

# Gallery



Desirous participants of the one credit course on "Phytochemistry and Natural Bioproducts"



The bevy of members of the IEEE-EMBS KSRCT Branch chapter with Dr. Cohen



Delegates on the pulpit during the Distinguished lecture programme



The panel discussion during Members meet



Members Meet Souvenir Book release by the delegates



KSRCT IEEE-EMBS Student Branch Chapter Newsletter

Geo Code: SBC 60891A

(K.S.Rangasamy College of Technology

Institute of Electrical & Electronics Engineers

Engineering in Medicine and Biology Society)



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## Editors' Desk:

It's our pleasant duty to bid you all a cordial welcome...

We are happy as a clam and are extremely emotive to release our Newsletter-Volume 8, Issue 1 which is the appraise of advancement of our Student Branch Chapter (SBC 60891A). Our Chapter was started with a motive to coalesce the adroitness of the students of Department of Biotechnology, KSRCT. This is an inventory of all the events that were organised by our Chapter with great zeal. This has emanated from the progressive flight of steps that we have taken during the past half yearly session. This newsletter will be released twice a year as a compilation of all the events that our chapter organises by joining hands with our mother patron-Department of Biotechnology, KSRCT. A reverent gratitude to Dr.P.Ponmurugan, Branch Advisor, and Ms. S. Poornima, Staff coordinator of KSRCT IEEE-EMBS Student Branch Chapter for their boundless patronage.

Our desire is to extend a gracious and inclusive welcome to all of you...

-Editorial Board



Student Branch Chapter Members Meeting

An antecedent Members Meet was arranged for all the members of KSRCT IEEE-EMBS Student Branch Chapter on 13<sup>th</sup> August, 2015 to discuss about the mega level Meet that was to be held on 21<sup>st</sup> and 22<sup>nd</sup> of September, 2015. Dr.B.Santhanaraj, Chair, IEEE-EMBS Madras Chapter graced the occasion. It was a preliminary meeting for the members to share their views and suggest their opinions on the mega event. All the necessary information and the programme schedule for the IEEE-EMBS Members Meet 2015, was planned.



IEEE-EMBS Members contributing their conceptions for the Mega level Meet  
Cancer Awareness Programme in association with PAC & PMC clubs  
Our Chapter, in association with Public Awareness Club (PAC) and Press and Media Club (PMC) has conducted a "Cancer Awareness Programme" for school students at Government Boys Higher Secondary School, Tiruchengode on August 28, 2015. The members of both

the clubs visited the school and interacted with the students to create awareness on cancer. The program was conducted with the objective of making the students to be aware of cancer, its occurrence, diagnosis, health effects, prevention and treatment techniques.

The program was aimed to create awareness on the ill effects of consuming junk foods and beverages. Small experiments were also performed to reveal the toxic effects of ingredients present in unhealthy food items. Around 250 students participated and were benefited.



*Our students harvesting awareness on the tiny tots of the school*

Idea sharing programme on Latest agricultural practices to be followed in association with Health club

An idea sharing programme on "Latest agricultural practices to be followed" was organized by IEEE-EMBS Student Branch Chapter along with the Health Club Wing of KSRCT on 31<sup>st</sup> August, 2015. In the programme, students from various

Cells in these patients and produce signals that will be received by the brain and perceived as vision. In order to work correctly, electronic retinal implants need to directly connect with retinal nerve cells, which are located above the photoreceptor cells in the eye. The Argus II Retinal Prosthesis System consists of a miniature video camera that is housed in the patient's glasses and this captures a scene. The video is sent to a small patient-worn computer (i.e., the video processing unit - VPU) where it is processed and transformed into Instructions that are sent back to the glasses via a cable.

The Argus II Study Group comprises of 11 centers located throughout Europe, the United States and Mexico. A patient pilot study was Initiated in Mexico in 2006, followed by a 30 patient trial in Europe and the United States. Follow-up for patients with the retinal prosthesis implanted ranged from a minimum of 3.5 years to almost 6 years, and cumulative subject-years of follow-up exceeds 125 years. On February 15<sup>th</sup> 2013, the FDA granted approval to Second Sight Medical Products to market the Argus II for patients with late-stage RP.

Future Events

One credit course on medical coding: To enhance the knowledge of students, department of biotechnology, KSRCT have planned to conduct a one credit course on "MEDICAL CODING" which will be offered

by Professional Info Tech Pvt. Ltd., Coimbatore for a period of one week from 7<sup>th</sup> to 12<sup>th</sup> of March, 2016.

Honey Bee Cultivation: Department of Biotechnology, KSRCT, organizes a five-day workshop on "Honey bee Cultivation and maintenance" jointly with Gandhi Gram Rural Development Board (Madurai Branch) at premises of K.S.Rangasamy College of Technology from 24<sup>th</sup> to 28<sup>th</sup> February, 2016.

Technical symposium: Apart from academics, our students are nurtured with their creative ideas and its implementation has resulted in various Mini projects. With a view to recognize and motivate their projects, "STUDENT TECHNICAL SYMPOSIUM" has been planned to be held on March 22<sup>nd</sup>, 2016 at our department where our students come out with their innovative project works they have done.

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Various physical and chemical processes being employed to remove pollutants but their cost is high and low efficiency. Biosorbents is low cost and high efficiency. It is an alternative to physical and chemical processes. 'Biosorption' is the property of certain biomolecules to bind and concentrate on selected ions or other molecules from aqueous solutions. Biosorption by dead mass is passive and occurs primarily due to affinity between bio sorbent and adsorbate. Pollution like metals and dyes can be removed by adsorption by living micro organisms, but also be removed by dead biomass. Dead biomass is more viable option. The use of dead biomass eliminates the maintenance of a healthy microbial population and other environmental factors like temperature and pH of solution being treated.

Example: bacteria, fungi, algae.

The mechanism of biosorbents is: there are many chemical/functional groups that can attract and sequester pollutants, depending on the choice of biosorbent. Biosorption depends of chemical states and affinity between sites and particular pollutant of interest. Organic solvents such as ethanol can be also used for desorbing organic pollutants such as biosorbent. But the biosorbent is not fully proved. The industries has an attraction towards biosorption because it is eco friendly.

**IT DOESN'T MATTER HOW MANY TIMES YOU FAIL. IT DOESN'T MATTER HOW MANY TIMES YOU ALMOST GET IT RIGHT. NO ONE IS GOING TO KNOW OR CARE ABOUT YOUR FAILURES, AND NEITHER SHOULD YOU. ALL YOU HAVE TO DO IS LEARN FROM THEM AND THOSE AROUND YOU BECAUSE ALL THAT MATTERS IN BUSINESS IS THAT YOU GET IT RIGHT ONCE. THEN EVERYONE CAN TELL YOU HOW LUCKY YOU ARE.**

**-MARK CUBAN**

### Retinal Implant Technology

*Sheikha Sumatya Fathima, I, II year  
B.Tech. BioTechnology*

Retina implant technology involves the use of microelectronics and microchip electrodes surgically implanted into the back of the eye (retina) to restore the function of the damaged light-activated cells found there. These photoreceptor cells respond to light and convert it to an electrical signal which is passed to nerve cells in the eye, and then ultimately to the brain where it is perceived as vision. A surprising finding is that in patients with retinitis pigmentosa and age-related macular degeneration where the photoreceptors have been damaged, often the nerve cells that relay the signal to the brain (the ganglion cells) are still intact after many years. Therefore, it is possible to directly stimulate these retinal nerve

Departments participated and shared their views on modern agricultural practices. Best ideas were selected by the panel members and were awarded.



*The Chieftain of Biotech department addressing the assemblage*

### Guest lecture on miRNA Technology

The guest lecture program was conducted successfully by IEEE-EMBS Student Branch Chapter in association with Neomutants Biotech Association on 5<sup>th</sup> October, 2015. The participants were enlightened by the lecture given by Dr. Abul Kalam Azaad Mandal, Professor, VIT University, Vellore. He gave a deep insight into miRNA technology and its future prospects. The lecture made the students realize and know the new ideas on miRNA technology.

**SUCCESS MEANS HAVING THE COURAGE, THE DETERMINATION AND THE WILL TO BECOME THE PERSON YOU BELIEVE YOU WERE MEANT TO BE**

**-GEORGE A SHEEHAN**



*Dr. Mandal articulating his knowledge to the students*

### Knowledge sharing session on "Antidiabetic activity of leaf extracts"

IEEE-EMBS Student Branch Chapter organizes a knowledge sharing session at every fortnight interval. Dr. S. Sidhra presented her research findings on "Assessment of antidiabetic activity of leucas aspera leaf extracts on alloxan induced diabetic rats". She shared her novel ideas and created awareness about diabetes, its causes and effects.



*Dr. S. Sidhra spreading her knowledge to the gathering*



One credit course on  
Phytochemistry and natural  
bioproducts

One credit course on “Phytochemistry and Natural bioproducts” was organised by IEEE-EMBS student branch chapter in association with Armats Biotech Training and Research Institute (ABTRI) for a period of three days from 5<sup>th</sup> September, 2015 to 7<sup>th</sup> September, 2015 for the students of B. Tech Biotechnology.



*Desirous participants of the One Credit Course*

The course covered all the aspects of the Phytochemistry, natural bioproducts and formulation. Invited lecture on “Introduction to Phytomedicines” was given by Dr.H.Sekar Babu, eminent professor, Armats Biotech, Chennai.

The second session was a lead lecture on “Prospects and challenges in bioproducts” by Dr. P. Arumugam, Director, Armats Biotech Pvt Ltd, Chennai. The lead lecture on formulation of bioproducts-principles and practices was given by Dr.K.Balasubramanian, Adjunct professor (research) herbal medicines, Herbal Oncologist, Remoni Research Foundation, Chennai. Hands-on session on preparation of herbal tea formulation, sensory evaluation, TLC profiling and formulation of biofertilizers was conducted by Mr.K.Kasinathan and Ms.K.Saraswathi.

One day Workshop on Optimization  
methods in Bioprocess Engineering

A workshop entitled, “Optimization methods in Bioprocess Engineering” was organized by IEEE-EMBS Student Branch Chapter on 12<sup>th</sup> of September 2015 for the students of III year, Department of Biotechnology. About fifty pupils were guided by Dr.P.Sivamani, Assistant Professor of Department of Biotechnology, Kumaraguru College of Technology, Coimbatore. The students were taught various methods of optimization which included Plackett-Burmann Design, One Factor At Time (OFAT) and Response Surface Methodology (RSM).

**IF MY MIND CAN CONCEIVE IT, AND MY  
HEART CAN BELIEVE IT, I KNOW I CAN**

**ACHIEVE IT**

**-JESSE JACKSON**

Then it will be combined with immune In some cases a mass can cause a stroke or seizure as it exerts pressure against the brain. Glioblastoma multiforme (GBM), a deadly form of more dangerous and aggressive forms of brain cancer in the world. At present scenario, chemotherapy combined with radio therapy will be given to the GBM. It implies the much side effect and uncontrolled target delivery of the damaged brain cells. to fight brain cancer. In our idea of proposal deals with identifying the tumor specific antigen for the treatment of GBM.

Then it will be combined with immune checkpoint blockers that target protein PD-1 and PD-L1. Antigen such as HER2, gp100, and MAGE-1 will be expressed in Glioblastoma multiforme. With this idea, we have been planned to utilize the production and modification of engineered peptide vaccines against the specific antigens of GBM. Tumor cells will be removed during surgery and which will be cultured in the laboratory with dendritic cells, also called “antigen-presenting” cells, taken from the patient’s blood. The resulting cells will be further used to extract the proteins from tumor area. Protein molecule will be isolated and subjected in to small sub units by protein digestion. Then small subunit will be characterized using MALDI and GC-MS analysis.

The peptide will be further subjected to clinical trials for Immune response

against GBM. Then the peptide molecules will be to identify brain tumor cells as invaders and stimulate a strong response from tumor-infiltrating T lymphocytes. Engineered peptide will be studied for their immunogenicity against brain tumor. Assessment of cellular and humoral Immune response will be monitored. Moreover, the immune check point will be analyzed with the peptide vaccine enable the better control over the brain tumor.

TREATMENT OF DYES USING  
MICROBES

*Priya, P., II B.Tech. BioTechnology*

Over the past three decades the discovery and further development of biosorption phenomena has gained momentum and has transformed the method by means of which waste water effluent is treated to remove pollutants and recover valuable resources present in these aqueous systems like dyes. This is an economically viable and environmentally friendly. Biosorption of textile dyes using dead fungal biomass obtained from autoclaved or inactivated *Aspergillus niger*. Rapid industrialization and urbanization has resulted in the generation of large quantities of aqueous effluents which contains high levels of toxic pollutants.



Our ever-supportive faculty Mr. G. Ayyappadasan, guide of Ms. Priya P helped her in all ways for successfully applying for the fellowship. Hope she will be an IAS fellow at Bharathidasan University during the months of June and July.

### General Articles:

#### Eighth base of DNA!!!

*Yoka Barrathi, N. S., III B.Tech. Biotechnology*

Researchers from the University of North Carolina(UNC) School of Medicine have identified the seventh and eighth bases of DNA. For decades, scientists have known that DNA consists of four basic units — adenine, guanine, thymine, and cytosine. In recent history, scientists have expanded that list from four to six. Much is known about the “fifth base,” 5-methylcytosine, which arises when a chemical tag or methyl group is tacked onto a cytosine. This methylation is associated with gene silencing, since it causes the DNA’s double helix to fold even tighter upon itself. Last year, the researchers found that Tet proteins can convert 5 methylC (the fifth base) to 5 hydroxymethylC (the sixth base) in the first of a four-step reaction leading back to cytosine. However, the researchers could not continue the reaction on to the seventh and eighth bases, called 5 formylC and 5carboxyC. The problem was that their experimental assay wasn’t sensitive

enough. They redesigned it and were able to detect the seventh and eighth bases— called 5-formylcytosine (5fC) and 5 carboxylcytosine (5caC) — which are actually versions of cytosine that have been modified by Tet proteins, molecular entities thought to play a role in DNA demethylation and stem cell reprogramming.

The researchers then examined embryonic stem cells as well as mouse organs and found that both bases can be detected in genomic DNA. Their findings could have important implications for stem cell research, since it could provide researchers with new tools to erase previous methylation patterns to reprogram adult cells. It could also inform cancer research by giving scientists the opportunity to reactivate tumor suppressor genes that had been silenced by DNA methylation.

#### Engineered peptide vaccines with check point modification as immunological tool for Glioblastoma multiforme

*Vijayalakshmi, G., II year, B. Tech..*

#### Biotechnology

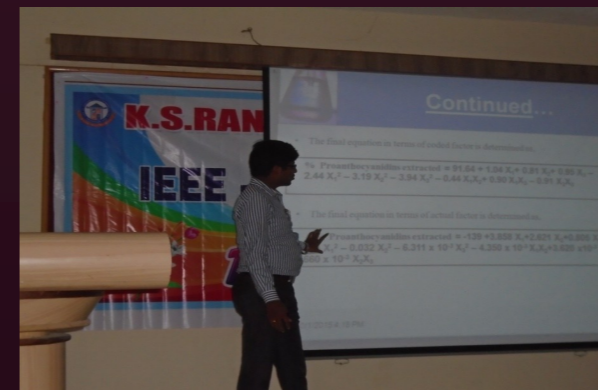
Brain cancer is a disease that comes in many forms, both benign and malignant. Some variants are more easily treated than others and may include hints like sudden loss of vision in one eye or sudden onset of other neurological issues.



*Students of KSRCT-BT enthusiastically attending the workshop*

#### Knowledge sharing session on “Optimization of effective parameters for the extraction of proanthocyanidines using RSM and GA”

IEEE-EMBS Student Branch Chapter organized a research forum on “Optimization of effective parameters for the extraction of proanthocyanidines using RSM and GA” on 1<sup>st</sup> October, 2015. Mr.R.Arulvel, Assistant Professor, Department of Biotechnology, KSRCT, shared his research findings with the students and staff members. His presentation inculcated the students with thought provoking ideas on various aspects of optimization.



*Mr. Arulvel disclosing his research findings*

### IEEE Day Celebrations:

#### Awareness programme on “Causes, effects and prevention of Diabetes” along with Project Exhibition

We celebrated the IEEE day on October 6<sup>th</sup>, 2015 by arranging an awareness programme on “Causes, Effects and Prevention of Diabetes” in which students were benefitted. In addition to it, Project Exhibition was conducted where students exhibited their projects and the best project was awarded. Dr.P.Ponmurugan, Secretary, IEEE-EMBS Madras Section, Branch Counselor, IEEE-EMBS SBC, Professor & Head, Department of Biotechnology, delivered a lecture on “Causes of diabetes, effects and its preventive measures.



*Our members unveiling their Mini projects at the exhibition*

**THE PERSON WHO TAKES NO CHANCES  
GENERALLY HAS TO TAKE WHATEVER  
IS LEFT WHEN OTHERS ARE THROUGH  
CHOOSING  
-NAPOLEON HILL**



## IEEE-EMBS Members Meet-2015

Sponsored by

IEEE-EMBS Head Quarters, New Jersey,

USA &

IEEE Madras Section, Chennai

21<sup>st</sup> & 22<sup>nd</sup> September, 2015

The IEEE-Engineering in Medicine and Biology Society and IEEE-EMBS Student Branch Chapter (Geo Code: SBC 60891A) of Department of Biotechnology and Department of Electronics and Communication Engineering of K. S. Rangasamy College of Technology, Tiruchengode jointly organized IEEE-EMBS Members Meet-2015 Programme during 21<sup>st</sup> and 22<sup>nd</sup> September 2015. The programme was approved for funding by EMBS, New Jersey, US and EMBS, Madras Section. The Members meet has been planned with the motto of providing a platform for knowledge sharing and membership benefits of IEEE-EMBS among the student community. Various technical and non-technical events including project design contest, Project expo and Technical quiz have been conducted to exhibit the talents of young minds in addition to the special lecture sessions. The plenary sessions were chaired by eminent academicians and industry personnel Dr.P.Vasan, Professor, Department of Animal Nutrition, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) Namakkal, Tamil Nadu graced the inaugural function on 21<sup>st</sup> September 2015 as a chief guest. Lion Dr.K.S.Rangasamy MJF, Chairman and Founder, K.S.R.Educational Group of Institutions presided over the function. Dr.K.Thyagarajah, Principal, K.S.Rangasamy College of Technology offered Principal's address.



*The ardent participants and prize winners of the event*

Dr.P.A.Manoharan, Chair, Robotics and Automation Society and Student's Project Funding, IEEE Madras Section delivered lecture on Micro-Electro-Mechanical Systems (MEMS). Dr.R.Devanathan, Chair, Nanotechnology Council, IEEE Madras section delivered a lecture on "Overview and applications of Nanotechnology". Panel discussion on "Student's Project Funding" have been chaired by Dr.P.A.Manoharan and Dr.R.Devanathan. Dr. B. Santharaj, Chair, EMBS, Madras Section proposed the vote of thanks. Dr. S. Raghavan, Professor, Department of ECE, National Institute of Technology, Tiruchirapalli enhanced the valedictory function on September 22, 2015

**RICHES DO NOT RESPOND TO WISHES.  
THEY RESPOND ONLY TO DEFINITE  
PLANS, BACKED BY DEFINITE  
DESIRES, THROUGH CONSTANT  
PERSISTENCE  
-NAPOLEON HILL**

## Members' Achievements:

### IEEE- Student Project Funding (SPF)

IEEE- Student Project Funding is offered by IEEE Madras Section, Chennai. It is open for all engineering students to showcase their talents and research views. Students can apply for projects for which they will be funded Rs.15, 000. Maximum of two projects from a college can be funded. KSRCT IEEE-EMBS Student Branch Chapter has applied for a project with an innovative idea. The members of the chapter have put in lots of effort to claim this project. The members have been discussing for the idea every day to give their best. It is not an easy task to get the project sanctioned for funding. After a deep discussion on daily basis, four students came up with a novel idea of curing the deadly disease 'cancer'. The project was entitled "Evaluation of anticancer activity of lichens using rat as an animal model for biomedical applications". The proposal was sent to the executive committee of Student Project Funding. The screening process is unique and selective since the total number of projects to be sanctioned is only fifteen. The effectiveness of the students' project was considered by the panel members. The students are now working on the project to present their product on 22 March'16. The project will be evaluated on various parameters such as feasibility, novel approach and social relevance of

the project.

The members selected for the SPF are Vishnu Priyan. V, Dheenadhayalan. K, Gayathri. G, Yoka Barrathi. N. S of III Year B. Tech. Biotechnology.

### Indian Academy of Sciences Summer Research Fellowship Programme

It is a Second year student of our Biotechnology Department, KSRCT, who made a remarkable achievement.

We feel privileged to say Ms. Priya P has been selected for Summer Research Fellowship Program (SRPF) offered by IAS (Indian Academy of Sciences) under the guidance of Dr. Chidambaram Prahalathan, Bharathidasan University, Tiruchirapalli. She has been eagerly waiting for this fellowship and worked hard for the preparation of the proposal. We thank our Head of the Department, Dr. P.Ponmurugan for his effort to let us know about fellowship for us.

**WE SEEM TO GAIN WISDOM MORE READILY  
THROUGH OUR FAILURES THAN THROUGH  
OUR SUCCESSES. WE ALWAYS THINK OF  
FAILURE AS THE ANTITHESIS OF  
SUCCESS, BUT IT ISN'T. SUCCESS OFTEN  
LIES JUST THE OTHER SIDE OF FAILURE.**

**-LEO F BUSCAGLIA**



Research Institute, Lucknow, Uttar Pradesh. A recent lichen survey was carried out by the research team of Dr. P. Ponmurugan, Mr. G. Ayyappadasan, Mr. I. Muthiah, Ms.S.Poornima and Dr. K. Syed Zameer Ahmed on 29.01.2016. The survey covered the Mullukurichi region of Rasipuram, Namakkal District. Mullukurichi is located at the foot place of Kollihills which is the unexplored region in terms of lichen survey wherein the lichen samples were found to be grown on the Arecanut trees. Crustose lichens are widely present in this region. Around twenty lichen samples have been collected and subjected to identify them using conventional techniques subsequently used for further research especially in biomedical applications.

### Popular Lecture Series Programme in Biotechnology

Dr. B. Bagyalakshmi, Professor, Department of Biotechnology, K.S.R.C.T.

Department of Biotechnology, K.S.Rangasamy College of Technology, Tiruchengode organized the DBT, New Delhi Sponsored Popular Lecture Series Programme in Biotechnology during 28.12.2015 and 30.12.2015. On 28.12.2015, the first day of the lecture programme, Dr. D. N. Kambrekar, Professor, Department of Crop Physiology, University of Agricultural Sciences, Bangalore, Karnataka inaugurated the Lecture Series Programme and he delivered a lecture for the period of three hours on Recent advances in Agricultural Biotech-

nology. The lecture covers the global status of crops, need for current research areas; induced mutation assisted breeding, micropropagation, development of new technologies and their applications in agricultural field.

On 29.12.2015, the second day of the lecture series programme, Dr.N. Rathinasamy, Assistant Professor, School of Biotechnology, NIT, Calicut, Kerala delivered a lecture on Applications of Molecular Diagnostics in Crop security. It mainly covers advanced molecular technologies available for the identification of pest and diseases, integrated pest management and Genetically modified crops and security for the period of three hours.

Dr.P.Ponmurugan, Professor & Head, Department of Biotechnology, K.S.Rangasamy College of Technology, Tiruchengode delivered a lecture for the period of three hours on Plant Tissue Culture applications in Agricultural Biotechnology on 30.12.2015.



*Guest speaker and the coordinators gracing the occasion*

as a chief guest and delivered a lecture on "BioMEMS". Dr. R. Rangunathan, Senior Scientist, SynKroMaX Biotech Private limited, Chennai delivered a lecture on "Industrial applications of microbial enzymes and its commercialization". Dr.P.Ponmurugan, Secretary, IEEE-EMBS, Madras Section, Professor & Head, Department of Biotechnology and Dr. K. B. Jayanthi, Vice-chair, IEEE-EMBS, Madras Section, Professor and Head, Department of ECE are the Conveners of the programme. The programme motivated the entrepreneurship awareness among students, the benefits of being a member in world's prestigious society, exhibiting the innovative ideas, its patenting and technology transfer in the field of Engineering and Technology.



*An eminent guest fabricating the minds of the massive throng at the Mega event*

### A Programme on "Micro talk" in association with Care Club

We organized an event on "Micro Talk" by Care Club wing of the chapter on

October 09<sup>th</sup>, 2015. The event was focused to disseminate the knowledge of general awareness. The event was conducted as a micro talk on the topics given on the spot. The best speaker was awarded with a certificate.



*Eventual speakers showcasing their acuity*

### Workshop on Advanced Techniques in Immunotechnology in collaboration with ProGen Pvt Ltd, Salem

One day workshop on "Advanced Techniques in Immunotechnology" was arranged for the Final year students of the department on October 10<sup>th</sup>, 2015 by IEEE-EMBS Student Branch Chapter and Pro-Gen Pvt. Ltd., Salem. Dr.V.Ganesan, Scientist, Pro-Gen Pvt. Ltd. conducted the workshop. Hands-on training on the techniques such as differentiation of blood cells, immunoelectrophoresis, radial immunodiffusion, C-reactive protein test and ELISA sandwich tests were given to the students. The students



were benefitted and learned the various techniques in immunotechnology.



Dr. P. Ponmurugan, Professor & Head, KSRCT-BT, gratefully felicitating Dr. V. Ganesan, Scientist, Pro-Gen



Students who evolved into Big Bosses of Genetic Engineering

#### Executive Committee Meeting

IEEE-EMBS Student Branch Chapter organized members meeting on December 28<sup>th</sup>, 2015. The members discussed the forthcoming plans including organizing Distinguished Lecture Programme and Membership Campaign. All the members attended the meeting and exchanged their suggestions and views.



Members conspiring their perceptions

#### Distinguished Lecture Programme

IEEE-EMBS Student Branch Chapter (SBC 60891A) organized Distinguished lecture programme on 05.01.2016. The edifice of knowledge was brought out in hand by the "Distinguished Lecture

#### Workshop on Advanced Techniques in Genetic Engineering in collaboration with MEDOX Biotech Pvt Ltd, Chennai:

Our Student Branch Chapter in collaboration with Medox Biotech Pvt. Ltd., Chennai organized a two days workshop on "Advance techniques in Genetic Engineering" on October 12<sup>th</sup>& 13<sup>th</sup>, 2015 for the third year students of the department. The workshop was arranged to give hands-on training on the techniques like multiplex pcr, site directed mutagenesis, GFP cloning and DNA mutation detection analysis.

The students actively participated and engaged themselves to learn the techniques and took effort to troubleshoot while performing experiments in genetic engineering.



#### Discussion for availing animal house facility Science Academies' Lecture Workshop on "Biotechnology Tools and Techniques in Solving Environmental Problems"

Dr. P. Ponmurugan, Professor & Head, Department of Biotechnology, K.S.R.C.T.

Science Academies Lecture Workshop on "Biotechnology Tools and Techniques in solving Environmental Problems" will be conducted during 16<sup>th</sup> and 17<sup>th</sup> February, 2016 at Kanini Karutharangam Conference Hall in our college premises. The programme is sponsored by Indian National Science Academy, New Delhi, The National Academy of Sciences, Allahabad and Indian Academy of Sciences, Bangalore. Dr. Rama Shanker Verma, Professor, Indian Institute of Technology, Madras, Chennai is the convener and Dr. P. Ponmurugan, Professor & Head, Department of Biotechnology, KSRCT is the Coordinator for the lecture workshop. Eminent academicians from reputed institutions including Dr. Rama Shanker Verma, Professor, Indian Institute of Technology, Madras, Chennai, Dr. K.V. Peter, Director, World Noni Research Foundation, Chennai, Dr. R. Selvakumar, Professor, PSG Institute of Advanced studies, Coimba-

tore and Dr. S.T. Ramesh, Professor, National Institute of Technology, Trichirappalli will be delivering their guest lectures.

The Workshop will focus the frontier areas of Biotechnology including sustainable agriculture, emerging trends of biological sciences, clean and green environment, solid waste management and waste water treatment technologies etc., The objectives of the workshop is to identify the promising areas of biotechnology to address the environmental issues for sustainable growth and to provide a nationwide forum to discuss the futuristic directions of research on bioremediation and also to overcome global challenges. Students, Research Scholars and faculty members of life science background are eligible to apply for this workshop.

#### Survey of Lichen spp. at Mullukurichi, Namakkal District, Tamil Nadu for Biomedical applications

Dr. P. Ponmurugan, Prof. G. Ayyappadasan, Prof. I. Muthiah, Prof. S. Poornima, Prof. K. Syed Zameer Ahamed, Department of Biotechnology, K.S.R.C.T.

Department of Biotechnology, KSRCT is curious in lichen based research. Lichen survey, isolation of lichen mycobionts, biomedical applications of lichen secondary metabolites are the key research areas. Lichen survey at Yercaud and Kollihills is already done in collaboration with National Botanical



leaves are also widely used for various purposes towards commercial exploitation. The health benefits of the dates include increased bone health and strength, relief from intestinal disorders, treatment for anemia and so on. Benefits of dates also include weight gain, healthy heart and improved nervous health system. The biomedical applications of date fruits has studied by many researchers in several areas covering anti-oxidant property, anti-inflammatory and anti-diarrheal property, neuroprotective effect on diabetic induced neuropathy, also the effect of dates on reproductive disorders and other related issues. The current study is to focus on the effect of dates in relieving the joint pain, namely Arthritis and to induce anti lubricants in the joints.



Our chairman welcoming the Majmaah wing

### Establishment of Animal House Facility at KSRCT Campus

(Ref: 1826/PO/EReBi/S/15/CPCSEA dated 14.09.2015)

Dr. K. Syed Zameer Ahmed  
Young Scientist Fellow, Department of Biotechnology, K.S.R.C.T.

Department of Biotechnology has established an animal house facility at KSRCT campus to do research using experimental animals as model as per the norms of Institutional Animal Ethical Committee (IAEC). It is approved by CPCSEA, Government of India, Ministry of Environmental Forests & Climate Change (Animal welfare division), New Delhi.

In order to do research using animals, first IAEC meeting was conducted on 17<sup>th</sup> October 2015 (Saturday) by 09:30 am at Main Building Conference Hall, KSRCT. During the first meeting, around twelve projects on animal studies proposed by various students from IV B.Tech. Biotechnology and Textile Technology from KSRCT and II M.Sc. Biochemistry from KSR College of Arts and Science have been participated.

The students were presented about the project objectives, methodology to be followed, social relevance of the project including novelty of the proposed project and number of animals required to conduct the animal experiments.

Programme". It was an eye opening to the students wherein the guest speaker was called from United States, Dr. Bernard Allan Cohen, Ethics and Professional Responsibility committee, IEEE-EMBS & Founder, President, CEO of Neurological Monitoring Associates, Milwaukee, Wisconsin, USA. He delivered a lecture on "Enhanced Professional Stature through Ethical Mindset for Biotechnologist". He enlightened the students with ethical knowledge and discussed about various ethical rules to be followed. He taught the students to be not only just professionals but to be an ethical professional. He also interacted with the students on several ethical behaviours and discussed about the dilemmas where ethics will be put at stake.



### Dr. Cohen's cognition bestowal Research forum on "Terminator Seed Technology"

IEEE-EMBS Student Branch Chapter organized research forum on January 07, 2016 during which Mrs .M. Nithya, Assistant Professor, Department of Biotechnology, KSRCT shared her views on "Terminator seed technology". She also

discussed the advantages and disadvantages of the technology. All the students of the department attended the program and indulged their minds with thought provoking ideas.



### Mrs. Nithya delivering her views on the new-fangled technology Volunteer campaign on Cancer and diabetes awareness camp :

Volunteer campaign on Cancer and diabetes awareness in collaboration with Erode Cancer Centre and Diabetes Center was organized by the branch chapter on 19.01.2016. The student members are actively involved in the campaign and distributed the leaflets to the public in view of creating awareness on cancer and diabetes especially among rural people. Approximately 280 public were benefited through this programme.



General Spectators gathered to perceive the peril of Cancer and Diabetes



### Departmental Activities:

#### Ph.D. Degree programme: Public viva-voce examination of Dr. V. Elango

Dr. P. Ponmurugan, Professor & Head,  
Department of Biotechnology, K.S.R.C.T.

Open type Public Ph.D. degree programme of Viva-voce Examination was held on 12<sup>th</sup> January 2016 for the full-time research scholar namely Dr. V. Elango under Anna University, Chennai. The title of the Ph.D. Thesis is "Evaluation of indigenous *Streptomyces* spp. for the biological control of red root disease in tea plants".



*Dr. Elango's Viva Voce*

#### MoU Signing Ceremony between K.S.Rangasamy College of Technology, Tiruchengode, NASS Technical Consulting Services Pvt Ltd, Chennai and Saskatchewan University, Canada.

Mr. I. Muthiah, Assistant Professor  
Department of Biotechnology, K.S.R.C.T.

MoU Signing Ceremony was held on 6<sup>th</sup> January 2016 at Cyber Dome Conference hall, IT Park to initiate 'Canada Collaboration Implementation Program' in the presence of Shree. R. Srinivasan, Secretary, K.S.R. Educational Institutions, Tiruchengode, Tamil Nadu and Dr.G.V. Shanker, President & CEO Global Connect Inc. Saskatchewan Uni-

versity, Canada.



#### Seeding Collaboration With Canada

The objective of the 'Canada Collaboration Implementation Program' is to facilitate implementation of the various initiatives that have been identified to explore collaboration opportunities in the following areas: 1) Establishment of a Skill Development Centre for Food Technology, Training on food, Safety, Security, Packaging and Preservation etc. 2) Joint Mobility Program for Students of KSR College and partnering Canadian Universities, 3) Establishment of an International College and partnering Canadian Universities, 3) Establishment of an International Preparatory School based on Canadian Curriculum in Tamil Nadu, 4) College level Collaborations like Short term students exchange - one month to three months, Faculty exchange programme, Joint projects on mutual areas and Combined workshops / seminars etc. 5) Project based on Cattle feed and Agriculture and 6) Partnership with Canadian Career College of Innovation Technology and Management for Higher Studies.

and power. The visit came to an end at 1.00 p.m. It was an Informative, Interesting and a Successful Visit. As a Biotechnologist, we learned about sugar production, alcohol fermentation, power generation in turbines using bagasse. We gained knowledge and exposure about few production units and processes in a large scale. We express our thanks to The Principal who permitted us to go on the Visit, The Faculty Members who accompanied us, the officials of Ponni sugars who explained about each of the manufacturing units and above all the DST-NIMAT, Gujarat, for the financial support.



*Excited students gracing Ponni sugars with their presence*

#### Campus visit by a Research Team from Majmaah University, Kingdom of Saudi Arabia

M. Kalaiselvi

Research Scholar, Department of  
Biotechnology, K.S.R.C.T.

A research team from Majmaah University, Al Majmaa, Kingdom of Saudi Arabia visited our campus on 14<sup>th</sup> January 2016 regarding a collaborative research project on the evaluation of date

fruits using rats as an animal model. The team comprised Dr. Fahad Khalid Aldhafiri, Dean, Dr. Mohammad A. Alaidarous, Vice-Dean and Prof. Dr. Mohammad Alturaiki, President, Scientists Foundation, Majmaah University. Majmaah University, Al Majmaah, Kingdom of Saudi Arabia was founded in 2009 in which teaching and research are delivered in 13 academic schools. The university is established to serve a wide area including Majmmah, Zulfi, Remah, Ghat and Hawtat Sudair. The University is meant to provide services of high quality in the field of research and education as well as serving the society of the people in the region. It will also help in achieving the Ministry of Higher Education's objective in expanding the university education across the world.

The date seeds contain high amount of protein and lipids whereas the date flesh contains high amount of sugars. The developmental stage of the date fruit comprises four stages namely Kimri (unripe), Khalal (full size- crunchy), Rutab (ripe soft) and Tamer (ripe sun dried). Dates are classified according to their fleshiness. This is an arbitrary classification, but is convenient viz., soft date (Barhee), semidry date (Dayri) and dry date (Thoory). There will be some variations in the composition of the date fruits with the changing stages of growth. The nutritive value of the dates varies with its type and varieties. The Saudi Arabia is the leading producer of date fruit at present. Beyond the consumption of the date fruit, other parts of





### *Eminent speaker spreading awareness among the students*

In first day-second session, Dr. P. Ponmurugan, Chief Camp Coordinator has given the lecture on Entrepreneurship Importance and Identification of Opportunities for Entrepreneurs. The second day-third session, the participants were taken into industry such as Ponni Sugar's Pvt. Ltd, Erode and in the fourth session Mr. M. Srinivasan, Entrepreneur in Mushroom production has shared his experience and gave the valuable suggestion to the participants. On third day- fifth session, Dr. M. Ramakrishnan, Professor, School of Management studies, KSRCT, has given lecture on "How to start a SSI unit?" and discussed with the participants about the Mechanism of product selection and technology- assistance from R & D labs. In the sixth session of third day, Mr. M.

Rajasekaran, Branch Manager, Lakshmi Villas Bank, Thokkavadi branch, Tiruchengode, has briefly explained the "Support and financial assistance from Govt. agencies, banks, financial institutions, SFCs and others securities demanded by Financial institutions / banks". Certificates were distributed to all the participants by the Chief-Camp coordinator during valedictory function.

### Industrial visit to Ponni Sugars Limited, Erode

S. Susmetha, IV B.Tech. Biotechnology, K.S.R.C.T.

Industrial visit makes the students to understand the imagination about the concept of fermentation process at Ponni Sugars Limited, Erode. It is planned as part of the Entrepreneurship Awareness camp for graduates. On receiving the letter of permission from Ponni Sugars Limited, Pallipalayam, Erode, Students with few Faculty Members of Biotechnology went for an Industrial Visit on 07.01.2016. We all assembled at the college premise by 10 a.m. and left in a college bus. We reached the Ponni sugars at 10:30 a.m. and supervisors of various production units received us at the entrance and gave a brief introduction about their manufacturing units like sugar plant, cogeneration and distillery units. They explained about the processing methods of their products like sugar, bagasse, molasses and power. The visit came to an end at 1.00 p.m. It was an Informative, Interesting and

A New funded Project entitled "Nanobiotechnological approaches for the management of stem and root diseases of tea plants using indigenous biocontrol agents" sanctioned by NTRF (Ministry of Commerce), Kolkata Total amount outlay :

Rs. 12,63,600/-

M. Karthik Junior Research Fellow, Department of Biotechnology, K.S.R.C.T.

This project proposal is focused on promising potential of nanoparticles biosynthesized using indigenous biocontrol agents to control stem and root diseases of tea plants. Here the attempts are made towards the application of nanoparticles like silver, gold, copper and silica nanoparticles biosynthesized using indigenous biocontrol agents such as fungal (*Trichoderma atroviride*), bacterial (*Pseudomonas fluorescens*) and actinomycetes (*Streptomyces sannanensis*) which are isolated from tea soils to



achieve the best disease control and to prepare nanobi- formulations containing silver, gold, copper and silica nanoparticles.

A New funded Project entitled "Evaluation of antibiotics producing Streptomyces spp. against rhizome rot disease in turmeric (*Curcuma longa L.*)" sanctioned by UGC, New Delhi Total amount outlay : Rs.16,06,600/-

S. Rubavathy, Project Fellow, Department of Biotechnology, K.S.R.C.T.

As the rhizome rot is a serious problem for the successful cultivation of turmeric, development of effective management practice is the need of the hour. Although soil treatment of chemical fungicides is the common practice for the control of the disease, indiscriminate application of chemicals is deleterious to non-target microorganisms and creates soil and water pollution.

Furthermore, turmeric is having export value; residual toxicity due to pesticides is the serious concern, which would greatly affect the export of turmeric and its products. Therefore, it is highly relevant to develop alternate management strategies for the successful control of turmeric rhizome rot disease. Biological control especially

**IN A WORLD FILLED WITH HATE, WE MUST STILL DARE TO HOPE. IN A WORLD FILLED WITH ANGER, WE MUST STILL DARE TO COMFORT. IN A WORLD FILLED WITH DESPAIR, WE MUST STILL DARE TO DREAM. AND IN A WORLD FILLED WITH DISTRUST, WE MUST STILL DARE TO BELIEVE.**

**-MICHAEL JACKSON**



*Streptomyces* spp. is the focus of the proposed work which is not only to control the disease incidence but also to enhance the yield potential, which would result in the following research outcomes such as 1) Efficient strains of *Streptomyces* spp. with specific biocontrol traits, 2) Knowledge on the mechanism of actions of the *Streptomyces* spp. against the rhizome rot pathogen, *P. aphanidermatum*, 3) An easy, reliable and reproducible mass production protocol for selected *Streptomyces* spp. Isolates, 4) Carrier based bioorganic formulations of *Streptomyces* spp. 5) Delivery methods, dosage and time of application of *Streptomyces* spp. based bioformulations. Therefore, at this junction, it is worthwhile to investigate the biocontrol activity of *Streptomyces* spp. against rhizome rot disease of turmeric.

Moreover, Indian soils are rich in microbial diversity and the wealth of indigenous microflora has not been fully investigated especially *Streptomyces* spp. belongs to actinomycetes group. Hence, there is an immense scope to use indigenous strains of *Streptomyces* spp. in turmeric fields to control the disease which in turn to maintain soil fertility. The proposed work is of inter disciplinary in nature as it deals with microorganisms, plants and also to study the biocontrol mechanism between *Streptomyces* spp. and the pathogen, *P. aphanidermatum*.



**Innovation in Science Pursuit for Inspired Research (INSPIRE) Ministry of Science & Technology, Department of Science & Technology**

**(DST)**

M. Suganya, Ph.D. Scholar, Department of Biotechnology, K.S.R.C.T.

Ms. M. Suganya is the recipient of DST INSPIRE Scheme from Department of Science and Technology, New Delhi (DST/INSPIRE Fellowship/2015/IF150459 dated 8<sup>th</sup> January 2016) for the project entitled "Molecular mechanism of antimutagenic and anticancerous activities of southern Indian tea catechins" for a period of five years for which a sum of Rs. 20,50,000/- was sanctioned. She is doing her doctoral degree programme under the guidance of Dr. P. Ponmurugan, Professor & Head, Department of Biotechnology, K.S.R. College of Technology, Tiruchengode, Namakkal District, Tamil Nadu in Anna University, Chennai.

Monthly stipend @ Rs.35,000/- is sanctioned to her as fellowship. She is going to evaluation of anti-tumor effect of combination of grape polyphenol and tea catechin compounds in cancer cell lines under lab condition. *In vivo* validation of the anti-tumor properties of grape polyphenol and tea catechin combinations in animal model will be carried out and genome wide analysis of altered gene expression (transcriptome and proteome) upon treatment with grape polyphenol and tea catechin combinations will be undertaken.

**Young Scientist Award received from Science and Engineering Research Board, New Delhi (VSS/2015/001760 dated 11.01.2016)**

Dr. K. Syed Zameer Ahmed, Young Scientist Fellow, Department of Biotechnology, K.S.R.C.T.



Young Scientist Award coming under 'Early Career Research Award scheme' aims to provide quick research support to the young researchers who are in their early career for pursuing exciting and innovative research in frontier areas of science and engineering funded by Science and Engineering Research Board, New Delhi. Dr. K. Syed Zameer Ahmed, Department of Biotechnology, KSRCT has received his fellowship from SERB, New Delhi on 22<sup>nd</sup> January 2016 for which a sum of Rs.40,75,000/- was sanctioned to him. Title of the project is 'Evaluation of antiarthritic and ameliorative potential of terrestrial and marine lichens' and duration of the project period is three years. He is receiving the fellowship amount of Rs.55,000/- per month towards manpower. In addition, amount is allotted for consumables, travel, contingency and equipment purchase

**Entrepreneurship Awareness Camp Sponsored by Entrepreneurship Development Institute of India, Gandhi Nagar, Gujarat**

Dr. M. Balasubramanian, Associate Professor, Department of Biotechnology, K.S.R.C.T. The Entrepreneurship Awareness Camp (EAC) was conducted for 3 days (06 - 08<sup>th</sup> January 2016) by the Department of Bio-

technology, K.S. Rangasamy College of Technology, Tiruchengode, It was supported by Entrepreneurship Development Institute of India, Gujarat, India (Under DST-NIMAT Project). EAC was arranged for the final year students of B. Tech. Biotechnology, K.S. Rangasamy College of Technology, and students from other college. The EAC programme was inaugurated at Kanini Karutharangam on 06<sup>th</sup> January 2016,

Dr. K. Thyagarajah, Principal, K.S. Rangasamy College of Technology welcome the gathering and the presidential address was given by the Lion Dr. K. S. Rangasamy, MJF., Founder & Chairman, K.S.R. Group of Educational Institutions. Dr. P. Ponmurugan, Chief Camp Coordinator, Professor & Head, Department of Biotechnology, KSRCT has introduced the chief guest to the gathering. Dr. Bernard Alan Cohen, Founder & Director, Neurological Monitoring Associates, LLC (NME), Milwaukee, Wisconsin, United States was the chief guest and inaugurated the programme. Dr. M. Balasubramanian, Co-Camp Coordinator, Associate Professor, Department of Biotechnology, KSRCT has given the vote of thanks. The three days camp was planned into six sessions as per the the instruction given by the Entrepreneurship Development Institute (EDI), Gujarat and each session was lectured by the experts.