CONFERENCE PROCEEDINGS

NATIONAL SEMINAR

On

"NOVEL APPROACHES IN CANCER THERAPEUTICS"

(NSNACT – 2016)

11th & 12th February, 2016

Organized by

DEPARTMENT OF BIOCHEMISTRY & BIOINFORMATICS

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KARPAGAM ACADEMY OF HIGHER EDUCATION
(Deemed to be University, Established Under Section 3 of UGC Act 1956)

ISBN: 978-81-944855-4-4

ISBN: 978-81-944855-4-4

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ISBN: 978-81-944855-4-4

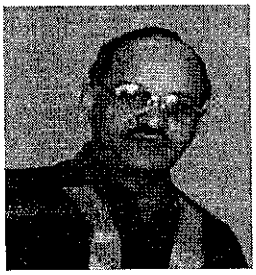
PREAMBLE

Cancer is predicted as an important contributor to the global burden of non communicable diseases in the next millennium. Globally cancer is responsible for eight percent of total deaths while its contribution in India stands at 6%. Diagnosis of cancer in a individual brings an immense emotional trauma and pose a major economical burden. Therefore, cancer control requires effective implementation of acquired knowledge.

The clinical use of chemotherapeutic agents against malignant tumors is successful in many cases but suffers from major drawbacks. To overcome this more intense research is needed. The researches in the past decade throw light on targeted therapy which brought new hopes. Continued research will be essential to win the battle against cancer and save more lives. This seminar will be an eye opener to the young budding scientists in the field of cancer research.

The main objective of this seminar is twofold. One is to discuss the experiences of scientist, academicians and scholars on performing research in cancer that shapes the modern preventive and therapeutic approaches for cancer therapy. Secondly, to disseminate the latest developments in the field of cancer therapeutics.

ISBN: 978-81-944855-4-4



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Dr. R. VASANTHAKUMAR
Chairman
Karpagam Educational Institutions
Coimbatore

MESSAGE

Cancer is a high frequency illness that affects the world populations and requires a comprehensive approach towards developing novel strategies for its prevention and cure. This is best accomplished through educational campaigns and organized global events.

The scope of the seminar is truly significant because cancer is not only a health issue but is also tax on the financial resource of the individual. The World health Organization projects deaths from cancer worldwide will continue rising, with an estimated 12 million deaths in 2030. However, it has long been established that about one third of the cancer burden can be decreased if cases are detected and treated early. Awareness helps them to proactively embrace healthier lifestyle choice that helps keep cancer at bay.

It is in this context, the national level seminar on "Novel approaches in Cancer Therapeutics" deserve appreciation. The seminar will raise awareness on impact of cancer and increase the understanding of solutions. I am certain that this seminar will not only explore the frontiers of knowledge in the field but also help to promote and develop research as well as enhance information dissemination about cancer prevention. The seminar will provide a wonderful platform for participants like students, researchers, practitioners, particularly oncologist to refresh their knowledge base and explore the most up to date information regarding cancer therapeutics. Therefore, I call upon the research community to participate in great number in this seminar and turn the event a great success. On final note, I congratulate the organizers for this timely initiative.

Coimbatore
February, 2016

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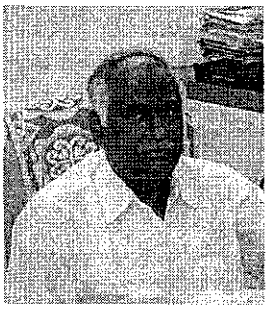

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SHRI.K. MURUGAIAH
Chief Executive Officer
Karpagam Educational Institutions
Coimbatore

MESSAGE

Cancer is an indefinable, multifarious, and difficult disease to treat. Targeted therapies and the consequent adoption of "personalized" oncology have achieved prominent successes in some cancers; however, significant problems stay behind with this approach. Many targeted therapies are highly toxic, costs are enormously high, and most patients experience relapses after a few months.

The intention of this initiative is to emphasize the major findings in cancer, understand and share among the scientists to disseminate it to public at large. The information provided in the seminar will benefit Professors, Scientists, Research scholars, students and anyone else interested in this seminar about "Novel approaches in cancer therapeutics". This seminar describes the special features, requirements and expectations of the researchers and also some practical information for beginning students.

All the members in the Department of Biochemistry and Bioinformatics have a strong will to keep moving forward steadily and diligently to achieve the mission of our university. I congratulate your team effort and miles to go for the achievement.

Coimbatore
February, 2016

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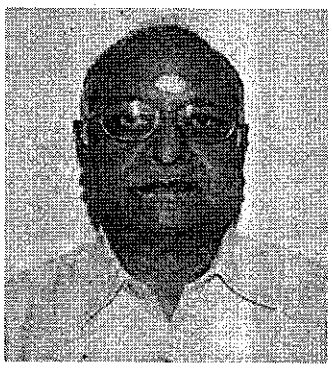

Dr. S.Subramanian
Vice-Chancellor
Karpagam Academy of Higher Education
Coimbatore

MESSAGE

Cancer therapy plays a prominent role in the battle against cancer. Evolution of cancer therapy dependent on current understanding on cancer prevalence, severity of the disease and overall impact of a treatment. Most importantly, research on cancer is the critical benchmark for defining prognosis and the likelihood of overcoming the cancer and for determining the best treatment approach for their cases. Research in the area of cancer has grown over the past few decades and this has become a rather specialized field of study.

Conventional treatments, such as chemotherapy, radiation and surgery, are usually the only options initially offered to cancer patients, but they aren't always effective. All these methods damage the normal tissues or eradication of cancer tissue is incomplete. So targeted therapies selectively to cancerous cells and neoplasms enhance the therapeutic efficacy of treatment modalities. This seminar looks at the current strategies, successes and challenges involved with the development of novel approaches for cancer therapy.

I hope this seminar will stimulate biologist, biochemists, immunologists and molecular biologist to interact with one another to exploit the unique properties of cancer. I congratulate the organisers and their willingness to systematize this seminar.

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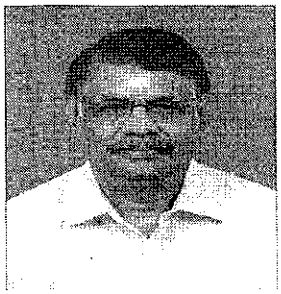

Dr. G.Sekar
Registrar
Karpagam Academy of Higher Education
Coimbatore

MESSAGE

Cancer was once called a terminal, deadly disease. But due to the tremendous efforts of scientists and academicians the stigma, "deadly disease" attached to cancer has been removed. If it is deducted at stage I, an early stage, it is curable. However, the journey is not complete.

Miles to go before I sleep
And miles to go before I sleep

-Robert Frost

I hope that budding scientists participating in the seminar on 'Novel approaches in cancer therapeutics' will share their views, research findings with fellow academicians and scientists.

Their efforts will pave a new path in curing the disease 'cancer'. I wish, In addition to finding new, effective drugs, the participants may focus their attention on creating awareness among the commonpeople about cancer and a pool of treatments.

I whole heartedly congratulate the department of Bio-Chemistry and Bio-Informatics for organizing the seminar.

Coimbatore
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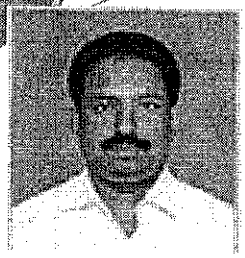

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Dr. M.Palaniswamy
Dean, Faculty of Arts, Science and Humanities
Karpagam Academy of Higher Education
Coimbatore

MESSAGE

Cancer is considered to be one of the leading causes of morbidity and mortality worldwide. It is a complex health problem that requires a multidisciplinary approach. This approach is far reaching and ranges from health promotion to prevention and screening, diagnosis, treatment and rehabilitation. Treatments that work for some cancers don't work for others and sometimes those treatments simply stop working, which require different approaches for treatment.

Currently, cancer treatment is a highly dynamic field and significant advances are being made in the development of novel cancer treatment strategies. In contrast to conventional cancer therapeutics, novel approaches such as ligand or receptor based targeting, triggered release, intracellular drug targeting, gene delivery, cancer stem cell therapy, magnetic drug targeting and ultrasound-mediated drug delivery, have added new modalities for cancer treatment. These approaches have led to selective detection of malignant cells leading to their eradication with minimal side effects. A primary goal of targeted therapies is to fight cancer cells with more precision and potentially fewer side effects.

This national seminar on "Novel Approaches in Cancer Therapeutics" organized by Department of Biochemistry and Bioinformatics is designed to provide participants with deep knowledge of the cancer biology that shapes modern preventive and therapeutic approaches. I am sure that the invited speakers with rich knowledge on cancer therapeutics and diagnostics would disseminate their research experience throwing light on latest developments in the field. This seminar would be an ideal platform for the technology developers (scientists) and end users (clinicians) to interact on the major issues of cancer treatment. We cordially invite the fortunate participants who are joining us in this research quest. I congratulate the department in taking this initiative and staging this interactive platform and I wish them a grand success for the seminar.

Coimbatore
February, 2016

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ORGANISING COMMITTEE

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Dr.M.Sridhar Muthusami, Assistant Professor, Department of Biochemistry and Bioinformatics, KAHE

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NATIONAL LEVEL SEMINAR ON "NOVEL APPROACHES IN CANCER THERAPEUTICS" FEBRUARY-11 & 12, 2016.

TENTATIVE PROGRAMME

DAY-1-Thursday, February-11, 2016	
Bharathi Hall, Sivam Block, I Floor	
Time	**Programme**
9.00-10.00 am	Registration
10.00-10.05 am	Prayer Song
10.05-10.15 am	Welcome Address
10.15-10.20 am	Lighting the Lamp
10.20-10.30 am	Presidential Address
10.30-10.45 am	Inaugural Address
10.45-10.55 am	Felicitation
10.55- 11.00 am	Vote of Thanks
11.00-11.15 am	Tea Break

Scientific Session-I

TIME	Topic	Speaker
11.15 am - 12.15pm	**Bioactive compound quinacrine: A bench – cage- bedside journey from anti- malarial drug to anti-cancer drug**	**Dr.Chanakya Nath Kundu,** School of Biotechnology, KIIT University, Campus-11, Bhubaneswar, Odisha, India,

Oral Presentation Session-I

Chair Person: Dr. Chanakya nath kundu, KIIT

Co-Chair Person: Dr.K.Devaki, KAHE

ISBN: 978-81-944855-4-4

12.15-12.25 pm	**Influence of grape skin extract and its active component, quercetin, on oxidant-induced apoptosis in *Saccharomyces cerevisiae***	J. Merlyn, **S. Sivapriyadharshini** and P.R. Padma
12.25-12.35 pm	**Antitumor activity of stem bark extract of *Zanthoxylum tetraspermum* W.A. against MNU induced breast carcinoma in mice**	**K. Narayanasamy and B. Ragavan**
12.35-12.45 pm	**Dietary evaluation of antioxidant activity on bioactive compounds from black chia (*Salvia hispanica* L.)**	**D. Guru Kumar**
12.45-12.55 pm	**Small molecule inhibitor fisetin modulates STAT 3 signaling and induces apoptotic death in human non small cell pulmonary carcinoma cells.**	**Gazala Showkat** and M. Sreepriya
12.55-1.05 pm	**Antiproliferative studies on different fractions of *Amorphophallus commutatus* tuber extracts against mitogen induced human peripheral lymphocytes**	**R. Kavitha Krishna** and B. Naveen Kumar
1.05-1.15 pm	**Isolation, characterisation and anticancer potential study of bioactive compounds from n-Hexane Leaf Extract of *Alpinia purpurata***	**Enock K Oirere** and V.K.Gopalakrishnan
1.15-2.00 pm	**Lunch Break**	
Scientific Session-II		
2.00 pm -3.00 pm	**Odyssey of Ras in Cancer Cure**	**Dr. Angayarkanni Jayaraman** Assistant Professor, Department of Microbial Biotechnology, Bharathiar University, Coimbatore.
3.00-3.15 pm	**Tea Break**	

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Oral Presentation Session-II		
Chair Person: Dr. J. Angayarkanni, BU		
Co-Chair Person: Dr. S. Balasubraanian, KAHE		
3.15-3.25 pm	**Toxicological effect of ethyl acetate extract of *Alpinia purpurata* (Vieill).K. Schum on wistar albino rats**	**P. Anusooriya** and V.K. Gopalakrishnan
3.25-3.35 pm	**Acute Oral Toxicity of Ethanolic Leaf Extract of *Macrotyloma uniflorum* in Wistar Albino Rats**	**S. Priyanga,** S. Hemmalakshmi and K.Devaki
3.35-3.45 pm	**Toxicology evaluation of Purified β-galactosidase from *Aspergillus terreus* in Wistar albino rats**	**B.Vidya** and V.K. Gopalakrishnan
3.45-3.55 pm	**Role of herbal medicine in cancer therapy – a review**	**Nirmala Devi N**
3.55-4.05 pm	**Heal Cancer Naturally**	**Rathi M A**
4.05-4.15 pm	**Nanotechnological Approaches to Fight cancer**	Gayathri P **and Rathi MA**
DAY-2-Friday, February-12, 2016		
Bharathi Hall, Sivam Block, I Floor		
TIME	**Topic**	**Speaker**
Scientific Session-III		
10.00 -11.00 am	**Emerging role of microRNA in cancer therapy**	**Dr. M. S.Latha,** Mahatma Gandhi University, Kottayam, Kerala
11.00-11.15 am	**Tea Break**	
Oral Presentation Session-III		
Chair Person: Dr. M. S. Latha, MGU		
Co-Chair Person: Dr. M. Sridhar Muthusami, KAHE		

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11.15-11.25 am	**Influence of grape skin extract and its active component, quercetin, on oxidant-induced apoptosis in *Saccharomyces cerevisiae***	J. Merlyn, **S. Sivapriyadharshini** and P.R. Padma
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11.55am-12.05 pm	**Antiproliferative studies on different fractions of *Amorphophallus commutatus* tuber extracts against mitogen induced human peripheral lymphocytes**	**R. Kavitha Krishna** and B. Naveen Kumar
12.05-12.15 pm	**Isolation, characterisation and anticancer potential study of bioactive compounds from n-Hexane Leaf Extract of *Alpinia purpurata***	**Enock K Oirere** and V.K.Gopalakrishnan
12.15-1.15 pm	**Poster Presentation Evaluation** **Judges:** **Dr. A. Manickam, KAHE** **Dr. J. Anitha, KAHE**	
1.15-2.00 pm	**Lunch Break**	
Oral Presentation Session-IV **Chair Person: Dr. R. Thilagavathi, KAHE** **Co-Chair Person: Dr. K. Poornima, KAHE**		
2.00-2.10 pm	**Ancient and Modern treatments in Cancer**	**Ramya P and Rathi M A**
2.10-2.20 pm	**Anticancer agents derived from medicinal plants**	**R. Kavitha Krishna**

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2.20-2.30 pm	**Molecular mechanisms for novel cancer therapies**	**T. M. Simy** and V.K.Gopalakrishnan
2.30-2.40 pm	**Novel approaches for cancer therapeutics**	**N.Santhiya** and K.Devaki
2.40-2.50 pm	**Medicinal plants for Cervical cancer treatment**	**S. Deepika** and K.Poornima
2.50-3.00 pm	**Medicinal plants in pancreatic cancer treatment**	**P.Muneeswari** and K.Poornima
3.00-4.00 pm	**Valedictory Function**	

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ABSTRACTS - INVITED LECTURES

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Bioactive compound quinacrine: A bench – cage- bedside journey from anti-malarial drug to anti-cancer drug

Dr.Chanakya Nath Kundu

School of Biotechnology, KIIT University, Campus-11, Bhubaneswar, Odisha, India,

The small molecule Quinacrine (QC, a derivative of 9-aminoacridine), an anti-malaria drug recently proved as an anti-cancer agent using multiple *in vitro* bioassays. We investigated the anticancer mechanism underlying these drug activities against cancers. QC increased the dramatic cellular cytotoxicity in varieties of cancer cells without affecting normal epithelial cells by modulating the numbers of signaling pathways including NFkβ, p53, cell cycle check point, DNA repair and mitochondrial mediated damage. QC also inhibits the major cancer stem cell signaling cascade WNT-TCF, Hedgehog-GlI. It reduces the size of tumor in xenograft mice by inhibiting the Hedgehog-Gli. It also inhibits the cancer stem cell growth in *ex vivo* human cancer model by inhibiting the Gli1. Nano formulated QC reduces the angiogenesis *in ovo* system. Bioactive compound lycopene, synthetic drug Chk1 inhibitor and hybrid silver nanoparticle synergistically increased the QC action by not only increasing the DNA damage but also compromising Base Excision Repair (BER) pathway.

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Odyssey of Ras in Cancer Cure

Dr. Angayarkanni Jayaraman

Assistant Professor, Department of Microbial Biotechnology, Bharathiar University, Coimbatore.

The Ras protein has copiously enticed the scientists in cancer research after being designated as oncoprotein. About three decades ago, mutations in *ras* genes were the aboriginal genetic alterations identified in human cancer. The Ras proteins are accused of as key element in signaling pathways involving pathological processes such as cancer and in physiological processes controlling cellular proliferation, differentiation, and survival. The oncogenic mutations of *Ras* genes are perceived to tip the balance of the physiological processes leading to the tumour development. In addition to this, the mutations of the members in upstream and downstream of Ras signaling pathways have also contributed to variety of cancers. Although scientists have made great strides in the last 30 years toward understanding the signaling pathways that *Ras* genes control, many still consider Ras proteins as virtually "undruggable" targets for therapy. But advances in technology and improved understanding of Ras signaling and regulation can provide solutions to address this unsolved situation.

ISBN: 978-81-944855-4-4

Emerging role of microRNA in cancer therapy

Dr. M.S.LATHA

Mahatma Gandhi University, Kottayam, Kerala

MicroRNAs (miRNAs) are endogenous, noncoding, single stranded RNAs of 22 nucleotides and constitute a class of gene regulators. miRNAs control many cellular processes, such as cell differentiation, growth, proliferation, and apoptosis. Changes in miRNAs expression profiles are being extensively studied in human diseases, such as cancer, skeletal muscle diseases, or cardiovascular diseases. Expression of miRNAs can be affected by different external stimuli including nutrients such as vitamins, lipids, and phytochemicals. Polyphenols have been shown to affect the expression of microRNAs. Over 100 miRNAs, involved in the control of different cellular processes such as inflammation or apoptosis, were identified as modulated by polyphenols. Recent studies reveal the capacity of dietary polyphenols to modulate expression of miRNA and provide insights of new mechanisms of action of these bioactive compounds underlying their beneficial health properties. Further studies are needed to identify the molecular mechanisms underlying effects of polyphenols in the expression of miRNAs.

ISBN: 978-81-944855-4-4

ABSTRACTS-
ORAL
PRESENTATION

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OP - 01

Influence of grape skin extract and its active component, quercetin, on oxidant-induced apoptosis in *Saccharomyces cerevisiae*

J. Merlyn, **S. Sivapriyadharshini** and P.R. Padma

Department of Biochemistry, Biotechnology and Bioinformatics,
Avinashilingam Institute for Home Science and Higher Education for Women,
Coimbatore – 641 043.

The present study was a probe to study the effect of quercetin and a natural source rich in quercetin on the ultimate consequence of severe oxidative stress, namely, cell death. In the present study, the pink variety of grapes with seeds was used. Commercially available quercetin pure compound was also tested alongside the extract. As the first step of the study, the presence of quercetin in the grape skin extract was confirmed by HPLC. The test system used in the present study was *Saccharomyces cerevisiae* cells. These cells grow rapidly and provide a very reliable test system due to their genomic homology with higher eukaryotes in general and the human system in particular. The yeast cells in the exponential phase of growth were exposed to oxidative stress using hydrogen peroxide (200 µM H_2O_2) in the presence or the absence of grape skin extract (100 µl) or quercetin (25 µM). Appropriate untreated controls were also set up. The extent of cell death was quantified using MTT and SRB. The type of cell death was also characterized using a series of staining procedures namely Giemsa, ethidium bromide, propidium iodide, AO/EtBr and DAPI, all of which facilitate the visualization of the cellular and nuclear events associated with apoptotic cell death. The results of the present study, confirm the protection of *S. cerevisiae* cells against oxidative stress-induced death. The significant protection rendered by the grape skin extract and quercetin to the yeast cells, suggests that these natural sources can counteract the harmful effects of cancer chemotherapeutic chemicals which cause the death of cancer cells by imposing as oxidative stress. They have the potential to minimize the side effects of such toxic chemicals, thereby maximizing their therapeutic potential.

Key words: oxidative stress; cell death; quercetin; grape skin extract; *Saccharomyces cerevisiae*

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OP – 02

Antitumor activity of stem bark extract of *Zanthoxylum tetraspermum* W.A. against MNU induced breast carcinoma in mice

K. Narayanasamy[1] and B. Ragavan[2]

[1]*Department of Biochemistry, Sree Narayana Guru College, Coimbatore – 641 105,*

[2] *Department of Biochemistry, PSG College of Arts and Science, Coimbatore – 641 014.*

Breast carcinoma is a heterogeneous disease that appears to progress from an *in situ* tumor to invasive cancer, which occurs via a multistep process. It continues to be fatal in many affected women. Metastatic disease is the most common cause of breast cancer death. *Zanthoxylum* genus is known as "Timoor" and used as mouth fresh, tooth care, spice and possesses several types of biological activities. *Zanthoxylum tetraspermum* (Wight & Arn.) belonging to the family "*Rutaceae*" possesses some biological activities. In the present study *in vivo* antioxidant activity and cytotoxicity activity of stem bark extract of *Z. tetraspermum* W.A. was evaluated using N-methyl-N-nitrosourea (MNU) induced breast carcinoma in mice. Biochemical estimation of enzymic antioxidant like Glutathione-S-transferase (GST) and non-enzymic antioxidant namely vitamin-E were analysed in liver and kidney tissue homogenates. They were found declined in breast cancer induced mice and restored back to near normal after the treatment with 50% hydroethanolic stem bark extract of *Z. tetraspermum.* Comparison of normal mice, mice administered only with stem bark extract and mice administered with 5-Fluoro Uracil (5-FU) as positive drug control showed no significant variations on these parameters. *In vitro* breast cancer cell lines (MCF-7) study showed the cytotoxicity activity of stem bark extract of *Z. tetraspermum* W.A. From the findings, it has been revealed that the stem bark extract of *Z. tetraspermum* W.A. has shown good effect on antioxidant activity in breast carcinoma induced mice and cytotoxicity activity in cancer cell lines.

Key words: *Zanthoxylum tetraspermum,* MNU, antioxidant, cytotoxicity

ISBN: 978-81-944855-4-4

OP – 03

Dietary evaluation of antioxidant activity on bioactive compounds from black chia (*Salvia hispanica* L.)

D. Guru Kumar*

Assistant Professor, Postgraduate Department in Biochemistry,

JSS College of Arts, Commerce and Science, Karnataka and India.

Plants produce diverse range of bioactive molecules, making them a reservoir of various compounds of medicinal importance. Moreover these compounds have continued to play a dominant role in the maintenance of human health since ancient times. Chia is native to the region that stretches from North Mexico to Guatemala and now it is also cultivated in Southern parts of India, and it has been the target of study for antioxidant activity and food enrichment. Many of its newly developed functional foods contain bioactive compounds including dietary fiber, antioxidants and other substances. The objective of this study is to evaluate chia seeds (*Salvia hispanica* L.) antioxidant activity against 1, 1-diphenyl-2-picryl hydrazyl (DPPH). The preliminary phytochemical screening analysis is done by phytochemical screening method. The nutrional analysis of bioactive compounds and lipids in chia seeds is done by standard AOAC methods. Chia seeds (*Salvia hispanica* L.) contain higher antioxidant activity against 1, 1-diphenyl-2-picryl hydrazyl (DPPH) which is determined spectrophotometrically. Preliminary phytochemical screening analysis showed the presence of phytochemical constituents. The seeds contain high levels of lipids (32.7%) and are rich in Omega-3 and Omega-6 fatty acids which constituted 18.19 and 6.16 of the total lipids respectively. The seeds also contain fibers (31.66%) and proteins (18.06%). From the analysis of the results obtained it is possible to explore the use of the seeds in food products with additional nutritional values. The results clearly reveal that the *Salvia hispanica* seeds showed antioxidant activity and rich nutritional bioactive compounds.

Keywords: *Antioxidants, Omega-3 fatty acids, Salvia hispanica* L.

ISBN: 978-81-944855-4-4

OP – 04

Small molecule inhibitor fisetin modulates STAT 3 signaling and induces apoptotic death in human non small cell pulmonary carcinoma cells.

Gazala Showkat and M. Sreepriya

Department of Microbiology and Biotechnology, Bangalore University, Jnana Bharathi Campus
Bangalore – 560 056, Karnataka

The percentage of cancer-related deaths attributable to diet and tobacco globally is reported to be as high as 60–70%. Thus a large number of dietary compounds have gained research interest and have been tested to determine their chemopreventive / anti proliferative effects on*in vivo/in vitro* models. In the present study, the effect of a flavonoid fisetin on the proliferation of human lung carcinoma cells A549 and NCI-H460 was investigated. The effect of fisetin on cell growth was assessed by MTT, Crystal violet, XTT, LDH release, and colony forming assays. Cell proliferation was assessed by BrdU incorporation test.Cell morphology and cytopathologywas analyzed by crystal violet test and hematoxylin and eosin staining. The activity of caspase-3 and the levels of Signal Transducer and Activator of Transcription (STAT) 3 was also determined. Fisetintreatment exerted a dose dependent decrease in the growth of A549 and NCI-H460 cells with IC_{50} values of 190μM and210μM respectively.It also inhibited the cell proliferation, colony formation, increased the activity of caspase 3 and decreased the levels of STAT3 in both A549 and NCI-H460 cells. Cytopathology studies exhibited features such as nuclear fragmentation, cytoplasmic vacuolation,Karyorrhexis, chromatin condensation all suggestive of apoptotic cell death. Results of the study indicate the growth inhibitory, antiproliferative and proapoptotic effects of fisetin on lung carcinoma cells. The mechanism of action of fisetin is believed to due to its effects on molecular targets in the JAK/STAT 3 signaling pathway.

ISBN: 978-81-944855-4-4

OP – 05

Antiproliferative studies on different fractions of *Amorphophallus commutatus* tuber extracts against mitogen induced human peripheral lymphocytes

R. Kavitha Krishna[1] and B. Naveen Kumar[2]

[1]*Vanavarayar Institute of Agriculture, Manakkadavu, Pollachi*

[2]*Department of Biotechnology, NGM College, Pollachi*

In vitro antiproliferative effect of five different solvent fractions in increasing order of polarity of *Amorphophallus commutatus* tuber was evaluated using MTT assay against mitogen induced peripheral blood lymphocytes. Concanavalin A was used as a mitogen to stimulate the proliferation of lymphocytes. Among the five extracts Petroleum Ether, Ethyl Acetate, Methanol and Hot Water. Petroleum Ether revealed significant antiproliferative activity with percentage of viable cells at 500µg concentration corresponding to 19.3%. The Querecetin had been used as positive control.

ISBN: 978-81-944855-4-4

OP – 06

Isolation, characterisation and anticancer potential study of bioactive compounds from n-Hexane Leaf Extract of *Alpinia purpurata*

Enock K Oirere and V.K.Gopalakrishnan

Department of Bioinformatics, Karpagam Academy of Higher Education, Coimbatore – 641 021, Tamil Nadu, India

Phytochemical investigation of the leaf part of *Alpinia purpurata* led to isolation of a compound from n-Hexane extract: ethyl acetate 100% fraction Ethyl oleate. Further studies were carried out to study, antioxidant, cytotoxic and apoptotic activities of n-hexane leaf extract of *Alpinia purpurata*. The present study aim was to isolate the bioactive compound from n-hexane leaf extract of *Alpinia purpurata* and study the antioxidant, cytotoxic and apoptotic activities of n-hexane leaf extract of *Alpinia purpurata*. Isolation and characterisation of bioactive compound (s) from n-hexane leaf extract of *Alpinia purpurata* by Column and Thin Layer chromatography, UV, FTIR and NMR spectroscopy: ^{1}H, ^{13}C-NMR. Antioxidant activity was determined by measuring (i) the scavenging effect of plant extract against DPPH and ABTS, hydroxyl radical scavenging, superoxide radical scavenging, nitric oxide radical scavenging, hydrogen peroxide radical scavenging, metal chelating activity and (ii) reducing power capacity and FRAP. Cytotoxicity was determined using MTT assay, acridine orange/ethidium bromide staining to assess the anticancer activity of the crude extract on HeLa cells. Phytochemicals investigation of the leaf part of *Alpinia purpurata* led to isolation of a compound from n-Hexane extract and successfully identified as ethyl oleate. The antioxidant activity of the plant extract was found to be close to that of standard ascorbic acid. In MTT assay leaf extract inhibited HeLa cells in a dose-dependent manner, showing cytotoxicity with IC_{50} of 41.25µg/ml. Morphological changes observed on the leaf extract treated cells suggested an apoptotic activity. This study clearly demonstrated that n-hexane leaf extract of *Alpinia purpurata* is a good antioxidant and induces apoptosis in HeLa cells.

Key words: *Alpinia purpurata*, HeLa cell line, antioxidant, cytotoxic, apoptosis

ISBN: 978-81-944855-4-4

OP – 07

Toxicological effect of ethyl acetate extract of *Alpinia purpurata* (Vieill).K. Schum on wistar albino rats

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Alpinia purpurata promote anti-inflammatory activity, anti-diabetic activity in Type II Diabetes mellitus, anticancer activity in ovarian cancer, vasodilator activity and antimicrobial activity against certain microorganisms. The study was aimed to evaluate the toxicological effects of oral administration of ethyl acetate leaf extract of *Alpinia purpurata* in male Wistar albino rats. In acute toxicity study the *Alpinia purpurata* was administered in single dose of 5, 50, 300, 500, 1000 and 2000 mg/kg body weight and observed for behavioral changes and mortality, if any. The sub-acute toxicity study, the extract was administrated as single dose of 50, 100, 200, 300, 400 and 500 mg/kg body weight. At the end of 28th day, blood samples of the rats were collected and biochemical parameters were analysed. The present study has elucidated that treatment of *Alpinia purpurata* exerts no significant signs of toxicity at any dose level used in the study. Findings of the study indicated that no major alterations were found in all biochemical parameters. This study concludes that the oral administration of ethylacetate extract of *Alpinia purpurata* was safe up to 2000mg/kg, and the intake of various concentrations of extract like100, 200, 300, 400mg/kg was found to be safe and has no adverse effect on the functions of the liver and kidney in male Wistar albino rats. This study provides an evidence for the safety of the ethyl acetate extract of *Alpinia purpurata* in pharmacological research.

Key words: *Alpinia purpurata*, microorganisms, anticancer activity, acute toxicity, sub acute toxicity.

ISBN: 978-81-944855-4-4

OP - 08

Acute Oral Toxicity of Ethanolic Leaf Extract of *Macrotyloma uniflorum* in Wistar Albino Rats

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Macrotyloma uniflorum is extensively used in traditional medicine to treat various types of ailments. The evaluation of toxic properties of *M. uniflorum* is crucial when considering public health protection because exposure to plant extracts may result in undesirable effects on consumers. Hence, in this study the acute oral toxicity of ethanolic leaf extract of *M. uniflorum* was investigated in Wistar albino rats. Oral administration of crude extract at the highest dose of 2000 mg/kg resulted in no mortalities or evidence of adverse effects, implying that *M. uniflorum* is nontoxic. Throughout the 14 days of treatment no changes in behavioural pattern, clinical sign and body weight of rats in both control and treatment groups were observed. Also there were no significant elevations in the biochemical analysis of the blood serum. Further, histopathological examination revealed normal architecture and no significant alterations in kidney and liver. Overall, the results suggest that, the oral administration of *M. uniflorum* ethanolic leaf extract did not produce any significant toxic effect in rats. Hence, the extract can be utilized for pharmaceutical formulations.

Keywords: *M. uniflorum*, Acute toxicity, Alterations

ISBN: 978-81-944855-4-4

OP – 09

Toxicology evaluation of Purified β-galactosidase from *Aspergillus terreus* in Wistar albino rats

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β-Galactosidase (E.C 3.2.1.23), a commercially important enzyme, catalyses the hydrolysis of β-D-galactopyranosides such as lactose to glucose and galactose. The purpose of toxicity testing is to provide adequate catalogue to make decisions pertaining to the toxicology properties of chemical and commercial products. The present study was aimed to evaluate the acute (14 days) and sub-acute (28 days) oral toxicity of PEG coated β-galactosidase on wistar albino rats. The β-galactosidase was administered in single dose of 5, 50, 300, 2000 mg/kg body weight and observed for behavioural changes and mortality, if any. The sub-acute toxicity β-galactosidase administered 50, 100, 200, 300, 500mg/kg body weight. At the end of 28th day, blood samples of the rats were collected and biochemical parameters were analysed. The results showed no abnormalities in treated groups as compared to the controls. For sub acute toxicity study, there were no abnormalities in treated groups as compared with control while food intake and weight gain are comparable in all groups. As these therapeutic proteins and peptides are made available, it will be essential to formulate these drugs into safe and effective delivery systems. The results demonstrated that there is a wide margin of safety for the therapeutic use of the enzymes.

Keywords: β –galactosidase, acute toxicity, sub-acute toxicity, PEG coating, *in vivo* models.

ISBN: 978-81-944855-4-4

OP - 10

Role of herbal medicine in cancer therapy – a review

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Cancer cells tend to grow fast, and chemo drugs kill fast-growing cells. But because these drugs travel throughout the body, they can affect normal, healthy cells that are fast-growing, too. Damage to healthy cells causes side effects. Side effects are not always as bad as you might expect, but many people worry about this part of cancer treatment. Chemotherapy treats many types of cancer effectively. But like other treatments, it often causes side effects. The toxicity of chemotherapeutic drugs sometimes creates a significant problem in the treatment of cancer using allopathy or established medicine. Herbs have been used as food and for medicinal purposes for centuries. Research interest has focused on various herbs that possess hypolipidemic, antiplatelet, antitumor, or immune-stimulating properties that may be useful adjuncts in helping reduce the risk of cardiovascular disease and cancer. In different herbs, a wide variety of active phytochemicals, including the flavonoids, terpenoids, sulfides, polyphenolics, carotenoids, coumarins, saponins, plant sterols, curcumins, and phthalides have been identified.

ISBN: 978-81-944855-4-4

OP - 11

Heal Cancer Naturally

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Cancer remains one of the leading causes of morbidity and mortality globally. Amongst the non-communicable diseases, cancer is the second leading cause of death, after cardiovascular disease. It is responsible for one in eight deaths worldwide—more than AIDS, tuberculosis, and malaria together. Chemotherapy is routinely used for cancer treatment. Since cancer cells lose many of the regulatory functions present in normal cells, they continue to divide when normal cells do not. This feature makes cancer cells susceptible to chemotherapeutic drugs. The toxicity of chemotherapeutic drugs sometimes creates a significant problem in the treatment of cancer using allopathy or established medicine. Herbal medicines are, however, yielding important breakthroughs in cancer prevention and treatment. It is presently used first line in numerous cultures across the world. Various therapies have been propounded for the treatment of cancer, many of which use plant-derived products. Plants still have enormous potential to provide newer drugs and as such are a reservoir of natural chemicals that may provide chemoprotective potential against cancer.

ISBN: 978-81-944855-4-4

OP - 12

Nanotechnological Approaches to Fight cancer

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Nanotechnology—the science and engineering of controlling matter, at the molecular scale, to create devices with novel chemical, physical and/or biological properties—has the potential to radically change how we diagnose and treat cancer. Nanotechnology can provide rapid and sensitive detection of cancer-related targets, enabling scientists to detect molecular changes even when they occur only in a small percentage of cells. Nanotechnology also has the potential to generate unique and highly effective theraputic agents. The use of nanotechnology for diagnosis and treatment of cancer is largely still in the development phase. However, there are already several nanocarrier-based drugs on the market and many more nano-based therapeutics in clinical trials. The use of nanotechnology in cancer treatment offers some exciting possibilities, including the possibility of destroying cancer tumors with minimal damage to healthy tissue and organs, as well as the detection and elimination of cancer cells before they form tumors.

ISBN: 978-81-944855-4-4

OP - 13

Ancient and Modern treatments in Cancer

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Cancer is not a new disease and has afflicted people throughout the world. The word cancer came from a Greek words karkinos to describe carcinoma tumors by a physician Hippocrates (460–370 B.C), but he was not the first to discover this disease. Some of the earliest evidence of human bone cancer was found in mummies in ancient Egypt and in ancient manuscripts dates about 1600 B.C. The world's oldest recorded case of breast cancer hails from ancient Egypt in 1500 BC and it was recorded that there was no treatment for the cancer, only palliative treatment. Ancient surgeons knew that cancer would usually come back after it was removed by surgery. Many people even today consider that many types of cancers are incurable and may delay to consult a doctor in early stage. During the last decades of the 20th century, surgeons developed new methods for cancer treatment by combining surgery with chemotherapy and/or radiation. The growth in knowledge of cancer biology has led to remarkable progress in cancer early detection, treatment and prevention in recent years. Antiangiogenic chemotherapy, More targeted treatments, Nanotechnology are the modern technology used for the treatment of cancer. The complexity of cancer disease requires scientific battle to fight against cancer in all frontiers.

ISBN: 978-81-944855-4-4

OP – 14

Anticancer agents derived from medicinal plants

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Cancer is a major public health problem in both developed and developing countries. Plant derived agents are being used for the treatment of cancer. Several anticancer agents including taxol, vinblas-tine, vincristine, the camptothecin derivatives, topotecan and irinotecan, and etoposide derived from epipodophyllotoxin are in clinical use all over the world. A number of promising agents such as flavopiridol, roscovitine, combretastatin A-4, betulinic acid and silvestrol are in clinical or preclinical development.

ISBN: 978-81-944855-4-4

OP - 15

Molecular mechanisms for novel cancer therapies

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Tumours arise as the result of the accumulation of genetic mutations in cells. As a result, the regulation of cellular processes such as growth, division, migration, and energy metabolism are disrupted, allowing cancers to grow from one cell into a tumour and spread. The phenotypic characteristics of tumors, such as unregulated growth signalling, development of new vascular systems and the evasion of immune destruction are used to identify potential drug targets. The development of anticancer drugs has changed from the unanticipated discoveries of the past, to today's advantage of novel technological developments and a greater understanding of tumor biology. The hallmarks of cancer which highlight the phenotypic characteristics of cancer cells have been the main focus of drug development such as inhibition of proliferative signals, targeting the vascular supply of tumor (angiogenesis), exploiting the genomic instability of tumors, tackling immune evasion by the cancer cells and the ability of cancer cells to evade immune detection. These new treatments affect the essential function of the cancer cell while sparing normal cells, and limiting side effects. Here we review the molecular mechanisms for novel therapies that are currently in use and those that are in development which can significantly improve outcome for cancer patients.

ISBN: 978-81-944855-4-4

OP – 16

Novel approaches for cancer therapeutics

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Cancer is a major dreadful disease and it affects the large number of people all over the world. Rather than the cancer consequences, the available conventional therapies to treat the cancer, affects the individual more by pain, hair loss, weakness etc. It is widely known that surgery, chemo- and radiotherapy also inhibit normal cells growth along with cancer cells and it has severe side effects and high toxicity which in turn lead to low quality of life. This review encompasses novel approaches for more effective chemotherapeutic delivery aiming to generate better prognosis. Now a day, cancer treatment is a highly dynamic field and significant advances are being made in the development of novel cancer treatment strategies. In contrast to conventional cancer therapeutics, many novel approaches such as ligand or receptor based targeting, triggered release, intracellular drug targeting, gene delivery, cancer stem cell therapy, magnetic drug targeting and ultrasound-mediated drug delivery, have added new modalities for cancer treatment. These approaches have led to selective detection of malignant cells leading to their eradication with minimal side effects

ISBN: 978-81-944855-4-4

OP – 17

Medicinal plants for Cervical cancer treatment

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Cervical cancer is the fifth most common cancer in humans, the second most common cancer in women worldwide and the most common cancer cause of death in the developing countries. It occurs because of a viral infection, caused by the human pappiloma virus (HPV). The highest incidences occur in the developing world, where in most countries, cervical cancer is the leading cause of cancer mortality in women. Approximately, 5,00,000 new cases of cervical cancer are diagnosed each year, with 2,80,000 deaths worldwide, making cervical cancer the second most common malignancy affecting women worldwide. The development of new diagnosis, prognostic, and treatment strategies merits special attention. Although surgery and chemo and radiotherapy can cure 80%–95% of women with early stage cancer, the recurrent and metastatic disease remains a major cause of cancer death. This review mainly focuses on the plants which have been scientifically tested *in vitro* and/or *in vivo* and proved as potential agents for the treatment of cervical cancer. The failure of conventional chemotherapy to reduce mortality as well as serious side effects involved makes natural products ideal candidates for exerting synergism and attenuation effects on anticancer drugs. Although the chemical components and mechanisms of action of natural plants with anti-cervical cancer potential have been investigated, many others remain unknown. More investigations and clinical trials are necessary to make use of these medical plants reasonably.

ISBN: 978-81-944855-4-4

OP - 18

Medcinal plants in pancreatic cancer treatment

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Pancreatic cancer is one of the most lethal types of cancer worldwide. Due to high death rate associated with cancer and serious side effects of chemotherapy and radiation therapy, many cancer patients seek alternative therapy. Lack of effective therapy is a major problem in the treatment of pancreatic cancer. India is a country rich in medicinal plant resorces and abot 80% of population rely on herbal remedy. Recently more interest is focussed on Natural products as bioactive anticancer agents. One of the advantage of natural products is their low toxicity compared with conventional chemo-drugs. In India, several medicinal plants are being used traditionally for the prevention and treatment of pancreatic cancer. Hence, an attempt has been made to review some medicinal plants used to prove scientific validation for the prevention and treatment of pancreatic cancer.

ISBN: 978-81-944855-4-4

ABSTRACTS-POSTER PRESENTATION

ISBN: 978-81-944855-4-4

PP - 01

XIAP inhibitor embelin downregulates the expression of proinflammatory cytokines and modulates NF-κB p65 signaling in human hepatocellular carcinoma cells

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Natural products have long been associated with the chemotherapy of cancers. They possess multispecificity and thus can suppress tumor development which may be an effective, non-invasive strategy in the therapy of cancers.In the present study, the effect of a benzoquinone embelin on the proliferation of human hepatocellular carcinoma cells, HepG2 was investigated.The effect of embelin on cell growth was assessed by MTTand Sulphorhodamine B assay. Cell proliferation was assessed by BrdU incorporation test and proapoptotic effects by annexin V-FITC/PI labeling, hematoxylin-eosin staining and by Comet assay.Cell cycle arrest was analyzed by flow cytometry and the effect of embelin on the expression of.proinflammatory cytokines andNF-κB p65 was analyzed by RT-PCR. The levels of p65 was also quantified by ELISA. Treatment withembelininhibited the proliferation of Hep G2 cells with IC_{50} value of 55μg/ml.Externalization of phosphatidyl serine residues, DNA fragmentation,cell cycle arrest at the G0-G1 phase,downregulated expression of IL-6, IL-8, TNF-α and NF-κBp65 concommitant with a significant decrease in the levels ofNF-κB p65 was observed in embelin treated cells. Embelin also displayed selective cytotoxicity on Hep G2 cells as compared to normal Chang liver cells. Results of the study indicate the antiproliferative, proapoptotic, cell cycle inhibitory and selective cytotoxic effects of embelinon hepatocellular carcinoma cellsHep G2.This is believed to be due to strong inhibitory effects on NF-κB signaling and due to its affinity for XIAP.

ISBN: 978-81-944855-4-4

PP – 02

Anticancer effect of silver nanoparticles on human Laryngeal cell line

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Silver is an effective antibacterial agent with low toxicity which is important especially in the treatment of burn wounds. AgNPs have been the focus of increasing interest and are being used as an excellent candidate for therapeutic purposes. Many medically relevant nanoparticles such as AgNPs were investigated for their cytotoxicity aspect. AgNPs showed different degrees of *in vitro* cytotoxicity. It was found in the aqueous silver ions when exposed to the aqueous extract of *Gelidiella sp.* are reduced in solution, by the formation of AgNPs within 10 min. at 121°C. The nanoparticles showed absorbance at 435nm on UV-Vis spectroscopy. The presence of proteins was identified by Fourier transform-infra red spectroscopy (FT-IR). The presence of elemental silver was characterized by Energy dispersed spectroscopy (EDS). The AgNPs morphology was characterized by Scanning electron microscopy (SEM). The nanoparticles were assessed for cytotoxic activity on Hep-2 (Humman laryngeal) cell lines. The bio-reduction of aqueous silver ions by the aqueous extract of *Gelidiella sp.* leads the synthesis of AgNPs. The cytotoxic effects of AgNPs using *Gelidiella sp.* might be of therapeutic interest with respect to the anticancer drugs.

Keywords: Ecofriendly, Silver nanoparticles, *Gelidiella sp,* Cytotoxic activity, Hep-2 cell lines.

ISBN: 978-81-944855-4-4

PP - 03

Microbial biotransformation for the production piceatannol

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Resveratrol (3,4,5-transhydroxystilbene), one of the most widely studied polyphenols produced by plants, is of growing scientific interest, since it enhances the health-related qualities in humans. Piceatannol (3,3,4,5-trans-trihydroxystilbene), an analogue of resveratrol, also displays a wide spectrum of biological activities. piceatannol exhibits potential anticancer properties as suggested by its ability to suppress proliferation of a wide variety of tumor cells, including leukemia, lymphoma, and cancers of the breast, prostate, colon, melanoma and apoptosis in colorectal cancer. The introduction of hydroxyl groups into target compounds by the use of microorganisms represents an attractive alternative to conventional chemical synthesis. The formation of piceatannol from resveratrol were obtained using whole cell biotransformation. In this study, *Streptomyces* sp. Strain SB-14 screened using an enrichment culture showed high activity for regiospecific hydroxylation of resveratrol. The selective modification of resveratrol by the microbial process is a powerful challenge to the production of the anti-cancer compound, piceatannol. The biotransformation result provides one initiative example such that a regiospecific hydroxylated compound from resveratrol showing more potent biological activity can be produced at a large scale using microbial biotransformation.

Keywords: biotransformation, screening, production, fermentation

ISBN: 978-81-944855-4-4

PP – 04

Isolation and screening of marine bacteria producing anti cancer enzyme l – asparaginase

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Microbial L-asparaginase has been widely used as a therapeutic agent in the treatment of certain human cancers, mainly in acute lymphoblastic leukaemia. Marine microbes represent a potential source for commercially important bio-active compounds . Marine bacteria were isolated from water samples obtained from kerala sea coast in India. The active isolates were identified as marine *Lactobacillus* by microscopical and biochemical tests. Production of L-asparaginase was carried out in submerged fermentation media (glycerol asparagine media). The L-asparaginase activity is highest (11.202µmol ammonia/ml) after 120 h incubation. Potent isolate belongs to genus *Lactobacillus salivarius.* This potent marine bacteria can be exploited for anti-cancer active L-asparaginase production.

Keywords : Marine bacteria, Asparaginase, Bioactive compound, Anticancer.

ISBN: 978-81-944855-4-4

PP – 05

Anti cancer activity of microbial isolates from divers habitats

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Microorganisms extracted from natural products have served as a valuable source of diverse molecules in many drug discovery efforts. Microbial diversity contributes as are infinite resource for novel drug discovery. The extracts of the metabolite of 36 bacterial and 24 fungal isolates showed anti cancer activity. It is grow under the unusual condition such as high temperature, high salts and low sugar concentration were *in vitro* tested for their cytotoxic potential on human cancer cell lines [HeLa] and [MCF-7] cell lines are study cytometric potential. Nuclear staining flow cytometric studies carried out to the potential of the extracts arresting the cell cycle. This potential valuable compounds can be utilized as a pharma product to treat the cancer.

ISBN: 978-81-944855-4-4

PP - 06

Drugs designing and development

Sathyavani Balasubramanian and Shafique Ali Mohammed Meeran

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Drugs are chemical or biological substances that have some kind of physiological or biochemical effect on the living cells. Their effects are intended to be beneficial but sometimes can cause harmful side effects. The development of a new therapeutic drug is a complex, lengthy and expensive process in stage 1-drug discovery: The first stage of drug development process is drug discovery (eg., penicillin). Stage 2: pre-clinical development – This testing is used to determine intended beneficial effects. If appropriate, promising drugs may be modified in an attempt to improve their properties in subtle ways in a process called lead-optimization. Stage 3: Clinical development – chemical development is divided into phases 0, I, II, III & IV. Clinical development, also known as clinical trials, involves testing the drug on human volunteers to provide more information about its safety and effectiveness.

ISBN: 978-81-944855-4-4

PP – 07

Stem cell transplants for cancer treatment

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The term "cancer" describes a group of diseases that are characterized by uncontrolled cellular growth, cellular invasion into adjacent tissue, and the potential to metastasize if not treated at a sufficiently early stage. In the typical stem cell transplant for cancer treatment administered very high doses of chemotherapy, often along with radiation therapy to destroy most of the cancer cells, this treatment also kills the stem cells in the bone marrow. Soon after treatment, stem cells are given to replace those that were destroyed. The stem cells are introduced into a host who were subjected for the aforesaid treatment schedule. Over time the stem cells settle in the bone marrow and begin to grow and revert the cells in to normal. This process is called engraftment. After a month of transplantation of the stem cells, the blood cells were monitored and the cells were transfused if needed. Sometimes the stem cells can cause side effects because of the cancer treatment which leads to affects the stem cell.

ISBN: 978-81-944855-4-4

PP - 08

Brain cancer

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A brain cancer is a collection or mass of abnormal cells in the brain. It is malignant cells in which arise in the brain tissue. Statistics tells that brain cancer develops in about 80,271 out of 1,065,070,6072 people in india as estimated by the National Health Institute. There are many types of brain cancer such as gliomas, meningiomas, Pituitary adenomas,Vestibular schwannos and Primitive neuroectodermal tumors. It is caused by several factors those who working in Oil refineries, handlers of jet fuel or chemicals like Benzene, Rubber industry workers, smoking, radiation exposure. There are four stages of brain cancer. In stage one the tissues is beningn, in stage two the tissue is malignant, in stage three the malignant tissue has cells that look very different from normal cells. In stage four the malignant tissue has cells that look most abnormal and tend to grow quickly. Symptoms of brain cancer are headaches, seizures, myclonic, tonic-clonic, fatigue, vomiting. Treatment for brain cancers are radiotheraphy, chemotheraphy, surgery. These therapies have some side effects inclding vomiting, skin problems, fatigue, pain, chills, appetite loss, swelling around the site of surgery, bleeding. Scientists recently discovered that cell phones gives of a form of radiofrequency waves causes brain cancer. The latest type of treatment for brain cancer is Photodynamic therapy that makes cells light sensitive and then shines a very bright light onto them. We are focussing to use medicinal plants such as brazilian pepper, indirubin, mushroom, Alchemilla Vulgaris, juices for treatment.

ISBN: 978-81-944855-4-4

PP - 09

Esophageal Cancer (EC)

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It is uncontrollable growth of cells in the food pipe and malignant cancer. It is mainly two types they are squamous cell carcinoma and adeno carcinoma. Squamous cell cancer is caused by alcohol consumption and tobacco, where adenocarcinoma is caused by obesity and overweight. The overweight is calculated by body mass index, BMI - >30 is considered as overweight. It is more common in men than women and 6th worldwide death causing cancer. The number of cases occurring per year is 100,000 found to be very high in Belgium, Iran, china, Japan, Kashmir, South Africa, France, London. India is more prone to squamous cell cancer because of alcohol and tobacco consumption is higher here. It is caused by smoking, obese, alcohol consumption, pan chewing with tobacco, skipping diet. Symptoms of this cancer is difficult in swallowing, heart burn, weight loss, hoarseness, pain in throat, chronic cough along with blood. It is properly treated by surgery, chemo therapy and radiation. While undergoing radiation therapy normal cells get damaged along cancerous cell and surgery gives long term pain, chemo therapy leads to hair loss, poor apetite, mouth and lip sores and some skin problems may arise. Now some experiments are arising due to a side effect which is replaced by using natural herbs such as black raspberries, colchicum speciosum, turmeric.

ISBN: 978-81-944855-4-4

PP - 10

Review of rare and incurable mycosis fungoides

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Mycosis Fungoides, the most common type of cutaneous T – cell lymphoma, originates from a type of white blood cell i.e., CD_4 T – cells. It is a type of skin cancer where the cancerous T- cells accumulate in the skin. Mycosis Fungoides progress very slowly. The classic symptoms of mycosis fungoides are red, scaly skin patches that develop into raised plaques, the large mushroom shaped tumors. Itching is the most common symptom. As the cancer progresses it spread to lymph nodes and internal organs. This disease is mostly diagnosed after the age of 50 and most commonly found in men and most common in Africans. The cancer progresses in three stages premyotic, myotic and tumorous stage. The early stage of this cancer is eczema or psoriasis so it becomes difficult to identify it in early stages. It can be identified through blood tests, severe analysis of the symptoms and skin biopsies. Treatments available are UV light, total skin electron beam irradiation, mechlorethamine, Carmustine, Bexarotene, Aldesleukin, chemotherapies, corticosteroids, etc. However this treatment can suppress the cancer and the patient can undergo remission but the complete cure of this cancer is very rare.

ISBN: 978-81-944855-4-4

ABOUT THE UNIVERSITY

Karpagam Charity Trust was founded in the year 1989 with the aim of providing excellent educational facilities by imparting practical knowledge and skills to the youth and also catering the needs of the society in general through charitable deeds.

Karpagam Academy of Higher Education is evolved in the year 2008 for the purpose of conferment of Deemed to be University status by Ministry of Human Resource Development, Vide No. F.9.24/2004.U.3 (A) dated 25.08.08.

The University Education, in today's scenario, is witnessing a huge paradigm shift and at Karpagam, we are geared to be a part of that transformation. We ensure that our education epitomizes excellence in every sphere.

Steered by the dynamic spirit of our President, Dr.R.Vasanthakumar, an eminent industrialist and philanthropist, Shri.K.Murugaiah, CEO, Padmashree Dr.R.M.Vasagam Chancellor, Dr.S.Subramanian, Vice Chancellor and Dr.G.Sekar, Registrar, work together to initiate the emergence of excellence.

Our University has been ranked under Elite category for the quality of research (Current Science, 107:3-389-396 2014) in India.

Our Institutions

- Karpagam College of Engineering
- Karpagam Institute of Technology
- Karpagam Polytechnic College
- Karpagam College of Pharmacy
- Karpagam College of Nursing
- Karpagam Faculty of Medical Sciences & Research.

ISBN: 978-81-944855-4-4

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