work aimed for analyzing the effect of various stimulating agents in the production of alginate from various species of *Pseudomonas* and also the role of the extraction solvent in the purity of final product Alginate. Triton X-100, TWEEN-80 and glycerol were the stimulating agents used to enhance the production of alginate. Acetone and ethanol were used as extraction solvent for the recovery of alginate. Results of the experiments clearly disclosed that extraction methods using ethanol is the best recovery agent for protein free pure alginate and Triton X-100 as a preferred stimulating agent of all the three compounds used in the experiment. Alginate production by *Pseudomonas* species was 1.1gm / 100 ml of production medium amended with Triton X as stimulating agent whereas the yield was only 0.19 mg /100 ml in the absence of stimulating agent.

Keywords: exopolysaccharide, alginate, stimulating agent, *Pseudomonas*

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International Journal of Current Research and Academic Review

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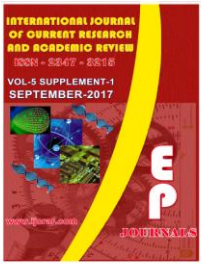

Invited Abstracts ***IJCRAR/OP/72***

Microarray Data Analysis of Alzheimer's Disease based Dataset

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Abstract

Alzheimer's is the most common form of dementia, a general term for memory loss and other cognitive abilities serious enough to interfere with daily life. Alzheimer's disease accounts for 60 to 80 percent of dementia cases. Alzheimer's is not a normal part of aging, although the greatest known risk factor is increasing age, and the majority of people with Alzheimer's are 65 and older. But Alzheimer's is not just a disease of old age. In this study, Alzheimer's disease samples or datasets were taken from GEO database and highly expressed genes were analysed by using BRB-Array tool. BRB-Array tools are an integrated software system for the comprehensive analysis of DNA microarray experiments. The results of the present study indicated that the two genes, that is presenilin and amyloid precursor protein can be used as potential biomarkers for Alzheimer's disease.

Keywords: Alzheimer disease, DNA microarray, BRB-Array tools

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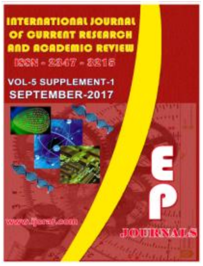

Invited Abstracts ***IJCRAR/OP/73***

Screening of Actinomycetes from Marine Environment for Biosurfactant Production

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Abstract

Actinomycetes produces many kinds of bioactive compounds and also have excellent ability to produce pigments. It is a gram positive bacteria, non-acid fast (some are acid fast), non-motile, non-capsulated, filamentous which has branching mycelium. 'Akitino' means ray and 'mykes' means mushroom or fungus, so actinomycetes are called as 'ray fungi'. Presence of Diaminopimelic acid (DAP) isomers is one of the most important cell wall properties of gram-positive bacteria and actinomycetes. The actinomycetes cells contain some kinds of sugars, in addition to the glucosamine muramic acid of peptidoglycan. The majorities of actinomycetes are free living and found widely distributed in natural environments including soil, in aquatic environment such as fresh water, marine water etc. It utilizes organic matter and also colonizes on the plants. The present study was to isolate and to identify the actinomycetes from the marine environment and to screen the isolates for biosurfactant by the following methods such as Haemolysis, Drop collapse and by Lipase activity. 20 marine sediment samples were collected from different sites near chennai seashore, out of which 4 isolates of Streptomyces were isolated which includes Streptomyces aureus, Streptomyces avermitilis, Streptosporangium albidum, Sterptomyces griseus based on microscopic & macroscopic appearance and also by biochemical and physiological characterization. All the 4 isolates were gram positive with hyphae, filamentous and non-acid fast. Colony morphology were found to be white, brown and gray. Out of 4 isolates, three isolates were positive for hemolysis. Three isolates were positive for drop collapse test and two isolates were positive for lipase production. Biosurfactant and bioemulsifiers are thought to be very suitable alternatives to chemical surfactants due to their properties like eco–friendly, less/no toxicity. Therefore, search of biosurfactant producing microorganisms is an important area of research in particular for bioremediation. Hence in future, for studies involving bioremediation technologies this strain may be used. Further study is required for strain improvement.

Keywords: actinomycetes, marine environment, biosurfactants

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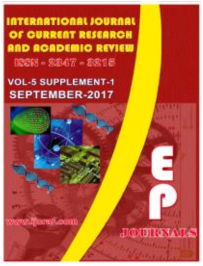

Invited Abstracts *IJCRAR/OP/74*

Identification of Biomarker in Huntington Disease using Microarray Analysis

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Abstract

Huntington's disease (HD) is a neurological disorder, which is passed down through families. It causes nerve cells located in specific parts of the brain to degenerate. HD is caused by a genetic defect on chromosome 4, which causes a longer than usual CAG repeat on the DNA. This particular section of the DNA is usually repeated about 10 to 28 times but in a person with HD this section repeats 36 to 120 times. In this study, the Huntington disease datasets were taken from GEO database and highly expressed genes were analyzed by using BRB Array tool. The Gene expression omnibus id is GDS1332. The sample id containing normal and disease samples. There are 293 genes differently expressed which contains upregulated and downregulated genes. From the study, genes SDHD, SRP14, COX7A2, and CREB2 and SOD2 were found to be over expressed in Huntington disease. Hence the CREB2 and SOD2 can be considered as significant biomarker for Huntington disease.

Keywords: Huntington's disease, Gene Expression Omnibus, BRB Array Tool, KEGG

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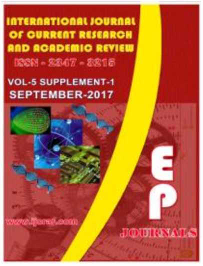

Invited Abstracts IJCRAR/OP/75

Isolation, Partial Purification and Characterization of Uricase Enzyme Produced by a Soil Isolate *Pseudomonas aeruginosa*

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Abstract

Uricase is a therapeutic enzyme used to cure various diseases. The present study aimed to isolate potent uricase producing *Pseudomonas aeruginosa* from 12 isolates obtained from 20 soil samples collected in and around Chennai, and purify and characterize uricase thus obtained. Isolate 3 with zone diameter 22 mm was found to best uricase producer and was taken up for further optimization and characterization studies. Optimization studies revealed glucose as carbon source, yeast extract as nitrogen source and 0.5% of uric acid as substrate was ideal for maximum uricase production. Purification of the enzyme was done by Ammonium Sulfate Precipitation method and dialysis which resulted in 70% yield and 2 fold increase in uricase activity. The molecular weight of purified enzyme was found to be 40 KDa. Characterization of the enzyme for optimum pH and temperature was carried out and found to be 6.5 and 40°C respectively. The purified uricase enzyme can be further investigated for proteomics study and has scope of industrial and pharmaceutical applications.

Keywords: uricase, *Pseudomonas aeruginosa*, enzyme, purification, optimization, characterization

EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

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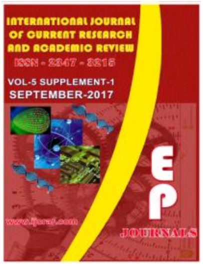

Invited Abstracts *IJCRAR/OP/76*

Metabolic Pathway Reconstruction of Insulin Signalling Pathway Involved in Diabetes Type II

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Abstract

Type 2 diabetes is the most serious metabolic disease all over the world, and its hallmarks are pancreatic beta cell dysfunctioning and insulin resistances. The insulin signalling pathway (ISP) is an important biochemical pathway, which regulates some fundamental biological function such as glucose and lipid metabolism, protein synthesis, cell proliferation, cell differentiation and apoptosis. Under diabetes condition, subsequent augmentation of reactive oxygen species (ROS) deteriorates beta cell function and insulin resistance which leads to the aggravation of type 2 diabetes. The systems biology approaches are used to reconstruct the insulin signalling pathway for better understanding of the role of ROS in diabetes condition. The insulin signalling pathway was reconstructed and simulation analysis were done using celldesigner and copasi softwares respectively. The obtained results were useful to interpret the effects of ROS in the downregulation of insulin signalling pathway. Thus these results can be potentially applied to identify ROS targeted therapy to combat the serious effect of ROS mediated diabetes mellitus in future.

Keywords: insulin signalling pathway, type II diabetes, ROS, celldesigner, COPASI

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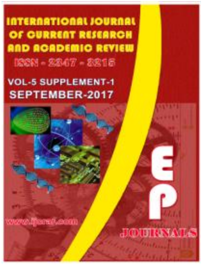

Invited Abstracts ***IJCRAR/OP/77***

Influence of Various Media Components on Lipase Production and Its Partial Purification from a Soil Isolate—*Bacillus* species

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Abstract

The soil samples were collected from the oily area in an around Chennai and screened for potent lipase producing bacteria and it was identified as *Bacillus* species. Influence of various media consitutents on lipase production for *Bacillus* species were determined. Purification by ammonium sulphate precipitation resulted in 35% yield and further purification by dialysis resulted in 18% yield. The molecular weight of the purified enzyme was found to be 66 kDa (on characterizing the enzyme, it was found to have an optimum pH 7.5 and it exhibited stability between pH 4.5 to 7.5 and optimum incubation time was 48 hours). The study indicated that maltose, peptone and olive oil enhanced lipase production. The purified enzymes can be further used in detergents, cosmetics, drug and food industries and for bioremediation processes.

Keywords: lipase, purification, optimum, enzyme, bioremediation

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International Journal of Current Research and Academic Review

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Journal home page: http://www.ijcrar.com

INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15

Invited Abstracts ***IJCRAR/OP/78***

Molecular Dynamics Simulation of Normal and Mutant CFTR Protein Causing Cystic Fibrosis

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Abstract

A mutation is a change that occurs in DNA sequence, either due to mistakes when the DNA is copied or environmental factors such as UV light, X-ray, and smoking etc. This results in changes in the gene expression. Point mutation is a type of mutation that affecting only one or very few nucleotides in a gene sequence. Cystic fibrosis (single gene disorder) is the most frequentpoint mutation, a severe recessive disorder in US and European populations.It is a relatively common genetic condition in which the lungs and digestive system become clogged with thick, sticky mucus. CF is caused by various mutations in the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) gene. The CFTR protein acts as a channel across the membrane of cells that are specialized to produce mucus, sweat, saliva, tears and digestive enzymes.Molecular simulation is a very powerful toolbox in modern molecular modeling, and enables to follow and understand structure and dynamics with extreme detail – literally on scales where motion of individual atoms can be tracked. Molecular dynamics (MD) is a computer simulation method for studying the physical movements of atoms and molecules, and is thus a type of N-body simulation. The atoms and molecules are allowed to interact for a fixed period of time, giving a view of the dynamical evolution of the system. In the most common version, the trajectories of atoms and molecules are determined by numerically solving Newton's equations of motion for a system of interacting particles, where forces between the particles and their potential energies are calculated using interatomic potentials or molecular mechanics force fields. Research studies shows that, there is point mutation (G551D) at 551th position of CFTR gene. The glycine in 551th position is mutated into aspartic acid using SPDBV viewer. In this present study, simulation was performed of native and mutant from CFTR and insights into regions of structural stability and instability in the CFTR protein by using GROMACS 4.5.5 software package. The results shows, mutant CFTR is stable than the native CFTR protein, so that the naturally derived anti CF compound (Genistein) was docked against the mutant CFTR protein. Thus the conclusion is, that natural anti CF genistein could be used as potent natural therapeutic agents to combat cystic fibrosis.

Keywords: CFTR, molecular dynamics, GROMACS 4.5.5, genistein

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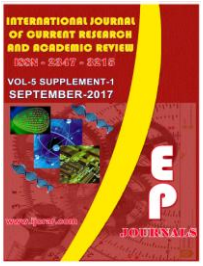

Invited Abstracts IJCRAR/OP/79

Screening of Biosurfactantant Producing *Bacillus* species from Soil Isolates and Its Production Using Different Agroindustrial Waste

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Abstract

Microbial surfactants have several advantages over chemical surfactants such as lower toxicity, higher biodegradability and effectiveness at extreme temperature or pH value. Using agro-industrial waste as substrates to produce biosurfactant can be considered as an attractive to its chemical counter parts using biosurfactants instead of chemical surfactants and also prevents accumulation of chemicals in the environment. In this present study, the *Bacillus* isolated from soil sample was screened for biosurfactant production and introduced into different agro-industrial wastes such as potato waste effluent, molasses andsoy curd whey.

Keywords: biosurfactants, agro-industrial, substrate, environment

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Invited Abstracts *IJCRAR/OP/80*

QSAR Studies on Flavone Derivatives and Molecular Docking Studies of Alzheimer's Disease

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Abstract

Alzheimer's disease (AD) is a chronic neurodegenerative disease. It progressively compromises both memory and cognition, culminating in a state of full dependence and dementia. Flavonoid derivatives with a flavone structure such as apigenin, chrysin and wogonin have been reported for their neuroprotective activity in different animal models. The study was performed on a set of 50 flavone derivatives using Build QSAR program with Multiple Linear Regression (MLR), Principle Component Regression (PCR) and Principle Compound Analysis (PCA). MLR model was selected on the basis of the statistical significance and predictive potential. The model was derived from the superimposition of docked conformation with AutoDock. The best model exhibited the highest correlation with statistical significance where, $R = 0.880$, $S = 0.2644$, $F = 19.4767$, $p < 0.000$ was obtained. The data from the potent QSAR study may be useful to design more potent substituted flavones. Out of 4 compounds studied, the binding energy of luteolin with tau protein was found to be -4.15 Kcal/Mol. Results from the study revealed anti-Alzheimer activity of luteolin and this gives clue for further development of drugs for Alzheimer's disease.

Keywords: Alzheimer's disease, flavonols derivatives, QSAR, MLR, PCR, PCA

Int.J.Curr.Res.Aca.Rev.2017; 5(S1): S1-S100

EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

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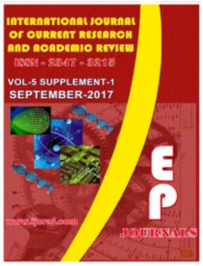

Invited Abstracts *IJCRAR/OP/81*

Biochemistry of Embiid Haemolymph and Significance of Phylogenetic Relationships of the Order Embiopter

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Abstract

The biochemical composition of hemolymph of embiid was studied using conventional methods. The concentration of various trace elements and total organic constituents in embiid haemolymph was analysed. The results of the estimation of total free amino acids in the embiid throws light on the insect biochemistry which was in corroboration with earlier studies done on related insect groups. Also some anatomical features of embiids and webspinning behaviour shows similarities to closely related insect groups indicating their phylogenetic relationships.

Keywords: hemolymph, trace elements, phylogenetic relationship

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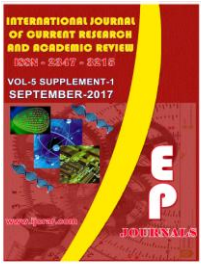

Invited Abstracts **IJCRAR/OP/82**

18S rRNA Sequence Analysis of *Rhinocladiella* species from Compost Soil

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Abstract

Compost soil from various areas were collected and black yeast like fungus *Rhinocladiella* was isolated and identified by microscopic and macroscopic appearance. Enzymatic assays were performed for urease, lipase, phospholipase, and gelatinase. The screening of enzyme activity was found positive for urease and lipase. By alkaline lysis method, the fungal DNA was isolated and amplified by PCR and discrete bands were visualized by UV transilluminator. The 18S rRNA sequencing was done and then subjected to phylogenetic studies for confirmation of the fungal species *Rhinocladiellla mackenziei* by BLAST analysis.

Keywords: *Rhinocladiella mackenziei*, BLAST, black yeast, chromoblastomycosis, compost soil

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International Journal of Current Research and Academic Review

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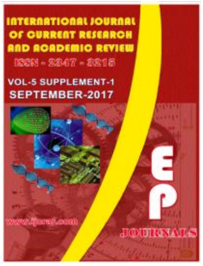

Invited Abstracts ***IJCRAR/OP/83***

Impact of Microbial Biofertilizers in Growth and Yield of Home/Terrace Garden Plants

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Abstract

Today, bio-fertilizers have emerged as a highly potent alternative to chemical fertilizers due to their eco- friendly, easy to apply, non-toxic and cost effective nature. Due to these advantages they are routinely used for the agricultural process and now - a- days even in terrace/home gardening also. The main aim of this project is the mass production of microbial bio-fertilizers. Initially the organisms were isolated from the garden soil from various areas in Chennai and confirmation was done by the morphological and biochemical test. Further the microbial biofertilizers are mixed together for microbial consortium preparation. The prepared consortium from the isolates undergoes pelletization process. The efficacy of the produced microbial organic granular pellets is checked in the terrace/ home garden vegetable plants. The growth parameters plant height, number of leaves and yield attributes like number of fruits, fruit length and fruit weight are noted. From this study, it has been shown that the combined use of microbial consortium pellets had the highest value of the growth parameters monitored.

Keywords: bio-fertilizers, microbial consortium, granular pellets, pelletization, growth parameters

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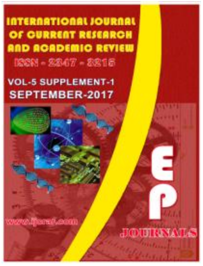

Invited Abstracts *IJCRAR/OP/84*

Isolation of Azotobacter from Maize Fields and a Study of Its Potency as a Biofertilizer

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Abstract

Biofertilizers are substances that contain living microorganisms. When they are applied to seed/ plant it promotes growth by increasing the supply or availability of primary nutrients to the host plant. Soil bacteria transforms atmospheric nitrogen into ammonia and are central to soil and soil health. Soil contains numerous genera of bacteria to protect crops against diseases. Plant growth promoting rhizobacteria (PGPR) benefits the growth and development of plant directly and indirectly through several mechanism. Biological inoculums for legumes have attracted much attention throughout the world. A total of 12 soil samples were taken from paddy, groundnut, maize and sugarcane fields. Four soil isolates namely *Azospirullum*, *Azotobacter*, *Bacillus* and *Pseudomonas* were obtained. Soil parameters were tested for moisture, pH, and was mass cultivated. Isolated *Azotobacter* was bacterized on to host seeds such as tomato, chilly, brinjal and palak. Tests for soil fertility such as organic carbon, nitrogen, phosphorous and potassium were performed to estimate the potency of the isolate to form a good bio-fertilizer. PGPR must be propagated artificially to optimize their viability and biological activity under field application. It is also suggested that PGPR needs to be reinoculated every year or season as they will not live forever in the soil.

Keywords: biofertilizer, soil parameters, *Azotobacter*, PGPR

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International Journal of Current Research and Academic Review

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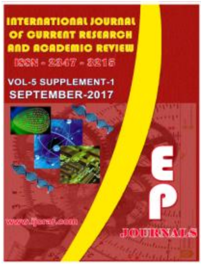

Invited Abstracts ***IJCRAR/OP/85***

Typing of *Aeromonas* species Isolated from Food Samples using 16S rRNA PCR—RFLP Method

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Abstract

About 100 Food samples were collected for the isolation of *Aeromonas* species. In this 60% was found to be positive for *Aeromonas*. Out of 60% of *Aeromonas* species, 58% were *Aeromonas salmonicida* and *Aeromonas hydrophhila*. The isolated organisms were confirmed at their species level and genomic DNA was extracted out from the *Aeromonas*. The 16S rRNA genes were amplified from the extracted DNA by using PCR. All the samples were amplified by PCR. Then the restriction enzyme was added to the amplified product. RFLP was performed. *Aeromonas hydrophila* showed genetic diversity within the species where as *Aeromonas salmonicidia* did not show any genetic diversity within them.

Keywords: *Aeromonas* species, fish and meat sample, 16S rRNA, PCR, RFLP

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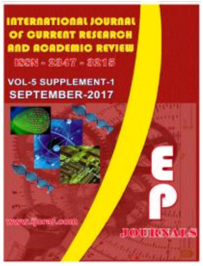

Invited Abstracts

IJCRAR/OP/86

Comparison of Antibacterial Activity of Green Tea and Black Tea Extracts with Antibiotics against Five Major Food Borne Pathogens

Sumithira P, Ramya Anandan, Joshni, Sowmiya and Charumathy

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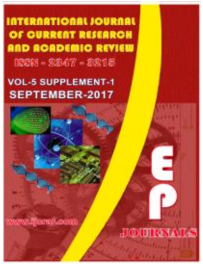
Abstract

Tea is extensively used worldwide without any known toxic effect. The present study showed that green tea has more potent antibacterial activity than the black tea towards food borne pathogens. The chemical components of green tea (polyphenols) are responsible for the antibacterial activity. Aqueous and phosphate buffer saline extracts of tea samples at10%,20% and 30% concentrations were screened in vitro for antibacterial activity against the test bacterial strains by agar well diffusion method. The crude ethanol extraction of tea samples were prepared using vaccum rotary evaporator. Both the green tea samples were found to have highest inhibitory activity than black tea samples. The minimum inhibitory concentration (MIC) was determined for ethanol extracts using broth dilution method. The antibiotic zones were compared with inhibition zones of ethanol extracts which revealed better results than some antibiotics. The present study was done to determine the activity of green tea and black tea extracts against five major food borne pathogens (*Listeria monocytogenes* 839, *Vibrio cholerae* 3904, *Escherichia coli* 912, *Salmonella typhi* 734). The MTCC strains were obtained from IMTECH and tea packets were purchased from local super market.

Keywords: tea extracts, antitoxic, antibacterial, food pathogens, minimum inhibitory concentration



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INDEXED IN INDEX COPERNICUS - ICI Journals Master List 2016 - IJCRAR--ICV 2016: 81.15

Invited Abstracts *IJCRAR/OP/87*

Herbal Antibacterial Liquid Soap Development against Bacteria Causing Skin Diseases

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Abstract

Two gram positive bacteria(*Staphylococcus aureus, Bacillus* species) and gram negative bacteria (*Pseudomonas and E. coli*) were isolated from clinical samples of patients affected by skin disaeses and it was confirmed by their morphological, cultural and biochemical characterization. Evalution of antibacterial activity of selected essential oils namely lime oil, orange oil, lime juice, mangosteen extract, leaf extracts, lemon grass oil and herbal extracts were screened against gram positive bacteria (*Staphylococcus aureu*s and *Bacillus* species) and to gram negative bacteria (*Pseudomonas* and *E. coli*) at four different concentrations (1:1, 1: 5, 1:10, 1: 20) using agar diffusion method. The studies of antibacterial activity of combination of herbal extracts and essential oils like lime oil, orange oil, mangosteen extract and lime juice extract showed more effect than the herbal extracts when used singly. Efficiency of antibacterial property between herbal extracts and commercial liquid soaps were evaluated by measuring the inhibitory zone. The combination of lime oil and lime orange oil showed good synergistic effect as antibacterial agents than commercial products.

Keywords: herbal extracts, essential oil, antibacterial activity, synergistic effect, liquid soap

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International Journal of Current Research and Academic Review
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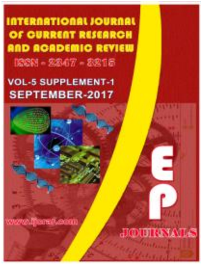

Invited Abstracts **IJCRAR/OP/88**

Chromatographic Analysis of Carotenoid Pigment Produced By Exiguobacterium Species

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Abstract

Health issue and environmental concerns due to unmonitored utilization of synthetic colorants revived interest in natural dyes as they are safer, healthier, biodegradable and exhibits higher compatibility with the environment. Soil samples were collected. Orange coloured pigmented organism dominated and it was isolated and further identified based on their colony morphology and maintained in LB medium. Preliminary tests and biochemical tests were performed for the identification of orange pigment producing organisms. Gram staining showed gram negative rods. Colony morphology and biochemical characters were observed and the orange pigmented organism was confirmed as *Exiguobacterium* species, it exhibited dark blue coloration upon the addition of concentrated sulphuric acid which revealed the presence of carotenoids. Orange pigmented colonies were subjected to pigment extraction by using methanol as a solvent and the extract was analysed by UV- spectrophotometer. The pigment was analysed by TLC and HPLC.

Keywords: orange coloured, pigmented organisms, LB medium ,gram negative rods, *Exiguobacterium* species, UV-spectrophotometer, TLC, HPLC

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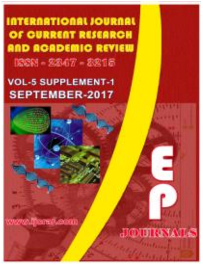

Invited Abstracts ***IJCRAR/OP/89***

Effect of Application of *Psuedomonas spp* on Plant Growth and Study of Soil Parameter

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Abstract

Microorganisms have the ability to carry out significant transformation and serve as the source and sink of nutrients. The use of nitrogen fixing bacteria is increasingly being advocated to maintain high agricultural productivity. In the present study, 15 soil samples were taken from different fields and 5 isolates of *Pseudomonas* were obtained. Isolate 3 was selected for further study. Test for soil parameters such as soil moisture, pH was carried out followed by mass cultivation of *Pseudomonas* which was bacterized on to host seeds, such as tomato, brinjal ,and palak. These seeds were sown and germination time and plant growth parameters such as number of leaves, root length and shoot length were assessed. Palak was found to be the fast grower and had highest levels of plant growth parameters followed by tomato, chili and brinjal. Test for soil fertility such as organic carbon and NPK were performed to estimate the potency of the isolate to form a good bioferilizer. Palak soil had highest rates of organic carbon, nitrogen, phosphorus and potassium levels.

Keywords: biofertilizers, *Pseudomonas*, biotransformation, crop productivity

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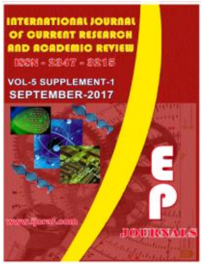

Invited Abstracts **IJCRAR/OP/90**

Arabidopsis thaliana in Climatic Changes

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Abstract

Increased global warming in the recent years have motivated the scientists to perform research on drought resistant plants. In Chye lab at Hong Kong University they has identified a gene from the model plant *Arabidopsis thaliana* which encodes an acyl-CoA binding protein. The gene is designated as ACBP2 can confer drought tolerance in transgenic *Arabidopsis*. Over expression of ACBP2 in these transgenic lines promoted stomatal closure, reduced water loss and enhanced drought tolerance. These results in the growth of plant even in drought condition and gives increased yield of crops and plants which benefits the farmers.

Keywords: *Arabidopsis thaliana*, acyl CoA binding protein, ACBP2

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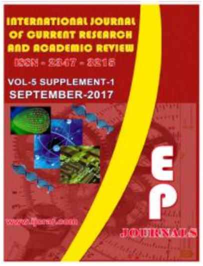

Invited Posters ***IJCRAR/PP/01***

When Oncogenetics and Molecular Virology Converge

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Abstract

Around 12% of Human cancers have a viral etiology, which when coupled with carcinogenic cofactors and defective immune response contributes to tumor formation. Oncoviruses have been known to induce malignancy by direct means of stimulation of cell proliferation and inhibition of apoptosis or by indirect means such as inducing chronic inflammation, alteration of immune response, accumulation of mutations and chromosomal alterations. Mechanism of Viral Oncogenesis has been well-studied in major oncoviruses such as EBV, HPV, HBV, HTLV and KSHV. For their sustained growth, viruses evade host immune response by adopting a number of strategic mechanisms. This could be observed and detected through several viral diagnostic tools like NAAT, NGS, MS and immunoassays, with greater efficiency and rapidity. Recent advances and discovery of antiviral drugs, which are used as prophylactic or preemptive approaches, show a greater potential in reduction of cancer incidence.

Keywords: oncoviruses, cancers, etiology

EXCELLENT PUBLISHERS

International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 5 Supplement 1 (September-2017)

Journal home page: http://www.ijcrar.com

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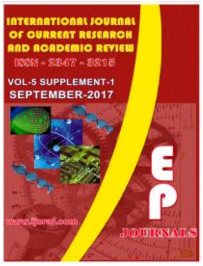

Invited Posters ***IJCRAR/PP/02***

Ebola Virus Disease: Essential Clinical Knowledge on Manifestation and Diagnosis

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Abstract

Ebola virus disease, a haemorrhagic fever is more of concern these days due to its largest outbreak began in West Africa in 2014. It has proven more deadly, severe and wide spread than previous outbreaks. Unlike other types of viruses, Ebola can be transmitted by direct contact with the bodily fluids of infected person or animal. Symptoms may appear anywhere from 2 to 21 days after exposure to Ebola showing fatigue, muscle pain, unexplained bleeding or bruising, vomiting, stomach pain, diarrhea and headache. The development of rapid diagnostic tests has accelerated in the face of the West Africa outbreak. Several therapeutic agents and vaccines for Ebola viral disease have been developed and are undergoing evaluation. Further research is being done to help prevent future outbreaks.

Keywords: deadly virus, transmission, symptoms, diagnosis, therapeutic agents, vaccines and prevention

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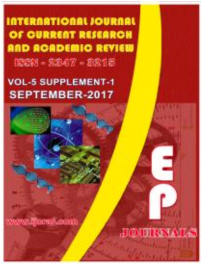

Invited Posters **IJCRAR/PP/03**

Recent Methodologies in Biomolecular Research

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Abstract

Biomolecular Research provides a wide range of research in analyzing biomolecules which includes both macro and micro molecules. In order to emulate the real biological systems, interactions should be explored using the analytical techniques useful for impurity profiling, maintenance of human welfare and development. Recent methodologies like KSV NIMA, Gas Chromatography-Mass Spectrometry (GC-MS) and Strep-Tag Technology are used for the Biomolecular studies and will be presented. Creating and characterizing thin films is the specialty of KSV NIMA. One of the key applications is to create extremely controlled nanoparticle layers with specified packing density and thickness. Gas Chromatography–Mass Spectrometry (GC-MS) is a hyphenated analytical technique that combines the separation properties of gas-liquid chromatography with the detection feature of mass spectrometry to identify different substances within a test sample. The Strep-tag is a short peptide sequence that displays moderate binding affinity for the biotin-binding site of a mutated streptavidin molecule, called Strep-Tactin. For the Streptamer technology, the Strep-Tactin molecules are multimerized and form the "backbone", thus creating a platform for binding to strep-tagged proteins. These methods are successful in screening drugs, environmental monitoring, food processing etc and can be explored for better prospects in future.

Keywords: spectrometry; nano-particle layers; mutated streptavidin molecule

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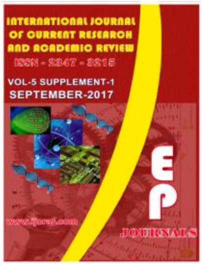

Invited Posters ***IJCRAR/PP/04***

Development of Phytochemical Profile and Assessment of Safety Parameters for a Polyherbal Formulation—RPVLE-01

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Abstract

India is known for its traditional medicinal systems- ayurveda, siddha and unani. Medical systems are found mentioned even in the ancient Veda's and other scriptures. Food is the major source for serving the nutritional needs, but with growing modernization some traditional methods are being given up. Hence, the modern food habits are affecting the balanced nutrition. People are using herbal medicines from centuries for safety, efficacy, cultural acceptability and lesser side effects. Plant and plant products have utilized with varying success to cure and prevent diseases throughout history. In this study a polyherbal drug was formulated using the extracts of *Aegle Marmelous* fruit, *Elettria Cardamom Maton*, *Rosa x damascene*, *Licorice*, *Citrus × aurantifolia*. Phytochemical screening and microbial test and heavy metal test was performed and results were obtained. The presence of organic compounds was identified by performing GCMS and LCMS tests. Further study will be carried out in animal studies.

Keywords: spectrometry; nano-particle layers; mutated streptavidin molecule