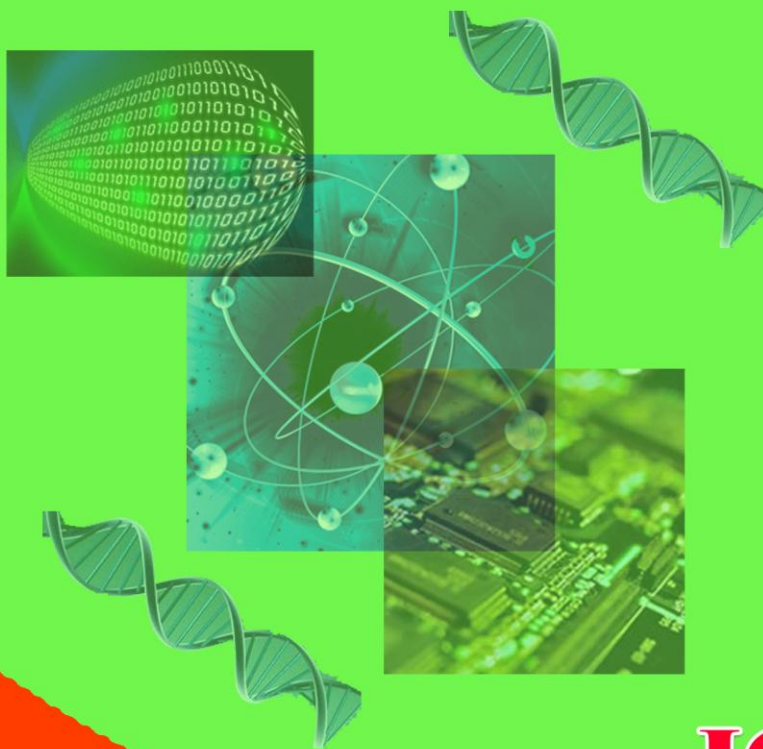


# INTERNATIONAL JOURNAL OF CURRENT RESEARCH AND ACADEMIC REVIEW

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JOURNALS

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**INTERNATIONAL CONFERENCE**  
**ON**  
**“MODERN DIAGNOSTIC TOOLS**  
**IN HEALTH SCIENCE”**  
**(IJCRAR 2016)**

**ABSTRACT PROCEEDINGS**



**Organised by**

Departments of Microbiology, Biochemistry,  
Bioinformatics and Clinical Trial Management

Dr. MGR Janaki College of Arts and Science for Women

“Sathyabama MGR Maligai” 11 & 13, Durgabai Deshmukh 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 Ratna Dr. M.G. Ramachandran and his wife Smt. Janaki Ramachandran. The college has been functioning effectively under the aegis of the correspondent Dr.Smt .Latha Rajendran. 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**

- Patron:** **Dr. Latha Rajendran,**  
Correspondent, Dr. MGR Janaki College for Women
- Convener:** **Dr. R. Manimekalai,**  
Principal, Dr. MGR Janaki College for Women
- Advisors:** **Dr. Lakshmi Balaji**  
Vice-Principal, Dr. MGR Janaki College for Women  
**Dr. V.C. Shanthi Lakshmi**  
Dean-Academics, Dr. MGR Janaki College for Women  
**Dr. Apitha Sababathy**  
Dean-Students, Dr. MGR Janaki College for Women
- Co-Conveners:** **Dr. P. Sumithira**  
Head, Department of Microbiology, Dr. MGR Janaki  
College for Women  
**Mrs. Victoriya Salomi**  
Head, Department of Biochemistry & Bioinformatics,  
Dr. MGR Janaki College for Women
- Editorial Board:** **Mrs. V. Nithyakalyani**  
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Dr. MGR Janaki0020College for Women  
**Mrs. G. Shoba**  
Assistant Professor, Department of Biochemistry &  
Bioinformatics, Dr. MGR Janaki College for Women

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#### **Department of Biochemistry & Bioinformatics**

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Ms. S. Deepa  
Dr. K. Vijayalakshmi  
Ms. B. Brindha Banu  
Ms. G. Shoba  
Dr. M. Durga  
Dr. N. Vijayalakshmi



# Dr. MGR JANAKI

## College of Arts and Science for Women

"Excellence Through Diligence"



**Dr. Latha Rajendran**  
Correspondent

### **MESSAGE FROM THE CONVENER**

I would like to congratulate the Departments of Microbiology, Biochemistry, Bioinformatics and Clinical Trial Management – the organisers of the International Conference on '**Modern Diagnostic Tools in Health Science**'. This is a premier event that provides the platform for students, Industrialists, Researchers and Teachers to discuss the growth strategies in bioscience research.

Changes in clinical diagnosis over the past century have been prompted by a change in clinical needs. As new molecular diagnostic assays for infectious diseases have become viable options to address current clinical needs, microbiologists and biochemists now face the challenge of leaving the comfort zone of traditional techniques and this will lead to the understanding of newer technologies and innovations.

I hope that this Conference will reach a successful outcome as expected and wish them good luck in their endeavour.



## MESSAGE FROM THE PRINCIPAL



The advent of high-throughput nucleic acid extraction systems over the past decade has complimented the development of both direct nucleic acid detection platforms and next-generation sequencing initiatives in diagnostics. As infectious disease testing transitions to highly multiplexed tests, next-generation sequencing has made workflow substantially easier and orders of magnitude faster, greatly accelerating medical research applications.

Eventually, mechanization of analytical techniques gave way to automation with the introduction of sophisticated equipments. There is no denying that the ability to respond quickly to the ever-changing clinical needs of patients today can be achieved quite eloquently by modern molecular diagnostic methods. It is logical therefore that this evolution will continue for disease diagnosis, as evidenced by the tremendous progress made in clinical diagnostics in the last several years.

Most importantly, they have given clinical microbiologists and biochemists the tools to view their world from a new vantage point and contribute to the well-being of patients in a way that is simply not possible using traditional techniques alone.

I congratulate the staff and students for their contributions towards the journal. I wish them good luck in their endeavours.

My heartfelt wishes to the enthusiastic team of international conference on “Modern Diagnostic Tools in Health Science” organised by the departments of Microbiology, Biochemistry, Bioinformatics and Clinical Trial Management.

**Dr. R. Manimekalai**

## MESSAGE FROM THE ADVISORS



**Dr. Lakshmi Balaji**  
**Vice-Principal**



**Dr.V.C. Shanthi Lakshmi**  
**Dean-Academics**



**Dr. Apitha Sababathy**  
**Dean-Students**

Diagnosis has always been significant as the very basis of attacking a problem at its root. Today, with advanced technology and medical facilities, early and accurate diagnosis can prolong life and alter the quality of life as well. Much as it can be empowering, diagnosis is a challenging and collaborative process. The International Seminar on “Modern Diagnostic tools in Health Science organized by the Departments of Microbiology, Biochemistry and Bioinformatics and Clinical Trial Management, will definitely throw more light on these and associated issues. Lectures by academic and professional experts will be eye openers to scholars of several disciplines like science, math, engineering and other fields involved in these studies. We congratulate the organizers and wish the participants a healthy intellectual engagement on 22<sup>nd</sup> and 23<sup>rd</sup> August 2016.



**Gowrisankar Rajam, Ph.D**  
**Division of Bacterial Diseases**  
**Centers for Disease Control and Prevention**  
**Atlanta GA 30329 USA**

### **MESSAGE**

I am happy to note that the Departments of Microbiology, Biochemistry & Bioinformatics and Clinical Trial Management, Dr. MGR Janaki College of Arts & Science for Women, R.A. Puram, Chennai are organizing an International Conference on “Modern Diagnostic Tools in Health Science” at Chennai on 22 and 23<sup>rd</sup> August 2016. In 1928, with the landmark discovery of ‘Penicillin’ by Sir Alexander Fleming, the scientific community was preparing to declare that bacterial diseases are conquered! Didn’t happen! Even though public health had crossed several milestones in the field of infectious diseases; eradication of small pox and near eradication of polio, we face challenges from new and smarter infectious agents and non-infectious diseases. Many of these so called new diseases are not really new as the archives indicate similar symptomology decades or centuries ago. But the explosive development and open minded integration of physical, chemical and biological sciences has culminated in the development of new, rapid, sensitive and reliable diagnostic tools. This has made it possible to detect hitherto evasive diseases and paved way for the development of prophylactic and therapeutic strategies. Effective and smarter diagnostics tools are certainly one of the critical reason for ever increasing life span of living beings. Just an example; to diagnose and select an antibiotic for a simple Streptococcal infection, it would normally take 2 to 3 days; throat swab, culture, MIC testing and if needed serology. Now for strep throat, a throat swab and in few minutes while we send couple of WhatsApp images of the clinic, get the word and if needed the prescription for the antibiotic! The power of rapid diagnosis! Early and accurate diagnosis is the key to successful combat of Infectious/non-infectious diseases. While we have made tremendous progress in integrating various omics; microbiome, metabolome, genome, proteome etc., to address public health challenges most of these developments are confined to western world. The cost and regional logistical challenges are some of the reasons that has impeded the expansion of these tools to developing and underdeveloped



countries. Non-availability of tools and need for new tools to detect exotic regional diseases necessitates new regional initiatives to develop custom made diagnostic tools. This can be construed as an attempt of self-reliance or developing cost effective techniques for global outreach. Either way, new diagnostic tools need to be developed either with the use of existing platform or develop indigenous ones. Considering the breadth and depth of intellect, India should be the cauldron for new ideas and approaches for cost effective, rapid and reliable diagnostic tools. A conference of this magnitude provides a platform for healthy exchange of ideas and opens up opportunities for collaborations. I am optimistic that this conference will also serve as a catalyst bringing together, the academia, research institutions, industry and the regulatory agencies where they can be mutualistic with the mankind being the ultimate beneficiary. Let us remember that this earth is not what we leave behind to the next generation but we have borrowed from them. So let us strive towards a 'Disease free World'.

My best wishes for the success of this ambitious Conference.

With Best wishes,

Gowrisankar Rajam



**Professor Dr. D.C. Mathangi, Ph.D,**  
**Department of Physiology,**  
**Chettinad Hospital & Research Institute Research**  
**Co-ordinator,**  
**Chettinad Academy of Research and Education,**  
**Kelambakkam**

### **MESSAGE**

I am immensely happy that Dr.MGR Janaki College of Arts and Science for Women is organizing the “International Conference on Modern Diagnostic Tools in Health Sciences” on the 22<sup>nd</sup> and 23<sup>rd</sup> August 2016.

I commend the organizers (Departments of Microbiology, Biochemistry and Bioinformatics) for their efforts and zeal to cater a unique opportunity of brining the budding young students and research scholars through their free paper sessions and speakers of eminence both from abroad and India on the same platform. Conferences of such nature provide a great opportunity to faculty, students and research scholars, not only to update knowledge and keep abreast with latest developmental scenario in their areas of research from experts in the field, but also an occasion to for intellectual interactions and exchange of ideas.

I convey my deep appreciation to the participants and organizers and also wish the Conference a grand success.

A handwritten signature in dark ink, appearing to read "D.C. Mathangi". The signature is written in a cursive style.

***Dr..D.C.Mathangi***

## MESSAGE FROM THE ORGANISING SECRETARIES



**Dr. P. Sumithira,  
Head,  
Dept. of Microbiology**

**Mrs. M. Victoriya Salomi,  
Head,  
Dept. of Biochemistry, Bioinformatics  
and Clinical Trial Management**

On behalf of the organizing Committee, we feel happy to organize the International Conference on '**Modern Diagnostic Tools in Health Science**'. 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 “Modern Diagnostic Tools in Health Science”

**IJCRAR 2016**

**22 & 23 August 2016**

## SPECIAL LECTURES

S.NO	INVITED SPEAKER	TITLE
IJCRAR/PL/01	<b>Dr. S. Gokul Shankar</b> Associate Professor, Microbiology Unit, Deputy Dean-Students and Alumni, AIMST University, Malaysia	The Key to the Diagnosis of Superficial Fungal Infections
IJCRAR/PL/02	<b>Dr. K. Padmavathy</b> Associate Professor, Department of Microbiology Sree Balaji Dental College and Hospital Bharath University, BIHER, Chennai	Molecular Techniques in Diagnostic Microbiology – An Update”
IJCRAR/PL/03	<b>Mr. Suresh Chandrasekaran</b> Vice President, Strategic Marketing and Knowledge Management, CPC Diagnostics Private Limited, Chennai	In Vitro Diagnostics - Past, Present & Future
IJCRAR/PL/04	<b>Dr. P. K. Rajesh</b> Professor and Head of Microbiology, Head of Medical Educational Unit, Faculty of Medicine, AIMST University Malaysia	Advanced Techniques in Diagnostic Medicine

## INVITED ABSTRACTS (ORAL PRESENTATION)

Abstract No.	Author(s)	Title of the paper
IJCRAR/OP/01	Victoriya Salomi M, Manimekalai R and Shoba G	Comparative <i>In Silico</i> Docking Analysis of Phytochemicals from <i>Murraya koenigii</i> and Commonly used Drugs in the Treatment of Cancer
IJCRAR/OP/02	Sumithira P, Sunitha L and Divya M	Isolation and Identification of <i>Malassezia Species</i> From Dandruff Samples and Evaluation of the Efficacy of Three Commercially Available Anti-Dandruff Oils
IJCRAR/OP/03	Premila J, Logeshwari S and Shanmuga Priya G	<i>In Silico</i> Molecular Docking of STAT3 Protein with Bioactive Compounds from <i>Costus igneus</i> against Hepatocellular Carcinoma
IJCRAR/OP/04	Lakshmi Priya D, Geetha, Gayathri K and Aruna S	Standardisation of Fermentation Parameter for Production of Detergent Resistant Protease from <i>Vibrio</i>
IJCRAR/OP/05	Razia Muthusamy, Padmini R, Roopavahini V and Sai Aruna S	Molecular Docking Studies of Allylsulfur Compounds from <i>Allium sativum</i> against EGFR receptor
IJCRAR/OP/06	Sumithra P, Rashika R and Kaarkuzhali KE	Citric Acid Production from Whey with Sugars and Additives by <i>Aspergillus niger</i> MTCC 128
IJCRAR/OP/07	Deepa S, Deepika R and Nandhini S	<i>In-Silico</i> Screening of Novel Urec Inhibitors From <i>Eupatorium odoratum</i> Using Molecular Docking Study
IJCRAR/OP/08	Aswini L, Rekha V, and Hemalatha P	Comparative Studies on Microbial Pectinases Isolated from Soil
IJCRAR/OP/09	Brindhya Banu B, Tobika R and Santhi S	<i>In-Silico</i> Approach to Predict the Antifungal Activity of Compounds from <i>Moringa concanensis</i> Nimmo against Flavohemoprotein (YHB1)
IJCRAR/OP/10	Vidhyalakshmi R, Geetha M, Yuvarani B and Bharathi KM	Bacteriology of Diabetic Foot Ulcer
IJCRAR/OP/11	Shoba G, Kalaivani N, Viji Varghese and Sofiya M	Motif and Evolutionary Analysis of Chitinase –An <i>In Silico</i> Approach
IJCRAR/OP/12	Krishnaveni G, Vijayalakshmi K, Swathi	Assessment of Microbial Flora on Banknotes and the Effect of Instant Hand Sanitizers



	<b>A and Sharumathi S</b>	
<b>IJCRAR/OP/13</b>	<b>Durga M, Shoba G and Sofiya M</b>	<b>Insights into Quercetin for Its Antitoxic Activity from Molecular Docking Studies</b>
<b>IJCRAR/OP/14</b>	<b>Neenapriya J, Matilda selvarani S, Revathi S and Wagheedha J</b>	<b>Antibacterial Activity and Phytochemical Screening of Leaf Extracts of Medicinal Plants against Wound Pathogens</b>
<b>IJCRAR/OP/15</b>	<b>Victoriya Salomi M, Shoba G, Aishwarya and Saranya</b>	<b>Comparative <i>In-Silico</i> Docking Analysis of SOD1 against Natural and Synthetic Antioxidant</b>
<b>IJCRAR/OP/16</b>	<b>Nithyakalyani V, Sajitha kumari TV and Jeeba</b>	<b>Effect of Application of Pseudomonas species on Plant Growth and Study of Soil Parameters</b>
<b>IJCRAR/OP/17</b>	<b>Keerthana PM, Shoba G and Padmini R</b>	<b>Screening of Novel MAPK Inhibitor from Ethanolic Extract of Stem of <i>Leucas aspera</i> (Thumbai) using GCMS and <i>In Silico</i> Analysis</b>
<b>IJCRAR/OP/18</b>	<b>Nithyakalyani V, MerlineJoseph, Vinitha S and Nirmala devi VJ</b>	<b>A Study on Endophytic Mycoflora of <i>Leonotis neptaefolia</i> Linn and its Antimicrobial Potency</b>
<b>IJCRAR/OP/19</b>	<b>Dharani Bala M, K. Vijayalakshmi and N. Vijayalakshmi</b>	<b>GCMS and Molecular Docking Analysis of Leaves of <i>Plectranthus amboinicus</i> (Karpuravalli) against Anti-Inflammatory and Anti-Bacterial Drug Targets</b>
<b>IJCRAR/OP/20</b>	<b>Aswini L, Sathiya E and Thenmozhi M</b>	<b>18S rRNA Sequence Analysis of <i>Rhinochadiella</i> species from Compost Soil</b>
<b>IJCRAR/OP/21</b>	<b>Keerthana T, Premila J and Brindha Banu B</b>	<b>In Silico Docking Studies on Anti-Inflammatory Compounds of <i>Premna integrifolia</i> (Munnai) Leaves by Using GC-MS Analysis of Ethyl Acetate Solvent</b>
<b>IJCRAR/OP/22</b>	<b>Sumithra P, Bharathy B and Vijila V</b>	<b>Analysis of Different Composts and its Effect on Plant Growth and Soil Microorganism</b>
<b>IJCRAR/OP/23</b>	<b>M. Victoriya Salomi, Shoba G, Banu M and Elavarasi V</b>	<b><i>In Silico</i> Docking Analysis Of Natural Antioxidant From <i>Murraya koenigii</i> And Butylated Hydroxyanisole</b>
<b>IJCRAR/OP/24</b>	<b>BanuRekha C, Divya and Rajalakshmi</b>	<b>Screening of Soil Actinomycetes for Enzyme Activity and for its Metal Tolerance</b>
<b>IJCRAR/OP/25</b>	<b>Narmatha M, Durga M</b>	<b>GCMS and Molecular Docking Analysis of Fruit of <i>Abutilon indicum</i> (Thuthi) Methanolic Extract</b>

	and Vijayalakshmi K	for Its Anti-Diabetic and Anti-Inflammatory Activity
IJCRAR/OP/26	Vidhyalakshmi R, Bharathy B, Meenakshi	Effects of Environmental Factors on Biofilm Formation
IJCRAR/OP/27	Nazia Thasneem HS, Shoba G, and Padmini R	Identification of Biomarkers of Lung Cancer Using Microarray Data Analysis
IJCRAR/OP/28	Lakshmi Priya D, Nishanthi and Hazeena	Effects of Seed Dressing of <i>Bacillus</i> species, Isolate from Sugarcane Field and Study on Plant Growth Parameters
IJCRAR/OP/29	Udhaya Nila A, Victoriya Salomi M and Deepa	<i>In Silico</i> Comparative Analysis of Metabolic Pathways to Find Out Novel Drug Targets of <i>Helicobacter Pylori</i> and Docking Analysis Against Eugenol
IJCRAR/OP/30	Aswini L, Jothikodi, Renugambal and Bhavani	Isolation and Screening of Marine <i>Actinomycetes</i> for Biosurfactants
IJCRAR/OP/31	Premila J, Shanmuga Priya G and Logeshwari S	Molecular Interaction Analysis between IFN-alpha and Anti-Inflammatory Compounds from <i>Cassia auriculata</i> Leaves
IJCRAR/OP/32	BanuRekha C, Sunitha and Mohana Deepa	A Study on Contamination of Microbial Bodies in Bottled Mineral Water
IJCRAR/OP/33	Brindha Banu B	<i>In-Silico</i> Proteomic Analysis of IGFBP1 in Polycystic Ovarian Syndrome
IJCRAR/OP/34	Banu Rekha C and Uma Maheswari	Antibacterial Activity of Honey against Wound Isolates
IJCRAR/OP/35	Vijayalakshmi N	<i>In Vivo</i> Antioxidant Activities of Methanolic Extract of <i>Evolvulus alsinoides</i> (Linn.)
IJCRAR/OP/36	Aswini L, Krithika J and Sarojini V	Herbal Antibacterial Liquid Soap Development against Bacteria Causing Skin Diseases
IJCRAR/OP/37	Brindha Banu B, Santhi S and Tobika R	<i>In silico</i> Docking Analysis Of Bioactive Compounds From <i>Moringa concanensis</i> Nimmo Against MabA (Fabg1) Protein To Predict It Antibacterial Activity
IJCRAR/OP/38	Aswini L, Krithika J and Divya R	Biodegradation of Phenol and Toluene by <i>Staphylococcus</i> species, <i>Pseudomonas</i> species and <i>Bacillus</i> species, Isolated from Pharmaceutical Industrial Effluent
IJCRAR/OP/39	Divya I, Padmini R and Brindha Banu B	<i>In Silico</i> Docking Analysis of Compounds of <i>Aloe vera</i> against Drug Target of Psoriasis
IJCRAR/OP/40	Vijayanandhini, Sathya, Swetha and Muthumeena	Panchakavya – Organic Growth Promoter and its Effect on Tomato Plant

IJCRAR/OP/41	Lakshmi K, Shoba G and Premila J	Molecular Docking Studies on Anti-Inflammatory and Anticancer Compounds of <i>Cassia Auriculata</i> (Avaram)
IJCRAR/OP/42	Matilda Selvarani S, Nandhini D and R. Bhuvaneshwari	Degradation of cellulose using intestinal flora of silkworm
IJCRAR/OP/43	Padmini R	<i>In Silico</i> Comparative Analysis of Natural and Commercial Drug Against Protein-Tyrosine Phosphatase 1B (PTP1B)
IJCRAR/OP/44	Thenmozhi P and Dr. TV Poonguzhali	GC-MS Analysis of Ethanolic Extract of <i>Borerriahispida</i> L. and In-Silico Analysis against Breast Cancer Targets
IJCRAR/OP/45	Ravanappan Srinivasan Ramya, Manickam Akila, Selvakumar Dharmaraj and Durairaj Rajadurai	Comparative Analysis of Biosorption of Arsenic Onto Acid and Alkali Treated Sugarcane Waste Bagasse
IJCRAR/OP/46	Selvakumar Dharmaraj, Ravanappan Srinivasan Ramya, Manickam Akila, Jeevitha Ramanan and Elango Jothimani	Biosynthesis of Silver Nanoparticles Using Extracellular Filtrate of Marine Bacteria and Its Antimicrobial Activity
IJCRAR/OP/47	ManickamAkila, Ravanappan Srinivasan Ramya, and Puthur George Stella	Association of IGF2BP2 Gene Polymorphism on Type 2 Diabetes: A Case Control Study on Chennai Population
IJCRAR/OP/48	C Pushpanjali	Leptin and Its Relation to Body Mass Index—A Review
IJCRAR/OP/49	Dr. DS Pushparani	Serum Zinc and Lysosomal Enzyme Levels in Type 2 Diabetes Mellitus with Periodontitis
IJCRAR/OP/50	Uma Mahewari M, Reena R and Paul Beulah BF	Antibacterial Activity of Marine Algae against Clinically Relevant Bacterial Strains
IJCRAR/OP/51	J. Vennila and Dr. Padmavathi Sriram	Effect of <i>Allivum sativum</i> and <i>Zingiber officinale</i> on Drug Resistant Pathogenic Bacteria
IJCRAR/OP/52	Nagalakshmi PK and Prakash M	A Microcosm Study of Vermicomposting of <i>Perionyx ceylansis</i> in the Gut and Cast Using Different Substrates
IJCRAR/OP/53	Dr. Weslen S	Radiopaque Fibrin Nanocomplex for Tumour

	Vedakumari	Diagnosis
IJCRAR/OP/54	Srimathi priyanga K and Dr. K Vijayalakshmi	Effect of Quercetin and Hesperidin on Rotenone induced SH-SY5Y Cell Line—A Preliminary Investigation
IJCRAR/OP/55	Rohini D and Vijayalakshmi K	Neuroprotective Effect of Sesamol on Rotenone-Induced SH-SY5Y Cells Related to Parkinson's Disease
IJCRAR/OP/56	Priya S and Anandhi D	Cytotoxicity and Genotoxicity Activities of Green Synthesized Silver Nanoparticles of Ethanolic Leaf Extract of <i>Caesalpinia coriaria</i> (JACQ) Willd against Human Breast Carcinoma Cells
IJCRAR/OP/57	D. Bommy and Dr. S. Kavitha Maheswari	Preserved Products From Mango ( <i>Mangifera indica</i> ) and Its Financial Analysis & Beneficiaries Cost Ratio
IJCRAR/OP/58	Bommy D and Dr. S. Kavitha Maheswari	Promotion of Millet Cultivation Through Consumption
IJCRAR/OP/59	Bommy D and Dr. Kavitha Maheswari S	Prevention of Post-Harvest Loss Through Demonstration ON Preservation Technology of Fruits and Vegetables to Farmers
IJCRAR/OP/60	Gayathri Gururajan, Sanchita Nath, and Kathireshan AK	Smart Phones—A Stay House for Multidrug Resistant Bacteria in Community Settings
IJCRAR/OP/61	Shahira Banu DA and Karpagam S	Studies on Total Phenol Content, Total Flavonoid and Antioxidant Activity of <i>Salacia chinensis</i> Stem Extract
IJCRAR/OP/62	Manickam Akila, Ravanappan Srinivasan Ramya, Selvakumar Dharmaraj, Dhanasekaran Kalavani and RavindranPragathi	Effect of Salt And Ozone Stress on Cowpea ( <i>Vigna unguiculata</i> (L.) Walp.) Secondary Metabolite Production
IJCRAR/OP/63	MF. Yasmeen and Saboor A	The Capability of Harpacticoid Copepods to Gulp Down Bacteria as Food
IJCRAR/OP/64	Jaishree, Thasneem Ayesha and Ushasri R	A Study on Extracts of <i>Cistus incanus</i> against Drug Resistant HIV and Ebola Virus
IJCRAR/OP/65	Varshaa M, Yarifa and AnuSwedha A	Battle against the Bacteria—Conquest with Essential Oils

IJCRAR/OP/66	Ramya R and Valli S	Production of Biopolymer—Poly- $\beta$ -Hydroxybutrate (PHB) by <i>Azotobacter</i> Species using Agro-Industrial Wastes
IJCRAR/OP/67	Maniraj A, Rajarathinam K, Muthuram Kumar S, and Kannan M	Drug resistance Patterns Analysis of Biofilm Forming Bacteria Isolated from Clinical Specimens
IJCRAR/OP/68	Kalpana B and Dr. Prakash M	Antifungal Activity of Leaf and Stem Extracts of <i>Euphorbia heterophylla</i> and <i>Tamilnadia uliginosa</i>
IJCRAR/OP/69	Lalithasree T and Dr. K. Vijayalakshmi	Preliminary Investigations on the Physicochemical, Nutritive Value and Phytochemical Screening in the Leaves of <i>Alternanthera sessilis</i>
IJCRAR/OP/70	CS Arunaman, C Jayanthi and Cecilia Joseph	A Report on Ampicillin Resistant <i>Streptococcal Mastitis</i> in a Dairy Cow
IJCRAR/OP/71	Jayanthi C, Nagarajan B and Cecilia Joseph	Occult <i>Microsporium Canis</i> Infection in a Persian Kitten
IJCRAR/OP/72	Banurekha C, Girija D, Muthunagai M	Isolation of Lignolytic and Phosphate Solubilizing Fungal Species from Municipal Solid Waste
IJCRAR/OP/73	Ramya Anadhan, Rajamani M, Minorose C	Screening of Antifungal Lactic Acid Bacteria with Potential to Prolong Shelf-Life of Fresh Vegetables
IJCRAR/OP/74	Vijayanandini G, Renuka G and Bharathy B	Composting of Bio waste by Proteolytic Bacteria and its Effect on Plant Growth
IJCRAR/OP/75	Nithyakalyani V, Sivashankari S and Dhivyabharathi M	A Study on the Bacterial load in Packed Food Products in and around Chennai
IJCRAR/OP/76	Krishnaveni G, Bincy and Divya	Production of Bio surfactant by <i>Pseudomonas species</i> from petroleum degraded soil
IJCRAR/OP/77	Vidhyalakshmi R, Remya R and Meenakshi S	Effects of environmental factors on Biofilm formation
IJCRAR/OP/78	Neena Priya J, Kalpana R and Murugeswari A	A study on amylase producing <i>Lactobacillus species</i> from dairy products
IJCRAR/OP/79	Lakshmi Priya D, Hema, Nishanthi and Haseena Parveen	Effects of Seed dressing of <i>Bacillus Species</i> , Isolated from Sugarcane Field and Study on Plant Growth Parameters
IJCRAR/OP/80	Banurekha C, Jothikodi A, Renugambal K and	Isolation and Screening of Marine <i>Actinomycetes</i>



	<b>Bhavani.K</b>	<b>for Biosurfactants</b>
<b>IJCRAR/OP/81</b>	<b>Banurekha C, Jayashanthi J, Sharmila S and Shaheda Thabasoom.S</b>	<b>Microbiological Analysis of Fresh Fruits and Vegetables and the Effect of Anti microbial Agent on Microbial load</b>
<b>IJCRAR/OP/82</b>	<b>Banurekha C, Charumathi R, Sunitha CN and Mohana Deepa G</b>	<b>A Study on Contamination of Microbial Bodies in Bottled Mineral Water</b>
<b>IJCRAR/OP/83</b>	<b>Banurekha C, Revathy J Tamilarasi N and Hemamalini B</b>	<b>Comparison of Total Microbial Count Sample from Various Sources</b>
<b>IJCRAR/OP/84</b>	<b>Sumithira P, Nithyakalyani K, Thulasi Meenakshi R and Vijila V</b>	<b>Analysis of Different Composts and its Effect on the Plant Growth and Soil Microorganisms</b>
<b>IJCRAR/OP/85</b>	<b>Neenapriya J, Merline Joseph, Kalpana KR and Preethi K. Varma</b>	<b>Study of Enzymatic and Biochemical Aspects of Wild Strains of Biodegradable Polyethylene Degrading Microorganisms Isolated from Municipal Waste Treatment Plant</b>
<b>IJCRAR/OP/86</b>	<b>Ravi Shankar N and Dr. Prakash M</b>	<b>Identification of <i>Candida species</i> in urogenital infection of women</b>
<b>IJCRAR/OP/87</b>	<b>Umadevi KJ</b>	<b>Inhibitory Effects of <i>Alternanthera sessilis</i> (L.) against MDR pathogens</b>
<b>IJCRAR/OP/88</b>	<b>Aruna R and Dr. Prakash M</b>	<b>A Comparative Study: Tourniquet Test And Hematocrit A Diagnostic Tool For Dengue Fever</b>

## INVITED ABSTRACTS (POSTER PRESENTATION)

Abstract No.	Author(s)	Title of the paper
IJCRAR/PP/01	Archana I and Vijayalakshmi K	Anti Obesity Potential of Ethanolic Root Extract of <i>Glycyrrhiza glabra</i> by Down Regulation of MAPKs and STAT-3 in 3T3L1 Cell Line
IJCRAR/PP/02	Uma Mageshwari R, Sharanya Manoharan, MahendranRadha, Jeyabaskar Suganya and Anbarasu Krishnan	An <i>In Silico</i> Determination of Drug-Like Molecules from Plant Source to Treat Leprosy- A Neglected Tropical Infectious Disease of India
IJCRAR/PP/03	Hubert J, Anbarasu Krishnan, Mahendran Radha, Jeyabaskar Suganya and Sharanya Manoharan	Differential Gene Expression of Normal and Malarial Microarray Dataset - An <i>In Silico</i> Approach
IJCRAR/PP/04	Lakshmi Narayanan S, Jeyabaskar Suganya, Mahendran Radha, Sharanya Manoharan and Anbarasu Krishnan	Molecular Docking Analysis of Phyto-Compounds from <i>Hypericum mysorensense</i> , <i>Cryptostegia grandiflora</i> and <i>Tagetes minuta</i> for HSV-1 Viral Infection
IJCRAR/PP/05	Sharathkumar RM, Saravanan S, Mahendran Radha, Sharanya Manoharan, Jeyabaskar Suganya and Anbarasu Krishnan	<i>In silico</i> Virtual Screening of Plant Constituents from <i>Withania somnifera</i> (Ashwagandha) Against Bacterial Infections
IJCRAR/PP/06	Uma Devi KJ and Sasikala S	<i>In vitro</i> Assessment of Antimicrobial Activity of <i>Citrus limon</i> (L.) Leaves
IJCRAR/PP/07	Nagalakshmi K and Uma Maheshwari N	TRAP Staining as a Diagnostic Tool in Bone Health Research
IJCRAR/PP/08	Shoba G, Saranya N, and Aishwarya R	Molecular Analysis of Phylogentic Tree in GPER using MEGA
IJCRAR/PP/09	Deepa S, Nandhini S, and Deepika R	Molecular Modelling and Docking Studies of Anthraquinones from <i>Cassia siamea</i> against AGTR2 Inducing Type II Diabetes
IJCRAR/PP/10	Shoba G, Elavarasi V, and Banu M	<i>In Silico</i> Protein Structure Prediction and Docking Analysis of COX-1 with Anti-Ulcer Compounds
IJCRAR/PP/11	Padmini R, Sai Aruna S, Roopavahini V	<i>In Silico</i> Homology Modeling of EML4-ALK from <i>Homo sapiens</i> Using Modeller 9.14
IJCRAR/PP/12	Vijayalakshmi N, Viji Varghese and Kalaivani N	Docking analysisof quercetin and nimbin as Cox-2 inhibitor
IJCRAR/PP/13	Divya V, Joy Sebastian Prakash. J and	Quantitative assessment of Hippocampal and Corpus Callosum Volumes for Clinical Staging in

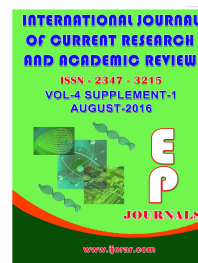
	<b>Karunanithi Rajamanickam</b>	<b>Alzheimer's Disease (AD)</b>
<b>IJCRAR/PP/14</b>	<b>Jayalakshmi A, Joy Sebastian Prakash. J and Karunanithi Rajamanickam</b>	<b>Qualitative Assessment of Fiber Tracts and Neuronal Loss for Evaluating Alzheimer's Disease, Mild Cognitively Impairment and Normal Ageing</b>
<b>IJCRAR/PP/15</b>	<b>Sharon Jebamalar P, Joy Sebastian Prakash J and Karunanithi Rajamanickam</b>	<b>Assessment of Brain Lateral Ventricular Volume in Alzheimer's Disease –A pilot study</b>
<b>IJCRAR/PP/16</b>	<b>Pricilla CP, Akram Husain RS, Ramakrishnan V</b>	<b>Molecular Biomarkers for Detecting Ovarian Cancer</b>
<b>IJCRAR/PP/17</b>	<b>Viji. D, Akram Husain RS, Ramakrishnan V</b>	<b>Early Diagnosis of Genetic Mutations in Pompe Disease</b>
<b>IJCRAR/PP/18</b>	<b>Bhavani B and Ramakrishnan V</b>	<b>A New Approach for Non-Invasive Fetal Trisomy (NIFTY) Detection in Aneuploidies Using Massive Parallel Sequencing (MPS)</b>
<b>IJCRAR/PP/19</b>	<b>Basil Kuriakose and Shiek SSJ Ahmed</b>	<b>Next Generation Sequencing for Diagnosis of Parkinson's Disease and Amyotrophic Lateral Sclerosis</b>
<b>IJCRAR/PP/20</b>	<b>Nazeefa Samreen, Taslim Banu and Ushasri R</b>	<b>Biosynthesis of Silver Nanoparticles using Crude Ethanol and Aqueous Fruit Extracts of <i>Citrus sinensis</i> and Its Analysis of Antibacterial Activity</b>



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Invited Lectures

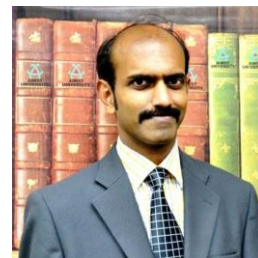
IJCRAR/PL/01

### The Key to the Diagnosis of Superficial Fungal Infections

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#### Abstract

The skin covers the entire body and protects it from environmental factors - ultraviolet rays, chemicals and pathogens. Above all, it plays a major role in the appearance of a person, as it is cosmetically promoted that "beauty is skin deep".

Normal skin is impenetrable to microorganisms. However, some microbes have developed the ability to destroy the upper layer of the skin to enable their colonisation. Among the various infections of skin, infections caused by fungi (mycoses) pose a major challenge. The conditions like lowered immunity, diabetes, poor personal hygiene, overcrowding and warm & humid weather are ideally suited for the growth of fungi. The most common infections that affect man are dermatophytosis, dandruff and pityriasis versicolor, piedra, tinea nigra and candidiasis.

#### Dermatophytoses

Dermatophytoses is the infection of keratinised tissues such as the skin, hair and nail caused by closely related fungi called dermatophytes. Among the various mycotic infections of man, dermatophytoses is the most common infection. The disease is otherwise called "Ringworm" or "Tinea". Any part of keratinised tissues in the body can be infected by dermatophytes. Depending upon the anatomical site of the lesion, the diseases are classified as tinea corporis (infection of the glabrous skin), tinea cruris jock itch or dhoobies itch (infection of the crural and gluteal region), tinea pedis or athletes foot (infection of the inter trigenal folds of the feet), tinea unguium (infection of the nail) and tinea capitis (infection of the hair follicles and scalp region).

#### Dandruff and Pityriasis versicolor

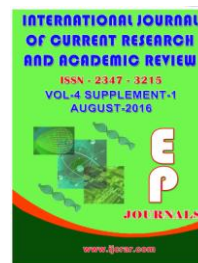
Dandruff and Pityriasis versicolor is yet another type of fungal infection of the skin caused by Malassezia species, a group of lipophilic fungi. The disease appears as scaly, discrete macules and patches with slight discoloration/hypopigmentation.



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### **Tinea nigra**

Tinea nigra palmaris is a superficial asymptomatic fungal infection of the stratum corneum, characterised by brown to black non-scaly macules. The palmer surface is often the most affected site.

### **Piedra**

Piedra is a fungal infection of the hair shaft characterized by the presence of firm irregular nodules. These are composed of fungal elements cemented together anywhere along the hair shaft. Multiple infection of the same strand is also common. Two varieties of piedra are recognised - white piedra and black piedra.

### **Candidiasis**

Candidiasis is the infection caused by the species of the genus *Candida*, a yeast-like fungus. This organism is widely considered as normal flora inhabiting the body especially in the oral cavity and gut mucosa. This organism can cause an array of clinical diseases in man especially when the immune system is disturbed either due to an infection or due to some immunosuppressive drugs. Oral thrush is the most common infection encountered in HIV subjects and which is considered to be the marker of HIV progression. Subjects with diabetic mellitus are also prone to develop various diseases due to *Candida*.

### **Laboratory diagnosis**

Unlike the systemic mycoses, the laboratory diagnosis of superficial fungal infections mostly relies on the basic techniques of specimen collection, direct microscopy, culture and identification. Though, there are recent methods of rapid identification using molecular methods are available, most laboratories still continue to use the microscopic appearance, pigment production and colony characteristics of the fungi for identification. The present talk shall highlight the basic keys to the laboratory identification of superficial mycoses.

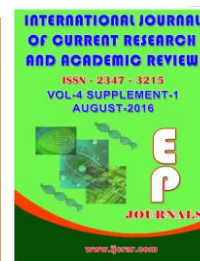




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Invited Lectures

IJCRAR/PL/02

### Molecular Techniques in Diagnostic Microbiology – An Update

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Conventional microbiological techniques such as microscopy, culture and biochemical testing have been the mainstay for the laboratory diagnosis of infectious diseases for generations. Nevertheless, the development and implementation of molecular diagnostic techniques has dramatically changed the microbiology laboratory services in the last two decades. Molecular techniques have gained importance in diagnostic microbiology especially in the detection of non-culturable agents, slow-growing pathogens, In situ detection of infectious agents, monitoring of viral load, genotyping of the microorganisms, detection of genes encoding antibiotic resistance and in molecular epidemiology: i.e identify point sources for hospital and community-based outbreaks and to predict virulence.

Molecular diagnostic methods can be broadly classified into hybridisation methods, Amplification methods and Sequencing and enzymatic digestion of nucleic acids. The hybridization can either be of the solution format or the solid support format. The hybridization protection assay (HPA) is an example of liquid phase hybridization. An acridinium ester labelled oligonucleotide probe is incubated with the target nucleic acid, followed by alkaline hydrolysis. The bound probes are generally protected from hydrolysis. After the addition of peroxides, the chemiluminescence is detected by a luminometer. Solid phase hybridization methods include dot/slot hybridization, sandwich hybridization, southern blot hybridization, northern blot and in situ hybridization (e.g. FISH). The common solid supports include nitrocellulose or nylon membrane.

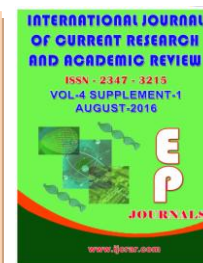
The dawn of molecular diagnostics corroborates with the development of an amplification technique - PCR in 1983 by Kary Mullis. Amplification methods have increased sensitivity and are categorized into target amplification, signal amplification and probe amplification. Target amplification systems amplify the target (gene) to large numbers. The most predominantly used system is the Polymerase Chain Reaction (PCR), however this requires a thermal cycler. The "real-time" PCR system has yet another major advantage of detection of the amplified target DNA by fluorescently labelled probes as the hybrids are formed (i.e. detection of amplicon in real time). Although, SYBR Green chemistry is cost effective, it binds to both specific and nonspecific dsDNA. This can be negated by newer fluorescent probes, Taqman probes, molecular beacons and FRET (Fluorescent resonant energy transfer) hybridization probes. Also, amplification and detection of multiple



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sequences is made possible in a single PCR reaction using fluorogenic probes that are labelled with different, distinguishable reporter dyes.

Isothermal amplification methods are performed in isothermic conditions rather than cycling through denaturation and annealing/extension cycles and hence obviates the need for a thermocycler. Commonly used methods are NASBA (Nucleic acid sequence based amplification), TMA (Transcription mediated amplification), SDA (Strand displacement amplification) and LAMP (Loop mediated isothermal amplification). "LAMP" a technique that was developed by Notomi and co-workers in 2000 shows great potential for field use as it is simple and field-amenable.

Signal amplification technologies are designed to minimize the possibility of contamination by target amplification products. These methods amplify the signal generated from the probe molecule hybridized to the target nucleic acid sequence, which is referred to as signal amplification. The widely used signal amplification technologies include branched DNA (bDNA) assay, hybrid capture (HC) assays. The bDNA method was initially developed by Chiron (Emeryville, CA, USA) and the hybrid capture method was developed by Digene Corporation (Gaithersburg, MD, USA).

Probe amplification techniques include the ligase chain reaction (LCR), self-sustained sequence replication (3SR), the Ampliprobe system and Q-beta replicase (Qfi). LCR amplification is based on the sequential rounds of template dependent ligation of two juxtaposed oligonucleotide probes. LCR allows the discrimination of DNA sequences differing in only a single base pair. CPT employs a DNA-RNA-DNA fluorescent labelled probe at a constant temperature. The probe labelled with fluorescent dye at one end and a Quencher at the other end, anneals to target DNA. An enzyme cuts the RNA region of the probe; the probe is no longer intact unquenching the signal, resulting in emission of fluorescence. Probe amplification is linear and not exponential. (e.g) detection of mecA.

The Sequencing and enzymatic digestion of nucleic acids are generally carried out to determine the genetic relatedness among the outbreak strains. The most common methods employed in epidemiological strain typing are the restriction enzymatic (RE) digestion, pulse field gel electrophoresis (PFGE), ERIC PCR, Multilocus sequence typing (MLST).

Systemic bacterial infection, bacterial sepsis and related syndromes are life-threatening illnesses that require timely initiation of appropriate antimicrobial therapy. Biomarkers not only enable early diagnosis but also guide molecularly targeted therapy and monitor the activity and therapeutic responses (e.g. antibiotic stewardship) across a variety of diseases. An ideal biomarker for infection should combine diagnostic, prognostic, and follow-up of therapy characteristics and should be easily and rapidly available for routine clinical use. Leucocyte count, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), soluble triggering receptor expressed on myeloid cells 1 (sTREM-1), pro-adrenomedullin (ProADM), serum procalcitonin (PCT), mid-regional pro-atrial natriuretic peptide (ANP), pancreatic stone protein (PSP)/regenerating protein (reg), interleukin-6 (IL-6), IL-8, IL-27, soluble urokinase-type plasminogen activator receptor (suPAR) among others, have been studied as potential biomarkers to facilitate diagnosis and aid prognostication in bacterial sepsis.

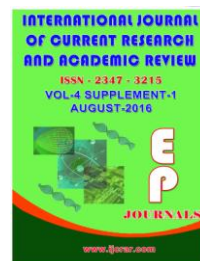
The further advancement of molecular diagnostics in microbiology is dependent on the ability of multiplexing technology such as the microarray analysis which could be implemented in clinical microbiology laboratories with ease and accuracy. A DNA microarray is a collection of microscopic features (most commonly DNA) which can be probed with target molecules to produce either quantitative (gene expression) or qualitative (diagnostic) data. These molecular techniques have changed the culture of the microbiology laboratory. To be useful in the timely implementation of prevention and control measures against infectious diseases, a diagnostic modality should be rapid, accurate and affordable. The present note, would briefly highlight the available and evolving molecular testing modalities in the microbiology laboratory in the context of traditional testing for bedside clinicians.



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Invited Lectures

IJCRAR/PL/03

### **In Vitro Diagnostic—Past, Present and Future**

**Suresh Chandrasekaran**

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This topic provides an insight on how the In Vitro Diagnostics evolved in the subcontinent of India. This topic covers on the evolution of the testing from Colorimetry to Automation in Chemistry, from the lyophilized powder reagents to single stable liquids for reagents, from culture plates to automated cultures, from manual counting to 3, 5 and 7 part differential counting in Hematology, from ELISA to Western blot to CLIA to PCR for various Immunological parameters, from coated cells to Biochips in IIFT, from ordinary microscopy to automated microscopy, from a few biochemical parameters to specific biomarkers etc.,

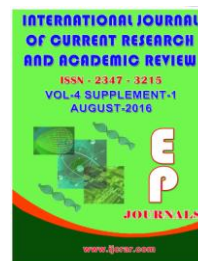
The topic also delves on how Indian perception about IVD has evolved over the years, how the IVD testing has helped in better patient management and also gives a ringside view on the job opportunities for Life Science Professionals.



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Invited Lectures

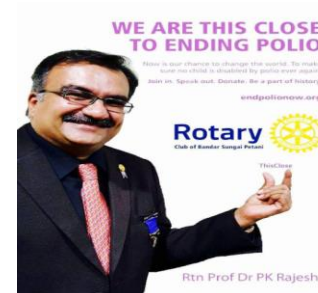
IJCRAR/PL/04

### Advanced Techniques in Diagnostic Medicine

**Prof. Dr. P. K. Rajesh**

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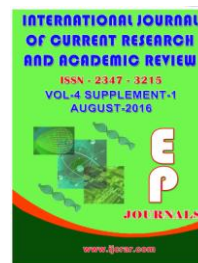
This talk emphasizes on the evolution of diagnostics related to microbiology, molecular biology, human genetics, radiology and imaging. The recent trends in diagnostics is discussed and its pros and cons debated with the help of videos and real case histories. The principle, the utility, the interpretation, the limitations of the diagnostic tools will be touched upon. Rapid diagnostic kits, capsule endoscopy, advances in imaging technology will be the highlights of the talk.



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Invited Abstracts

IJCRAR/OP/01

### Comparative *In Silico* Docking Analysis of Phytochemicals from *Murraya koenigii* and Commonly Used Drugs in the Treatment of Cancer

Victoriya Salomi M,<sup>1,2\*</sup> Manimekalai R<sup>1</sup> and Shoba G<sup>1,2</sup>

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#### Abstract

Cancer cells exhibit increased proteasomal activity of 26S proteasome, a key factor involved in apoptosis. Inhibition of this activity is considered as novel approach to treat cancer. Flavonoids and phenolic compounds present in *Murraya koenigii* act as potent inhibitors of 26S proteasome non-ATPase regulatory subunit 11, a component of the lid subcomplex of the 26S proteasome, which plays a key role in increased proteasome activity. The structure of 26S proteasome non-ATPase regulatory subunit 11 is predicted by Homology Modelling with Modeller software and checked with Ramachandran plot-PROCHECK. Quercetin, epicatechin, rutin, gallic acid and ferulic acid present in *Murraya koenigii* were subjected to molecular docking analysis for the calculation of binding energies with 26S proteasome non-ATPase regulatory subunit 11. Commonly proteasome activity inhibiting drugs that includes carfilzomib and marizomib were also subjected to docking analysis for comparative analysis. Hydrogen bond interaction and docking energy are the parameters taken into account for comparative analysis. Quercetin and epicatechin shows almost similar binding energy to marizomib. The binding energies of rutin, gallic acid and ferulic acid is less than that of carfilzomib. The quercetin and gallic acid forms 6 hydrogen bonds each, epicatechin and rutin forms 5 hydrogen bonds each and ferulic acid shows 4 hydrogen bonds with the target, whereas, Carfilzomib forms only 2 bonds. Hence flavonoids and phenolic compounds present in *Murraya koenigii* serve as natural therapeutic agents against proteasomal activity which helps in the treatment of cancer.

**KEYWORDS:** *Murraya koenigii*, flavonoids, phenolic compounds, carfilzomib, marizomib, 26S proteasome

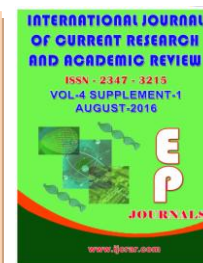




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Invited Abstracts

IJCRAR/OP/02

### Isolation and Identification of *Malassezia* Species from Dandruff Samples and Evaluation of the Efficacy of Three Commercially Available Anti- Dandruff Oils

**Dr. Sumithira P,<sup>1\*</sup> Sunitha L.<sup>2</sup> and Divya M<sup>2</sup>**

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#### Abstract

Dandruff is a common embarrassing disorder affecting a large population. The yeast, *Malassezia* species is the contributing organism of dandruff and its lipase activity releases proinflammatory free fatty acids, causing dermal inflammation and tissue damage. Currently available treatment options have certain limitations, either due to poor efficacies or due to the compliance issues and these drugs are unable to prevent recurrence, which is the commonest problem. This study was planned to isolate the dandruff causing organism and to evaluate the clinical efficacy of three commercially available anti dandruff oils in the management of dandruff. This study observed the clinical features of the *Malassezia* species in the isolated strain showing lipophilic, creamy-yellow, waxy colonies with globose structures. It was also studied that the isolated strain proved to be catalase and urease positive, which is an identical feature of the standard strain, *Malassezia furfur*. In the study of the evaluation of the efficacy of the anti-dandruff oils viz., agar dilution tests, it was concluded that, of the three oils, the biotique anti-dandruff oil was the most efficient oil at the maximum concentration (15%) while the other two oils (Clinic All Clear and Pankajakasthuri) showed a remarkable inhibition in the growth of the organism when compared to that of the control plate which had no anti-dandruff oils. This study concluded that these anti-dandruff oils shows a better inhibitory effect against the isolated strain, *Malassezia spp.*, than against the standard strain, *Malassezia furfur*.

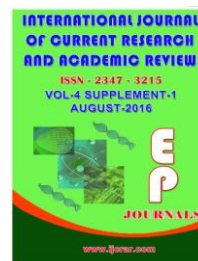
**KEYWORDS:** anti-dandruff oil, dandruff, *Malassezia furfur*



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Invited Abstracts

IJCRAR/OP/03

### **In Silico Molecular Docking of STAT3 Protein with Bioactive Compounds from *Costus igneus* against Hepatocellular Carcinoma**

**Premila J,<sup>1,2\*</sup> Logeshwari S<sup>1</sup> and Shanmuga Priya G<sup>1</sup>**

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#### **Abstract**

*Costus igneus* commonly known as insulin plant belongs to costaceae family has been proven to possess anticancer activity. Phytochemical investigations reveal the presence of carbohydrates, triterpenoids, proteins, alkaloids, tannins, saponins, flavonoids and steroids. Hepatocellular carcinoma (HCC), also called malignment hepatoma, is the most common type of liver cancer. Most cases of HCC are as a result of either a viral hepatitis infections (hepatitis B or C) metabolic toxins (alcohol or aflatoxin) conditions like hemochromatosis and alpha 1-antitrypsin deficiency. Several human cancers, including hepatocellular carcinoma shows activation of STAT3. Diosgenin, a natural steroidal saponin isolated from *Costus igneus* rhizome is a novel blocker of the STAT3 activation pathway, with a potential role in the treatment of HCC. The activation of c-src,JAK,JAK2 implicated in STAT3 activation were also suppressed by saponin. The present study focuses on identifying diosgenin in *Costus igneus* rhizome having anticancer potential to effectively inhibit the action of STAT3. Diosgenin were docked against target proteins STAT3, JAK, IL-6 using AutoDock 4.2. Molecular docking analysis for STAT3 with diosgenin are more interactive and binding strongly at the active site. Therefore diosgenin may act as a potent inhibitor of STAT3 and could be used to treat HCC.

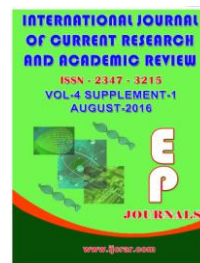
**KEYWORDS:** *Costus igneus*, diosgenin, STAT3, hepatocellular carcinoma, anti-cancer



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Invited Abstracts

IJCRAR/OP/04

### Standardisation of Fermentation Parameter for Production of Detergent Resistant Protease from *Vibrio* species

Lakshmi Priya D,<sup>1\*</sup> Geetha, Gayathri K<sup>2</sup> and Aruna S<sup>2</sup>

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#### Abstract

Detergent resistant alkaline protease producing organisms were isolated from sea water sample and agro waste using skim milk agar. The protease producing organism was identified by aerobic and anaerobic fermentation, glucose fermentation method etc. The fermentation parameters such as carbon, nitrogen, pH and metal ions were used to check the production and activity of the protease. The crude enzyme was extracted using carbon sources such as potato mash and potato peel as substrates, in which alkaline peptone broth used as a control. Protein assay and protein estimation was performed. The above result indicates that protease production could be carried out using cheap agro waste as a substrate which decreases the cost of the production of the enzyme.

**KEYWORDS:** Seawater sampling, skim milk agar, protease production, crude enzyme, Protein assay

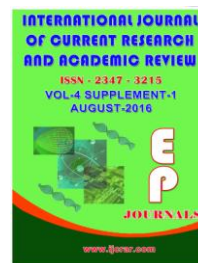




## International Journal of Current Research and Academic Review

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Invited Abstracts

IJCRAR/OP/05

### Molecular Docking Studies of Allylsulfur Compounds from *Allium sativum* against EGFR Receptor

**Razia Muthusamy,<sup>1</sup> Padmini R,<sup>1,2\*</sup> Roopavahini V<sup>2</sup> and Sai Aruna S<sup>2</sup>**

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#### Abstract

Lung cancer is an abnormal cell growth that start off in the cell lining of one or both lungs. Two main types of lung cancer, they are Non-Small Cell Lung Cancer (NSCLC) and Small cell lung cancer (SCLC). NSCLC is the most common type of lung cancer. About 85% of lung cancers are NSCLC. The sub types of NSCLC are squamous cell carcinoma, adenocarcinoma and large cell carcinoma. EGFR (Epidermal Growth Factor Receptor) is a receptor protein which belongs to Receptor Tyrosine Kinase family (RTKs). EGFR is the key paradigm of molecular targeted therapy in lung cancer. EGFR plays an important role in the development of the malignant phenotype of many cancers. Activated EGFR induces multiple downstream pathways which is involved in cell survival and cell proliferation. Garlic (*Allium sativum*) is a vegetable that belongs to allium family. Various research findings suggest the relationship between excess garlic intake and reduction in risks of various cancers. Allyl sulfur compounds (Allicin, Alliin, s-Allyl cysteine, s-Allyl Mercaptocysteine) of garlic shows anticancer activity. These compounds inhibit the gene which is responsible for lung cancer. Molecular docking studies using Auto dock provides the comprehensive overview of inhibition of EGFR through the binding of the above allyl sulfur compounds. Docking studies of the bioactive compounds from garlic which has anticancer activity with EGFR showed that allicin and alliin (ligand) has good binding energies. From the docking result, allicin and alliin forms 1 and 2 hydrogen bonds, respectively, with EGFR. Based on docking energies and hydrogen bond interactions, allicin and alliin plays a key role in inhibiting the EGFR receptor protein.

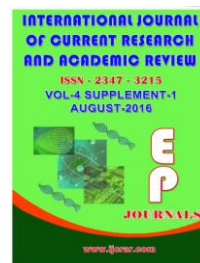
**KEYWORDS:** lung cancer, *Allium sativum*, allyl sulfur compounds, EGFR, molecular docking



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Invited Abstracts

IJCRAR/OP/06

### Citric Acid Production from Whey with Sugars and Additives by *Aspergillus niger* MTCC 128

**Sumithira P,<sup>1\*</sup> Rashika R<sup>2</sup> and Kaarkuzhali KE<sup>2</sup>**

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#### Abstract

Large amount of whey was produced world wide as a byproduct during manufacturing of cheese and other dairy products. The cheese whey has been used extensively in fermentation media for citric acid production by *Aspergillus niger*. *Aspergillus niger* MTCC 128 culture from IMTECH was reactivated using czapek dox agar and used for citric acid production from whey with different concentrations of sugars (sucrose, glucose, fructose and galactose) and additives (riboflavin, tri calcium phosphate and methanol). The highest amount of citric acid [1210.4%] was produced in whey supplemented with 15% glucose and 3% tri calcium phosphate. Optimization of pH, temperature and inoculums size was done based on the observations recorded at two days interval for a period of 10 days. Maximum results were obtained at pH- 3, temperature-300C and inoculums size- 4mm. A comparative study on citric acid production in whey (with 15% glucose and 3 % tri calcium phosphate) was made with an isolate of *Aspergillus niger* from soil. Maximum citric acid values were obtained in whey (with 15% glucose and 3 % tri calcium phosphate) inoculated with *Aspergillus niger* MTCC 128 than the medium with *Aspergillus niger* from soil.

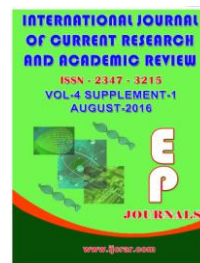
**KEYWORDS:** citric acid, *Aspergillus niger*, whey, tri calcium phosphate, sugars



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Invited Abstracts

IJCRAR/OP/07

### **In-Silico Screening of Novel UreC Inhibitors from *Eupatorium odoratum* Using Molecular Docking Study**

**Deepa S,<sup>1,2\*</sup> Deepika R<sup>1</sup> and Nandhini S<sup>1</sup>**

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#### **Abstract**

*Eupatorium odoratum* belongs to the family *Asteraceae*, is well known as a traditional medicinal plant, which is used to treat wounds in skin. The compounds, such as 2,4,6-tris-(1-phenylethyl)-phenol, 2(E)-3,7,11,15-tetramethyl-2-hexadecen-1-ol, 1-tricosanol, tetra-o-methylscutellarein identified from the aqueous and methanol extracts of *Eupatorium odoratum* are said to possess anti-tuberculosis, anti-bacterial and anti-mycobacterial activity. Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis* and it affects lungs and other parts of the body. UreC (Urease subunit alpha) is a protein present in *Mycobacterium tuberculosis*, which prevents the acidification of host phagosome and thereby preventing the eradication of *Mycobacterium tuberculosis* by the host immune system. The 3D structure of UreC for *Mycobacterium tuberculosis* was not available in PDB, Hence Homology modelling were done using Modeller to predict the 3D structure of UreC protein. Structure evaluation can also be done to refine the 3D structure. *In-silico* molecular docking were performed using AutoDock to analyse and identify the interaction of the above compounds of *Eupatorium odoratum* with UreC protein. The 3D structure of UreC protein was predicted. Docking study showed good score for 2,4,6-tris-(1-phenylethyl)-phenol, 2(E)-3,7,11,15-tetramethyl-2-hexadecen-1-ol, 1-tricosanol, tetra-o-methylscutellarein in *Eupatorium odoratum* against UreC protein. The good docking score of these compounds are said to be a good inhibitor of UreC protein. Thus, the above compounds of *Eupatorium odoratum* have potential anti-bacterial activity. In addition tetra-o-methylscutellarein showed anti-mycobacterial activity and 2(E)-3,7,11,15-tetramethyl-2-hexadecen-1-ol showed anti-tuberculosis activity. Hence, these compounds of *Eupatorium odoratum* showed potential anti-bacterial, anti-mycobacterial and anti-tuberculosis activity.

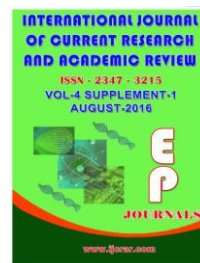
**KEYWORDS:** *Eupatorium odoratum*, UreC, anti-bacterial activity, anti-mycobacterial activity, anti-tuberculosis activity, docking.



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Invited Abstracts

IJCRAR/OP/o8

### Comparative Studies on Microbial Pectinases Isolated from Soil

**Aswini L,<sup>1\*</sup> Rekha V<sup>2</sup> and Hemalatha P<sup>2</sup>**

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#### Abstract

Pectinolytic fungi and bacteria were isolated from soil sample by serial dilution method. Pectinolytic activity produced by *Aspergillus* spp and *Bacillus* spp were observed by zone of clearance on MP7 medium and pectate agar. Isolates were identified through microscopic and macroscopic examination. The enzyme production was done by using different production media. Pectinase production by the isolates was confirmed by plate assay method. The protein content and reducing sugar of the extracted enzyme was estimated using Lowry's method and Di nitro salicylic method respectively. Pectinase enzyme was purified and the total molecular weight was estimated. Application of the pectinase enzyme was done by clarification of apple juice.

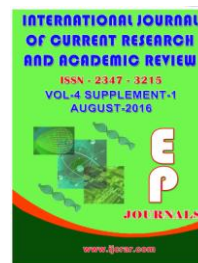
**KEYWORDS:** pectinolytic fungi, pectinase, Lowry's method, dinitrosalicylic method, clarification



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Invited Abstracts

IJCRAR/OP/09

### **In-Silico Approach to Predict the Antifungal Activity of Compounds from *Moringa concanensis* Nimmo against Flavohemoprotein (YHB1)**

**Brindha Banu B,<sup>1,2</sup> \* Tobika R<sup>1</sup> and Santhi S<sup>1</sup>**

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#### **Abstract**

The plant *Moringa concanensis* Nimmo is one of the important medicinal tree belongs to family *Moringaceae* locally known as Kattu murungai by tribal people in Tamil Nadu. Hexanedioic acid, bis (2-ethylhexyl), 2-ethyl-2-propylhexan-1-ol was identified from ethanolic extracts of *Moringa concanensis* Nimmo which contains antifungal activity. *Candida albicans* is a form of yeast which cause Candidiasis in human. YHB1 is a gene present in *Candida albicans* which detoxifies NO and protects the fungus from various noxious nitrogen compound. Since nitric oxide is generated by macrophages of the host immune system. This plays a role in the inducible response to nitrosative stress and also virulence. There is no separate 3D Structure for YHB1 in PDB. Homology modelling were done to predict the 3D structure of the protein using Modeller. Molecular docking were studied using Auto dock and analyze the interaction of the above compounds with YHB1. The 3D structure of protein was predicted. The scores obtained from the docking study shows good interactions with Hexanedioic acid, bis (2-ethylhexyl), 2-ethyl-2-propylhexan-1-ol against YHB1. From the molecular docking analysis, these compounds showing least binding energy and good hydrogen bond interaction with YHB1. We conclude that these compounds may act as potent antifungal agent against YHB1.

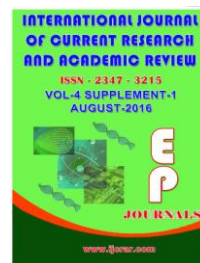
**KEYWORDS:** *Moringa concanensis* Nimmo, antifungal activity, *Candida albicans*, YHB1, nitrosative stress, Modeller, docking.



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Invited Abstracts

IJCRAR/OP/10

### Bacteriology of Diabetic Foot Ulcer

**Vidhyalakshmi R<sup>1\*</sup>, Geetha M<sup>2</sup>, Yuvarani B<sup>2</sup> and Bharathi KM<sup>2</sup>**

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#### Abstract

A prospective microbiological study was carried out to determine the relative frequency of bacterial isolates cultured from diabetic foot infections and their *in vitro* susceptibility to the commonly used antibacterial agents were assessed. The diabetic foot ulcer sample was collected from the patients foot wound. The bacterial isolates obtained includes *Staphylococcus aureus*, *Enterococci*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella species* and *Proteus species*. The ratio of number of Gram positive cocci to Gram negative bacilli was 1:1. The most commonly isolated *Staphylococcus aureus* was methicillin resistant [MRSA].

**KEYWORDS:** diabetic foot ulcer, bacterial isolation, MRSA

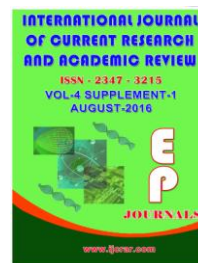




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Invited Abstracts

IJCRAR/OP/11

### Motif and Evolutionary Analysis of Chitinase –An *In Silico* Approach

**Shoba G,<sup>1,2\*</sup> Kalaivani N,<sup>1</sup> Viji Varghese<sup>1</sup> and Sofiya M<sup>1</sup>**

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#### Abstract

Chitinases are hydrolytic enzymes that break down glycosidic bonds in chitin. Chitin is a component of cell walls of fungi and exoskeletal elements of some animals (including worms and arthropods). Chitinases are generally found in organisms that either need to reshape their own chitin or dissolve and digest the chitin of fungi or animals. Chitin is an abundant biopolymer that is relatively resistant to degradation and not digested by animals. But certain fishes are able to digest the chitin. Chitin digestion by animals requires bacterial symbionts and lengthy fermentation similar to cellulose digestion by ruminants. Chitinases are naturally occurring in many common foods. Cartilage chitinases are produced in the human body may response to allergies and asthma. Phylogenetic analysis is the study of evolutionary relationship among molecules, phenotypes and organisms. In this study, we use Clustal-W for Multiple sequence alignment, Motif finder and MEME for Motif analysis, and phylogenetic tree was drawn using MEGA software. The Phylogenetic tree of chitinases (71 sequences) from prokaryotes, eukaryotes, vertebrates and invertebrates demonstrated divergence patterns. Motif analysis of chitinase showed Glyco-hydro-18 domain in eukaryotes, protist (except Amoeba), Glyco-hydro-19 and Chitin-bind-1 domain in plants and Putative and unfunctional motif in amoeba.

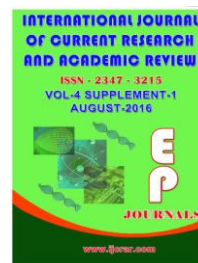
**KEYWORDS:** Chitinase, Clustal-W, Motif finder, MSA, MEGA.



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Invited Abstracts

IJCRAR/OP/12

### Assessment of Microbial Flora on Banknotes and the Effect of Instant Hand Sanitizers

**Krishnaveni G,<sup>1\*</sup> Vijayalakshmi K,<sup>1</sup> Swathi A<sup>2</sup> and Sharumathi S<sup>2</sup>**

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#### Abstract

The study was done to analyse the presence of bacterial and fungal contamination on the circulating banknotes and to estimate the effect of instant hand sanitizer on the isolates. Currency notes of lower denominations were the most contaminated. The isolation of *Salmonella* species in the currency notes indicates faecal contamination. The frequency of occurrence of *Candida species* was observed as it accounts for ubiquitous presence on circulating currency note, and by extension, its implication as a cause of opportunistic infections. The effect of commercially available seven hand sanitizers on the isolates were estimated by agar well diffusion method. Zone of inhibition produced by two out of seven instant hand sanitizers were very much effective. Good hygienic practices should be made routine to avoid the transmittance of bacterial or fungal contamination from bank notes.

**KEYWORDS:** hand sanitizer, currency note, contaminants

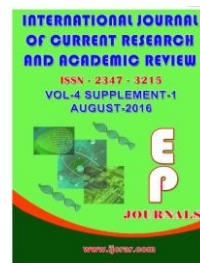




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Invited Abstracts

IJCRAR/OP/13

### Insights into Quercetin for Its Antitoxic Activity from Molecular Docking Studies

**Durga M,<sup>1\*</sup> Shoba G<sup>1,2</sup> and Sofiya M<sup>1</sup>**

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#### Abstract

Quercetin is an important flavonoid of plant origin that has various health benefits due to its antitoxic and antioxidant role. In vitro wet lab studies demonstrated its protective role against petrol exhaust nanoparticles induced oxidative stress, lipid peroxidation and inflammation in rat erythrocytes. The current research explores the possible reasons and mechanisms for its antitoxic activity through the procedure of molecular docking using the molecular modeling software "AutoDock". The studies were done to evaluate the binding affinity characteristics of quercetin with antioxidant markers such as Glutathione (GSH), Superoxide dismutase (SOD), Catalase (CAT), Glutathione S transferase (GST), lipid peroxidation marker such as malondialdehyde content (MDA) and pro-inflammatory markers like Tumor Necrosis Factor alpha (TNF- $\alpha$ ) and Interleukin-6 (IL-6), in an attempt to understand the mechanism of action of quercetin. The docking energy and hydrogen bonds were tabulated. Docking scores indicated the application of quercetin as a potential, natural therapeutic agent to combat oxidative stress, inflammation and lipid peroxidation in rat erythrocytes.

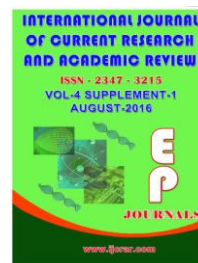
**KEYWORDS:** quercetin, anti-toxicity, molecular docking, erythrocytes, binding energy, antioxidant



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Invited Abstracts

IJCRAR/OP/14

### Antibacterial Activity and Phytochemical Screening of Leaf Extracts of Medicinal Plants against Wound Pathogens

Neenapriya J<sup>1\*</sup>, Matilda selvarani S,<sup>1</sup> Revathi S<sup>2</sup> and Wagheedha J<sup>2</sup>

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#### Abstract

Many wound samples were collected from different places in Chennai. The following organisms were isolated which includes *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Bacillus subtilis*. Antibacterial activity of two types of plant extracts *Peltophorumptero carpum* and *Eupatorium triplinerve* against the wound isolates was evaluated using agar diffusion and Minimum Inhibitory Concentration at different concentrations. Phytochemical screening of the two plant extracts was done. The accumulation of these bioactive organic components in large proportions in plant cells had helped in the inclusion of herbal medicine as well as identification of native medicinal plants in indigenous pharmacology.

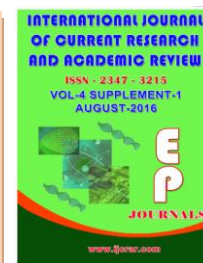
**KEYWORDS:** antibacterial activity, phytochemical screening



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Invited Abstracts

IJCRAR/OP/15

### Comparative *In-Silico* Docking Analysis of SOD1 against Natural and Synthetic Antioxidant

Victoriya Salomi M,<sup>1,2</sup> \* Shoba G,<sup>1,2</sup> Aishwarya R<sup>1</sup> and Saranya N<sup>1</sup>

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#### Abstract

Free radicals and other ROS (Reactive Oxygen Species) are derived as a result of endogenous metabolisms, exposure to certain physiochemical conditions or pathological states. These free radicals are unpaired ( $O_2^-$ ) and reacts with DNA, Proteins, Carbohydrates and lipids to satisfy themselves as a paired electron ( $O_2$ ) and results in various diseases. Superoxide dismutase is a metalloprotein which catalyzes the dismutation of the superoxide radicals ( $O_2^-$ ) into ordinary molecular oxygen ( $O_2$ ) or hydrogen peroxide ( $H_2O_2$ ) and prevents cell damage. SOD consists of three isoforms in mammals : (i) cytoplasmic cu/zn SOD (SOD1),( ii) mitochondrial SOD (SOD2) and (iii) extracellular cu/zn SOD (SOD3).All of which requires catalytic metal ions for their activation. Antioxidants are chemical substances which prevents/inhibits cellular damages caused by oxidation. Plants are rich source of antioxidants. These antioxidants can also be artificially synthesized, called as synthetic antioxidants. Butylated Hydroxytoluene (BHT) is one such synthetic antioxidant, widely used in food industries to prevent/inhibit oxidative damage and thereby increases the shelf life of packed or canned food. *Murraya koenigii* (curry leaves) is an essential species known for its distinct flavor, belongs to the family *Rutacea*. The phytochemical constituents extracted from the leaf of *M.koenigii* are lutein, tocopherol, carotene, koenimbine, O-methyl murrayamine A, O-methylmahanine, isomahanine, bismahanine, bispyrafoline, euchrestine, bismurrayafoline E, mahanine, shows antioxidant activity. This article provides a comprehensive overview of how far the activity of superoxide dismutase 1 is enhanced by both natural antioxidant compounds from *M.koenigii* (O-methylmurrayamine A & O-methylmahanine) and synthetic antioxidant compounds (butylated hydroxytoluene) through their binding to the allosteric site of the SOD1. This binding interaction can be calculated by using the AutoDock software. Several chronic and degenerative diseases were found to evolve as a result of oxidative stress. In the current research, insilico docking studies of both natural antioxidants such as o-methylmurrayamine A & O-methyl mahanine, and synthetic antioxidants Butylated Hydroxytoluene (BHT) was performed. The results indicated that in o-methylmurrayamine and O-methylmahanine the binding energies and hydrogen bond formation were stronger than in the synthetic antioxidant Butylated Hydroxytoluene (BHT). Thus, we conclude that natural antioxidants such as o-methylmurrayamine A and O-methylmahanine could be used as potent natural therapeutic agents to combat oxidative stress.

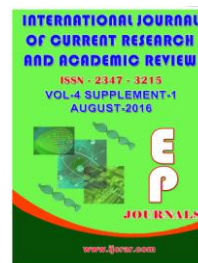
**KEYWORDS:** Free radicals, superoxide dismutase, antioxidants, *Murraya koenigii*, docking, therapeutic agents.



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Invited Abstracts

IJCRAR/OP/16

### Effect of Application of *Pseudomonas* species on Plant Growth and Study of Soil Parameters

Nithyakalyani V,<sup>1\*</sup> Sajitha kumari TV<sup>2</sup> and Jeeba<sup>2</sup>

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#### Abstract

Bio-fertilizers are substances that contain living micro organisms, when they are applied to seed, plant, and surface or soil, these microorganisms colonize the rhizosphere or the interior of the plant and promote growth by increasing the supply or availability or primary nutrients to the host cell. The use of bio-fertilizer alone or in combination of chemical fertilizers plays an important role in sequestering carbon and building up soil fertility. Total of 15 soil samples were taken from different fields and 5 isolates of *Pseudomonas* spp were obtained. Test for soil parameters such as soil moisture, soil pH, was carried out followed by mass cultivation of *Pseudomonas* which was bacterised on to host seeds, such as tomato, chilly, brinjal and palak. Palak was found to be the fast grower and had be highest levels of plant growth parameters followed by tomato, chilly and brinjal. Palak soil had highest rates of organic carbon, nitrogen phosphorous and potassium levels. Plant Growth Promoting Rhizo bacteria (PGPR) benefits the growth and development of plant directly and indirectly through several mechanisms. Production of secondary metabolites, i.e. plant growth substances, changes root morphology resulting in greater root surface area for the uptake of nutrients, siderophores production, and antagonism to soil-borne root pathogens, phosphate solubilisation, and Di-nitrogen fixation. The root surface area for uptake of nutrients and production of PGPR may help to optimize nutrient cycling in the event of stresses due to unsuitable weather or soil conditions. Other PGPR inoculants (*Azospirillum*, *Azotobacter*, *Bacillus*, *Pseudomonas*, etc) are also available for a variety of crops, used alone or co-inoculating with *Rhizobium sp*. These technologies are resulted in positive responses under controlled conditions. It is also suggested that PGPR need to be re inoculated every year or season as they will not live forever in the soil.

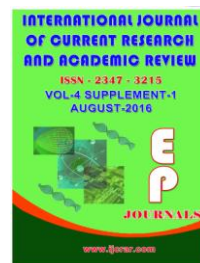
**KEYWORDS:** *Pseudomonas* species, plant growth and soil parameters.



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Invited Abstracts

IJCRAR/OP/17

### Screening of Novel MAPK Inhibitor from Ethanolic Extract of Stem of *Leucas aspera* (Thumbai) using GCMS and *In Silico* Analysis

**Keerthana PM,<sup>1\*</sup> Shoba G<sup>1,2</sup> and Padmini R<sup>1,2</sup>**

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#### Abstract

*Leucas aspera* (Family: Lamiaceae) commonly known as “Thumbai” is generally used as an insecticide and whole plant decoctions are traditionally taken for cough and cold and to treat rheumatism, inflammation and bacterial infections. The extracts of whole plants have been reported to have antiulcer, antimicrobial, hepatoprotective, antinociceptive, antioxidant, cytotoxic and prostaglandin inhibitory activities. The mitogen activated protein kinases (MAPK) have been implicated in an ever-increasingly diverse array of pathways, including inflammatory signalling cascades. Inflammatory bowel diseases (IBD), such as ulcerative colitis and Crohn's disease, are characterized by the perpetual production of inflammatory mediators. The transduction pathway behind this over-production has highlighted the potential mediating role for the MAPKs and their related signaling components. The ethanolic extracts of *Leucas aspera* stems were investigated for their action in significant anti-inflammatory action of acute and chronic inflammation. The bioactive compounds of *Leucas aspera* includes 13, Docenyloxy, 2-(9-octadecenyloxy), pentadecanoic acid, cyclopropane octanoic acid, 5,19-Cyclo-5a-androst-6-ene-3,17-dione. The emergence of bioinformatics has provided a platform to explore diseases at the molecular level using computational techniques. In the present study, MAPK (Mitogen Activated Protein Kinase) drug targets were docked against bioactive compounds using AutoDock software. The highest binding energy was obtained using docking analysis and the protein–ligand interaction was studied and possible binding sites were predicted. The results suggested that the molecular target modulated by the bioactive constituents were useful indicators and may act as potent drugs for inflammatory bowel disease (IBD).

**KEYWORDS:** inflammation, inflammatory bowel disease, MAP kinase, *Leucas aspera*, autodock

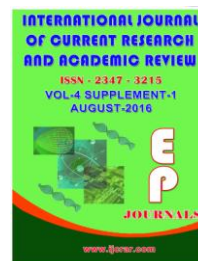




## International Journal of Current Research and Academic Review

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Invited Abstracts

IJCRAR/OP/18

### A Study on Endophytic Mycoflora of *Leonotis neptaefolia* Linn and its Antimicrobial Potency

**Nithyakalyani V,<sup>1\*</sup> Merline Joseph,<sup>1</sup> Vinitha S<sup>2</sup> and Nirmala devi VJ<sup>2</sup>**

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#### Abstract

Endophytes are microbes that colonize the living tissues of plants without causing any immediate over negative effects. The natural and biological role of endophytic fungi contribute substances that possess various types of bioactive properties such as antimicrobial and antifungal. The *Leonotis Neptaefolia* Linn plants were collected and isolated by surface sterilization method. The endophytic fungi which emerged from the surface sterilized segments were isolated and identified based on microscopic observation. The extract was prepared by using solvents such as methanol, acetone, hexane and chloroform. Antimicrobial activity of the plant extracts were determined by disc diffusion method against the bacterial strains *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Escherichia coli*, *Bacillus subtilis* and yeast strains *Candida albicans* and *Rhodotorula sp.*

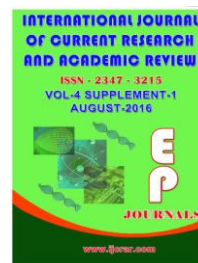
**KEYWORDS:** endophytes, light microscopy, antimicrobial activity



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Invited Abstracts

IJCRAR/OP/19

### GCMS and Molecular Docking Analysis of Leaves of *Plectranthus amboinicus* (Karpuravalli) against Anti-Inflammatory and Anti-Bacterial Drug Targets

**Dharani Bala M,\* Vijayalakshmi K and Vijayalakshmi N**

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#### Abstract

*Plectranthus amboinicus* (Family–Lamiaceae) is traditionally used for asthma, chronic coughs, bronchitis, and a variety of diseases affected by virus, bacteria and other microbes. The present investigation was carried out to determine the chemical constituents from Ethanolic extract of *P.amboinicus* leaves by GC-MS technique. This analysis revealed the presence of caryophyllene, propanedioic acid, trisoralen, pentadecanoic acid, 13-docosenoic acid, carvacrol, norethindrone, hexadecanoic acid, flavone and phytol. These bioactive compounds have various activities such as anti-epileptic, anti-tumorogenic, anti-mutagenic, antimicrobial, anti-bacterial, anti-viral, anti-inflammatory, and anti-fungal. Peptide deformylase (PDF) that deformylates the N-formylmethionine of newly synthesized bacterial peptide inhibits the growth of bacteria. High serum level of vascular endothelial growth factor VEGF leads to Psoriasis. In this study, *in silico* docking analysis of bioactive compounds from *P. amboinicus* leaves was performed against PDF (drug target of Pneumonia) and VEGF (drug target of psoriasis) using E-Auto dock 4.2. The aim behind this analysis was to investigate the anti-inflammatory and anti-bacterial activity of *Plectranthus amboinicus*.

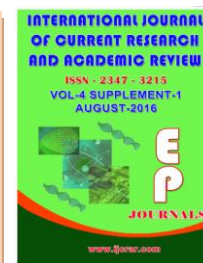
**KEY WORDS:** *Plectranthus amboinicus*, GC–MS analysis, PDF, VEGF.



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Invited Abstracts

IJCRAR/OP/20

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

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#### Abstract

Compost soil samples were collected for isolation of *Rhinocladiella* and identification was done using microscopic and macroscopic observation. Isolated strains of *Rhinocladeilla* were screened for its enzymatic activity. Among the enzymes screened, isolates showed positive for urease and lipase production. The DNA of *Rhinocladiella* species was isolated by alkali lysis method and fungal DNA bands were visualized by agarose gel electrophoresis. PCR was performed for the isolate and 18S rRNA sequencing was done for PCR product. It was then subjected to phylogenetic studies for the confirmation of *Rhinocladiella mackenziei*.

**KEYWORDS:** compost soil, *Rhinocladiella*, alkali lysis, PCR, confirmation of *rhinocladiellamackenziei*

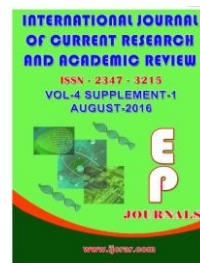




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Invited Abstracts

IJCRAR/OP/21

### **In Silico Docking Studies on Anti-Inflammatory Compounds of *Premna integrifolia* (Munnai) Leaves by Using GCMS Analysis of Ethyl Acetate Solvent**

**Keerthana T,<sup>1\*</sup> Premila J<sup>1,2</sup> and Brindha Banu B<sup>1,3</sup>**

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#### **Abstract**

*Premna integrifolia*, a herbal plant belonging to the family of *verbenaceae*, is widely cultivated in Bangladesh, and extensively used for multiple clinical applications. Mostly the leaves, roots, stem, fruits, flowers are used for medical purposes. Among several therapeutic applications the plant possess including anti-inflammatory properties. Inflammatory arthritis strongly suggests that increased expression of COX-2 is responsible for the increased PG production in inflamed joint tissues. Molecular docking study for anti-inflammatory compounds viz., pentadecanoic acid 14-methyl, methyl ester, cyclohexanamine, 13-docosenoic acid, methyl ester, eugenol and trimethyl-11-tetradecan-ol-acetate agents were found to bind at the active site of the inflammatory protein target. Molecular docking studies were performed using AutoDock 4.2. Computer assisted drug design was preferred, and wet lab could be preferred only if there is good interaction between the ligands and the receptor. The aim of the present study was to describe anti-inflammatory role of bioactive compounds from leaves of *Premna integrifolia* against COX2.

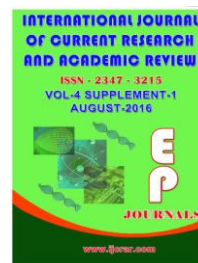
**KEYWORDS:** *Premna integrifolia*, anti-inflammatory, cox-2, *insilico*, ethyl acetate



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Invited Abstracts

IJCRAR/OP/22

### Analysis of Different Composts and its Effect on Plant Growth and Soil Microorganism

**Sumithira P,<sup>1\*</sup> Bharathy B<sup>2</sup> and Vijila V<sup>2</sup>**

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#### Abstract

Planted pots were prepared in different combinations with vermin compost, pit compost and vermin wash using garden soil. The growth pattern was analyzed in triplicates for a period of 15 days. After 15 days the plants were checked for its shoot length and root length. When compared with garden soil, the soil mixed with vermin compost showed significant growth followed by vermin wash and pit compost. The soil samples were also analyzed for its physical and chemical properties. This study suggests vermin compost for good yield. Earthworms can serve as tools to facilitate these functions. They serve as “nature’s plowman” and form good humus which is precious to fulfill the nutritional needs of crops. Vermi compost results in benefits to farmers, industries, environment and overall national economy.

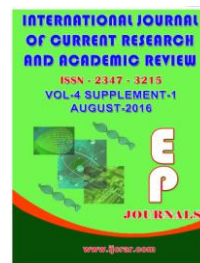
**KEY WORDS:** Vermicompost , organic product, cheap, soil fertility, microbial load, plant growth



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Invited Abstracts

IJCRAR/OP/23

### **In Silico Docking Analysis of Natural Antioxidant from *Murraya koenigii* and Butylated Hydroxyanisole**

**Victoriya Salomi M,<sup>1,2\*</sup> Shoba G,<sup>1,2</sup> Banu M<sup>1</sup> and Elavarasi V<sup>1</sup>**

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#### **Abstract**

Superoxide is a common reactive form of oxygen that is formed when molecular oxygen gains a single electron. It is an anion with the chemical formula  $O_2^-$ , which turn attacks susceptible biological targets, including nucleic acids, proteins and lipids. The extracellular superoxide dismutase (SOD3 or EC-SOD) is a major extracellular scavenger of the superoxide anion. It is a metalloenzyme, which requires Cu and Zn metal ions for its activation, which converts the superoxide radical ( $O_2^-$ ) into oxygen ( $O_2$ ) or hydrogen peroxide ( $H_2O_2$ ) and prevents cell damage. Antioxidants are man-made or natural substances that safely interact with free radicals to neutralize them and terminate the chain reaction before the damage of vital molecules. Synthetic antioxidants are artificial analogs of natural biomolecules. They are less reactive than natural antioxidants. One among the synthetic antioxidant is Butylated Hydroxyanisole (BHA) consisting of a mixture of two isomeric organic compounds, 2-tert-butyl-4-hydroxyanisole and 3-tert-butyl-4-hydroxyanisole. BHA is able to stabilize free radical by sequestering them. By acting as free radical scavengers, further free radical reactions are prevented. *Murraya koenigii* commonly known as *meethineem*, belongs to the family *Rutaceae*, is native to India. The phytochemicals from the leaves of *Murraya koenigii* are Lutein, Tocopherol, Koenimbine, Carotene, O-methyl Murrayamine A, O-methyl Mahanine, Isomahanine, Bismahanine, Bispyrafoline, Euchrestine, Bismurrayafaline E, Mahanine, Mahanimbine which shows antioxidant activity. In this present study, natural antioxidants from the leaves of *Murraya koenigii* (Koenimbine and Mahanimbine) and synthetic antioxidant Butylated Hydroxyanisole (BHA) were docked against SOD3. The result showed that the natural antioxidants interact more efficiently than the synthetic antioxidants.

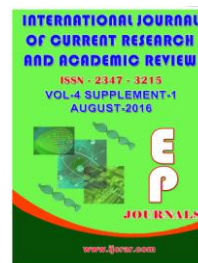
**KEYWORDS:** *Murraya koenigii*, superoxide dismutase, ec-sod, antioxidants, butylated hydroxyanisole.



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Invited Abstracts

IJCRAR/OP/24

### Screening of Soil *Actinomycetes* for Enzyme Activity and for its Metal Tolerance

**Banurekha C,<sup>1\*</sup> Divya<sup>2</sup> and Rajalakshmi<sup>2</sup>**

<sup>1</sup> Department of Microbiology, Dr. MGR Janaki College of Arts and Science, Chennai, Tamil Nadu, India

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#### Abstract

The *Actinomycetes* were originally considered as an intermediate group between bacteria and fungi. *Actinomycetes* play quite an important role in natural ecological system. *Actinomycetes*, one of the known cellulase producers, has attracted considerable research interest due to its potential applications in recovery of fermentable sugars from cellulose that can be benefit for human consumption. Bioremediation can be carried by using *Actinomycetes*. Heavy metals are generally toxic to microorganisms, especially if they exist at high concentration such as mercury, cadmium. The tolerance of soil bacteria to heavy metals has been proposed as an indicator of potential toxicity to other forms of life.

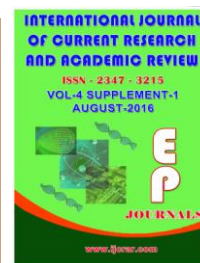
**KEY WORDS :** *Actinomycetes*, Enzyme activity, Metal tolerance



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Invited Abstracts

IJCRAR/OP/25

### GCMS and Molecular Docking Analysis of Fruit of *Abutilon indicum* (Thuthi) Methanolic Extract for Its Anti-Diabetic and Anti-Inflammatory Activity

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#### Abstract

Nowadays research on medicinal plants has gained more attention and importance globally. In recent years, *Abutilon indicum* is an important medicinal plant and to reveal out its importance the methanolic extract of the fruit was subjected to GCMS analysis to find the structures of bioactive compounds namely pentadecanoic acid, cyclopropaneoctanoic acid, 11-eicosenoic acid, 13-docosenoic acid, 14,17-octadecadienoic acid, 5,19-cyclo-5a-androst-6-ene-3. Docking studies were performed to find out the activity of these bioactive compounds against Peroxisome Proliferator-Activated Receptors (PPARs), a member of the nuclear receptor family. The agonists of PPARs are of interest to the pharmaceutical industry since they regulate the expression of genes associated with diseases like cancer, diabetes, atherosclerosis and obesity. The highest binding energy was obtained using docking analysis and the protein-ligand interaction was studied where possible binding sites were predicted. The present study reported the presence of bioactive components in the fruit of *Abutilon indicum* which were found to possess potential medicinal value with anti-inflammatory and anti-diabetic properties and this provides potential insight to develop new PPARs inhibitors.

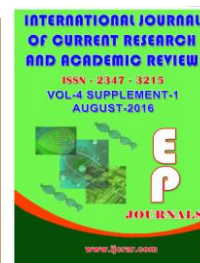
**KEYWORDS:** *Abutilon indicum* fruit, anti-inflammatory, antidiabetic, PPARs, methanolic extract



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Invited Abstracts

IJCRAR/OP/26

### Effects of Environmental Factors on Biofilm Formation

Vidhyalakshmi R,<sup>1\*</sup> Bharathy B<sup>2</sup> and Meenakshi<sup>2</sup>

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#### Abstract

Biofilms are the micro organisms which attach to the surface by a self produced matrix of Extracellular Polymeric Substance. A preliminary identification of the *Pseudomonas aeruginosa* and *Pseudomonas putida* strains was performed. The presence of different environmental factors modulates the *in vitro* biofilm formation that includes pH and temperature. The role and effects of factors facilitates binding of *Pseudomonas* to substrates was clearly observed. Though they have some of the harmful effects, the biofilm matrix is very much efficient in waste water treatment and sewage. Biofilm is used for the remediation of soil, ground water, cleaning up oil, gasoline spills and microbial leaching etc.

**KEYWORDS:** biofilm, bioremediation, microbial leaching, oil spills.

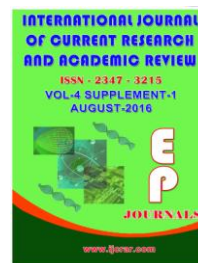




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Invited Abstracts

IJCRAR/OP/27

### Identification of Biomarkers of Lung Cancer using Microarray Data Analysis

**Nazia Thasneem HS,<sup>1\*</sup> Shoba G<sup>1,2</sup> and Padmini R<sup>1,2</sup>**

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#### Abstract

Microarray experiments provide unprecedented data on gene expression patterns. Gene expression is the process by which information from a gene is used in the synthesis of a functional gene product. Gene expression microarray has been the primary biomarker platform ubiquitously applied in biomedical research, resulting in enormous data, predictive models and biomarkers accrued. The dismal cure rate of patients with lung cancer and the stage shift hypothesis have propelled the interest to perform screening at large scale. In this study, Lung cancer samples or datasets were taken from GEO database and highly expressed tumor genes were analysed by using BRB Array tool. BRB-Array Tools is an integrated software system for the comprehensive analysis of DNA microarray experiments. Onto-Express tool was used to identify the function of the gene and number of genes involved. Gene network was constructed using cell designer tool. Cell Designer is a modeling tool of biochemical networks with graphical user interface. The main objective of this work is identification of biomarker for dreadful diseases like lung cancer using microarray experiments.

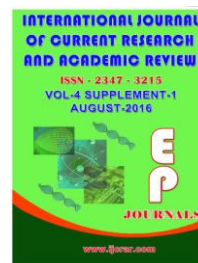
**KEYWORDS:** Microarray, Biomarker, Lung cancer, Gene Expression, Upregulated Genes, Pathway.



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Invited Abstracts

IJCRAR/OP/28

### Effects of Seed Dressing of *Bacillus* species, Isolate from Sugarcane Field and Study on Plant Growth Parameters

Lakshmi Priya D,<sup>1\*</sup> Nishanthi<sup>2</sup> and Hazeena<sup>2</sup>

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#### Abstract

Bio-fertilizer are substances that contain living microorganisms, when they are applied to seed, plant and surface or soil, these microorganisms colonize the rhizosphere or the interior of the plant and promote growth by increasing the supply or availability of primary nutrients to the host plant. Managing the supply of nutrients to plants is an important aspect of crop productivity. The use of bio-fertilizer alone or in combination of chemical fertilizers plays an important role in sequestering carbon and building up soil fertility. The use of nitrogen fixing bacteria is increasingly advocated to maintain high agricultural productivity. Test for soil parameter such as moisture, pH was carried out followed by mass cultivation of *Bacillus* which was bacterized onto host seeds such as tomato, chilly, brinjal and palak. These seeds were sown and plant growth parameters such as number of leaves, root and shoot lengths were assessed. Test for soil fertility such as: Organic carbon, Nitrogen, Phosphorous, Potassium were performed to estimate the potency of the isolate to form a good bio-fertilizer. It is useful for high yield and plant growth.

**KEY WORDS:** Seed dressing, plant growth, plant growth parameters

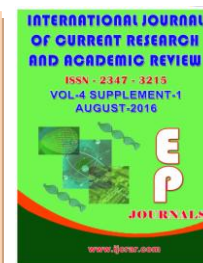




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Invited Abstracts

IJCRAR/OP/29

### **In Silico Comparative Analysis of Metabolic Pathways To Find Out Novel Drug Targets of *Helicobacter pylori* and Docking Analysis against Eugenol**

**Udhaya Nila A,<sup>1\*</sup> Victoriya Salomi M<sup>1,2</sup> and Deepa S<sup>1,2</sup>**

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#### **Abstract**

*Helicobacter pylori* (*H. pylori*) is a pathogenic bacteria that causes acute gastroenteritis with diarrhoea, abdominal pain, fever, nausea, vomiting and is the causative agent of peptic ulcer. Peptic ulcer is a sore formed in the lining of the stomach or duodenum and a leading cause of death in the world. Therefore, identification of drug targets of this pathogen would be crucial to overcome drug resistance to existing antibiotic therapy. In this work, an *in silico* comparative analysis of metabolic pathways of the host *Homo sapiens* and the pathogen *H. pylori* are performed. Novel efforts in developing drugs, which targets the intracellular metabolism of *H. pylori* often focus on metabolic pathways that are specific to peptic ulcer. Pathways of *H. pylori* have been studied and 54 non homologous enzymes to *Homo sapiens* protein sequences were identified, which are non-homologous to *Homo sapiens* protein sequences. These enzymes were also found to be drug targets of *H. pylori*. The structure analysis was made for all these 54 insignificant enzymes, out of 54, 11 drug targets structure is available in PDB and three-dimensional model of these drug targets was constructed using homology modeling. These 3D structures for drug targets were subjected to molecular docking analysis with eugenol from *Aegle marmelos*. This docking scores of eugenol against drug targets indicates that, it may act as a potential and natural therapeutic agent to prevent peptic ulcer.

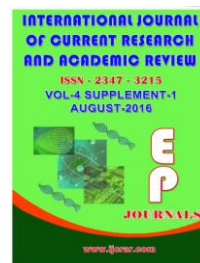
**KEYWORDS:** eugenol, peptic ulcer, drug targets, docking



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Invited Abstracts

IJCRAR/OP/30

### Isolation and Screening of Marine *Actinomycetes* for Biosurfactants

**Aswini L,<sup>1\*</sup> Jothikodi<sup>2</sup>, Renugambal<sup>2</sup> and Bhavani <sup>2</sup>**

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#### Abstract

The present study report bio prospecting of marine *Actinomycetes*. These organisms are routinely screened for new bioactive substances like Antibiotics, Enzymes, Biosurfactants and few yet to be known. Biosurfactants are the surface active agents which helps in reducing the surface tension, biodegradation of toxic hydrocarbons etc., Five samples was isolated, preliminary test was performed. Biosurfactant activity of 5 isolates was assessed by Drop collapse test, Hemolytic test, Lipase test. In this paper we review the current knowledge and the latest advances in Biosurfactants application.

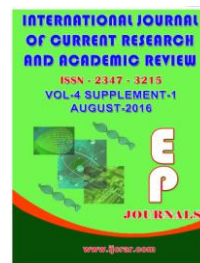
**KEYWORDS:** biosurfactants, biodegradation, surface tension, dropcollapse test.



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Invited Abstracts

IJCRAR/OP/31

### Molecular Interaction Analysis Between IFN-Alpha and Anti-Inflammatory Compounds from *Cassia auriculata* Leaves

Premila J,<sup>1,2\*</sup> Shanmuga Priya G,<sup>1</sup> and Logeshwari S<sup>1</sup>

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#### Abstract

*Cassia auriculata* is a plant species, belongs to the *caesalpiniaceae* family which is traditionally used to treat many diseases. It is commonly known as Tanners Senna. The plant has been reported to possess anti-pyretic, anti-diabetic, hepatoprotective, anti-microbial and anti-inflammatory activity. The phytochemical analysis shows that *Cassia auriculata* leaves contains bio active compounds such as Apigenin and Luteolin which have more potent anti-inflammatory activity. Psoriasis is one of the most common T-cell mediated auto immune diseases in humans. the plasmacytoid Pre-Dendritic Cells (PDC`s) and natural IFN-alpha producing cells, infiltrate the skin of psoriatic patients and become activated to produce IFN-alpha early during the development of psoriatic skin lesions. Blocking of IFN-alpha signalling or inhibiting the ability of PDC`s to produce IFN-alpha prevents the T-cell dependent development of psoriasis. *In silico* docking studies were carried out using Autodock 4.2 based on Lamackrian genetic algorithm principle. Apigenin and Luteolin were docked against IFN-alpha. This study revealed that best interactions and binding energy were seen between Luteolin and IFN-alpha. Hence Luteolin may be considered as a strong inhibitor of IFN-alpha and would serve as a natural therapeutic agent against psoriasis.

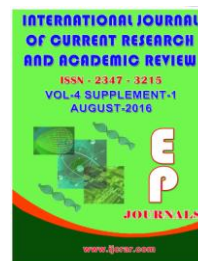
**KEYWORDS:** *Cassia auriculata*, anti-inflammatory activity, psoriasis, plasmacytoid, IFN-alpha, Autodock



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Invited Abstracts

IJCRAR/OP/32

### A Study on Contamination of Microbial Bodies in Bottled Mineral Water

**Banurekha C,<sup>1\*</sup> Sunitha<sup>2</sup> and Mohana Deepa<sup>2</sup>**

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#### Abstract

Bottled water is the water sold to consumers in sealed containers. It can be represented as “mineral” water. If the bottled refrigerate bottled water, store it in a cool, clean environment away from heat and sunlight to avoid contamination of microbial bodies. Organisms which is present in bottled mineral water is Bacteria, Fungi, and other contaminants like algae. Treatment methods where followed to destroy the contaminants in bottled mineral water are Reverse osmosis, Water filtration, UV radiation and Ozonation, Mode of Contamination. The sterilization process which is filtration, ozonation, UV radiation may not be effective. The processes used in producing the bottled mineral water may be susceptible to contamination with micro-organisms. The bottled used to hold the mineral water may already contaminate with micro organisms. When filling the bottled the water may be contaminated from the surrounding environment. Samples were taken from different company bottled mineral water. Contamination of fungi was isolated by Membrane filter method. For Bacteria Plate count technique were performed. Health Impacts are take place by drinking contamination of water. The possible health consequences of low mineral content water consumption results in: Loss of calcium magnesium and other elements in prepared food. Direct effects on the intestinal mucous membrane and possible bacterial re-growth were also studied.

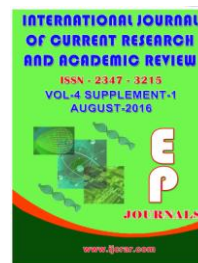
**KEYWORDS:** Bottled Mineral water, Contamination, Microbial bodies, Health Impacts.



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Invited Abstracts

IJCRAR/OP/33

### **In-Silico Proteomic Analysis of IGFBP1 in Polycystic Ovarian Syndrome**

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#### **Abstract**

Polycystic ovary syndrome (PCOS) is a syndrome, in which the ovaries are enlarged and have several fluid-filled sacs or cysts. Women with PCOS may experience a number of other symptoms as well insulin resistance. Since women with PCOS make too much insulin, it's possible that the ovaries react by making too many male hormones, called androgens. This can lead to acne, excessive hair growth, weight gain and ovulation problems. IGF-binding protein-IGFBP-1 synthesis takes place in ovarian granulosa cells and endometrium, and this IGFBP-1 synthesis is inhibited by insulin. A structure-directed approach is employed to investigate the biological function of this protein. After collecting the sequence of IGFBP1 protein from ExPasy proteomics server, the primary structure, secondary structure and tertiary structure of the protein was predicted using Protscale, GOR, and Homology modelling by using respective Modeller Tools. The functional sites like domains and motifs in the sequence of the protein can be identified from the tools SMART, PROSITE and PFam. The physicochemical properties like molecular weight, amino acid composition, hydrophilic, hydrophobic amino acids were founded using tools.

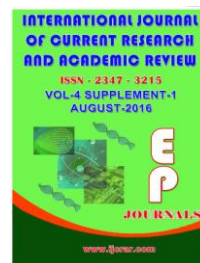
**KEYWORDS:** PCOS, IGF-binding protein, Protscale, GOR, SMART, PROSITE, PFam



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Invited Abstracts

IJCRAR/OP/34

### Antibacterial Activity of Honey against Wound Isolates

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#### Abstract

Honey has a potent broad-spectrum antibacterial activity that rapidly clears infection from wounds when applied topically, which may make it suitable for "anti-infective" treatment. Honey increases the rate of healing by stimulating angiogenesis, granulation and epithelialisation. Wound samples were collected from different places. Antibacterial activity of two types of honey (Natural and Agmark) against these isolates were tested using Agar Diffusion Minimum Inhibitory Concentration Techniques. Antibacterial activity of honey was compared with the sensitivity of organism to antiseptics. Honey also supplies glucose, which is essential for the respiratory burst in macrophages that is an essential part of their mechanism of destroying bacteria.

**KEYWORDS:** Honey, anti-infective, healing property

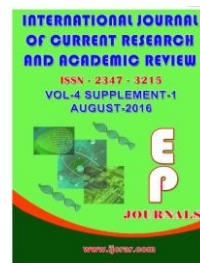




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Invited Abstracts

IJCRAR/OP/35

### **In Vivo Antioxidant Activities of Methanolic Extract of *Evolvulus alsinoides* (Linn.)**

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#### **Abstract**

Free radicals are reactive molecules involved in many physiological processes and human diseases. Hence, more attention has been directed towards the studies regarding free radical scavenging activity or antioxidant activity of plant extracts. The study was undertaken to assess the antioxidant potential of methanolic extract of *Evolvulus alsinoides* leaves in the paracetamol intoxicated Wistar Albino rats. Methanolic extract of leaves in the doses of 75 mg/kg, 150 mg/kg were injected in the rats. The oxidative stress was produced by overdose of paracetamol. The antioxidant parameters including Superoxide dismutase (SOD), Catalase (CAT), Glutathione Peroxidase (GPx), Glutathione S transferase (GST) and Lipid peroxidation were evaluated. Silymarin (50 mg/kg) was used as a standard drug for assessment of antioxidant status. Results were analyzed by one-way analysis of variance followed by Student's t-test. When compared with Silymarin, methanolic extract of leaves of *Evolvulus alsinoides* did not exhibit potent antioxidant activity in terms of MDA level reduction. However, it significantly increased levels of the antioxidant enzymes (SOD, GPx, GST, and CAT) exerting antioxidant effect in a graded manner. The overall efficacy of the extract is comparable with the standard drug silymarin. The observed results suggest that methanolic extract of leaves of *Evolvulus alsinoides* was found to have potential antioxidant activity in the animal model system. This study revealed that the plant *E. alsinoides* can serve as a source of natural antioxidant compounds. The further research on characterization of functional molecules has to be initiated and studies are required to explore the therapeutic property of plant.

**KEYWORDS:** *Evolvulus alsinoides*, antioxidants, lipid peroxidation, paracetamol

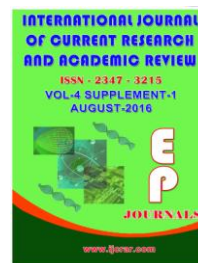




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Invited Abstracts

IJCRAR/OP/36

### Herbal Antibacterial Liquid Soap Development against Bacteria Causing Skin Diseases

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#### Abstract

Samples were collected from saravana diagnostic centre villivakam from patient affected by skin diseases and stored at 4 degree Celsius. Two Gram positive bacteria (*Staphylococcus aureus*, *Bacillus species*) and two Gram negative bacteria (*Pseudomonas species*, *Escheriachia coli*) were isolated from clinical samples and confirmed by their morphological cultural and biochemical characterization. Out of six samples tested five sample showed antibacterial activity against the organism. Lime oil and mangosteem extract were found to be Gram positive, Gram negative. Combination of kaffer lime oil, orange oil in chemical liquid soap antibacterial properties and better than both commercial products.

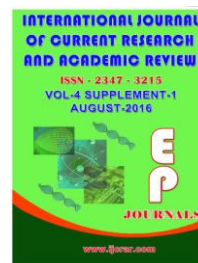
**KEYWORDS:** Mango steem extract, kaffer lime oil, orange oil, antibacterial properties, *Staphylococcus aureus*.



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Invited Abstracts

IJCRAR/OP/37

### **In Silico Docking Analysis of Bioactive Compounds from *Moringa concanensis* Nimmo Against MabA (FABG1) Protein to Predict its Antibacterial Activity**

**Brindha Banu B,<sup>1,2\*</sup> Santhi S<sup>1</sup> and Tobika R<sup>1</sup>**

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#### **Abstract**

The traditional medicine plants contain more phytochemical and bioactive constituent and is the best source to obtain a variety of drugs to cure ailments. *Moringa concanensis* Nimmo is a medicinal plant, which possesses anticancer, antibacterial, antifungal, analgesic and anti-inflammatory properties. In the present study Molecular docking studies were carried out on hexanedioic acid, bis (2ethyl hexyl) from *Moringa concanensis* Nimmo bark ethanolic extract against enzyme involved in *Mycobacterium tuberculosis* cell wall biogenesis namely beta-keto acyl ACP reductase (MabA) which is essential for biosynthesis of coenzyme A, is important for the growth of *Mycobacterium tuberculosis*. The crystal structure of MabA was retrieved from the PDB. Molecular docking experiments were performed using AutoDock4.2. Hexanedioic acid bis (2ethyl hexyl) showed high docking score estimated binding free energy of -1.66 was estimated. Molecular interactions of Hexanedioic acid, bis (2-ethylhexyl) and MabA suggested that this compound may act as potent antibacterial agent.

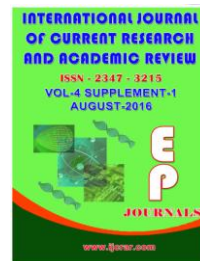
**KEYWORDS:** *Moringa concanensis*, MabA, antibacterial, *Mycobacterium tuberculosis*, hexanedioic acid, bis (2ethyl hexyl)



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Invited Abstracts

IJCRAR/OP/38

### Biodegradation of Phenol and Toluene by *Staphylococcus species*, *Pseudomonas species* and *Bacillus species*, Isolated from Pharmaceutical Industrial Effluent

Aswini L,<sup>1\*</sup> Krithika J<sup>2</sup> and Divya R<sup>2</sup>

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#### Abstract

Biodegradation is the chemical breakdown of material by a physiological environment. The term is often used in relation to ecology, waste management and environmental remediation (bioremediation). Phenol is a basic structural unit for a variety of synthetic organic compound. It is a white crystalline solid with molecular weight of 94.14g/mol. Phenol is a weak acid and in its ionized form it is very sensitive to electrophilic substitution reaction and oxidation. The current investigation was aimed at understanding both phenol and toluene degrading efficiency of 3 strains namely *Pseudomonas sp*, *Staphylococcus sp* and *Bacillus sp*. The maximum time needed to degrade in flask culture is 5 to 6hrs and 72 to 120hrs for lower and higher concentration respectively. Maximum time needed to 6 to 7 hrs for lower 72 to 108 concentration. *Bacillus sp*, *Staphylococcus sp* these strains can be utilized for bio remediation of pharmaceutical effluent both phenol and toluene.

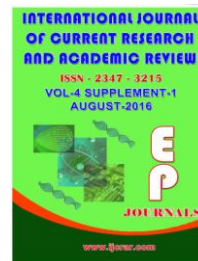
**KEYWORDS:** Biodegradation, Biodegrading *Staphylococci*, Synthetic organic compound degradation.



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Invited Abstracts

IJCRAR/OP/39

### **In Silico Docking Analysis of compounds of *Aloe vera* against Drug Target of Psoriasis**

**Divya I,<sup>1\*</sup> Padmini R<sup>1,2</sup> and Brindha Banu B<sup>1,3</sup>**

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<sup>2</sup>Research Scholar, Department of Biotechnology, Mother Teresa Women's University, Kodaikanal, Tamil Nadu, India

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#### **Abstract**

Psoriasis is a very common, non-infectious, inflammatory skin disease characterized by well defined, distinctive erythematous plaques yielding adherent silvery white scales, which may manifest bleeding points when removed. Researchers have identified a new gene (PIM1), which could be an effective target for innovative treatments and therapies for the human autoimmune disease, psoriasis. The key protein namely PIM1 plays a major role in psoriasis formation. *Aloe vera*, an important medicinal plant of India is widely used for medicinal treatments. Compounds of *Aloe vera* have anti-inflammation activity against several major diseases including, Psoriasis, asthma and diabetes. *Aloe vera* can prevent psoriasis and can be used for treating Psoriasis. The compounds of *Aloe vera* are anthraquinone, capsaicin, eicosane, antipuritic, lupeol, bradykinin, tazorotene. The emergence of bioinformatics has provided a platform to explore diseases at the molecular level using computational techniques. In the present study, PIM1 proteins were docked against several *Aloe vera* compounds using auto dock software. The highest binding energy is obtained using docking analysis and the protein–ligand interaction is studied, and possible binding sites were predicted. The results suggested that the molecular target modulated by the bioactive constituents is an useful indicator and it may act as a potent drug for psoriasis disease.

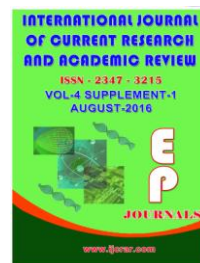
**KEYWORDS:** Psoriasis, *Aloe vera*, skin disease, anti-inflammation



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Invited Abstracts

IJCRAR/OP/40

### Panchakavya – Organic Growth Promoter and its Effect on Tomato Plant

Vijayanandhini,<sup>1\*</sup> Sathya<sup>2</sup>, Swetha<sup>2</sup> and Muthumeena<sup>2</sup>

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#### Abstract

Panchakavya is a blend of five products obtained from cow (cow's dung, urine, milk, curd, and ghee) is a better option for sustainable management of plant health and soil health without sacrificing the economic yield. It also increases the microbial load thus making soil fertile. Soil analysis was performed for different samples: Soil sowed with normal seeds, Soil sowed with Panchakavya treated seed, Soil sowed with normal seed and after growth Panchakavya was sprayed, Soil sowed with Panchakavya treated seed and after growth panchakavya was sprayed. The soil samples were tested for soil characters and microbial load. The effect of panchakavya on the growth of tomato plant was studied by observing root length, shoot height, number of leaves, flowers, branches, leaf size, and chlorophyll content of leaves. Panchakavya is a cheap and valuable source to accelerate plant growth, soil fertility, reduce toxicity of chemical fertilizers in food product

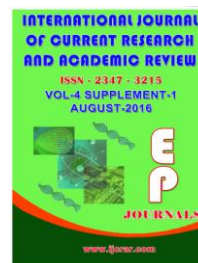
**KEYWORDS:** Panchakavya, organic product, cheap, soil fertility, microbial load, plant growth



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Invited Abstracts

IJCRAR/OP/41

### Molecular Docking Studies on Anti-Inflammatory and Anticancer Compounds of *Cassia auriculata* (Avaram)

Lakshmi K,<sup>1\*</sup> Shoba G<sup>1,2</sup> and Premila J<sup>1,3</sup>

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<sup>2</sup> Research Scholar, Department of Biotechnology, Mother Teresa Women's University, Kodaikanal, Tamil Nadu, India

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#### Abstract

*Cassia Auriculata*, a herbal plant of the family Caesalpiniaceae, is widely cultivated in South India, and extensively used for multiple clinical treatments. mostly the leaves, roots, stems, fruits, flowers, are used for medicinal purposes. Therapeutic applications includes anti-inflammatory, anticancer, anti-diabetic, antioxidant and anti hyperlipidemic. Inflammatory arthritis strongly suggests that increased expression of COX-2 is responsible for the increased PG production seen in inflamed joint tissues. Osteoarthritis (OA) is one of the most common diseases among the elderly. Anticancer is highly expressed in human tissue, potential target treatment of kidney cancer. Molecular docking studies and ADMET properties for anti-inflammatory (DI-Alpha -tocopherol), Anticancer (Resorcinol) agents were found to bind at the active site of the inflammation and cancer protein target. Molecular docking studies using Discovery Studio 4.0 of the two characterized compounds and the best score with ADMET properties can be utilized as therapeutic applications.

**KEYWORDS:** ADMET, *Cassia Auriculata*, Anti-Inflammatory, Tochopherol

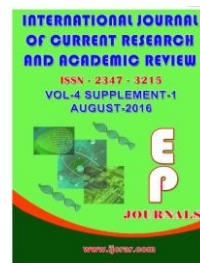




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Invited Abstracts

IJCRAR/OP/42

### Degradation of Cellulose Using Intestinal Flora of Silkworm

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#### Abstract

Cellulose is most common organic compound on earth. Some animals, particularly ruminants and termites, can digest cellulose with the help of microbes that live in their gut. Mulberry silkworm (*Bombyx mori*) is a domesticated insect and is never found in a wild state which plays an important role in digestion of mulberry leaves. In this study, *Aspergillus sp*, *Fusarium sp*, *Penicillium sp* were isolated from gut of silkworm and production of cellulose was achieved. Estimation of protein was done by Bradford's method. Partial purification of enzyme was done by dialysis. The partially purified cellulase was analyzed in SDS-PAGE. Detection of paper utilization by organisms were carried out using 5<sup>th</sup> stage larvae of silkworm.

**KEYWORDS:** Cellulose; *Bombyx mori*; microbes in gut; cellulase production; paper utilisation

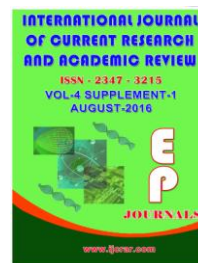




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Invited Abstracts

IJCRAR/OP/43

### **In Silico Comparative Analysis of Natural and Commercial Drug against Protein-Tyrosine Phosphatase 1B (PTP1B)**

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#### **Abstract**

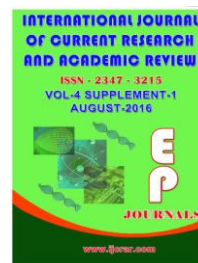
Type 2 Diabetes Mellitus is a syndrome of hyperglycemia due to insulin deficiency or resistance or both. It is not an autoimmune disorder; however, there is a strong genetic correlation to the susceptibility to this form of diabetes. Obesity is a major risk factor that predisposes one to type 2 diabetes. Genetic studies in mice have demonstrated a link between genes responsible for obesity and those that cause diabetes mellitus. PTP1B, a negative regulator of insulin receptor signaling system, is a ubiquitously expressed intracellular protein tyrosine phosphatase that has emerged as a highly validated, attractive target for the treatment of Non-Insulin Dependent Diabetes Mellitus (NIDDM) and obesity. Thiazolidinediones has recently emerged as promising antidiabetic drug. They help to lower insulin resistance in cells, improving the way that the body responds to insulin. The docking analysis was performed for the target protein with four natural ligands (namely Diosgenin, Gymnemic acid, Oleanolic and Triterpenoids) and compared with the commercial drug (Thiazolidinediones). Best compounds were selected based on the energy scores and hydrogen bonding. The two natural compounds namely Diosgenin and Triterpenoids taken for the docking studies showed good binding affinity towards the target protein than the commercial drug. Thereby from the protein- ligand interaction, the natural compounds possess good binding affinity with the target protein proving to be a good inhibitor with less side effects for insulin-dependent diabetes mellitus (IDDM).



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Invited Abstracts

IJCRAR/OP/44

### GC-MS Analysis of Ethanolic Extract of *Borreriahispidia* L. and *In-Silico* Analysis against Breast Cancer Targets

**Thenmozhi P<sup>1\*</sup> and Dr. T.V. Poonguzhali<sup>2</sup>**

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<sup>2</sup>Associate Professor, Dept. of Plant Biology and Plant Biotechnology, Queen Mary's College, Chennai-4

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#### Abstract

Cancer is a neoplastic 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 ethanolic plant extract subjected GC-MS analysis and Docking. In the present investigation, the GC-MS analysis revealed the presence of 32 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. Seven lead compounds were selected for docking studies based on pre-ADMET *in silico* 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-butyl dimethylsilyloxy)-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)-. These lead compounds were docked with Breast cancer targets. The crystal structures of target proteins were retrieved from RCSB protein data bank (<http://www.rcsb.org/pdb/home/home.do>), viewed by discovery studio and used for docking simulation. The ethanolic extract of *Borreriahispidia* which contains 7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)- shows best docking score against Breast cancer target.

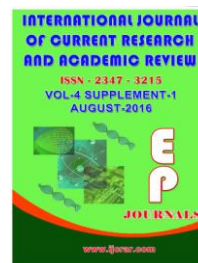
**KEYWORDS:** *Borreriahispidia*, GCMS analysis, docking and breast cancer



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Invited Abstracts

IJCRAR/OP/45

### Comparative Analysis of Biosorption of Arsenic Onto Acid and Alkali Treated Sugarcane Waste Bagasse

**Ravanappan Srinivasan Ramya,\* Manickam Akila, Selvakumar Dharmaraj and Durairaj Rajadurai**

PG Department of Biotechnology, Kumararani Meena Muthiah College of Arts and Science, Adyar, Chennai - 600020, Tamil Nadu, India

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#### Abstract

To standardize the biosorption of arsenic from aqueous solution using sugarcane waste bagasse and to optimize various parameters for its effective adsorption with comparison to check the efficiency of the adsorption onto alkali treated and acid treated bagasse. Preparation of adsorptions using bagasse with acid and alkali treatment followed by optimization of the adsorbent with parameters such as pH, temperature, contact time, adsorbent dosage and particle size of the adsorbent. The amount of arsenic adsorbed was further quantified using iodometric titration methods. Acid treated bagasse on conversion into carbonized ash showed considerable adsorption of arsenic than alkali treated bagasse owing to large surface area of the finely powdered ash material. The physiological parameters checked showed that the adsorption increases with increase in contact time with constant pH throughout the incubation period for efficient adsorption. The study showed certain drawbacks besides capability of acid/alkali treated bagasse of adsorbing arsenic from aqueous solution. For efficient adsorption and accurate estimation, further studies using highly sophisticated and sensitive methodologies have to be employed for studying the adsorption and equilibrium kinetics.

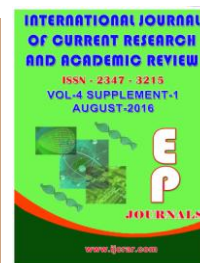
**KEYWORDS:** biosorption, bagasse, arsenic



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Invited Abstracts

IJCRAR/OP/46

### Biosynthesis of Silver Nanoparticles Using Extracellular Filtrate of Marine Bacteria and Its Antimicrobial Activity

**Selvakumar Dharmaraj,\* Ravanappan Srinivasan Ramya, Manickam Akila, Jeevitha Ramanan and Elango Jothimani**

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#### Abstract

The present study focused on the synthesis of silver nanoparticles from the extracellular components of the marine fish gut associated bacteria and its antagonistic activity. Marine fish *Cephalopholis formosa* was collected from Neelagankarai Beach, Chennai, Tamil Nadu. Two bacterial strains were isolated from gut of Marine fish and its extracellular components were used for the synthesis of bionanoparticles from silver nitrate. The characterization of nanoparticles synthesized were analysed using UV-Visible spectroscopy, SEM and FTIR. Later they were subjected to antibacterial activities by agar well-diffusion (AWD) and disc diffusion (DD) methods against bacterial pathogens (*E. coli*, *P. aeruginosa*, *Klebsiella sp.*, *S. aureus*) and fungal pathogens (*Candida albicans*, *Candida tropicalis*). Two marine strains (NDBG 01 and NDBG 02) isolated was identified as *Bacillus sp.* by conventional biochemical characterisation. The culture supernatant upon UV-Visible spectral analysis showed absorption at 393 nm (NDBG 01) and 417 nm (NDBG 02). SEM analysis revealed to have sizes of several 23.9 to 56.1 nm (NDBG 01) and 66.7 to 215.7 nm (NDBG 02) biomolecules. FTIR was done to identify the biomolecules responsible for the bioreduction of silver ion and capping of the bioreduced silver nanoparticles. AWD and DD methods exhibited the maximal inhibition zone of 10 to 15 mm against pathogens. These bionanoparticles can play a vital role in pharmaceutical industry and nano-based therapy in future.

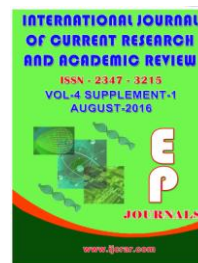
**KEYWORDS:** marine bacteria, extracellular synthesis, bionanoparticles.



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Invited Abstracts

IJCRAR/OP/47

### Association of IGF2BP2 Gene Polymorphism on Type 2 Diabetes: A Case Control Study on Chennai Population

**ManickamAkila,<sup>1\*</sup> Ravanappan Srinivasan Ramya<sup>1</sup> and Puthur George Stella<sup>2</sup>**

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\*E-mail: akila\_manickam@yahoo.com

#### Abstract

To identify the mutant variants of *IGF2BP2* gene prevalent in South Indian Type 2 diabetic population against the non-diabetic controls using Restriction Fragment Length Polymorphism (RFLP) analysis. The study focuses on association between Insulin-like growth factor 2 (IGF2) mRNA-binding protein-2 (IMP2/IGF2BP2) in South Indian diabetic population. Three possible genotypes were screened and compared amongst both Type 2 diabetic and non-diabetic controls. PCR analysis was done using DNA isolated from blood samples to amplify IGF2BP2 gene using the primers TD5 and TD6. Restriction Fragment Length Polymorphism (RFLP) analysis was performed on PCR amplicons using *MspI* enzyme that recognizes homozygous mutant. Agarose gel electrophoresis was performed on the digested amplicons to determine the genotype. Electrophoresis results post enzyme digestion indicated two fragments and one single fragment in homozygous normal and mutant, respectively, whereas in heterozygous mutants, three fragments were observed upon digestion. Statistical analysis was done using SPSS v10.2 software. Overall, the frequency of G allele was higher in the diabetic patients when compared to the controls. A large scale study is further required to confirm the association of the IGF2BP2 gene polymorphism with Type 2 diabetes.

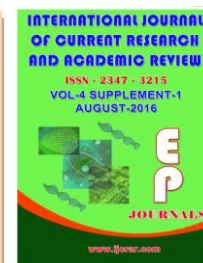
**KEYWORDS:** Type 2 diabetes, IGF2, RFLP, gene polymorphism



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Invited Abstracts

IJCRAR/OP/48

### Leptin and Its Relation to Body Mass Index—A Review

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#### Abstract

Leptin is a hormone secreted mainly by adipose tissue and in small amounts by stomach. Recent studies indicate leptin play a role in short term regulation of food intake and body weight, as leptin is the key component of the neuroendocrine circulatory. The prevalence of obesity has increased among Indian population. Body mass index (BMI) is a marker of body fat. Leptin induces weight loss by suppression of food intake and by increasing metabolic rate. Leptin treatment results in decreased appetite and weight loss. Leptin plays an important role in regulating energy homeostasis, neuroendocrine and immune functions, and glucose, lipid and bone metabolism. Subcutaneous fat produces more leptin than visceral fat, and this may, in part, contribute to higher leptin levels in women compared to men. Obese individual exhibit higher levels of leptin expression in adipose tissue and have elevated circulating leptin levels. Leptin has endogenous circadian rhythm, which peaks around the time of awakening. In epidemiology studies, a wide variability in leptin levels has been reported, even among individuals with the same body mass index (BMI) implying the influence of both genetic and environmental factors. A comparison of heterozygous relatives of congenitally leptin deficient individuals with control subjects of the same ethnicity and BMI reveals an increased percentage of body fat and reduced leptin levels. In children, obesity is correlated with BMI and markers of adiposity. This review focuses on leptin and its relation with BMI.

**KEYWORDS:** appetite, BMI, body fat, leptin, obesity

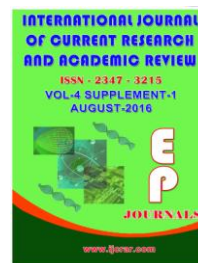




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Invited Abstracts

IJCRAR/OP/49

### Serum Zinc and Lysosomal Enzyme Levels in Type 2 Diabetes Mellitus with Periodontitis

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#### Abstract

Periodontitis is one of the most prevalent complications in Type 2 Diabetes Mellitus (T2DM) subjects and it is a very common oral infection worldwide. However, the possible aggravating effect of periodontal diseases on the diabetic condition has not been investigated sufficiently. The study aimed to determine the serum zinc, lysosomal enzymes acid phosphatase,  $\beta$ -D-glucuronidase and cathepsin D levels in four groups as Group I (control healthysubjects,  $n = 150$ ), Group II (T2DM with periodontitis,  $n = 150$ ), Group III (T2DM without periodontitis,  $n = 150$ ) and Group IV (Non-DM with periodontitis,  $n = 150$ ). The expression of acid phosphatase was found to be ten times increased in T2DM with periodontitis, the levels of  $\beta$ -D-glucuronidase are nine times elevated in T2DM with periodontitis, and the highest cathepsin D enzyme activity was observed in subjects with non-diabetes with periodontitis. The study supports the overall hypothesis that zinc deficiency is one of the major riskfactor for T2DM with periodontitis. Zinc has been reported to reduce the stabilization of lysosomal membranes. When the level of zinc is decreased, the structural integrityof lysosomal membrane has been lost and it would have caused the increased release of lysosomal enzymes inT2DM with periodontitis.

**KEYWORDS:** acid phosphatase,  $\beta$ -D-glucuronidase, cathepsin D, diabetes, periodontitis, zinc

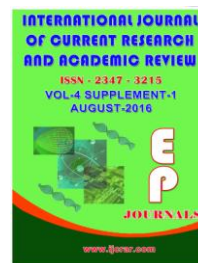




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Invited Abstracts

IJCRAR/OP/50

### Antibacterial Activity of Marine Algae against Clinically Relevant Bacterial Strains

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#### Abstract

Marine algae are considered to be one of the largest source for biogenic compounds. They produce a wide variety of chemically active metabolites that possess antibacterial, antifungal, antialgal, antifouling properties and also are finding importance in therapeutics. The aim of this study was to evaluate the antibacterial activity of marine algae against clinical pathogenic isolates. A total of four marine algae, that is, two red and two brown algae were chosen and screened for their antibacterial activity. Methanolic extraction were obtained from the seaweeds and tested for antibacterial activity. Of the four algal extracts, the red algae *Porteina hornmonni* showed maximum inhibition activity against all the five clinical isolates while others showed a moderate to minimum activity. The results indicate that these algal extracts can further be analyzed and purified for clinically relevant antibacterial compounds which can be used in therapeutics and other applications.

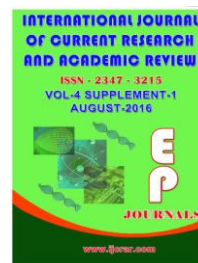
**KEYWORDS:** marine algae, antibacterial activity, methanol extraction, seaweeds



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Invited Abstracts

IJCRAR/OP/51

### Effect of *Allivum sativum* and *Zingiber officinale* on Drug Resistant Pathogenic Bacteria

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#### Abstract

To test the antibacterial efficacy of ginger and garlic extract as antibacterial activity against certain Gram-negative and Gram-positive bacteria. Eight different characterized drug resistant bacterial strains like *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Enterobacter species*, *Enterococcus species*, *Pseudomonas aeruginosa*, Coagulase-negative *Staphylococcus* were used for the study. The growth of inhibition was evaluated by agar well diffusion method. The results of the antibacterial activity of ginger (*Zingiber officinale*) and garlic (*Allivum sativum*) extracts indicated that different bacterial species demonstrated different levels of sensitivity towards the tested samples of ginger and garlic extracts. The diameter of zone of inhibition for ginger extract was lower than that of garlic extract at the corresponding concentrations. The aqueous extracts of garlic seems to be more effective as an antibacterial agent than ginger.

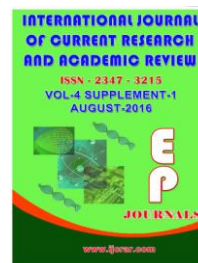
**KEYWORDS:** garlic, ginger, antibacterial activity, agar well diffusion, pathogenic bacteria



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Invited Abstracts

IJCRAR/OP/52

### A Microcosm Study of Vermicomposting of *Perionyx ceylansis* in the Gut and Cast Using Different Substrates

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<sup>2</sup>HOD & Associate Professor, Department of Microbiology, Kanchi Shri Krishna College of Arts and Science, Kanchipuram

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#### Abstract

This study focused on the production of vermicomposting of *Perionyx ceylansis* using different wastes such as Teak Leaf Litter (TLL), Paper Mill Sludge (PMS) and Vegetable Waste (VW). The gut and cast of worms grown in different substrates were analysed for microflora. Collection of organic waste such as TLL, PMS and VW as a substrate for the earthworm *Perionyx ceylansis* was collected from Gandhigram University, Tamil Nadu. Microbial analysis was done on vermicasts collected after 10,15, 20 and 60 days interval. The population of microbial flora was determined by serial dilution plate technique. Each substrate of 1 gm was suspended in 1 ml sterile saline and plated on respective media. The gut contents of *Perionyx ceylansis* reared from TLL, PMS and VW were dissected out using sterile scissor and contents were transferred to 1 ml sterile saline in sterile test tubes. The dilutions were plated on Nutrient agar, Blood Agar, Macconkey agar, SDA and Actinomycetes agar plates and incubated for their growth. The diversity of types and number of fungi, bacteria, yeast and protozoa were isolated from the gut and cast of *Perionyx ceylansis* influenced by different substrates. The microbes were seen numerous in the cast and gut of worm in vegetable waste. Earthworm for their growth and reproduction has been shown to meet their nutritional requirement by feeding organic matter and microbes. Microorganisms constitute an important component of earthworm. The variation in microbial population in the earthworm gut may be because of their nutritional needs and digesting ability of earthworm. Thus the role of microbes-earthworm throws light on the flux of nutrients, particularly trace elements between microbes, earthworm and plants.

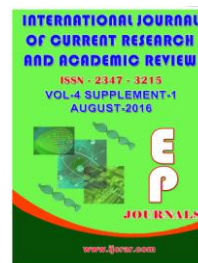
**KEYWORDS:** microflora, vermibed, *Perionyx ceylansis*, substrates



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Invited Abstracts

IJCRAR/OP/53

### Radiopaque Fibrin Nanocomplex for Tumour Diagnosis

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#### Abstract

Fabrication of smart nanomaterials for sensitive diagnosis of tumour even in its early stage holds great promise in controlling the increasing burden of cancer. Present study deals with the preparation of Radiopaque Fibrin (RFN) nanocomplex for specific visualization of solid tumour is described. RFN utilizes the enhanced affinity between fibrin and the  $\alpha v \beta 3$  receptors overexpressed on tumour cell surface helps to detect tumour even in its initial stage. The nanocomplex exhibits high X-ray absorption and therefore employs X-ray radiography, which is more economical than Computed Tomography/Magnetic Resonance Imaging for detecting tumours. The X-ray images taken after intravenous administration of RFN in xenograft-bearing mice showed good tumour visibility with the maximum amount of nanocomplex diffused into the entire tumour area within 45 min post-injection. *In vivo* biodistribution studies showed that there was the predominant accumulation of RFN in the tumour and in the liver, spleen, and kidney. With regard to toxicity, RFN did not induce any histopathological abnormalities or lesions in treated mice, thereby demonstrating their non-hazardous property. The above findings reveal the promise of RFN as a potential tool for tumour imaging and therapy.

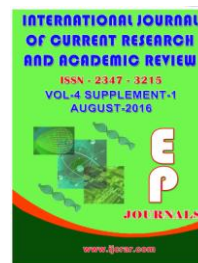
**KEYWORDS:** TFN, tumour, nanocomplex



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Invited Abstracts

IJCRAR/OP/54

### Effect of Quercetin and Hesperidin on Rotenone induced SH-SY5Y Cell Line—A Preliminary Investigation

**Srimathi priyanga K<sup>1\*</sup> and Dr. K Vijayalakshmi<sup>2</sup>**

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<sup>2</sup>Associate professor, Department of Biochemistry, Bharathi Women's college, Chennai, Tamil Nadu

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#### Abstract

To investigate the effect of Quercetin and Hesperidin on rotenone induced SH-SY5Y cell line in Parkinson's disease. SH-SY5Y cell line was procured from NCCS, Pune. SH-SY5Y cells maintained under standard condition were treated with Quercetin and Hesperidin. Cell viability, ROS production, Mitochondrial Membrane Potential, Nuclear condensation and antioxidant levels were investigated by standard procedures in Parkinson's disease. Quercetin and Hesperidin significantly increased the cell viability of SH-SY5Y cells. It decreased ROS production and maintained mitochondrial membrane potential and prevented nuclear damage. It increased the activates of SOD and catalase. Quercetin and Hesperidin dose dependently protected dopaminergic neurons against neurotoxicity. SH-SY5Y cell lines when co-treated with Quercetin and Hesperidin protected SH-SY5Y cells from oxidative damage. Thus both compound proved to be therapeutic agents.

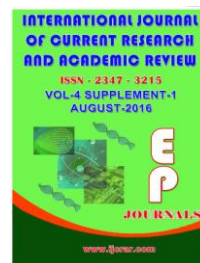
**KEYWORDS:** Parkinson's disease, SH-SY5Y, quercetin, hesperidin



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Invited Abstracts

IJCRAR/OP/55

### Neuroprotective Effect of Sesamol on Rotenone-Induced SH-SY5Y Cells Related to Parkinson's Disease

**Rohini D<sup>1\*</sup> and Vijayalakshmi K<sup>2</sup>**

<sup>1</sup>Research scholar, Department of Biochemistry, Bharathi Women's College, Chennai, Tamil Nadu, India

<sup>2</sup>Associate Professor, Department of Biochemistry, Bharathi Women's College, Chennai, Tamil Nadu, India

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#### Abstract

To investigate the protective effect of sesamol against rotenone-induced cell death in SH-SY5Y cells associated with Parkinsonism. Cell viability was determined by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-tetrazolium bromide (MTT) assay. The reactive oxidative species (ROS), mitochondrial membrane potential ( $\Delta\Psi_m$ ) and nuclear morphology were determined by dichlorofluoresceindiacetate (DCFH-DA), rhodamine 123 and 4',6-diamidino-2-phenylindole (DAPI), respectively. Thiobarbituric acid reactive substances (TBARS), activities of catalase (CAT), superoxide dismutase (SOD), glutathione peroxidase (GPx) and glutathione (GSH) were determined by standard assays. Sesamol significantly increased the cell viability and decreased the rotenone-induced cell death in SH-SY5Y cells. Co-treatment with sesamol protected the cells from rotenone-induced death. Sesamol antagonized rotenone-induced ROS generation, loss of  $\Delta\Psi_m$ , nuclear damage, decreased TBARS level and increased the levels of CAT, SOD, GPx and GSH. The results obtained strongly indicate the promising neuroprotective role of sesamol against rotenone-induced death in SH-SY5Y cells.

**KEYWORDS:** Parkinson's disease, SH-SY5Y cells, sesamol, neuroprotection

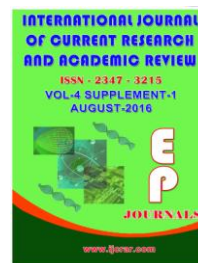




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Invited Abstracts

IJCRAR/OP/56

### Cytotoxicity and Genotoxicity Activities of Green Synthesized Silver Nanoparticles of Ethanolic Leaf Extract of *Caesalpinia coriaria* (JACQ) Willd against Human Breast Carcinoma Cells

**Priya S and Anandhi D\***

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#### Abstract

The polyphenolic compound from *Caesalpinia coriaria* shows cancer chemopreventive effects in Human Carcinoma Cells. NAPALERT database reveals that *Caesalpinia coriaria* (Jacq) Willd might be effective in the prevention of certain human cancers. The present study investigated the effect of green synthesized silver nanoparticles from *Caesalpinia coriaria*, on the induction of apoptosis (programmed cell death) and regulation of cell cycle in human carcinoma cells (MCF-7, MDA MB 231). Human Breast carcinoma cells (cell line MCF-7 & MDA MB 231) were used. Apoptosis was assessed using the formation of internucleosomal DNA fragments by agarose gel electrophoresis, confocal microscopy, and flow cytometry after tagging the DNA fragments by fluorescence label (Propidium Iodide). The distribution of cells in different phases of the cell cycle was analyzed by flow cytometry. Treatment of MCF-7 and MDA MB 231 cell lines with AgNps (Silver nanoparticles from *Caesalpinia coriaria*) resulted in the formation of internucleosomal DNA fragments, characteristic of apoptosis. Confocal microscopy and flow cytometry confirmed the findings. The DNA cell cycle analysis showed that in MCF-7, and MDA MB 231 treatment resulted in arrest in the G<sub>0</sub>-G<sub>1</sub> phase of the cell cycle. Green synthesized silver nanoparticles from *Caesalpinia coriaria* protect against cancer by causing arresting cell cycle and inducing apoptosis.

**KEYWORDS:** *Caesalpinia coriaria*, MCF-7, MDA MB 231, AgNps, apoptosis, flow cytometry, propidium iodide.

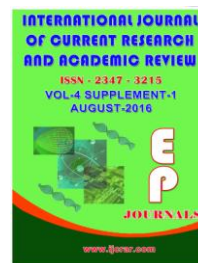




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Invited Abstracts

IJCRAR/OP/57

### Preserved Products From Mango (*Mangifera indica*) and Its Financial Analysis & Beneficiaries Cost Ratio

**Bommy D<sup>1,2\*</sup>** and **Dr. S Kavitha Maheswari<sup>3</sup>**

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<sup>2</sup>Training Assistant (Home Science), PKKV, Pondicherry

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#### Abstract

Mango is a summer fruit and grows in a large quantities in India during the months of April to August this study is carried out to emphasis that Mango can be made available in all season through preservation and the farmers can economically balance their income through preservation during off-season. Financial input needed to prepare a preserved products from mango was assessed. Beneficiaries cost ratio was calculated to motivate the farmers to understand the net profit in selling the preserved products. The current research aims to motivate the farmers to understand that the preservation may be done using the simple methods and it is an easy process if they follow the principles and guidelines properly.

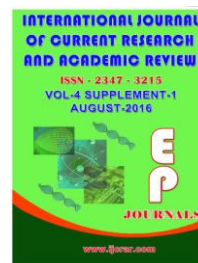
**KEYWORDS:** mangoes, preservation, financial analysis, beneficiaries cost ratio



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Invited Abstracts

IJCRAR/OP/58

### Promotion of Millet Cultivation Through Consumption

**Bommy D<sup>1,2\*</sup> and Dr. S Kavitha Maheswari<sup>3</sup>**

<sup>1</sup>Department of Foods and Nutrition, Mother Theresa Women's University, Kodaikanal

<sup>2</sup>Training Assistant (Home Science), PKKV, Pondicherry

<sup>3</sup>Department of Food and Nutrition, Govt Arts and Science College, Dindigul

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#### Abstract

The nutritive value of millets is high and it could be considered as a staple healthy food. /they are highly tolerant to extreme weather conditions such as drought and is nutritious when compared to rice and wheat. Decline in the millet cultivation is due to consumption of rice than millets. Millets has been treated as a poor man food and Rice as a Luxury Food. Further decline might be controlled when the Government schemes and policy involves more of public distribution system. Health benefits of millets should be recognized by public to increase the consumption of millets.

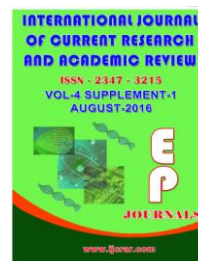
**KEYWORDS:** millets, nutritive value, tolerant



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Invited Abstracts

IJCRAR/OP/59

### Prevention of Post-Harvest Loss Through Demonstration on Preservation Technology of Fruits and Vegetables to Farmers

**Bommy D<sup>1,2\*</sup>** and **Dr. S Kavitha Maheswari<sup>3</sup>**

<sup>1</sup>Department of Foods and Nutrition, Mother Theresa Women's University, Kodaikanal

<sup>2</sup>Training Assistant (Home Science), PKKV, Pondicherry

<sup>3</sup>Department of Food and Nutrition, Govt Arts and Science College, Dindigul

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#### Abstract

India is the chief producer of fruits and vegetables. Though our country has attained sustainability in growing many fruits and vegetables, yet we lose about 35–40% of our fresh produce during their post-harvest stage, which is largely due to the lack of proper management system including storage facilities and technologies available. Post-Harvest Technology of fruits and vegetables involves sorting, grading, packaging, storage, transportation and preservation technologies. The high perishable nature of fresh produce combined with recommended postharvest technologies makes our fruits and vegetables available in all season. Method demonstration is selected for the transfer of the technology to farmers. Farmers were selected for the study and demonstration was conducted. Economic Importance of the Preserved products were explained for a better understanding.

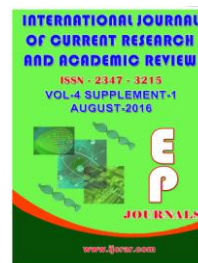
**KEYWORDS:** post-harvest technology, farmers, economic importance



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Invited Abstracts

IJCRAR/OP/60

### Smart Phones—A Stay House for Multidrug Resistant Bacteria in Community Settings

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Department of Microbiology, School of Life Sciences, VELS University, Chennai-117, Tamil Nadu, India

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#### Abstract

Mobile phones are sophisticated accessories of communal life. They emulate the personal microbial world of their owners. The present study investigated the prevalence of multidrug resistant bacteria including Extended Spectrum Beta Lactamase (ESBL) producers, Methicillin Resistant *S. aureus* (MRSA), Vancomycin Resistant *S. aureus* (VRSA), Vancomycin Resistant *Enterococci* (VRE) in the smart phones. Sampling was made from 91 different smart phones of healthy individuals from the community settings comprising of students and faculty of VELS University (47), public (32) and from home environment and neighborhood (12). Bacteria were identified and multidrug resistance was determined by antibiogram analysis. Phenotypic screening was done to detect ESBL, MRSA, VRSA and VRE phenotypes. About 133 bacterial isolates were recovered and identified as *Enterobacter* sp. (7.1%), *Enterococcus* sp.(12.7%), *Citrobacter* sp. (3.75%), *Bacillus* sp.(8.27%), *Acinetobacter* sp.(5.26%), *E. coli* (16.54%), *Klebsiella* sp.(14.28%), *Salmonella* sp. (1.5%), *Staphylococcus aureus*(18.79%) and Coagulase negative *Staphylococci* (CoNS) (11.27%). Around 22.7% *E. coli* produced ESBLs, 21% *Klebsiella* sp. produced AmpC enzymes, 15.7% produced ESBLs. About 40% *Staphylococcus aureus* were MRSA and 12% were VRSA strains while VRE constituted 29.4%. This study gives an insight on the presence of MDR organisms on the mobile phones and as they are used by people of the community, this study is significant in terms of the spread of MDR and is of epidemiological concern.

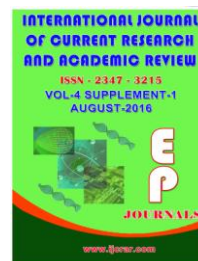
**KEYWORDS:** smart phones, bacterial flora, multidrug resistance



## International Journal of Current Research and Academic Review

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Invited Abstracts

IJCRAR/OP/61

### Studies on Total Phenol Content, Total Flavonoid and Antioxidant Activity of *Salacia chinensis* Stem Extract

**Shahira Banu DA\* and Karpagam S**

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#### Abstract

The objective of the present study was to evaluate the total phenol, total flavonoid and antioxidant activity from stem extract of *Salacia chinensis*. Total phenolic and flavonoid content were estimated by Folin–Ciocalteu and aluminium chloride method. The stem extracts were evaluated for antioxidant activities by DPPH (1, 1– Diphenyl -2- picryl - hydrazyl) radical scavenging assay. *Salacia chinensis* stem collected from two different places namely Udipi and Hubili, Karnataka, India. Total phenol and total flavonoid content were quantitatively estimated which recorded maximum in hubili accession (4.906 mg Gallic acid equivalents (GAE) /g and (5.25 mg Quercetin Equivalents (QE) /g) respectively. Among two accessions with five different solvents used, maximum antioxidant activity (81.4 %) was found in aqueous stem extract of *Salacia chinensis* (Hubili – accession) followed by others. The aqueous extracts from dry powdered stem of *Salacia chinensis* had superior level of antioxidant activity. The powerful antioxidant effect is attributed to the greater amount of phenols and flavonoids compound in the aqueous stem extracts of *Salacia chinensis*.

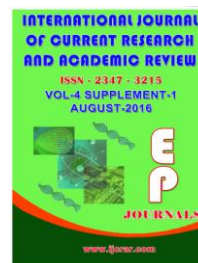
**KEYWORDS:** *Salacia chinensis*, Folin–Ciocalteu, aluminium chloride, DPPH.



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Invited Abstracts

IJCRAR/OP/62

### Effect of Salt And Ozone Stress on Cowpea (*Vigna unguiculata* (L.) Walp.) Secondary Metabolite Production

**Manickam Akila, Ravanappan Srinivasan Ramya,\* Selvakumar Dharmaraj, Dhanasekaran Kalaivani and Ravindran Pragathi**

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#### Abstract

To study the effect of salinity and ozone exposure on the growth and biomass production in cowpea plant. The present study focuses on the effect of salinity and ozone exposure on growth, photosynthetic metabolism, physiological parameters and biomass production. The photosynthetic metabolism of chlorophyll a, b, c and total chlorophylls were estimated and leaf area was measured using a scanner and the T-Scan content was estimated by dye binding method. The biochemical content of proline was measured using L-pro as a standard, and the ascorbic acid was estimated by the visual titration method and phenol content was measured. Cowpea seedlings on exposure to salinity stress at different concentrations showed gradual decrease in shoot length, root length and leaf area. With increasing concentration of NaCl (10-50mM) the chlorophyll content was also found to be altered. The chlorophyll a/b ratio increases and decreases with increase in saline concentration. The protein content of the *Vigna* leaves increased at varied saline concentration. Ozone stress showed a decrease in protein level at low concentration with gradual increase on increasing concentrations. The level of ascorbic acid showed a fivefold increase under ozone stress and two fold increase on salinity stress. The phenolic compounds also increased both under ozone and salinity stress with noticeable Proline accumulation under salt stress alone. Exposure of the Cowpea plant to Ozone and Salinity altered the morphology and physiology of the plant system enabling the plant to promote several biosynthetic pathways resulting in high secondary metabolite yield.

**KEYWORDS:** cowpea, ozone, salinity, secondary metabolite

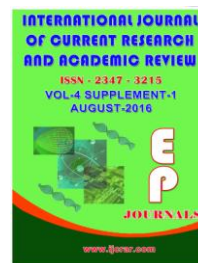




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Invited Abstracts

IJCRAR/OP/63

### The Capability of Harpacticoid Copepods to Gulp Down Bacteria as Food

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#### Abstract

Harpacticoid copepods are known to feed on detritus and bacteria. An attempt was made to assess the same for a harpacticoid species, *Cletocamptus albuquerquensis* from Puzhal Lake, Chennai. The mono bacterial culture from the same habitat was isolated, sub-cultured and used as the feed under limited conditions. The results show a reduction in the bacterial cell count as the time of interaction with the harpacticoid increases. Further, spread plate technique of the sample at the end of every hour, confirms the decrease in bacterial cell count. Hence it is confirmed that the specific Gram-negative bacteria used in the present study are fed by the harpacticoid species.

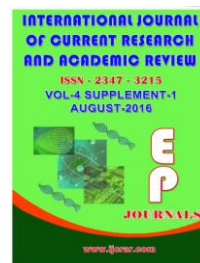
**KEYWORDS:** Harpacticoid, *Cletocamptus*, Feeding experiment, Bacterivore.



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Invited Abstracts

IJCRAR/OP/64

### A Study on Extracts of *Cistus incanus* against Drug Resistant HIV and Ebola Virus

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#### Abstract

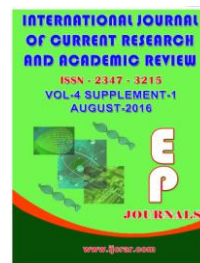
Virus infections are among the ten leading causes of death worldwide and represent a major global health challenge. Potential herbal drugs are needed to prevent the emergence of drug resistant viral variants like HIV and Ebola viruses during viral outbreaks. A recent study showed that extracts of the plant *Cistus incanus* was found to be potential against HIV and Ebola virus and prevent them from multiplying in cultured cells. The potent activity of *Cistus incanus* extracts showed highest activity against clinical HIV isolates. It was found that antiviral ingredients of *Cistus incanus* target HIV and Ebola viral envelope proteins. Recent studies showed that no resistant viruses were found during long term treatment using these plant extracts. The extract *Cistus incanus* was found to be effective against resistant HIV and Ebola virus. The development of this plant extract acts as novel phytotherapeutic agent to prevent infections caused by drug resistant viral strains.



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Invited Abstracts

IJCRAR/OP/65

### Battle against the Bacteria—Conquest with Essential Oils

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#### Abstract

Antibiotic drug resistance is an alarming situation in both the hospital and community settings. The prevalence of drug resistant strains of bacteria cause unavoidable health costs and unnecessary disability and death. Superbugs are bacteria that have found ways to survive treatment with antibiotics. They include MRSA, *Clostridium difficile*, vancomycin resistant enterococci, Carbapenem-resistant Enterobacteriaceae and Carbapenem-resistant *Klebsiella pneumoniae*. With increasing in vitro resistance in many species of bacteria, there is concern that the pace of new antibiotic development has fallen behind the rate of antibiotic elimination. This situation has paved way for search for alternative treatment strategies from phytomedicines. Higher aromatic medicinal plants have been used in folk medicine to control microorganisms. An essential oil is a concentrated hydrophobic liquid containing volatile aroma compounds from plants. Cinnamon, thyme, tea-tree, lemongrass, rosemary and other essential oils are known to inhibit drug resistant strains. Various scientific studies have demonstrated that essential oils are not only well tolerated, but are effective against a range of bacterial and fungal species. The oils or their active ingredients could be easily incorporated into antimicrobial creams or gels for external application. Essential oils could be a cheap and effective alternative to antibiotics and potentially used to combat drug-resistant hospital superbugs.

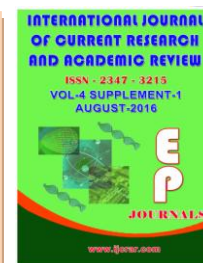
**KEYWORDS:** drug resistance, superbugs, essential oils



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Invited Abstracts

IJCRAR/OP/66

### Production of Biopolymer—Poly-β-Hydroxybutrate (PHB) by *Azotobacter* Species using Agro-Industrial Wastes

**Ramya R<sup>1</sup> and Valli S<sup>2</sup>**

<sup>1</sup>Research scholar, PG & Research Department of Microbiology, Mohamed Sathak College of Arts and Science, Chennai, Tamil Nadu, Chennai

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#### Abstract

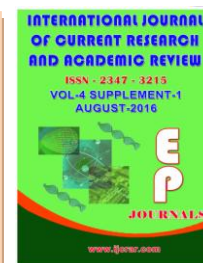
Due to the growing industrial interest of Poly-β-hydroxybutrate and its high production cost, the present work has been undertaken for the production of PHB by *Azotobacter* sp. The biosynthesis of PHB by *Azotobacter* grown on agro – industrial wastes such as rice chaff, sugarcane molasses and sesame oil cake as growth substrates was investigated. PHB producing strains were screened by Sudan Black method and Thin Layer Chromatography. 12 strains were isolated from the soil samples. Of the 3 strains (S2, S7, and S10), which were positive for cyst staining only S2 indicated the presence of PHB accumulation in the cells. The PHB production in various agro – industrial wastes based medium was studied by crotonic acid method. It was found that strain S2 showed a higher absorbance value of  $1.73 \pm 0.03$  than the strain MTCC 2641 which was  $1.691.69 \pm 0.02$  in Mineral Salts Medium (MSM). In Rice Chaff (RCM) and Sugarcane Molasses Medium, MTCC 2641 showed a higher absorbance value than the strain S2. The biomass production in strain MTCC 2641 strain showed highest biomass of 25 g/l in RCM followed by 18 g/l in SOCM. The soil isolate S2 produced 20 g/l in SOCM and 19 g/l in RCM. Highest PHB production was obtained from MTCC 2641 in RCM which was  $2.6 \pm 0.2$ g/l, while the strain S2 produced  $0.8 \pm 0.1$ g/l in RCM and  $0.8 \pm 0.2$  in SOCM. The highest value of absorbance for PHB was observed in the strain MTCC 2641, which was  $458 \pm 2.6$  in SOCM followed by  $390 \pm 2.5$  µg/ml in MSM. Strain S2 showed high values for PHB in  $395 \pm 2.1$  in SOCM and  $192 \pm 1.5$  in SMM. The pure form of PHB was collected and qualitatively analyzed by nuclear magnetic resonance (NMR). Among the various agro - industrial wastes based medium, highest yield was obtained with sesame oil cake waste as growth substrate.



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Invited Abstracts

IJCRAR/OP/67

### Drug resistance Patterns Analysis of Biofilm Forming Bacteria Isolated from Clinical Specimens

**Maniraj A,<sup>1</sup> Rajarathinam K,<sup>2</sup> Muthuram Kumar S<sup>2</sup> and M.Kannan<sup>1\*</sup>**

<sup>1</sup>Research Department of Zoology, V.H.N.S.N.College, Virudhunagar – 626001.Tamil Nadu, India.

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#### Abstract

The present work aimed to isolate the biofilm forming bacteria from different clinical samples. Totally 237 samples were randomly collected from Virudhunagar Government Hospital and isolated the 374 clinical pathogens. The samples that include, Urine (56), Pus (51), Catheter tube (49), Wound swab (42), Ear Swabs (39). The clinical specimens of biofilm forming bacterial pathogens (*Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Proteus mirabilis* and *Candida albicans*). Morphologically all the clinical isolates were observed by different selective media and those exhibiting mucoid colonies were processed for Gram staining and biochemical tests. Detection of biofilm formation by Microtiter plate methods, Tube method (TM) and Congo red agar method (CRA) for extra predictable and regularly monitored which can be recommended as a universal screening method for detection of biofilm producing bacteria in *in vitro* conditions. The standard disc diffusion method for the isolated and identified bacteria to antimicrobial agents such as Amikacine, Ceftriaxone, Chloramphenicol, Ciprofloxacin, Cefuroxime, Gentamycin, Ceftazidim, Cefotaxime, Piperacillin, Ampicillin, Meropenem

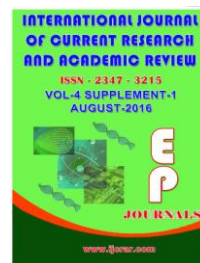
**KEYWORDS:** bacterial biofilms, antimicrobial test, *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Proteus mirabilis* and *Candida albicans*.



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Invited Abstracts

IJCRAR/OP/68

### Antifungal Activity of Leaf and Stem Extracts of *Euphorbia heterophylla* and *Tamilnadia uliginosa*

**Kalpana B<sup>1\*</sup> and Dr. Prakash M<sup>2</sup>**

<sup>1</sup>Research Scholar, Department, Bharathiar University, Coimbatore, Tamil Nadu, India

<sup>2</sup>Head, Department of Microbiology, Kanchi Shri Krishna College, Kilambi, Kanchipuram, Tamil Nadu, India

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#### Abstract

*Tamilnadia uliginosa* and *Euphorbia heterophylla* is a potent medicinal plant in the Indian systems of medicine. Traditionally it is used as a treatment of various diseases and disorder of human. In the present study the aqueous, ethanolic, chloroform and petroleum ether extract of the *Tamilnadia uliginosa* and *Euphorbia heterophylla* were studied for their antifungal activity against *Candida albicans*. It was observed that ethanolic extract and petroleum ether extract showed significant activity whereas aqueous extracts showed very less activity and chloroform extract did not showed any activity against the tested fungal strain.

**KEYWORDS:** *Tamilnadia uliginosa*, *Euphorbia heterophylla*, stem extract, leaf extract, antifungal activity

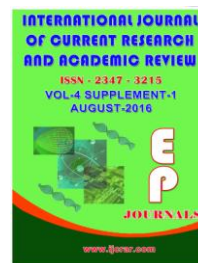




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Invited Abstracts

IJCRAR/OP/69

### Preliminary Investigations on the Physicochemical, Nutritive Value and Phytochemical Screening in the Leaves of *Alternanthera sessilis*

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#### Abstract

*Alternanthera sessilis* belongs to family Amaranthaceae. *A. sessilis* has been used in Indian traditional system of medicine since a long time. The present study is to analyse the various physico chemical, nutritive value and phytochemical screening of the plant using three different extracts. Physico chemical analysis was carried out by evaluating moisture content, ash value and extractive values. Nutritive analysis includes the analysis of carbohydrates, proteins, fats and mineral content followed by the qualitative phytochemical analysis of bioactive components by using standard procedures. It was analysed from the study that the leaves of the plant showed high nutritive content and rich source of zinc followed by iron, calcium and magnesium. The phytochemical examination revealed the presence of alkaloids, flavonoids, tannins, saponins, terpenoids, phenol and carbohydrates. From the present study, it can be concluded that the plant under investigation is a potential source of both macro and micronutrients and proper consumption proves to be beneficial, as they cure several deficiency as well as other deadly diseases. This study provided the basis of the plant usage in traditional medicine which makes the herb a potent tonic with a wide range of applications.

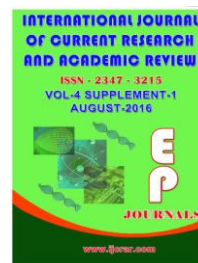
**KEYWORDS:** *Alternanthera sessilis*, physicochemical, nutritive, phytochemicals, Amaranthaceae



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Invited Abstracts

IJCRAR/OP/70

### A Report on Ampicillin Resistant *Streptococcal* Mastitis in a Dairy Cow

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#### Abstract

Bovine mastitis is highly an economical concern to the farmer, as well as the society. Mastitis in cow may be due to contagious and environmental pathogens. Environmental pathogen is transmitted through the human errors and they are attempted with ampicillin, a commonly used antimicrobial at the field level. This report documents the ampicillin resistant mastitis in dairy cow. A six years old Jersey cross-bred cow, presented to Large Animal Medicine Out-patient Unit of Madras Veterinary College Teaching Hospital, with the history of swollen udder and treated outside was subjected to clinical, clinicopathological and antimicrobial sensitivities. Clinical examination of udder revealed swollen and hot hind quarters, with flakes in milk. CMT showed gel formation in samples of hind quarters. Antimicrobial Sensitivity Test revealed resistance to Ampicillin; culture revealed *Streptococcus sp.* The animal was treated with Amikacin at 10 mg/kg bwt (BID), and other supportive. The animal showed marked improvement during the course of treatment. Proper hygienic management as prevention and avoidance of irrational usage of antimicrobials as a treatment strategy are the two components, which can prevent and avoid complications and resultant economical losses due to mastitis.

**KEYWORDS:** mastitis, *streptococcus*, ampicillin, bovine



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Invited Abstracts

IJCRAR/OP/71

### Occult *Microsporum canis* Infection in a Persian Kitten

Jayanthi C<sup>1\*</sup>, Nagarajan B<sup>2</sup> and Cecilia Joseph<sup>3</sup>

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<sup>2</sup> Professor, Dept. of Clinics, Madras Veterinary College, Chennai 7

<sup>3</sup> Professor and Head, Dept. of Clinics, Madras Veterinary College, Chennai 7

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#### Abstract

An occult *Microsporum canis* infection in a 3 month old Persian kitten is to be presented. A 3 month old Persian kitten was brought to Madras Veterinary College dermatology unit for complete dermatological examination. This usually never happen in Veterinary set up. So when the reason behind it was asked, the owner showed the erythematous circumscribed typical ringworm lesions restricted to forearms only. She also told that she was gifted with that Persian kitten for her birthday a week before and only after that she got the lesions. The Dermatologists has guided to get her pet examined and treated for any skin conditions. Signalment and complete clinical dermatological examination was performed. The kitten had no skin lesions and was found apparently normal and healthy. The scraping, tape impression and coat brushing was negative for any parasite or yeast. The Wood's lamp examination did not reveal any fluorescence. Hair pluck was sent to laboratory for fungal culture and sterile swab for bacterial culture. The bacterial culture was negative for growth but the fungal culture showed positive for *Microsporum canis*. Persian Cats are occult carriers of *Microsporum canis* infection. So, whenever a new Persian cat is acquired as pet a complete dermatological examination by the Veterinarian and the treatment if any is mandatory for its zoonotic potential.

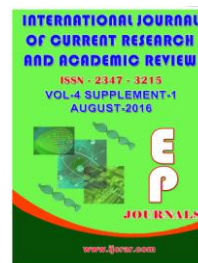
**KEYWORDS:** *Microsporum canis*, zoonosis, ringworm, dermatophyte.



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Invited Abstracts

IJCRAR/OP/72

### Isolation of Lignolytic and Phosphate Solubilizing Fungal Species from Municipal Solid Waste

**Banurekha C,<sup>1\*</sup> Girija D<sup>2</sup> and Muthunagai M<sup>2</sup>**

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<sup>2</sup> Post graduate student, Department of Microbiology, Dr. MGR Janaki College of Arts and Science, Chennai, Tamil Nadu, India.

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#### Abstract

Different fungal species was isolated from municipal solid waste. The isolates were found to be *Aspergillus fumigatus*, *Aspergillus flavus*, *Aspergillus niger*, *Aspergillus japonicus*, *Trichoderma harzianum*, *Penicillium species*, *Aspergillus flavipes*, *Rhizopus species* and *Fusarium sp*. They were checked for lignolytic activity using lignolytic medium only *Trichoderma harzianum* showed lignolytic activity. The isolates were also screened for lignolytic activity on PVK Medium containing calcium phosphate of which only *Aspergillus japonicus*, *Penicillium sp* and *Aspergillus flavipes* showed lignolytic activity. The solubilized Phosphate released by these isolates was determined. Thus isolation, identification and characterization of lignolytic and phosphate solubilizing fungi from municipal solid waste were determined.

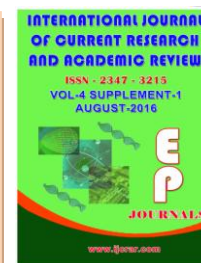
**KEYWORDS** : lignolytic activity, phosphate solubilization



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Invited Abstracts

IJCRAR/OP/73

### Screening of Antifungal Lactic Acid Bacteria with Potential to Prolong Shelf-Life of Fresh Vegetables

Ramyana Anadhan,<sup>1\*</sup> Rajamani M<sup>2</sup> and Minorose C<sup>2</sup>

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#### Abstract

Lactic acid bacteria commonly used as starter culture in food is known to produce antimicrobial substance such as bacteriocins having great potential as food bio preservative. Lactic acid bacteria were isolated from fresh vegetables by using MRS agar and broth. Fungal culture was isolated from spoiled vegetables and identified by LPCB mount. Spore inoculums, spore counting, screening technique were performed. Lactic acid bacteria were screened for antifungal substance production. Agar well diffusion was performed to determine zone of inhibition. Fungal spore counting was done to prevent fungal spoilage. The results conclude that the lactic acid bacteria are able to inhibit fungal growth. LAB with fungal inhibitory properties can be used in bio preservation.

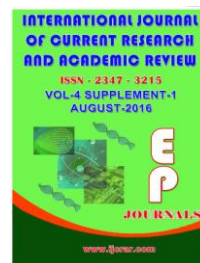
**KEYWORDS:** lactic acid bacteria, fungal identification, antifungal substance, fungal spoilage, bio preservative.



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Invited Abstracts

IJCRAR/OP/74

### Composting of Bio waste by Proteolytic Bacteria and its Effect on Plant Growth

Vijayanandini G,<sup>1\*</sup> Renuka G<sup>2</sup> and Bharathy B<sup>2</sup>

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<sup>2</sup> Post graduate student, Department of Microbiology, Dr. MGR Janaki College of Arts and Science, Chennai, Tamil Nadu, India.

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#### Abstract

The aim of this work was to study enhancement of plant growth when enriched with composts containing proteolytic microbes. Two proteolytic bacteria were isolated from Dr. MGR Janaki college ground namely *Bacillus* and *Pseudomonas species*. The effect of bacterial cultures on the pH, moisture content, nitrogen, phosphorous, potassium and protein content of compost in pit A (*Bacillus spp*), B (*Pseudomonas spp*) and C (conventional compost) were studied. The effect of bacterial compost and conventional compost on growth of tomato plant was studied by observing root length, shoot length, leaf size and chlorophyll content. The compost from pit A (*Bacillus spp*) was found to be more effective in all parameters- root length (2.6cm), shoot length (12.8cm), leaf size (1.6cm) and chlorophyll content (31mg/g) in 15days.

**KEYWORDS:** Composting, proteolytic bacteria, Biowaste, *Bacillus species*, *Pseudomonas species*.

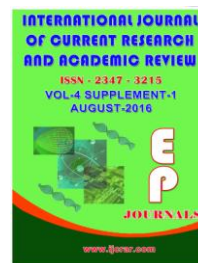




## International Journal of Current Research and Academic Review

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Invited Abstracts

IJCRAR/OP/75

### A Study on the Bacterial load in Packed Food Products in and around Chennai

**Nithyakalyani V,<sup>1\*</sup> Sivashankari S<sup>2</sup> and Dhivyabharathi M<sup>2</sup>**

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#### Abstract

A study on the assessment of the microbial load both qualitatively and quantitatively. Food products which are used nowadays are commercially packed, and marketed. The busy life in city demands an easy way of cooking. Number of branded south Indian masala were being available at market ie. Garlic paste, Pickles, Tomato sauce, and some ready made mix. Contamination in packed food products occurs while preparing, packaging, and improper storage. Contamination can occur by both bacterial and physical contamination which makes the food products poisonous. Both Pathogenic, Non-pathogenic organism growth can be identified, when lab tested. Contamination leads to risk of consuming the canned food. 70% of deaths are supposed to be by food borne pathogen. Non permitted foods are most common additives of food born diseases. Pathogenic organism such as *Vibrio* species, *Salmonella* species, *Pseudomonas* species, *Xanthomonas* species can actively grow on the contaminated food products. So it is necessary to check the entire process of preparation. Awareness about the food safety should be done in all areas. To prevent the consumption of unsafe food it is essential that contamination is reduced to minimum.

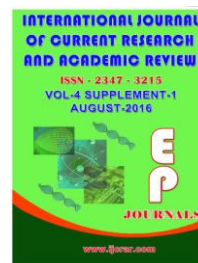
**KEYWORDS:** Food Contamination, food products, bacterial load, quality control, readymade mix.



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Invited Abstracts

IJCRAR/OP/76

### Production of Bio surfactant by *Pseudomonas* species from Petroleum Degraded Soil

Krishnaveni G,<sup>1\*</sup> Bincy<sup>2</sup> and Divya<sup>2</sup>

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#### Abstract

Biosurfactant is a promising alternative over the chemical surfactant as they are better biodegradable and do not pollute the environment. Most of the Biosurfactant producing microorganisms have been isolated from the hydrophobic environment such as oily waste, sludge, petroleum contaminated soil was collected and enriched on oil containing media for isolation of Bio surfactant producing bacteria. Screening test for Biosurfactant of *Pseudomonas* sp. from soil isolated. To perform drop collapse method, oil displacement technique, to estimate the emulsification index, to identify blood haemolysis. Rapid and reliable method for screening and selection of Biosurfactant-producing microorganisms and evaluation of their activity has been developed. Genus involved in rhamnolipid synthesis (rhlAB) and regulation (rhlI and rhlR) in the *Pseudomonas aeruginosa* are characterized.

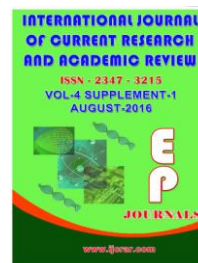
**KEY WORDS:** Biosurfactant, Hydrophobic environment, Oil, Petroleum, *Pseudomonas* sp.



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Invited Abstracts

IJCRAR/OP/77

### Effects of environmental factors on Biofilm formation

**Vidhyalakshmi R,<sup>1\*</sup> Remya R<sup>2</sup> and Meenakshi S<sup>2</sup>**

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#### Abstract

Biofilm are the microorganisms which attach to the surface by a self produced matrix of extracellular polymeric substance. A preliminary identification of the *Pseudomonas aeruginosa* and *Pseudomonas putida* and *Lactobacillus* strains were performed. The presence of different environmental factors modulates the invitro biofilm formation pH & temperature effect facilitates binding of *pseudomonas* to substrates. Though they have some of the harmful effects, the biofilm matrix is very much efficient in waste water treatment and sewage. Biofilm is used for the remediation of soil, ground water, cleaning up oil, gasoline spills and microbial leaching etc., Among the two major isolates *Pseudomonas spp.*, and *Lactobacillus spp.*, *Pseudomonas spp.*, ranked first in the formation of biofilm at the various environmental stress.

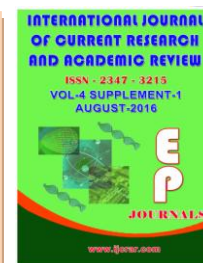
**KEY WORDS:** Biofilm, bioremediation, microbial leaching, oil spills.



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Invited Abstracts

IJCRAR/OP/78

### A Study on Amylase Producing *Lactobacillus* species from Dairy products

Neena Priya J,<sup>1\*</sup> Kalpana R<sup>2</sup> and Murugeswari A<sup>2</sup>

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#### Abstract

In this study cassava fibrous residue (CFR) was used as a solid substrate for the production amylase. Amylases are starch degrading enzyme. It is used for various purposes such as digestive acids, and also used in detergents especially alkaline amylase. CFR was prepared and used as a substrate for this production. *Lactobacillus* spp was isolated from dairy product and it was identified by performing various tests and confirmed. The presence of amylase in *Lactobacillus* spp was screened. Amylase was produced by *Lactobacillus* spp isolated with CFR as substrate. In an optimized condition for the amylase assay. In the present study certain dairy samples was collected and obtained 30isolates, out of which 7 isolates were confirmed to be *Lactobacillus plantarum* and the other 23 isolates were identified as *Lactobacillus* spp. Amylase production was done in an optimized manner with different isolates with CFR as the substrate. The enzyme was obtained in units/gram dry substrate and the absorbance was determined by using UV-vis spectrophotometer at 690nm. Among the isolated, the maximum amylase production was 31,824u/gds. Further the amylase has to be purified by gas chromatography, FTIT, Mass spectrophotometry and check for the thermo stability of the enzyme and other compared with parameters to standardize the production.

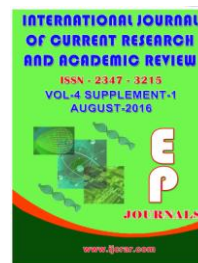
**KEY WORDS:** Amylase, *Lactobacillus* spp , Dairy products, cassava fibrous residue, spectrophotometer



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Invited Abstracts

IJCRAR/OP/79

### Effects of Seed dressing of *Bacillus Species*, Isolated from Sugarcane Field and Study on Plant Growth Parameters

Lakshmi Priya D,<sup>1\*</sup> Hema,<sup>2</sup> Nishanthi<sup>2</sup> and Haseena Parveen<sup>2</sup>

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#### Abstract

Bio-fertilizer are substances that contain living microorganisms, when they are applied to seed, plant and surface or soil, these microorganisms colonize the rhizosphere or the interior of the plant and promote growth by increasing the supply or availability of primary nutrients to the host plant. Managing the supply of nutrients to plants is an important aspect of crop productivity. The use of bio-fertilizer alone or in combination of chemical fertilizers plays an important role in sequestering carbon and building up soil fertility. The use of nitrogen fixing bacteria is increasingly advocated to maintain high agricultural productivity. Test for soil parameter such as moisture, pH was carried out followed by mass cultivation of *Bacillus* which was bacterized onto host seeds such as tomato, chilly, brinjal and palak. These seeds were sown and plant growth parameters such as number of leaves, root and shoot lengths were assessed. Test for soil fertility such as organic carbon, Nitrogen, Phosphorous, Potassium were performed to estimate the potency of the isolate to form a good bio-fertilizer. It is useful for high yield and plant growth.

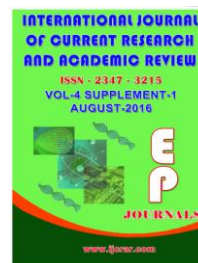
**KEY WORDS:** Seed dressing, plant growth, plant growth parameters.



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Invited Abstracts

IJCRAR/OP/80

### Isolation and Screening of Marine *Actinomycetes* for Biosurfactants

**Banurekha C,<sup>1\*</sup> Jothikodi A<sup>2</sup>, Renugambal K<sup>2</sup> and Bhavani K<sup>2</sup>**

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#### Abstract

The present study report bio prospecting of marine *Actinomycetes*. *Actinomycetes* are routinely screened for new bioactive substances like antibiotics, enzymes and biosurfactants. Biosurfactants are the surface active agents which helps in reducing the surface tension, biodegradation of toxic hydrocarbons etc., 5 samples was isolated, preliminary test was performed. Biosurfactant activity of 5 isolates was assessed by drop collapse test, hemolytic test, lipase test. Bio surfactants produced by marine *Actinomycetes* has antimicrobial, antiadhesive and anti biofilm activity against human pathogen. Of the five samples four sample show positive result for haemolytic test, 3 shows positive for drop collapse test and 1 show positive for lipase test. Though *actinomycetes* (*Streptomyces*) produce majority of bio surfactants some bacteria like *Pseudomonas* and *Bacillus* may also involve in the production of bio surfactant.

**KEY WORDS:** Bio surfactants, Biodegradation, surface tension, drop collapse test, anti adhesive, biofilm

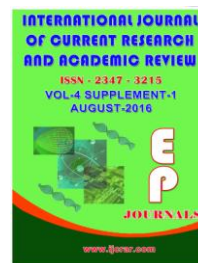




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Invited Abstracts

IJCRAR/OP/81

### Microbiological Analysis of Fresh Fruits and Vegetables and the Effect of Anti microbial Agent on Microbial load

**Banurekha C,<sup>1\*</sup> Jayashanthi J,<sup>2</sup> Sharmila S<sup>2</sup> and Shaheda Thabasoom S<sup>2</sup>**

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#### Abstract

The samples were collected from two different local and super markets. The samples were analyzed for total coli form count and total fungal count. Fresh fruits and vegetables of local market are harboring more microbial contaminants and pathogens as compared to super market. Local market-*Escherichia coli*, *Staphylococcus aureus*, *Klebsiella aerogene*, *Pseudomonas species*, *Aspergillus niger*, *Aspergillus flavus*, *Penicillium*. Super market-*Escherichia coli*, *Pseudomonas species*, *Aspergillus niger*, *Aspergillus fumigatus*. The antimicrobial effect of three different antimicrobial agents like Hydrogen peroxide, Ethanol and Calcium chloride with varying concentration from 1% to 3% for reduction of microbial load was tested on the sample. Hydrogen peroxide was found to be more effective than the other two antimicrobial agents.

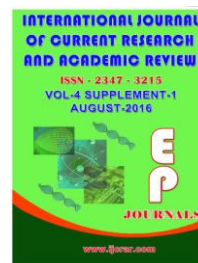
**KEYWORDS:** Fruits and vegetables, Antimicrobial agents, Total aerobic count.



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Invited Abstracts

IJCRAR/OP/82

### A Study on Contamination of Microbial Bodies in Bottled Mineral Water

**Banurekha C,<sup>1\*</sup> Charumathi R,<sup>2</sup> Sunitha CN<sup>2</sup> and Mohana Deepa G<sup>2</sup>**

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#### Abstract

Water is classified as food. It can be dissolve many different substances, giving it varying tastes and odors. Humans and animals have developed senses to evaluate the portability of water by avoiding water that is too salty or putrid. The taste of mineral water derives the minerals dissolved in it. Pure water is tasteless and odorless. The mineral water refers of absence of toxins, pollutants and microbes. The Department of Contemplating more stringent regulations to limit levels of specific chemical contaminants for all bottled waters. Manufactures give bottled water a shelf life of two years. The water may be contaminated by various sources that can be directly or indirectly. Organisms in bottled water is Bacteria, Fungi, etc., and other contaminants. Treatment methods like Reverse Osmosis Ultra violet radiation, Ozonation. 75 samples of mineral water bottles were examined for the presence of microorganisms & 25 samples were found to contain high amount of fungal contamination, the organisms were found to be *Aspergillus niger*, *Aspergillus flavus*, *Pencillum* by spread plate technique. The bacterial contamination was found in 20 samples and the organism which is present in bottled mineral water is *Pseudomonas*, *Escherichia coli*, *Enterococci* by Mesophilic plate count. The Ultraviolet radiations were carried out the samples which have the highest colony forming unit and the bacterial contaminants were identified. Ozonation technique is the formation of oxygen occurs with the use of energy. The process is carried out by an electric discharge field as in the CD-type ozone generators, may also be made through electrolytic and chemical reactions. Ozone is the most powerful and rapid acting oxidizer and will oxidize all bacteria, mold, yeast spores, organic material, viruses. Health impacts may occur by drinking contaminated bottled mineral water. The possible health consequences of low mineral content water consumption is: Direct effects on intestinal mucous membrane; Practically zero Calcium and Magnesium; Increased dietary intake of toxic metals; Bacterial re-growth. Finally, Environmental impacts are: Ground extraction; Transportation costs; Environment cost of the plastic packaging. Bottled mineral water commonly packed in PET (Poly Ethylene Tetra phthalate) it is recyclable.

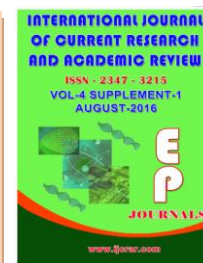
**KEYWORDS:** Bottled mineral water, Contaminants, Micro organisms.



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Invited Abstracts

IJCRAR/OP/83

### Comparison of Total Microbial Count Sample from Various Sources

**Banurekha C,<sup>1\*</sup> Revathy J<sup>2</sup>, Tamilarasi N<sup>2</sup> and Hemamalini B<sup>2</sup>**

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#### Abstract

Water is indispensable for life. The drinking water should be free from chemical as well as microbial contaminants, since the potential of contaminated water to transmit disease is very high. *Escherichia coli* is a fecal coli form [normal flora of human intestine]. The identification of the presence of *Escherichia coli* in a considerable number is an indirect indication of the nature of the water sample [i.e.] polluted or contaminated. Bacterial endotoxins are part of the outer membrane of gram negative bacteria which is released upon lysis of bacteria. *Escherichia coli*, *Proteus*, *Enterobacter* and *Klebsiella* are the best examples of endotoxin producing bacteria. Bacterial endotoxins can be detected by gel clot method, photometric method. 10 samples of tap water, distilled water, deionised water and mineral water were taken. The sample was checked for microbial count and endotoxin. Gel clot method determines the amount of endotoxin present in the water sample. The tap water contains highest amount of endotoxin.

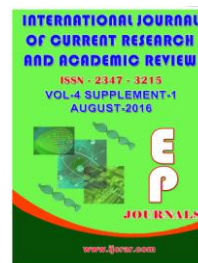
**KEY WORDS:** Endotoxin, Water sample, Gel clot method,



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Invited Abstracts

IJCRAR/OP/84

### Analysis of Different Composts and its Effect on the Plant Growth and Soil Microorganisms

**Sumithira P,<sup>1\*</sup> Nithyakalyani K<sup>1</sup>, Thulasi Meenakshi R<sup>2</sup> and Vijila V<sup>2</sup>**

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#### Abstract

The study was done to evaluate the role of soil borne microorganism in plant growth using vermicompost, pit compost and vermin wash. Plant pots were prepared in different combinations with vermicompost, pitcompost and vermin wash using garden soil. The microbial flora in the soil was analysed for nitrogen fixers, denitrifiers, phosphate solublizers and *Actinomycetes*. The growth pattern was analyzed in the plants. The plants were studied for shoot length and root length. The soil sample was analyzed for its physical and chemical properties and compared with the standard value were rich in micro and macro nutrients. Vermicompost gave better results in comparison with vermi wash and pit compost. This study enables a cost effective strategy for better quantity and quality of crops. Wastes create no pollution as they become raw materials for enhancing soil fertility.

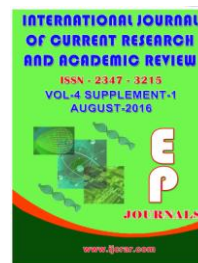
**KEYWORDS:** vermicompost, nitrifiers, denitrifiers, phosphate solubilisers, Vermiwash, pitcompost



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Invited Abstracts

IJCRAR/OP/85

### Study of Enzymatic and Biochemical aspects of Wild Strains of Biodegradable Polyethylene Degrading Microorganisms Isolated from Municipal Waste Treatment Plant

Neenapriya J,<sup>1\*</sup> Merline Joseph,<sup>2</sup> Kalpana KR<sup>2</sup> and Preethi. K. Varma<sup>2</sup>

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#### Abstract

This study was done to isolate and identify a potent plastic degrading organism and for the purpose samples were collected from sewage waste plant. The organisms were identified to be *Clostridium* and *Proteus*. *Clostridium* spp. like *Clostridium carnis* and *Clostridium histolyticum* and spores were seen. The role of *Clostridium* spp. in biodegradation and *Proteus* was unknown. Soil samples were screened for isolates. The isolates were identified as *Clostridium* species and *Proteus*. The enzymatic degradation of aliphatic polymers and PLA in which the Protease activity was assayed and total protein was estimated. Protease enzyme was also quantitatively assayed. Biodegradability of the organism was estimated using plastic bits. This work concludes that biodegradable plastic that was used was degraded by wild strains isolated from the municipal solid waste. The enzymes produced by these wild strains are used for degradation. These organisms' isolated act synergistically to breakdown the biodegradable polythene.

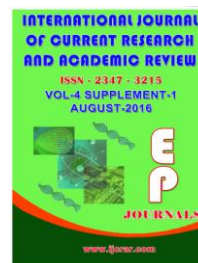
**KEYWORDS:** Soil sample, biodegradation, *clostridium*



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Invited Abstracts

IJCRAR/OP/86

### Identification of *Candida species* in Urogenital Infection of Women

**Ravi Shankar<sup>1\*</sup> and Dr. Prakash M<sup>2</sup>**

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#### Abstract

To identify the *Candida species* in urinary tract infection. *Candida species* isolates from symptomatic UTI cases were identified by conventional methods from women patient attending to the outpatient and inpatient of Rajeev Gandhi Government Women and Children Hospital, Puducherry. 250 urine sample and 200 high vaginal swabs were examined for microscopy and culture analysis. Out of 450 samples 45 were identified as *Candida species*, among that 22 from urine sample and 43 from high vaginal swabs (HVS). Direct Gram staining smears of high vaginal swabs show *Candida* along with Gram negative bacteria (GNB). *Candida species* are the most commonly occurring fungal infection, leading to a range of life threatening invasive to non-life threatening mucocutaneous diseases. Among *Candida species*, *Candida albicans* is the most common infectious agent. Manifestation of genitourinary candidiasis includes vulvovaginal candidiasis (VVC) in women. VVC affects mostly healthy women, candiduria is commonly diagnosed in neonates.

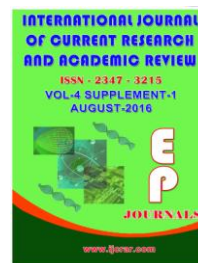




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Invited Abstracts

IJCRAR/OP/87

### Inhibitory Effects of *Alternanthera sessilis*(L.) against MDR Pathogens

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#### Abstract

Antibiotics or antibacterials are a type of antimicrobial used in the treatment and prevention of bacterial infection. They may either kill or inhibit the growth of bacteria. Several antibiotics are also effective against fungi and protozoans, and some are toxic to humans and animals, even when given in therapeutic dosage. Antibiotics are cost effective and have many side effects. So the need of the hour is an antibiotic which is cheaper and no side effects. *Alternanthera sessilis* is an aquatic plant known by several common names, including sessile joyweed and dwarf copperleaf. The plant occurs throughout the tropical and subtropical regions of the World. Young shoots and leaves are eaten as a vegetable in Southeast Asia. It is cultivated for food or for use in herbal medicines. In the present investigation *Alternanthera sessilis* Leaf extract was used an antibiotic against the microbial growth through various experimental works. Pathogens was isolated from the clinical sample and an antibiogram was done with five different antibiotics. Methicillin was found to be a resistant antibiotic. Three different sample was obtained from three different solvents using hexane, chloroform and ethanol. The qualitative analysis was performed and the presence of phytochemicals such as alkaloids, flavonoids, terpenoids, coumarins, etc. was confirmed in all the three extracts. To analyse the antibacterial activity, Well diffusion assay and Minimal Inhibition Concentration (MIC) were done against two organisms *Escherichia coli* and *Klebsiella pneumoniae*. The minimum inhibition in chloroform extract of *klebsiella pneumoniae* was found to be 1.25mg and ethanol extract was found to be 10 mg. Thus it was concluded that *Klebsiella pneumoniae* was very resistant against the drug than the *Escherichia coli*. So, *Alternanthera sessilis* leaf extracts can be used as an potent antibiotic, against *Klebsiella pneumonia* and it is cheaper and has no side effects.

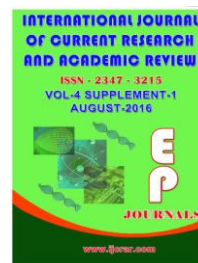
**KEYWORDS:** *Alternanthera sessilis*, Phytochemicals, *Klebsiella pneumonia*, *Escherichia coli*



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Invited Abstracts

IJCRAR/OP/88

### A Comparative Study: Tourniquet Test and Hematocrit A Diagnostic Tool for Dengue Fever

**Aruna R<sup>1,2\*</sup> and Dr. Prakash M<sup>3</sup>**

<sup>1</sup>Research scholar, Bharathiyar University,

<sup>2</sup>Microbiologist, RGGW&CH, Pudhucherry

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\*E-mail: [microaruna@gmail.com](mailto:microaruna@gmail.com)

#### Abstract

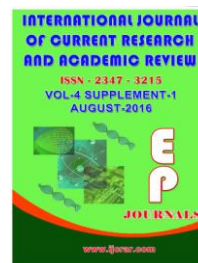
To determine the utility of certain clinical and hematological parameters as diagnostic markers of dengue fever. 100 children suffered from dengue fever, hospitalized in RGGW&CH, Pudhucherry between November 2015 – December 2015 was taken for the study. Tourniquet test and hematocrit were performed along with other hematological parameters. 30% of the dengue reactive children population showed the tourniquet positive reaction. In other hand 98.6% of the affected children population showed the raised hematocrit. A “cut-off” hematocrit value of 36.3% diagnostic of DHF was estimated by discriminant analysis in the population. The study highlights Tourniquet test as a less sensitive diagnostic marker of DHF poor association of Thrombocytopenia with bleeding manifestations and also defines the hematocrit value diagnostic of DHF in Indian population.



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Invited Abstracts

IJCRAR/PP/01

### Anti Obesity Potential of Ethanolic Root Extract of *Glycyrrhiza glabra* by Down Regulation of MAPKs and STAT-3 in 3T3L1 Cell Line

Archana I<sup>1</sup> and Vijayalakshmi K<sup>2</sup>

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<sup>2</sup>Associate Professor, Department of Biochemistry, Bharathi Women's College, Chennai, Tamil

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#### Abstract

*Glycyrrhiza glabra* belongs to the family *Fabaceae* and is commonly called as licorice. The ethanolic root extract of *Glycyrrhiza glabra* was subjected to column chromatography and the chemical compounds were identified by thin layer chromatography. The level of lipid accumulation, triglycerides and Glyceraldehyde-3-phosphate dehydrogenase activity in 3T3-L1 adipocytes was investigated. The expression of MAPK-p<sup>38</sup>, JNK and STAT-3 was carried out by the RT-PCR. By column chromatography four fractions, that is, Fraction I ( $F_1 = 8000$  mg), Fraction II ( $F_2 = 7600$  mg), Fraction III ( $F_3 = 12,400$  mg), Fraction IV ( $F_4 = 14,200$  mg) were obtained and Fraction IV was further analyzed by TLC which showed many compounds. Further *in vitro* study was carried out with Fraction IV. 3T3-L1 adipocytes treated with Fraction IV showed less lipid accumulation by Oil-Red-O staining. The triglyceride level and activity of Glyceraldehyde-3-phosphate dehydrogenase was also decreased. Fraction IV down regulated MAPK-p<sup>38</sup> and STAT-3 expression, while it up regulated JNK-1. The above results indicates that Fraction IV of ethanolic root extract of *Glycyrrhiza glabra* exhibits anti-obesity potential by suppressing adipogenesis through down regulation of MAPK-p<sup>38</sup> and STAT-3 and up regulation of JNK-1.

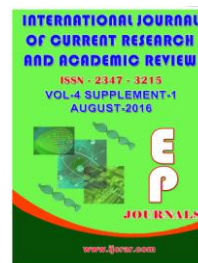
**KEYWORDS:** anti-obesity, 3T3-L1, *Glycyrrhiza glabra*, MAPKs



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Invited Abstracts

IJCRAR/PP/02

### An *In Silico* Determination of Drug-Like Molecules from Plant Source to Treat Leprosy- A Neglected Tropical Infectious Disease of India

**Uma Mageshwari R, Sharanya Manoharan, Mahendran Radha,\* Jeyabaskar Suganya and Anbarasu Krishnan**

Department of Bioinformatics, School of Life Sciences, Vels University, Pallavaram, Chennai-600117, Tamil Nadu, India.

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#### Abstract

In developing countries, awareness towards controlling the infectious diseases with high mortality and morbidity among poor people is neglected. Leprosy otherwise known as Hansen's disease, remains chronic from ancient times which is one among the neglected tropical disease. Though WHO in 1991 set a target to eliminate leprosy by 2000, there are reports recently in 2011 that 41% of cases registered in India. Causative of leprosy is *Mycobacterium leprae* which affects peripheral nerves, skin and multiple internal organs. Treatment involves the usage of dapsone, a bacteriostatic against *M. leprae* for many years until the widespread resistant strains occur. Due to which combination therapy emerged where WHO 1998 prescribed rifampicin with dapsone to treat paucibacillary leprosy and rifampicin and/or clofazimine with dapsone for multibacillary leprosy. The difficulties in handling the transmission of leprosy bacilli through inhalation or by direct contact, complete eradication of the disease has not been achieved instead severity being increased. In this perspective, the effective, safe and affordable pharmaceuticals has to be discovered from the plant sources, since they act as reservoir from the ancient period and found as one of traditional medicinal system followed. The plants *Andrographis paniculata*, *Coccinia grandis*, *Ocimum americanum*, *Piper betle* and *Ricinus communis* having traditional background are selected for the present study in order to predict and identify the bioactive principle through *in silico* docking analysis. Through the binding score and hydrogen bond formation, the plant compounds for treating leprosy have to be taken further for drug development process.

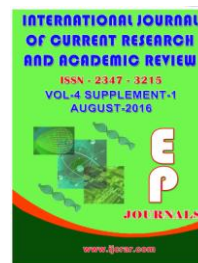
**KEYWORDS:** Leprosy, *Mycobacterium leprae*, Current drug, Medicinal plants, *in silico* docking



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Invited Abstracts

IJCRAR/PP/03

### Differential Gene Expression of Normal and Malarial Microarray Dataset - An *In Silico* Approach

**Hubert J, Anbarasu Krishnan, Mahendran Radha,\* Jeyabaskar Suganya and Sharanya Manoharan**

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#### Abstract

Malaria, though it is both preventable and treatable, prevail as a major public health problem in India. Recent survey on the malarial proportion revealed that among 46% cases, 70% of populations were affected with *Plasmodium falciparum* and 47% of death cases were registered. The anti-malarial drug quinine which remains for almost 400 years in treating the malarial disease, however, poor tolerability, poor compliance with complex dosing regimen and development of drug resistance in *P. falciparum* were observed. The GEO (Gene Expression Omnibus) is a public repository that archives the high-throughput gene expression data originated from scientific experiments. The present study utilizes the GEO2R, a Bioinformatics tool to compare two or more sets of sample in a GEO Datasets, in order to achieve the genes having dissimilar expression during the experimental condition. In contrast to the experimental analysis, this study indicated that most of the genes under control conditions i.e. without drug has been predicted to be controllable than the samples under test condition (with quinine).

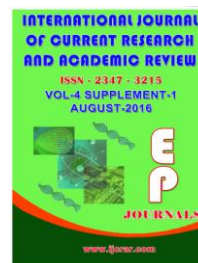
**KEYWORDS:** Malaria, *Plasmodium falciparum*, Quinine, GEO Datasets, GEO2R.



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Invited Abstracts

IJCRAR/PP/04

### Molecular Docking Analysis of Phyto-Compounds from *Hypericum mysorens*, *Cryptostegia grandiflora* and *Tagetes minuta* for HSV-1 Viral Infection

**Lakshmi Narayanan S, Jeyabaskar Suganya, Mahendran Radha,\* Sharanya Manoharan and Anbarasu Krishnan**

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#### Abstract

Herpes simplex is the viral infection caused by herpes simplex virus type1 (HSV-1) or type2 (HSV-2), the former affects oral cavity, eyes and genitalia whereas the latter affects only the genitalia. Critical clinical implications were observed on recurrence of HSV infection especially the HSV-1, also called herpes simplex labialis (HSL), is a global issue even for the patients with normal immune systems. Current available drugs like acyclovir, valacyclovir, famciclovir are the common antiviral drugs, where in specific the drug acyclovir is prescribed as the first-line drug to manage HSV. The prolonged usage of antiviral drugs in the case of immunocompromised patients leads the organism to develop resistance and the limited efficiency of the drugs are the most important criteria to be focused. To infer the existing difficulties and since the present era thrust in finding the alternatives from medicinal plants, this study aims in searching the small molecules from the plants with ethno medicinal background for anti viral activity. Molecular docking due to its ability to predict the binding site and efficiency, has been one among the most frequently used method in drug designing and also been implemented in this study. Using the molecular docking technique, the plant compounds from *Hypericum mysorens*, *Cryptostegia grandiflora* and *Tagetes minuta* were retrieved and binding efficiency with the target proteins was evaluated. The compounds showing significant interaction with the protein were given along with their interacting residues and bond length.

**KEYWORDS:** Herpes simplex virus, Current drug, Medicinal plants, HSV protein, *in silico* docking

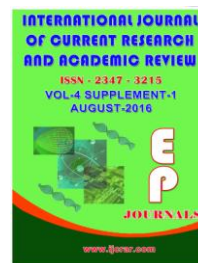




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Invited Abstracts

IJCRAR/PP/05

### ***In silico* Virtual Screening of Plant Constituents from *Withania somnifera* (Ashwagandha) Against Bacterial Infections**

**Sharathkumar RM, Saravanan S, Mahendran Radha,\* Sharanya Manoharan, Jeyabaskar Suganya and Anbarasu Krishnan**

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#### **Abstract**

The current scenario in drug discovery leads to vast inventions in the field of medicine and pharmacology. Though they are considerable, relevant side effects have been witnessed in society; especially the antibacterial resistance has posed a great menace to the human race. With this perspective, the present study ought to investigate the small molecules with rich bioactivity from natural source. The recent survey on medicinal plant usage revealed that the plant *Withania somnifera* (Ashwagandha) possesses variable properties which may be due to its high content of secondary metabolites. The present study aims at screening the plant compounds against bacterial infections using *in silico* virtual screening technique. Virtual screening is a computational approach used to identify chemical structures that are predicted to be most likely to bind a drug target. The compounds reported in the plant *W.somnifera* were retrieved from Pubchem and those compounds which have 2D structure alone in the database were converted into 3D using the software ACD ChemsSketch. Further the pharmacological efficiency has to be predicted using bioinformatics tools and to determine the drug ability by considering Lipinski's rule of five. The present work has revealed the presence of few chemical compounds in the plant with specific potency in inhibiting the proteins involved in the bacterial infection. In addition, the drug ability prediction also indicated the efficiency of the molecules to be used as drug. Further, the molecules showing significant activity for bacterial infection has to be studied with molecular docking analysis.

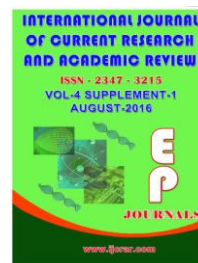
**KEYWORDS:** *Withania somnifera*, bioactive compound, ACD ChemsSketch, Lipinski's rule of 5, Virtual Screening



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Invited Abstracts

IJCRAR/PP/06

### ***In vitro* Assessment of Antimicrobial Activity of *Citrus limon* (L.) Leaves**

**Uma Devi KJ<sup>1\*</sup> and Sasikala S<sup>2</sup>**

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#### **Abstract**

The *Citrus limon* is a species of small evergreen tree native to Asia. The alcoholic leaf extract of the Indian medicinal plants *Citrus limon* was screened for its antimicrobial activity using disc diffusion method. It was tested against four gram positive bacteria (*Staphylococcus aureus*, *Staphylococcus epidermidis*, *Bacillus cereus*, *Bacillus subtilis*), three gram negative bacteria (*Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumonia*) and against three fungi (*Aspergillus niger*, *Aspergillus fumigates*, *Candida albicans*). It was observed that alcoholic leaf extracts showed antibacterial and antifungal activity. The alcoholic leaf extract of *Citrus limon* was most active against *S.epidermidis* and *E. coli*. The susceptibility of the microorganisms to the extracts of these plants was compared with each other and with the standard antibiotics ciprofloxacin and ketoconazole. The antimicrobial activities of the three alcoholic leaf extracts are discussed according to their phytochemical components. It is concluded that this Indian medicinal plants may serve as a valuable source of compounds with therapeutic potential.

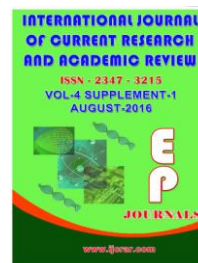
**KEY WORDS:** *Citrus limon*, Antimicrobial, phytochemical, alcoholic extract



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Invited Abstracts

IJCRAR/PP/07

### Trap Staining as a Diagnostic Tool in Bone Health Research

**Nagalakshmi K and Uma Maheshwari N\***

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#### Abstract

Bone remodelling is an active and dynamic process that relies on the correct balance between bone resorption by osteoclasts and bone deposition by osteoblasts. When the coupling is lost, the correct bone mass could be compromised, leading to several skeletal pathologies. In Obesity and Type 2 diabetes an increased risk of bone fractures occur. Up to 70% of advanced breast and prostate cancer metastasise to the bone. Estrogen deficiency causes both the early and late forms of osteoporosis in postmenopausal women and contributes to the development of osteoporosis. Osteoclasts are the only bone-resorbing cells which characterized by their expression of tartarate-resistant acidic phosphatase (TRAP), which is detected using a histochemical method for light microscopy. In the poster we present the application of Tartarate Resistant Acid Phosphatase staining as an important diagnostic tool in assessing bone health in various conditions of diabetes, cancer and postmenopausal stages in women.

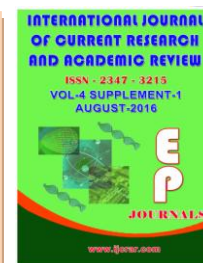
**KEY WORDS:** bone remodelling, tartarate, osteoblast, estrogen



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Invited Abstracts

IJCRAR/PP/08

### Molecular Analysis of Phylogentic Tree in GPER Using MEGA

**Shoba G,<sup>1,2\*</sup> Saranya N<sup>1</sup> and Aishwarya R<sup>1</sup>**

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#### Abstract

G-protein coupled estrogen receptor (GPER1), also known as G-protein coupled receptor 30 (GPR 30) is a protein present in humans that is encoded by the GPER gene. GPER binds to and is activated by the female sex hormone estradiol and is responsible for some of the rapid effects that estradiol has on cells. The protein is a member of the rhodopsin-like family of G-protein coupled receptor and is a multi-pass membrane protein that localizes to estradiol, resulting in intracellular calcium mobilization and synthesis of phosphatidyl inositol (3,4,5)-tris-phosphate in the nucleus. The protein plays a role in the rapid non-genomic signaling events widely observed following stimulation of cells and tissues with estradiol. GPER plays a role in breast cancer progression and tamoxifen resistance and it also acts as a biomarker in triple-negative breast cancer. Phylogenetic analysis is the study of evolutionary relationship among molecules, phenotypes and organism (eukaryotic). In this study, we use Clustal-W for multiple sequence alignment, Motif finder and MEME for motif analysis, and phylogenetic tree was drawn using MEGA software. Phylogenetic analysis of GPER1 sequences (50) from eukaryotes and vertebrates demonstrated divergent patterns and the motif analysis revealed that 7tm-1 was the common domain present in eukaryotes.

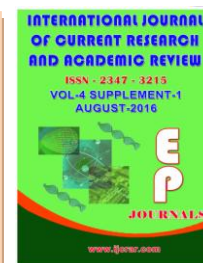
**KEYWORDS:** GPER1, GPCR, MEGA, Clustal-W, Motif finder



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Invited Abstracts

IJCRAR/PP/09

### Molecular Modelling and Docking Studies of Anthraquinones from *Cassia siamea* against AGTR2 Inducing Type II Diabetes

Deepa S,<sup>1,2\*</sup> Nandhini S<sup>1</sup> and Deepika R<sup>1</sup>

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#### Abstract

*Cassia siamea* commonly known as 'iron wood tree' is a plant species that belongs to the *caesaliniaceae* family which is traditionally used to treat many diseases. *Cassia siamea* has shown to have antimicrobial, anti-malarial, antidiabetic, anticancer, hypotensive, diuretic, antioxidant, laxative, anti-inflammatory, analgesic, antipyretic, anxiolytic, antidepressant and sedative activities. The phyto constituents of *Cassia siamea* include two anthraquinones, emodin (1,3,8-trihydroxy-6-methyl anthraquinone) and chrysophanol (1,8 – dihydroxy-3methyl anthraquinone) which exhibit many activities including Anti-diabetic activity. Endothelial cells lining the blood vessels is a barrier between blood and tissues in addition to performing other functions such as releasing mediators involved in vasoconstriction including Angiotensin II. Angiotensin II (AGT2) is a systemic vasoconstrictor formed from Angiotensin I and involved in the regulation of insulin secretion and its sensitivity, the two critical factors contributing to the development of Type II diabetes. Clinical studies have proven that blocking of Angiotensin II reduces the onset of Type II Diabetes in Humans and animal models. Considering this, the study focuses on the interaction between the anthraquinones (emodin and chrysophanol) from *Cassia siamea* and AGTR2. The 3D structure of AGTR2 is not found in PDB and so Homology modelling was done using MODELLER to predict the 3D structure of AGTR2 and its structure was elucidated. *In-silico* molecular docking studies were done using Auto dock to determine the interactions between AGTR2 (protein) and the anthraquinones (emodin and chrysophanol) which is present in *Cassia siamea* leaves. The docking study has shown good docking score which conclude emodin and chrysophanol to be good inhibitors of AGTR2 and to possess good Anti-diabetic activity.

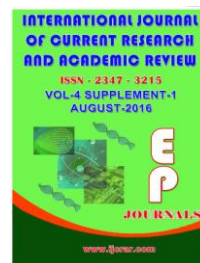
**KEYWORDS:** *Cassia siamea*, AGTR2, emodin, chrysophanol, anti-diabetic activity



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Invited Abstracts

IJCRAR/PP/10

### **In Silico Protein Structure Prediction and Docking Analysis of COX-1 with Anti-Ulcer Compounds**

**Shoba G,<sup>1,2\*</sup> Elavarasi V<sup>1</sup> and Banu M<sup>1</sup>**

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<sup>2</sup> Research Scholar, Department of Biotechnology, Mother Teresa Women's University, Kodaikanal, Tamil Nadu, India

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#### **Abstract**

*Brassica oleracia* (cabbage) of the family *Brassicaceais* rich in medicinal compound which are useful in treating various ailments. Phytochemical analysis of *B.oleracia* shows antiulcer activity and some of the major anti-ulcer compounds are S-methylmethionine, luteolin, glutamine, anthocyanin. Peptic ulcer diseases (PUD), an open sore causes erosion in lining of stomach oesophagus and small intestine. The two major causes for PUD are *Helicobacter (H. pylori)* infection or use of Non-Steroidal Anti-Inflammatory Drug (NSAID). Cyclooxygenase (COX-1) a house keeping enzyme normally present in the stomach stimulates the prostaglandin which balance the acid secretion and heal the ulcer. COX-1is inhibited by Non-Steroidal Anti-Inflammatory Drug (NSAID) resulting in peptic ulcer. Further damage can be prevented by activation of COX-1 with the mentioned antiulcer. The 3D structure of COX-1 is not available in PDB. So homology modelling was done by Modeller 9.14. Molecular analysis were carried out by docking the compounds of antiulcer activity viz., S-methylmethionine, luteolin, glutamine, anthocyanin against COX-1.Based on computational binding, energy highest fitness score the bioactive compound suggested to possess antiulcer activity. These compounds could be effective as potential inhibitors against COX-1 protein and can be evaluated as antiulcer drug molecule on further clinical trial research.

**KEYWORDS:** *Brassica oleracia*, antiulcer activity, peptic ulcer, COX-1, NSAID, MODELLER, molecular docking

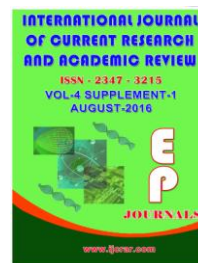




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Invited Abstracts

IJCRAR/PP/11

### ***In Silico* Homology Modeling of EML4-ALK from *Homo sapiens* Using Modeller 9.14**

**Padmini R,<sup>1,2\*</sup> Sai Aruna S<sup>1</sup> and Roopavahini V<sup>1</sup>**

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<sup>2</sup> Research Scholar, Department of Biotechnology, Mother Teresa Women's University, Kodaikanal, Tamil Nadu, India

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#### **Abstract**

Lung cancer is the common cancer which leads to death in all developed countries. It is found in the tissues of the lung in the cell lining and air passages. It occurs when normal gene undergo a transformation that causes the gene to grow abnormally and multiply uncontrollably to form a tumor and spread to other parts of the body. The two main types of lung cancer are characterized by the cell size and the cell type of the tumor when viewed under the microscope. They are called Small Cell Lung Cancer (SCLC) and Non-Small Cell Lung Cancer (NSCLC). Non-small cell lung cancer accounts for 75% to 80% of all lung cancer cases in India. The fusion between Echinoderm Microtubule-associated protein (EML4) and Anaplastic Lymphoma Kinase (ALK) has been recently identified in a NSCLC. Knowledge of the three-dimensional structure is a pre-requisite for the rational design of site-directed mutations in a protein and can be of great importance for the design of drugs. EML4-ALK is a protein which plays an important role in causing Lung cancer. The three dimensional structure of EML4-ALK has not been solved. The structure of EML4-ALK was solved using Modeller 9.14. Structural validation results shows that the model structure of the protein is a good model. Detailed analysis of the topology, secondary and three dimensional structures provide insight into role of the protein in lung cancer. These findings require further studies of the ligand-binding for screening potential inhibitors against lung cancer.

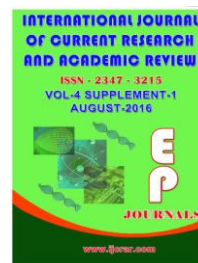
**KEYWORDS:** Lung cancer, Non-Small Cell Lung Cancer (NSCLC), EML4-ALK, Modeller 9.14



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Invited Abstracts

IJCRAR/PP/12

### Docking Analysis of Quercetin and Nimbin as COX-2 Inhibitor

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\*E-mail: [viji\\_nandu@yahoo.com](mailto:viji_nandu@yahoo.com)

#### Abstract

*Azadirachta indica* (neem) is used in traditional Indian medicine for its pharmacological properties including cancer prevention and treatment. It is grown in mostly tropical and subtropical area of the world for shade, reforestation and for the production of raw material for natural insecticides and medicines. Cyclooxygenase exists into two isoenzymatic forms, Cyclooxygenase (COX-1) and Cyclooxygenase (COX-2). COX-2 activity is induced by pro-inflammatory cytokines, produces prostaglandin that induces inflammatory response and pain signaling transmission. This study deals with the evaluation of the cyclooxygenase inhibitory activity of flavonoids using *in silico* docking studies. In this perspective, flavonoids like quercetin and nimbin were selected from the neem plant. *In silico* docking studies were carried out using Autodock 4.2 based on the Lamarckian genetic algorithm principle. Binding energy, inhibition constant and intermolecular energy were determined. Hence, we conclude these compounds have anti-inflammatory activity against COX-2 inhibitor based on the principle.

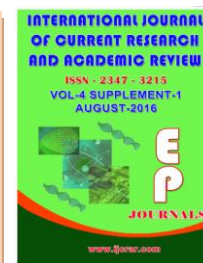
**KEYWORDS:** *Azadirachta indica*, cyclooxygenase, anti-inflammatory activity, docking



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Invited Abstracts

IJCRAR/PP/13

### Quantitative assessment of Hippocampal and Corpus Callosum Volumes for Clinical Staging in Alzheimer's Disease (AD)

**Divya V,<sup>1</sup> Joy Sebastian Prakash J<sup>2</sup> and Karunanithi Rajamanickam<sup>3\*</sup>  
Alzheimer's Disease Neurodegenerative Initiative (ADNI)\*\***

<sup>1</sup>M.Sc., 1 Year - Medical Biotechnology

<sup>2</sup>Ph.D Scholar

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\*\*Data used in preparation of this article were obtained from the Alzheimer's Disease Neuroimaging Initiative (ADNI) database ([adni.loni.usc.edu](http://adni.loni.usc.edu)). As such, the investigators within the ADNI contributed to the design and implementation of ADNI and/or provided data but did not participate in analysis or writing of this report.

A complete listing of ADNI investigators can be found at:

[http://adni.loni.usc.edu/wp-content/uploads/how\\_to\\_apply/ADNI\\_Acknowledgement\\_List.pdf](http://adni.loni.usc.edu/wp-content/uploads/how_to_apply/ADNI_Acknowledgement_List.pdf)

#### Abstract

Alzheimer's disease (AD) is a heterogeneous neuronal degenerative process that affects certain cerebral regions which is the most common cause of dementia. The pathological symptoms of AD are amyloid plaques and neurofibrillary tangles. There is a worldwide research which aims at development of biomarkers that reliably indicate and detect the presence of AD at its early stage.

Many studies confirmed the association of hippocampus in AD and already it has been considerably damaged before the onset of clinical symptoms of AD. Thus, assessing hippocampus has become choice to evaluate AD using Magnetic Resonance Imaging (MRI).

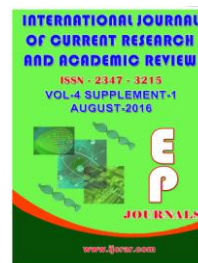
Here, we used axial section of Diffusion Tensor Images of the brain to calculate the volume of Hippocampus and Corpus Callosum using imaging software called DSistudio. Further, Receiver Operating Curve (ROC) was used to evaluate the sensitivity and specificity of the two selected locations and its association with AD.



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Invited Abstracts

IJCRAR/PP/14

### Qualitative Assessment of Fiber Tracts and Neuronal Loss for Evaluating Alzheimer's Disease, Mild Cognitively Impairment and Normal Ageing

**Jayalakshmi A,<sup>1</sup> Joy Sebastian Prakash J<sup>2</sup> and Karunanithi Rajamanickam<sup>3\*</sup>  
Alzheimer's Disease Neurodegenerative Initiative (ADNI)\*\***

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\*\*Data used in preparation of this article were obtained from the Alzheimer's Disease Neuroimaging Initiative (ADNI) database ([adni.loni.usc.edu](http://adni.loni.usc.edu)). As such, the investigators within the ADNI contributed to the design and implementation of ADNI and/or provided data but did not participate in analysis or writing of this report.

A complete listing of ADNI investigators can be found at:

[http://adni.loni.usc.edu/wp-content/uploads/how\\_to\\_apply/ADNI\\_Acknowledgement\\_List.pdf](http://adni.loni.usc.edu/wp-content/uploads/how_to_apply/ADNI_Acknowledgement_List.pdf)

#### Abstract

According to World Alzheimer Report 2015, for every three seconds a person is developing dementia and there are roughly around 55.8 million people are affected with Alzheimer's disease (AD), worldwide. AD characterized by neurofibrillary tangles and amyloid plaques, it is the most frequent cause for dementia.

Diffusion magnetic resonance imaging provides the assessment about the integrity and connectivity of white matter fiber tracts. In AD patients, there is loss of neuronal connectivity which leads to the decline in cognition. Thus assessing the anatomical area where the neuronal loss and its severity can help to determine the onset and progression of AD.

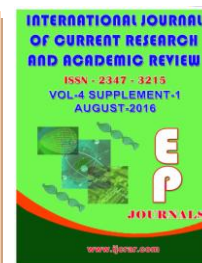
Here, we used Diffusion Tensor Imaging (DTI) images for calculating fiber tracts using DSStudio. Fiber tracts integrity was assessed qualitatively and the neuronal loss in Corpus Callosum Splenium, Corpus Callosum Genu, Hippocampus (Right & Left) and Uncinate Fasciculus (Right & Left) region that is much associated with AD.



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Invited Abstracts

IJCRAR/PP/15

### Assessment of Brain Lateral Ventricular Volume in Alzheimer's Disease –A pilot study

**Sharon Jebamalar P,<sup>1</sup> Joy Sebastian Prakash J<sup>2</sup> and Karunanithi Rajamanickam<sup>3\*</sup>  
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*\*Data used in preparation of this article were obtained from the Alzheimer's Disease Neuroimaging Initiative (ADNI) database (adni.loni.usc.edu). As such, the investigators within the ADNI contributed to the design and implementation of ADNI and/or provided data but did not participate in analysis or writing of this report.*

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#### Abstract

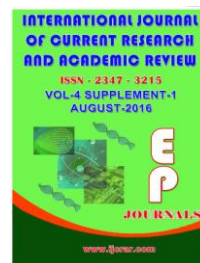
Alzheimer's disease (AD) is caused by progressive accumulation of abnormal proteins like amyloid- $\beta$  and hyperphosphorylated tau leading to synaptic and neuronal damage. Thus, brain tissue atrophy is measured using Magnetic Resonance Imaging (MRI) will provide an objective and quantitative method to study the neuropathological changes and progression of AD. The rate of change in ventricular volume is directly correlated to the increase in senile plaques and neurofibrillary tangles. The ventricular volume measurement is agreeable to any robust automatic segmentation protocol because of the fine contrast of signal intensity between cerebrospinal fluid (CSF) and ventricles. Here, we used Automatic Lateral Ventricle delineation (ALVIN), a fully automated algorithm which works with standalone Statistical Parametric Mapping (SPM v12.0) for estimating the ventricular volumes of the brain. Proton Density (PD) images were used in ALVIN to estimate the ventricular volumes for differentiating between AD and normal elderly controls.



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Invited Abstracts

IJCRAR/PP/16

### Molecular Biomarkers for Detecting Ovarian Cancer

**Pricilla CP,<sup>1</sup> Akram Husain RS<sup>2</sup> and Ramakrishnan V<sup>2\*</sup>**

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#### Abstract

Ovarian cancer is the development of malignant tumor in the ovary of women. There are more than 30 different types of ovarian cancer, which are classified based on their cell origin such as surface epithelium, germ cells and stromal cells. It is the leading cause of cancer deaths in women worldwide among all the gynaecological cancers with 239,000 new cases diagnosed in the year 2012. They are difficult to diagnose early because of their clinical symptoms, the detection involves physical examination including pelvic exam, ultrasound scan, X-ray, CA-125 test and ovary biopsy. But all the above mentioned tests are invasive. There is an urgent clinical need for routinely available molecular biomarkers in detecting ovarian cancer. Multiple-Omics approach has been performed by researches in the last five years to identify the potential biomarkers. The post-genomic era has enhanced the scope for personalized cancer treatments and the discovery to identify specific, more stratified biomarkers for accurate prediction and also on the disease progression.

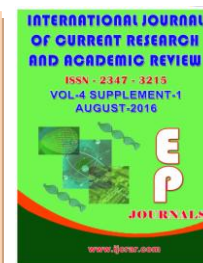




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Invited Abstracts

IJCRAR/PP/17

### Early Diagnosis of Genetic Mutations in Pompe Disease

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\*E-mail: rkgenes@gmail.com

#### Abstract

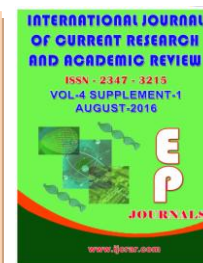
Pompe disease (PD) is commonly known as Glycogen Storage Disease type II (GSD II) is an inherited autosomal recessive disorder caused by deficiency of  $\alpha$ -glucosidase enzyme. The clinical symptoms of this disease include accumulation of lysosomal glycogen in smooth muscle, skeletal, nervous system and also in the heart. There are three types of Pompe disease, such as classic infantile-onset, non-classic infantile-onset, and the late-onset. The incidence is approximately 1/40,000 births and GAA (Glucosidase, alpha acid) is the candidate gene located on chromosome no 17 at q25.3 spanning 20 exons. Till date, 400 different mutations have been described with PD and frequent mutations were observed in GAA gene of the affected individuals belonging to Asian, Caucasian and African ethnic groups with 34–47 % of mutation frequency. The GAA gene mutations prevent acid alpha-glycosidase enzyme breaking down the glycogen effectively, these mutations play major role in the disease progression. Due to the advent of high-throughput sequencing technologies in recent years, the diagnosis of rare genetic disorders have become rapid and precise and also it is possible to screen the genetic variations in GAA associated with Pompe disease.



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Invited Abstracts

IJCRAR/PP/18

### A New Approach for Non-Invasive Fetal Trisomy (NIFTY) Detection in Aneuploidies Using Massive Parallel Sequencing (MPS)

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<sup>2</sup>Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam 603103, Tamil Nadu, India.

\*E-mail: rkgenes@gmail.com

#### Abstract

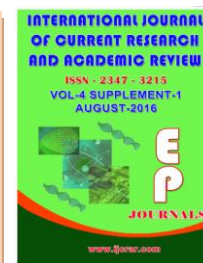
Recent non-invasive approach for the prenatal detection of trisomy conditions has been made possible by the discovery of cell free fetal DNA circulating in the pregnant women. The most clinically important aneuploid conditions include trisomy 21, 18 and 13. The Massive parallel sequencing gives accurate diagnosis of these aneuploid conditions by sequencing the maternal plasma DNA. Initially prenatal diagnosis was performed with invasive techniques such as amniocentesis and chorionic villus sampling (CVS) increases the miscarriage risk. Later non-invasive technique was approached with ultrasound screening and maternal serum levels sampling together showed a relative high or low risk of the fetus to develop into aneuploid conditions with lack of sensitivity and specificity. Massive parallel sequencing of Circulating fetal DNA present in the maternal serum has 99.2% detection rate for trisomy constitute a new approach to noninvasive fetal trisomy testing. To conclude the non-invasive fetal trisomy test(NIFTY) have documented better sensitivity and high accuracy in diagnosing the trisomy conditions and add benefits to the human life by avoiding the inheritance pattern of trisomy to the later generations compared with the traditional screening methods.



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Invited Abstracts

IJCRAR/PP/19

### Next Generation Sequencing for Diagnosis of Parkinson's Disease and Amyotrophic Lateral Sclerosis

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#### Abstract

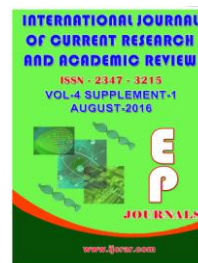
Genetic contributions of most of the neurological diseases remain poorly understood due to the multi-causative factors. With recent advancement in genomics technology the next-generation sequencing (NGS) technology, led to huge progress in understanding the genetic causes of neurological diseases that uncovered numerous disease susceptibility genes. With the decreasing cost of next-generation sequencing (NGS) technology, it now being used for diagnosis and monitoring of complex diseases. The diagnostic process is often long and complex with neural disorder patients undergoing multiple invasive and costly investigations without ever reaching a conclusion in molecular diagnosis. The Next Generation Sequencing promises to revolution of genetic testing. Herein, we present the application of NGS in neurological disease such as Parkinson's disease (PD) and Amyotrophic lateral sclerosis (ALS) focusing on genotypic of pathological variant, direct detection of neurodegenerative disease by knowing the clinical symptoms. NGS analysis of early onset PD showed to multiple rare variants including, (c.801-2A>G), (p.Q734X) in DNAJC6. Similarly, NGS data of ALS showed variations atp.C71G, p.M114T, p.E117G, p.G118V in the PFN1 gene. More elaborate understanding of these mutations may provide the possibility of diagnosis.



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Invited Abstracts

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### Biosynthesis of Silver Nanoparticles using Crude Ethanol and Aqueous Fruit Extracts of *Citrus sinensis* and Its Analysis of Antibacterial Activity

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#### Abstract

The crude ethanol and aqueous extracts of *Citrus sinensis* were prepared and biosynthesis of silver nanoparticles (Ag NPs) from silver nitrate solution was done using crude fruit extracts of *Citrus sinensis* and were characterized by UV-vis spectrophotometer. . Antibacterial activity of the silver bio-nanoparticles was performed by well diffusion method against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli* and *Klebsiella pneumoniae*. The highest antibacterial activity of silver nanoparticles synthesized by crude *aqueous fruit extracts of Citrus sinensis* was found against *S. aureus* followed by *E.coli*, *Klebsiella pneumoniae* and lowest against *Pseudomonas aeruginosa* respectively. The highest antibacterial activity of silver nanoparticles synthesized by crude *Ethanol fruit extracts of Citrus sinensis* was found against *E. coli* and lowest against *Pseudomonas aeruginosa* respectively. It was found that silver nanoparticles synthesized by ethanol fruit extracts of *Citrus sinensis* were found to possess high antibacterial activity against *E. coli* than *aqueous fruit extracts of Citrus sinensis*.