



KSRCT IEEE-EMBS Student Chapter Newsletter

*(K.S.Rangasamy College of Technology
Institute of Electrical & Electronics Engineers
Engineering in Medicine and Biology Society)*



*Published by
Department of Biotechnology
K.S.Rangasamy College of Technology
Tiruchengode-637215.
Namakkal District, Tamil Nadu, India*

CONTENTS

Department activities

Biospectrum Ranking
Association activities
Alumni meet
CARE Club
Summer Research Fellowship
MoU
Student Projects received from
TNSCST Chennai.
IEEE-EMBS News

EDITORIAL BOARD

Chief Patron

Lion.Dr.K.S.Rangasamy MJF.,
Chairman, KSRCT.

Patron

Dr.K.Thyagarajah, Principal, KSRCT.

Editor-in-Chief

Dr.P.Ponmurugan, Professor & Head,
Department of Biotechnology, KSRCT.

Editor-in-Charge

Ms.S.Poornima, Assistant Professor,
Department of Biotechnology, KSRCT.

Editorial Executives

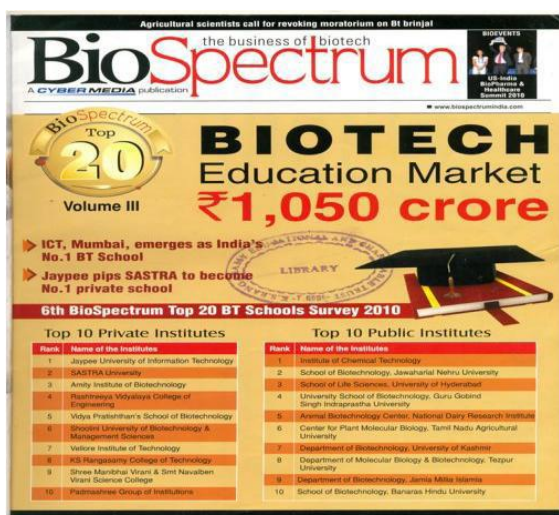
Neha Halder
D.Aambareesh
III B.Tech. Biotechnology

Industry- Institute Interaction

Industry and institute has taken different forms at different times. It started with ordinary interaction and gradually increased to very close partnership overtime. Diversity of interactions practiced between industries and institutes which includes problem solving, curriculum development, study visits, scholarships. Education always look at the general development of students that will provide them a wide variety of opportunities and choices to prepare them after graduation. The institutions carryout their goals to facilitate learning, preserve a protected zone for students and promote individual care to address the needs of the learners. The industries, on the other hand, work within the structure of industrial practices and norms with production, efficiency and profitability.

Biospectrum Ranking

Biotechnology Department of K.S.Rangasamy College of Technology stood 11th Rank among 280 Private Indian Institutions offering Biotechnology course as per the survey conducted by “Biospectrum Asia Magazine”, Bangalore (Volume 9, Issue No. 8, August 2011).



Association activities

Contemporary research in the area of Biotechnology has witnessed an enormous growth in the past few decades in order to keep abreast with the latest developments in the field of Biotechnology, an extremely high level of understanding and awareness is created for the student communities by the Department. Further the department also encourages scientist, academicians, administrators, policy makers and entrepreneurs to enhance the vision of budding biotechnologists. On focusing on these targets the department has created an association which runs for the students and

by the students for organizing special guest lecture programs and other technical functions. In this regard, the association inaugural function for this academic year was held on 12th July, 2011, Tuesday at 10.30 am with the esteemed presence of **Mrs. S.Sumathy, Managing Director, SSS Bioprime Technologies, Chennai**, as Chief Guest in which she came out with an excellent speech about the “**Biotechnology in Future**” in the presence of Dr.K.Thyagarajah, Principal and members of Department of Biotechnology.



Biozoom (ISSN 2250-0693)

An in-house magazine called “Biozoom” is regularly released by the Department of Biotechnology every semester in which research articles, general articles, legendary works, new innovations, interesting facts and figures are compiled and edited by our own students and staff members. A total of seven issues have been released so far. In this academic year, Biozoom Volume 4, Issue 1 has been released along with the ISSN No: 2250 0693.

Alumni meet

A successful Alumni meet was conducted on 17th September 2011, in which around 60 alumni participated and shared their experience on and off the campus of KSRCT. This event was successfully organized by Ms.Olimathy and executed well with the cooperation of all staff members. During this occasion, an Alumni souvenir book and A Decade Report of Biotechnology department were released successfully. Dr.U.I.Baby, Manager – R&D, SGS India Pvt., Ltd., Cochin was the chief guest for alumni day function who is receiving a token of appreciation from the Principal.



Centre for Academic Research and Employability (CARE) Club.

CARE Club was initiated with the primary objective of uniting students and sharing their views regarding competitive examinations, higher education, placement and fellowship undergone.

Summer Research Fellowship received by Students



O.B.Asathy,
III Year
Biotechnology
Indian Institute of Science Education and Research, Kolkatta.



C.Monica, III Year
Biotechnology
L.V.Prasad Eye Institute, Hyderabad



P.Suresh, III B.Tech.,
National Institute of Immunology, New Delhi



A.Sriram, III B.Tech.,
Jaypee University of Information Technology, Pune

Conference cum Scientific Meet

The journey of cooperation between industry and institute has taken different forms at different times. Historically, it

started with simple interaction and gradually evolved to very close partnership overtime. There has been a wide variety of interactions practiced among industries and institutes which includes problem solving, curriculum development, study visits, scholarships, and apprenticeship training and incubation center. However, until the time that the concept of public private partnership has evolved, industry, has, by far, not been involved in taking sustainable financial, technical and operational risks in the design, financing and building and operation of educational projects. Therefore, public-private partnership has been regarded as a natural progression of relationship from interaction elevated to structural partnership where the private sector assumes substantial operational risks in the design and implementation of educational projects.

other aptitude and technical skills. This led them to get through both IT companies and core companies without any struggle. A sum of 23 students got placed successfully in various

MoU signed by Jain Healthcare Pvt., Ltd., Singapore.

Department of Biotechnology had signed Memorandum of Understanding (MOU) with Jain Healthcare Private Ltd.,

Singapore in the field of Diabetic research to evaluate the efficiency of garlic based anti-diabetic formulation using animal models. Jain Healthcare's project is been funded by Mercatus capital, the SPRING Singapore's award winning venture capital firm. From Jain Health Care Company, Dr.M.A.Deepa, Head (R&D) and Mr.Theenathayalan Parthasarathy, the operation head were also participated in signing of MoU and handed over Rs.1, 5000 to chairman to execute the research. The amount will be released at the rate of Rs.1, 50,000/- every six months for a period of five years.

KSRCT IEEE-EMBS News

KSRCT IEEE-EMBS Newsletter of volume 2 was released by Dr.K.Sankaran



and Dr.K.Rathinasamy along with Dr.P.Ponmurugan, Professor & Head, Ms.S.Poornima, Assistant Professor in Biotechnology.

Foreign visit

Dr.P.Ponmurugan has presented his findings entitled “Evaluation of PGPRs against tea diseases in Southern Indian” at Second Asian PGPR conference held at Beijing, China during 21-24th August 2011. Similarly along with Mr.G.Ayyapadasan, Research Scholar – ICMR project have attended an International Conference on Lichenology which was held at Bangkok, Thailand during 09-13th January 2012. They presented a research paper on “Biodiversity of Lichens in eastern ghats of India”



Commercial Products developed

Commercial products are developed with the involvement of the faculty members, the research scholars and the students to enhance yield potential in tea, turmeric, rice, maize and groundnut

plants. Commercial products are also developed to purify sewage wastewaters and industrial effluents to a greater extent. Moreover, drug formulations are prepared and made available to the diabetic patients in collaboration with Jian Health Care Pvt Ltd, Singapore.

| Products | Collaborative Companies |
|--|---|
| Garlic based tablets and syrup for diabetic patients | Jian Health Care, Singapore |
| Indigenous microbial consortia for industrial effluent treatment | Ponni Sugars Ltd., Erode, Tamil Nadu. |
| | Summer India Textile Ltd., Tiruchengode, Tamil Nadu. |
| <i>Azospirillum</i> , Potassium solubilizing bacteria, Phosphobacteria, PGPRs and Biotrols | UPASI Tea Research Institute, Valparai, Tamil Nadu. |
| | Parry Agro Tea and Coffee Industries, Valparai, Tamil Nadu. |
| KSR Biofertilizers | Supplied to Turmeric planters |
| Bioformulation and Mulching materials | PVP, Coconut Coir pith Pvt Ltd, Palkad, Kerala. |

Patents filed

Indian Patent

Title: Standardization of isolation techniques for *Cephaleuros parasiticus*

Karst, a pathogenic alga in tea plants.

Patent holders: P.Ponmurugan, D.Saravanan and M.Ramya

Reference Number: 1997/CHE/2009 dated 01.08.2009.



Dr.M.Ramya

Title: Screening of biocontrol agents against *Phomopsis theae*, a causal agent of *Phomopsis* canker disease in tea plants.

Patent holders: P.Ponmurugan and M.Murugesan



Reference Number: 1998/CHE/2009 dated 21.08.2009

Dr.P.Ponmurugan

Title: Bioformulation of vermicompost based *Trichoderma atroviride* against *Phomopsis theae*, causal agent of *Phomopsis* canker disease in tea



Dr.S.Anita

International Patent

Title: Biosynthesis of gold and silver nanoparticles for stability and extended shelf-life of antagonistic activities

Patent holder: B.Mythili Gnanmangai and P.Ponmurugan

Reference Number: US/12/916,497 dated 30.10.2010

Title: Preparation of PGPR bioformulation for the biological control of red root rot disease in tea plants

Patent holder: B.Manju Karunamkika and P.Ponmurugan

Reference Number: US/13/092,178 dated 22.04.2011

Title: Bioformulation of vermicompost based *Trichoderma atroviride* against *Phomopsis theae*, causal agent of *Phomopsis* canker disease in tea plants

Patent holder: S.Anita, P.Ponmurugan and B.Nithya

Reference Number: US/13/348,444 dated 24.01.2012

Title: Bioefficacy of garlic based bioformulation of anti-diabetic activity

Patent holder: M.A. Deepa, G.Saravanan and P.Ponmurugan

Reference Number: Filed on the first week of January 2012.

Rank holders in Biotechnology

It has really been a cherishing moment for us to produce university rank holders for in this competitive world. Ms. P.Ardra of B.Tech, Biotech(2007-11) outstood as university First rank holder and Mr. Dheenadayalan of M.Sc, Biotech (2009-11) also secured university First rank under Anna University of Technology, Coimbatore.



Project Fellowships received by students



S.Saranya,
IV B.Tech.
Biotechnology

Title: A knowledge based drug regimen and intelligent data analysis of HIV patients from Namakkal District.



Charles Sam
Ebenezer,
IV B.Tech.
Biotechnology

Title: Repercussion of *Scoparia dulcis* extracts on renal stone diseases



N.Thirumalai
Sankar, IV-B.Tech.
Biotechnology

Title: Estimation of organophosphorus pesticide residues in chicken muscles and eggs using GC-MS method

General articles

No more stuff of sci-fi, Parallel universe exists

Back in 1950, Parallel universe theory was first proposed by US Physicist, Hugo Everett. In Everett's "many worlds" universe, the universe splits off every time a new physical possibility is explored and for each outcome, each one is played out in an alternate universe.

But the new research stemming from Oxford, offers a mathematical solution regarding this theory. According to Quantum mechanics, nothing at the sub

atomic scale can really be said to exist until it is observed. Until this, particles occupy uncertain “superposition” states in which they have simultaneous “up” and “down” spins or appear to be in different places at the same time. When an observer makes a measurement, the particles then settle down into one of these multiple options, this is how the multiple universe theory is explained.

The North American Wood Frog

It has an uncanny mechanism where it survives winter by freezing. When the temperature drops, the frog is capable of surrounding its organs with water that freezes. During this time, it’s heart stops beating, it stops breathing and its kidney shut down. The frog can stay in this suspended animation for months. When spring comes, the frog begins to thaw and is fully functional within 10 hours.

Bottle gourd

Found in every kitchen of the Indian household, bottle gourd constitutes a major part of food in the Indian cuisine. Locally known as ‘lauki’ in hindi or ‘sorakkai’ in tamil, this vegetable is not so popular in west.

This vegetable has an enormous role to play in the treatment of high blood

pressure and heart disease. Some benefits of bottle gourd are

- ✓ Bottle gourd helps the liver function in a balanced manner.
- ✓ Juice from leaves cure jaundice and they juice from gourd helps reduce greying of hair.
- ✓ Gourd juice help treat burning sensation in the urinary passage when consumed with lime juice.
- ✓ Reduces fatigue and keeps you fresh.
- ✓ Helps fight constipation as it is fibre rich and has low fat content.
- ✓ Juice from leaves helps in curing baldness and prevents tooth decay.
- ✓ Juice of this gourd is recommended in ayurveda for the treatment of acidity, in digestion and ulcers due to its alkalinity.
- ✓ Help improve obsessive-compulsive disorder (OCD).

Collagen

Collagen is the most abundant protein in the human body. Diseases caused by abnormal collagen structure are:

- Marfan’s Syndrome causing abnormal fibrillin and results in abnormally long and distensible extremities etc.

- Scurvy due to Vitamin C deficiency as Vitamin C is required for collagen cross-linking.
- Ehlers Danlos Syndrome causing progressive deterioration of collagen.

Bone facts

Ossification (Bone formation): The skeleton is formed entirely of cartilage in an early embryo. Bone formation occurs later. The process of bone formation is called ossification or osteogenesis.

Cartilaginous or replacing bones: The bones developed from the pre-existing cartilage and practically replace the cartilage. They are so called endochondrial bones. Example femur and humerus.

Investing or dermal or membrane bones: These bones develop in the dermis of the skin as thin plates and skin to get attached over the original cartilaginous endoskeleton. Example: frontal, nasal etc.

Sesamoid bones: These bones are formed in the tendons at the joints. Example: patella (knee cap)

Visceral bones: These are formed in the soft organs. Example: os cordis in the heart of ruminants etc.

Osteoclasts: The cells are derived from osteoblasts and osteocytes, rich in acid phosphatase and contain slightly basophilic cytoplasm and are lysosome-rich, multinucleate cells which destroy bone matrix. They are also called bone destroying cells. Thus the osteoclasts take part in the bone resorption.

Osteomyelitis: Inflammation of the bone marrow and adjacent bone and epiphyseal cartilage.

Paget's disease: Irregular thickening and softening of bones. A bone kept in KOH remains unaffected.

Osteomyelodysplasia: Enlargement of the bone marrow cavities, thinning of the osseous tissue, large thin walled vascular spaces, leukopenia (fall in WBC count) and irregular fever.

Quotes...

"In the middle of every difficulty lies opportunity" – Albert Einstein

"If you don't pay appropriate attention to what has your attention, it will take more of your attention" – David Allen

“It doesn’t matter who you are, where you come from. The ability to triumph begin with you always.” – Oprah Winfrey
“What lies behind us and what lies before us are tiny matters compared to what lies within us.”- Henry Stanley Haskins

“The only way to do great work is to love what you do. If you haven’t found it yet keep looking. Don’t settle.”- Steve Jobs

“Build your own dreams, or someone else will hire you to build theirs.”- Farrah Gray

“Pride is tasteless, colourless and sizeless. Yet it is the hardest thing to swallow.”- August Black

Amazing facts

The word “facetiously” contains all 5 vowels and ‘y’ in alphabetical order.

If you eat polar bear’s liver, you’ll die. Humans can’t handle that much Vitamin A.

There was a ten foot ape called Gigantopithecus that is now extinct. The fossil record also indicates that they most likely buried their dead, which indicates a cognitive level that only one other ape possesses.

If you were to remove all of the empty space from the atoms that make up every

human on earth, the entire world population could fit into an apple.

The Indonesian Mimic Octopus can not only change colours but will mimic the shapes of other animals like the flounder, poisonous lion fish and sea snakes.

Health corner

Accept that there are events that you cannot control.

Keep a positive attitude; rather than defaulting to negatives

Halt stress in its tracks; if you feel overwhelmed, take a walk or drive in the slow lane to avoid getting angry at other drivers.

Manage your time. Give yourself time to get things done; set your watch so you have more time to prepare for an event.

Do things that are pleasurable, like reading or gardening.

Take 15-20 minutes every day to sit quietly and reflect. Learn and practice relaxation techniques like yoga or deep breathing.

Exercise regularly by bicycling, walking, hiking, jogging, or working out at the gym. Your body can fight stress better when it is fit.

Eat healthy, well-balanced meals.

Get enough rest and sleep. Your body needs time to recover from stressful events.