

SOCIETY OF

2013

Microbiologists



NEWSLETTER

Department of Microbiology and Fermentation Technology
SAM HIGGINBOTTOM INSTITUTE OF AGRICULTURE, TECHNOLOGY & SCIENCES

Deemed to be University, Allahabad-211007



Society of Microbiologists



Society of Microbiologists has with the passage of time, built its identity on the culture of innovation prodded by motivation, hard-work, inspiration and uniqueness. The aptitudes, skills, talents and various potentials represented here are just overwhelming. The Society of Microbiologists is the bridge that facilitates mutuality and an interface between the Students', Institutions and Industries catering to the endorsement of Microbiological studies.

The Society of Microbiologists stands a class apart through the diversity, talents and inimitability that it possesses. Empowering the youth and sharpening their skills for giving a competitive edge in the job-market and in our social circles has been the underlying precept.

The event calendar of the Society in the Session 2012-2013 focused on activities concerned with

the practical exposure of young scholars in the handling of useful microbes and analysis of samples for human welfare. These included collection and study of useful Blue Green algae and bacteria involved in the production of biofertilizers, and hygienic and sanitary conditions with respect to food and water served in mass gatherings of the Mahakumbh 2013. In addition, determination and enthusiasm surfaced high as students eagerly participated in various Quiz and Photography competitions.

Opportunity is ever worth expecting; let your hook be ever hanging ready, the fish will be in the pool where you least imagine it to be. SOM, thus, provides such numerous opportunities for the students to capitalize on and make the most of their progress in terms of academic, professional and personality development.

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FEATURES

01 MESSAGE

by PROF. (DR.) RUBINA LAWRENCE

A spirit of unified teamwork, skillful management of resources, adeptness in the successful execution of events, and an eye for detailing.

02 STAFF ADVISOR'S NOTE

Note I: by DR. EBENEZER JEYAKUMAR

The time has never been more exciting to be a microbiologists.

Note II: by MRS. JANE CLARYN BENJAMIN

Traversing in strides and bounds the SOM has indeed reached pinnacles of success

03 PRESIDENTIAL NOTE

by MS. SONAKSHI JAIN

With an enthusiastic team you can achieve almost anything.

04 ELEVATOR TO SUCCESS

by MR. MAYANK DUBEY

...an insignia symbolizing excellence...announcing outstanding achievements and an insight into an even brighter future.

05 PERFECT AMALGAMATION OF EXPERIENCE, SUPERVISION AND ENTHUSIASM

by MS. ARADHANA SINGH

Aptitude to learn...competence to participate...flair for creativity.

C o n t e n t s

SOCIETY OF MICROBIOLOGISTS NEWS LETTER ISSUE V | 2013

Message	
Chase perfection to catch excellence	03
Prof. (Dr.) Rubina Lawrence, Chief Staff Advisor, SOM	
Staff Advisors Notes	
Note I: Re-imagined Microbiologists	04
Dr. Ebenezer Jeyakumar, Staff Advisor, SOM	
Note II: Soar to unraveled vistas	04
Mrs. Jane Claryn Benjamin, Staff Advisor, SOM	
Presidential Note	
Realizing thought into Practice	05
Ms. Sonakshi Jain, President, SOM	
Elevator to success	06
Mr. Mayank Dubey, Vice - President, SOM	
Perfect amalgamation of experience, supervision and enthusiasm	07
Ms. Aradhana Singh, Treasurer, SOM	
Inaugural - session 2012 - 2013	08
Workshop on cyanobacteria	12
Drinking water and Food quality surveillance at Maha Kumbh 2013	14
Photography competition	17
Quiz competition	18
Industrial visit cum workshop	20
Closing function cum Guest Lecture	22
Book Release on Antimicrobial Resistance	24
Meeting Report on Antimicrobial Resistance	26
Students Placement	28
On your Mind Letters - Dignitaries	29
- Members	30
Advisory Board	31
Executive Council	31
Appreciation	32
In the news, 2012 - 2013	33

Chase Perfection to catch excellence



Prof. (Dr.) Rubina Lawrence
Chief Staff Advisor SOM
and Head
Department of Microbiology
and Fermentation Technology

Message

The cliché goes “That, which is conceivable, that which is believable, that which is desirable, so also is it achievable”. Abiding by this dictum and reinforced with the belief that the greatest achievements can so be attained by living up to one’s opportunity while making the most of one’s resources, the Society of Microbiologists has made tremendous concerted efforts directed towards opening all such doors for the students. The students thus determined to be ready for the first rays of dawn when it appears, chase perfection which pilots their way to catch excellence.

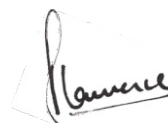
Ingenuity has been the byword, coupled with the assertion to unearth the mesmerizing world of microbes to provide useful insights, for improvising the various events suiting the academic, professional and creative needs of the students. A spirit of unified teamwork, skillful management of resources, adeptness in the successful execution of events, and an eye for detailing has become imprinted as the motif for the Society of Microbiologists.

These young minds moulded thus, tread their way confidently up, poised to make a mark of their own as they leave all precincts and become channels of knowledge through the services they render in various avenues.

With the ceremonious closing of the session 2012-2013 the SOM in retrospection proudly looks back at the jewels in its crown. Quiz and Photography competitions, Mahakumbh 2013 survey, Workshops, Guest Lectures, Book release, each event added a diamond to the glowing diadem.

But we are not ones to sit back and regale on past glories we move ahead with conviction to higher mountains than we’ve already tread upon!!!!

Persistence that is unwavering, resolute effort, directed focus, dogged determination, coherent decisions that nothing can overrule, well- planned preparations.... and in no time does the mulberry leaf become satin!!!



[Prof. (Dr.) Rubina Lawrence]

Re-imagined microbiologists

As a fully grown tree, with flowers spreading its fragrance, the Society of Microbiologists is making a strong impact. With its progressing pace, I believe that SOM is apparently going to have a global influence in the future years to come. As far back in 2008, the society's founding fathers conceived and began the society which later in 2013 has become a role model to those who really peep for ideas to explore with. I am impressed by the fact that the events organized are not monotonous through these years even though some are organized intentionally for scientific cause. Although there are mixed emotions about the various events organized, but I think I have to agree with the new concepts you come up with every year. If you are not a member and have ever attended one of these events, you will know what I mean. Our students put tremendous effort into organizing these functions, and the impact they deliver positively influences the students of SHIATS. We are going to start treating you a little different this year. We are not changing the place we are taking you to, but we are revamping how we are getting you there. The SOM newsletter published for its illustrious membership is also now read by many as it is accessible online. To that end, our talented and knowledgeable staff members will continue to generate and curate content that is relevant and also thought provoking, but we're adding a few new twists. We value the trust you place in us to guide you through the exciting evolution of science and its growing influence in the various sectors globally. Join us on the ride as we discover new ways to positively impact the world, and as we look in on some of those who are leading the way. The time has never been more exciting to be a microbiologist. We hope that your re-imagined newsletter reflects it.



Dr. Ebenezer Jeyakumar
Staff Advisor
Society of Microbiologists

Note I

Soar to unraveled vistas

The Society of Microbiologists stands tall today in its lofty stature that it has achieved through climbing higher grounds in its journey since its inception. Traversing in strides and bounds the SOM has indeed reached pinnacles of success. Having been associated with the Society of Microbiologists from the time of its establishment I have been a privileged witness to the toil, diligence and dedication that preceded each lucrative event organized and activity conducted. The meticulousness for each detail and alacrity of members has been instrumental in attaining the vision and objectives of the Society of Microbiologists. It has been pleasing to watch to students' progress in their academic as well as personal growth through their active involvement in organizing and executing the various events. Furthermore, the Society has very innovatively and impeccably brought the array of facets from the field of microbiology to the simple comprehension of students. I wish the Society of Microbiologists expands its wings beyond the horizons and soars much higher to vistas yet unraveled.



Mrs. Jane Claryn Benjamin
Staff Advisor
Society of Microbiologists

Note II

Realizing thought into practice

"The vision that you glorify in your mind, the ideal that you enthrone in your heart-this you will build your life by and this you will become."

Emblazoned with this belief the SOM team envisaged the year 2012-2013 and marked a whole range of new and varied endeavours with many triumphs for Society of Microbiologists. The session comprised of numerous innovative events ever held, incorporating practical vision.

Learning cannot merely be acquired from books; it requires further practical exposure and interaction. Realizing this thought into practice the SOM organised a myriad of events in an effort to attain it. The events inculcated and rejuvenated an inquisitive streak among the minds of the students to foray into the various facets of Microbiology.

Sprinkled with colourful activities the Calender of the SOM for session 2012-2013 boasted of events like Workshops for hands-on practical exposure, Guest Lectures, Quiz Competitions to promote the pursuit of knowledge and awareness , Survey during Mahakumbh 2013 for evaluating conditions surrounding health and hygiene among general masses, Photography competitions for those with an élan for the right click .

In the words of Tahir Shah "With an enthusiastic team you can achieve almost anything", so too did the Society garner from the sincere cooperation, dedication and unstinted support of all the members that has led the Society to achieving new heights of excellence

I commend the Society as we retrospect the accomplishments and renew our commitment and vision for the future. I have confidence that Society of Microbiologists with its dedicated staff and students will continue to excel and bring smiles on the faces of many students in coming years.



Ms. Sonakshi Jain

M.Sc. Microbiology

Presidential Note



Mr. Mayank Dubey

Integrated M. Sc. Microbiology

Elevator to Success

Society of Microbiologists has now become an insignia of its own, symbolizing excellence with its grand past, announcing outstanding achievements and an insight into an even brighter future. Through the resolute efforts of the Society, students have been able to discern amazing facts, avail substantial opportunities to acquaint themselves and direct their growth in expertise as well as personality. The society has constantly focused on building intellect, sharpening of creative thoughts and imbibing professionalism in all activities.

Responding to the emerging needs of humanity as well as the young budding brains, the society has served as an elevator taking them a step closer to the latest developments in the microbial world. The society has imparted a sense of responsibility, team work, leadership skills and a fascination for novelty and creativity among the students hereby having greater impacts on their ingenuity, imagination and overall excellence in both academic and extra-curricular activities.

For the past five years collaborative efforts of all the members of the society through meticulous planning and preparations have helped the society to hoist flags that have made it. Each event of the society proceeds with thorough brainstorming and discussion among society members, providing valuable input in the form of suggestions, criticism and appreciations, which then finally leads to a productive outcome.

At this point I can say that the valuable effort and support of each member has brought the society to this level of success. As goes the saying “Barriers always comes in every work but the one who crosses every barrier with high spirit, consistency and confidence can touch the sky”. Poised with this approach the society aims to touch the new heights and push beyond the limits of excellence.

Vice President

Perfect Amalgamation of experience, supervision and enthusiasm

The successful completion of yet another session (2012-2013) for the Society of Microbiologists is a rewarding fruition resulting from hard work and immense efforts made by all members. The society has consistently aimed to promote the students towards academics, researches and to enhance their professional expertise. With full zest and enthusiasm in the growing intellectual's mind, the students with their indomitable spirits participate and explore new heights in the sky of today's advancing science. The society continuously works at every step for the fortification of knowledge and development of the students.

The perfect amalgamation of experience and supervision of our faculty members and the enthusiasm among members have helped the society to complete the Session 2012-2013 in a harmonious way. The organising of various events demonstrated the aptitude of the members to learn, their competence to eagerly participate and their flair for creativity. It is also not an understatement to say that it was with the keen participatory and contributory effort by the members that provisioned the execution of the various activities. Society has in the past successfully provided an excellent platform for the students to proliferate their skills and knowledge and continues to do so. I wish that it attains new heights of achievements and maintain its rich traditions in future.



Ms. Aradhana Singh
M.Sc. Microbiology

Treasurer



Inaugural

Session 2012-2013

Fourth of September, 2012, marked the rebirth of the phoenix, soaring ever so high, the renascence of Society of Microbiologists as it crossed the threshold of the bygone session and set foot on a new journey. The Inauguration Ceremony of the Society of Microbiologists was conducted with full ardour and grace as the incumbent members constituting the Executive Core of the SOM for the Session 2011-2012

relinquished their responsibilities by assigning the same to the Newly elected office bearers for the Session 2012-2013.

The solemn proceedings of the handing over ceremony were witnessed by eminent dignitaries Prof. (Dr.) P.W. Ramteke (Dean, P.G. Studies and Head, Department of Biological Sciences, SHIATS), Dr. Abhay Kumar Pandey (Reader, Department of



Biochemistry, Allahabad University, Allahabad), Prof. (Dr.) B.P Masih (Dean, Jacob School of Biotechnology and Bioengineering, SHIATS), faculty members of various Schools and Departments, SHIATS and student members of the Society of Microbiologists. The Executive members were commended for their sincere labor and hard work that contributed to the success of



each venture. Their efforts in pulling out all the stops were lauded through presentation of certificates and mementoes. Meritorious students who clinched the winning positions in the Quiz and Photography competition were also presented with certificates of merit and mementos. Active members of the Society who had undeniably contributed were also acknowledged and

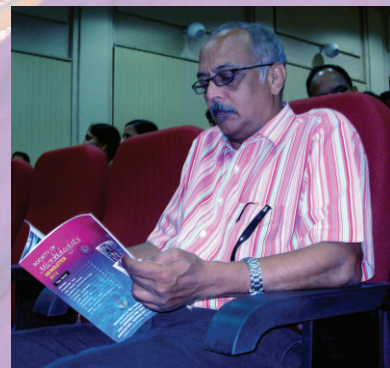




bestowed certificates of appreciation.

The program commenced with a short description of the precedent events by Ms. Anvesha, President, Society of Microbiologists (2012-2013). In series to this, events organized during the session 2011-2012, published in the form of the SOM news letter was also released. The SOM newsletter provided an array of events conducted in the previous session and a portrayal of the activities, placements, feedbacks and Society structure.

The juncture proceeded with a special guest lecture on “Phytochemicals as Antimicrobial agents: Future Prospects” delivered by Dr. Abhay Kumar Pandey (Reader, Department of Biochemistry, Allahabad University (A.U), Allahabad). The Talk focussed on the use of plant extracts and phytochemicals, for antimicrobial activity. The presentation attempted to summarize the current status of botanical screening



efforts, as well as of their effectiveness and toxicity. The structure and antimicrobial properties of phytochemicals were also addressed. He elaborated that Natural products are both a fundamental source of new chemical diversity and stressed on them being an integral component of today's pharmaceutical compendium for their exciting anti-microbial activity.

The lecture was followed by an interactive session where students satiated their inquisitiveness pertaining to the topic. The talk was especially valuable considering the numerous research work being conducted on the thrust area pertaining to medicinal plants in the Department. The event paved the way for the SOM for the many more prospective ventures that would lead its upward climb.



Dr. Abhay Kumar Pandey
Reader
Department of Biochemistry
Allahabad University



Workshop

Workshop

on Cyanobacteria

The Society of Microbiologists, Department of Microbiology & Fermentation Technology, Sam Higginbottom Institute of Agriculture Technology and Sciences organized a one day Workshop on 'Collection, Identification, and Isolation of Cyanobacteria' on 10th October 2012. Coordinated by Dr. M.R. Susheela, Deputy Director and Head, Algology Section at

the National Botanical Research Institute, Lucknow and her team, the one day workshop comprised of two Lectures and a practical session. Cyanobacteria are considered to be a rich source of novel metabolites of a great importance from a biotechnological and industrial point of view. Cyanobacteria have become an attractive source of innovative classes of pharmacologically active

compounds showing interesting and exciting biological activities ranging from antibiotics, immunosuppressant, and anticancer, antiviral, anti-inflammatory to proteinase-inhibiting agents. Another interesting property of these microorganisms is their capacity of overcoming the toxicity of ultraviolet radiation (UVR) making them an attractive option for exploitation in the cosmetic industry. Thus in order to apprise the students and steer their interest towards this group of microorganisms the workshop was coordinated comprising of two sittings having both lectures and hands on practical sessions.

The talks delivered by Dr. M. R. Susheela highlighted on multifarious aspects of blue green algae. Attention was focussed towards the conservation of these organisms keeping into consideration their ecological and biotechnological significance. The first lecture on Introduction to cyanobacteria elaborated upon the general characteristics, structure, isolation and maintenance of cyanobacteria. The second lecture concentrated on the biotechnological applications of cyanobacteria. The potential of these organisms in the production of Biodiesel, Bio hydrogen gas, nutraceuticals, anticancerous and antimicrobial agents was stressed upon. Latest research findings on the use of cyanobacteria for replacement of damaged retina along with their environmental application in pollution abatement were also reported.

The lecture was followed by a Practical



session where the budding scientists got hands on experience on the handling of cyanobacteria. Starting from the collection of samples, the participants learnt the methods for isolation, microscopic identification, maintenance and preservation of cyanobacterial cultures.

The workshop thus evidenced the importance of cyanobacteria as minute power and resource factories. Furthermore their potential applications as striking targets in biotechnology and biomedical research, agriculture, industry, and especially in pharmaceuticals was manifested, reinforcing the need for more in depth and focused research towards exploration and exploitation of cyanobacterial resources.





Surveillance Surveillance at Maha Kumbh 2013

Drinking water
Food

Mass gatherings represent a potentially perilous breeding ground for microbes hazardous to health and hygiene of the people that participate therein representing an impending source for the contract and spread of pathogens that can risk the lives of millions by consequentially resulting in a number of gastrointestinal diseases such as diarrhoea, typhoid fever, cholera *etc.* People mainly depend on food vended on the open and drinking water supplied through hand pumps and taps or stored

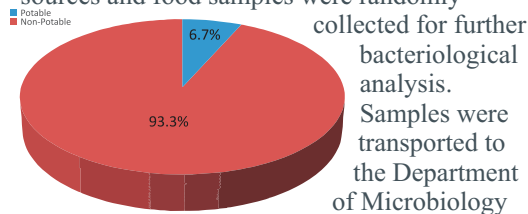
containers. The quality of food and water accessible for the pilgrims remains questionable with respect to the presence of adulterants and microbial contaminants. Furthermore the improper food handling practices among vendors, storage conditions, source of water, unsanitary conditions of the surroundings all pose a serious health risk. The inevitable overcrowding in a confined area of such large numbers further increases the unhygienic conditions manifold.

Kumbh Mela 2013

Maha Kumbh 2013, held in the city of historical and religious significance – Allahabad- represented the largest mass gathering of devotee pilgrims to take holy dip in the river Ganga after every 12 years. The Mela which continued for a period of two months beginning on Makar Sakranti Jan. 14th till Maha Shivratri on 10th March housed millions of pilgrims, ascetics and seekers within 14 sectors in the Mela venue. More than 305 lac pilgrims reportedly taking the holy dip on 10th Feb. 2013, the most auspicious day, seemed an achievement and at the same time escalated growing concern over the quality of food and water being served.

A month long study conducted during the Mahakumbh 2013 from 3rd Feb. to 5th March 2013, by the Society of Microbiologists, with the aim of assessing the bacteriological quality of food and water available for pilgrims and evaluating the various risk factors associated thereof, substantiated the evidence of the perils associated with mass gatherings

From each of fourteen sectors defined in the Kumbh Mela premises for housing the pilgrims, drinking water from various supply sources and food samples were randomly



collected for further bacteriological analysis. Samples were transported to the Department of Microbiology and Fermentation Technology and analysis was done on the basis of bacteriological load to examine whether the count was within the limits and Coliform test to determine the presence or absence of coliform that indicate fecal pollution.

Alarming results were obtained during the investigation, showing 93% of the drinking water samples to be unfit for drinking purposes. Furthermore, high level of fecal contamination of water was indicated as 50% of the samples gave positive results for presence of coliforms thus signifying the grave threat it posed to the pilgrims who had access to such impure water. Water stored in tanks and unclean premises around the water source were found to



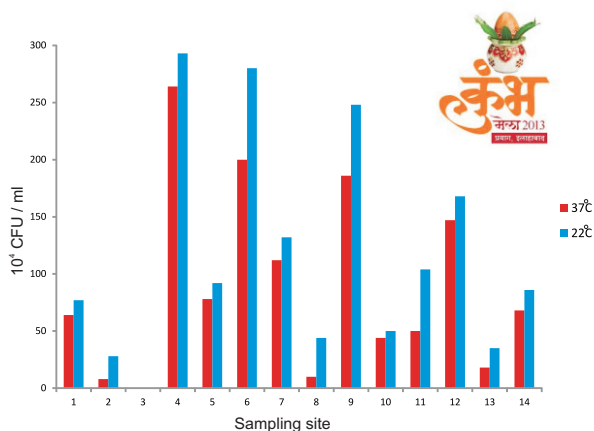
Kumbh Mela 2013




significantly affect the bacteriological quality and hence its potability.

On analysing the various ready to eat and cooked on site food items that included eatables like *tikki*, *chowmein*, *panipuri*, *mathri*, *curry*, *rice*, *pakori* etc. the reports were even more disquieting. Bacteriological load in six of the given sectors was reported to be beyond the acceptable limit of $>10^5$ cfu/g as per the guidelines set by UK Food Protection Agency and a high prevalence of coliforms corresponding to 85.71% was also validated. The food items found to be of unsatisfactory standards were the cooked on site items that were vended on mobile stalls as compared to the ready to eat items on fixed stalls.

The disturbing reports calls for a multipronged urgent approach of health workers, policy makers and community leaders as a team. On-going disease surveillance and data analysis is necessary to better understand health risks and strengthen evidence base for health policy and



prevention so that organisers of future events will not have to re-invent the wheel each time the planning process is started, and can apply the lessons learned by their counterparts and predecessors to the process of preparing for future mass gathering events.



**"A picture is worth
a thousand words"**

Photography Photography

Competition

Its just as they say, every picture tells a story. Slicing out the moment, to freeze it, keeping it from running away, for it to be relived for the many times that the picture is savoured; the essence of photography which many if not all have pursued more than once. With an intention of revealing the flair for Photography among the young talent, a competition was organized by the SOM to capture moments and activities during the Mahakumbh 2013 from February 2013 to March 2013.

Participants took random clicks and these were further assessed to find which frozen narrative brought to life the story

behind the picture.

Among all the entries that brought to the viewers eye varied portrayals of the event, the ones that leapt out and seized attention and fascination, were clinched by Mr. Hoshiyar Singh of M.Sc. Microbiology and Mr. Swadesh Bhushan Pandey of B.

Tech. Biotechnology(Industrial Microbiology). The second prize for best photography was taken by Mr. Mohit Vaish of M.Sc. Microbiology and the third went to Mr. Mayank Dubey of Integrated M.Sc. Microbiology.



Quiz

Competition

Quiz is a fun way to test the knowledge. It not only helps in expanding the participants and breadth of knowledge but also aids in the team building process. Quizzes produce better organization of knowledge by helping the brain organize matter in clusters to allow better retrieval. Clear evidence from psychological experiments have shown that practising retrieval of something after learning makes one more likely to retain it for a long term. Having quizzes motivates study and reduces procrastination.

Thus, hauling out the students from the usual mundane routine, Quiz contests were organised by the SOM to galvanize the cognizance and grasping power of the young minds. The first qualifying round of the contest was a written quiz based on general knowledge, current affairs and common aptitude. From the 60 participants, the top 15 contenders were selected for moving into the next round of Quiz competition. The Second round held

Quiz Competition



on 26th February 2013 was a subject based oral quiz on Microbiology. Teams of three members were allotted to the Five teams namely Pasteurs' comprising as its members Mr. Aakash, Ms. Ruchika, Ms. Jaspreet; Fleming's having Mr. Perumalla Srikanth, Ms. Akansha Shrivastava and Ms. Niharika Pandey as the members; Lister's with Mr. Dhruv Wahi, Mr. Surendra Pratap Yadav and Ms. Aradhana; Leuwenhoek's including Mr. Mohd. Shareef, Ms. Azlee Fatma, Ms. Kirti Singh; and finally Koch's team having Kumar Saurav, Dharendra Pratap Singh and Vijaya Shankar K.M. as contestants. The Quiz Competition included four rounds that

were to be faced by each team. The rounds being a Multiple choice round, Buzzer round, Rapid Fire round and Audio visual round. The high spirited contestants eagerly infused enthusiasm on the onlookers through their quick wit and answers.

Though all five teams participated with full gusto and each deserved to win, but the first prize was clinched by the fastest team giving the most precise answers: the Koch's team. The Quiz contest was thoroughly enjoyed by all the contestants as well as the spectators who were stimulated by their interest and sumptuously refreshed by the activity.



Industrial Visit

Industrial Visit

Cum Workshop

To explore the plausible application of prospective microbes for the welfare of the farmers, by advancing beyond the realm of books and the constraints of classrooms, a seventy two member team of Society of Microbiologists, set off on a one day Visit-cum Workshop to IFFCO, Phulpur, Allahabad on 12th March, 2013 located 34km away from Ganga Yamuna Sangam on the Allahabad-Gorakhpur highway. The students were accompanied to this trip by Er. Ajay Kumar Singh, Dr. Harison Masih and Ms. Jyotsna Kiran Peter, Faculty,

Department of Microbiology and Fermentation Technology The group visited two plants viz. Phulpur-I and Phulpur-II.

Students gained first hand information about the plant and details about the various aspects pertaining to production of biofertilizers, through lectures delivered by Dr. H.M. Shukla (Deputy Manager, IFFCO Phulpur), Dr. Bachchan Singh (Principal, Cordet, IFFCO Phulpur) and Dr. M.K. Ghosh (Microbiologist, IFFCO, Phulpur).

Industrial Visit

The lecture by Dr. Bachchan Singh focussed on the historical aspects of biofertilizers, their uses and towards the present day applications. Dr. H. M. Shukla stressed primarily on the role of phosphorus in plant growth using species of *Pseudomonas* and *Bacillus*. The techniques employed in Biofertilizer production, its isolation process, purification, characterization, selection, large scale multiplication, mixing and packaging, storage and dispatches, carrier used were the many aspects that were highlighted in the talk delivered by Dr. M. K. Ghosh. The students thereafter, visited the plant and laboratory to get apprised about the role of microorganisms and their association in biofertilizer production. Students were acquainted about the phosphate solubilizing bacteria and their isolation from root nodules and on Biofertilizer production and application.

The team before departing visited the five main departments of IFFCO Phulpur Unit



that contribute directly or indirectly to their mass production namely the Production department, Technical Department, Research and Development Department, Fire and Safety Farmers Training Center and Moti Lal Nehru Farmers Training Center. These departments focus to provide farmers with high quality fertilizers in right time and in adequate quantities in order to increase crop productivity.



The members were also apprised with the aims of IFFCO to institutionalise core values and create a culture of team building, empowerment and innovation which would help in incremental growth of employees and enable achievement of strategic objectives.

India being an agricultural land, the trip inspired the students to utilize their knowledge and bring it to the comprehension of the Farmers for improvement of their field produce and in effect the Nation's economy.





Closing Function

Cum Guest Lecture

The Closing ceremony for the Session 2012-2013 for the Society of Microbiologists was held with a formal function on 29th April 2013. The Event showcased report of the by gone session 2012-2013 by the President of SOM Ms. Sonakshi Jain in the form of a presentation and summary of the budget and expenditure was presented by the Treasurer (SOM) Ms. Aradhana Singh. The event was graced by the presence of Prof.

(Dr.) Gautam Ghosh, Dean, Allahabad School of Agriculture, SHIATS as the Chief Guest. Prof. (Dr.) P.W. Ramteke, Dean, P.G. Studies, SHIATS and Prof. (Dr.) B.P. Masih, Dean, Jacob School of Biotechnology & Bioengineering and various faculty members from different schools and departments of SHIATS also witnessed the occasion.

The Chief Guest presented Certificates

Closing Function



and Mementos to the Executive committee members of SOM session 2012-2013. Certificates of Appreciation were also bestowed to students who had actively contributed in various events of the Society through their active participation. Winners of Quiz Competition and Photography competition held during the Mahakumbh were also applauded and presented certificates of merit.



On the occasion Prof. (Dr.) P.W. Ramteke, Dean, P.G. Studies, who has been a constant pillar of support for the Society with his immense expertise in the fields of Microbiology and Biotechnology, shared his experiences on different aspects of his expedition to the Antarctica. His talk elaborated on their explorations of the land for bioprospecting of microbial communities that have varied biotechnological applications especially the production of cold active enzymes. He enlightened the audience regarding clean technology that was one



application of cold active enzymes from the Antactica viz., recycling of material to bring about drastic increase in resource productivity needed to make human activity sustainable. The snippets into the lifestyle followed in the amazing continent that was presented by Dr. Ramteke were highly entertaining.



The audience was enthralled by his travelogue and the students took keen interest in the deliberation that depicted in their earnest participation in questionnaire during the interactive session.



Prof. (Dr.) A. K. A. Lawrence
Registrar, SHIATS

Dr. Jetti A. Oliver
Hon'ble Chancellor, SHIATS

Most. Rev. Prof. (Dr.) R. B. Lal
Hon'ble Chancellor, SHIATS
and Bishop Yesu Darbar

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and Bioengineering

Book Release

on Antimicrobial Resistance

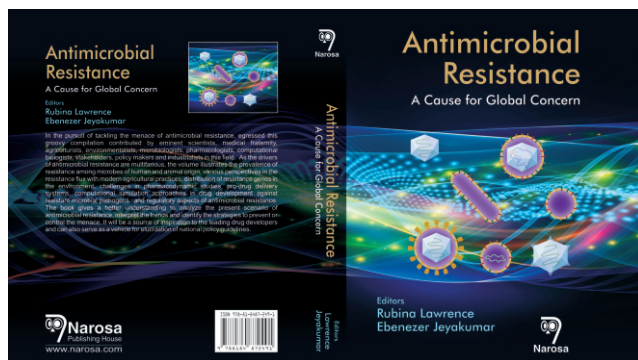
Injudicious use of antibiotics and antimicrobial substances in human diseases and agricultural practices has caused a pervading menace of antimicrobial resistance among the microbes of public health concern. Professor Rubina Lawrence at the Department of Microbiology and Fermentation Technology, Sam Higginbottom Institute of Agriculture, Technology and Sciences (Deemed-to-be-University), Allahabad working on

this critical area of research, organized a three day National Conference on “Antimicrobial Resistance: A Cause for Global” during 6-8th February, 2012. The conference was second in this series and various factors that influence the emergence and spread of antimicrobial resistance and associated mechanism were discussed. Overwhelming response was received from

scientists, academicians, industrialists and students from all quarters of the country. The significance of the conference theme drew the attention of different Government bodies and thence financially supported by Indian Council of Medical Research, New Delhi, Indian Council of Agricultural Research, New Delhi, Department of Biotechnology, New Delhi, Department of Science and Technology, New Delhi, Council of Scientific and Industrial Research, New Delhi and Uttar Pradesh Science and Technology, Lucknow. As one of the conference outcomes, the scientific contributions from eminent scientists, medical fraternity, medical practitioners, agriculturists, environmentalists, microbiologists, pharmacologists, computational biologists, stakeholders, policy makers and industrialists who are actively involved in combating this problem and participated during this conference is compiled and edited by Professor Rubina Lawrence, Dr. Ebenezer Jeyakumar and co-edited by Professor George Thomas. This book will be distributed globally by Narosa Publishers, New Delhi, shortly.

As drivers of antimicrobial resistance is multifarious, the book illustrates the prevalence of resistance among microbes of human and animal origin, various perspectives in the resistance flux with modern agricultural practices, distribution of resistance genes in the environment, challenges in pharmacodynamics studies, pro-drug delivery systems, computational simulation approaches in drug development against resistant microbial pathogens and regulatory aspects of antimicrobial resistance. The book gives a better understanding to analyse the present scenario of antimicrobial resistance, interpret the trends and identify the strategies to prevent or control the menace. It will be a source of inspiration to the leading drug developers and can also serve as a vehicle for elucidation of national policy guidelines.

In a meeting held today at Sam Higginbottom Institute of Agriculture, Technology and Sciences (Deemed-to-be-University), Allahabad Dr. Jeti A. Oliver, Chancellor, SHIATS unveiled this groovy compilation in the presence of Most. Rev. (Prof.) Rajendra B. Lal, Hon'ble Vice Chancellor, SHIATS. Both the Chancellor and Vice Chancellor, SHIATS, appreciated the commendable contribution of the editors. Most. Rev. (Prof.) Rajendra B. Lal, Hon'ble Vice Chancellor stated that the editors were thoughtful in compiling it to the full cognizance of the fact that the problem of antimicrobial resistance represents a highly



complicated system which has to be dealt with multidisciplinary approach.

The copy of the proceedings presented to Dr. S. Ayyappan, Secretary, Department of Agricultural Research and Education and Director General, Indian Council of Agricultural Research, New Delhi was greatly appreciated.



Antimicrobial Resistance: A Cause for Global Concern

Rubina Lawrence*, Ebenezer Jayakumar

From Antimicrobial Resistance: A Cause for Global Concern
Allahabad, India. 6-8 February 2012

The three day conference on Antimicrobial Resistance: A Cause for Global Concern was organized from 6-8th February, 2012 by the Department of Microbiology and Fermentation Technology, Sam Higginbottom Institute of Agriculture, Technology and Sciences (SHIATS) [Deemed-to-be-University], Allahabad, India. The conference received an overwhelming response from three hundred participants including scientists, medical professionals, academicians, industrialists and students from all quarters of the country. Participation from the Clinical and Laboratory Standards Institute, USA also made a remarkable contribution to the event.

Elaborating on the focal area of the event, Organizing Secretary and Convener Prof. (Dr.) Rubina Lawrence, spoke on the significance of miracle drugs in the treatment of infectious diseases. She emphasised the chemical repercussions of the chemical warfare waged against microbes through therapeutic and non-therapeutic uses of antimicrobial agents. She highlighted the global problem of antimicrobial resistance (AR) which is particularly pressing in developing countries where the infectious disease burden is high, there are cost constraints on testing to identify resistant infections and using newer and more expensive agents to treat them. In her address she illustrated the recent survey which emphasized that "Antibiotic resistance is a burgeoning problem in India". Due to availability of over-the-counter antibiotics and their improper and rampant use, antibiotic resistance in the Indian population has skyrocketed. The future is however not entirely gloomy. The global strategy of WHO for the containment of antimicrobial resistance was underlined in her talk. However significant gaps in knowledge, research and development (R & D), funding and policy remain, particularly in

developing countries. Prof. Lawrence, stated that the Second National Conference on Antimicrobial Resistance: A Cause for Global Concern is a follow-up to the first national conference organized in the year 2009 that was organized to further re-assess, consolidate the latest picture of the issue and the challenges faced thereof through the years. Concluding her talk she said that the conference is ventured to address this peril and to formulate strategies to combat it.

The popular consensus was that the conference succeeded effectively in attaining the various interlinked fields in contributing to analyse the problem of antimicrobial resistance. Presentations made under the five major subthemes are described below.

Clinical challenges in addressing resistance to antimicrobial drugs in the 21st century

Dr. K. Venkatesan, Scientist F/Deputy Director, National JALMA Institute of Leprosy and Other Mycobacterial diseases, Agra focused his talk on tuberculosis by stating it as one of the leading causes of mortality in India, killing two people every three minutes i.e., nearly 1,000 per day as reported by the Directorate of Health Services, India in 2009 while an estimated 2 billion people are infected with the pathogen worldwide. He quoted a study conducted on a cohort of patients from urban population in Mumbai reporting a high incidence of MDR-MTB (51%) [1]. He further expressed that a rise in MDR-TB cases, accounting to about 5% of 9 million of all types of TB in several countries, is a cause of great concern that threatens the success of DOTs (directly observed treatment, short course); the WHO recommended treatment approach for detection and cure of tuberculosis [2].

As the burden of MDR/XDR-TB is growing, strategies to combat its emergence include having clear policies, radical change in policies, optimal management of existing cases, steps to intensify R & D for rapid diagnostics

* Correspondence: rubina.lawrence@shiats.edu.in
Department of Microbiology and Fermentation Technology, Sam Higginbottom Institute of Agriculture, Technology and Sciences, Deemed-to-be-University, Allahabad, Uttar Pradesh, 211007, India

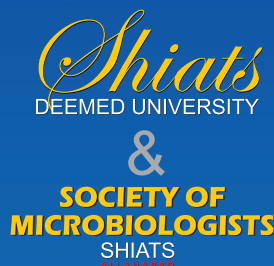


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2nd National Conference on ANTIMICROBIAL RESISTANCE A Cause for Global Concern

6th - 8th February,
2012

organized by



Funded by



Meeting Report Meeting Report Meeting Report on Antimicrobial Resistance



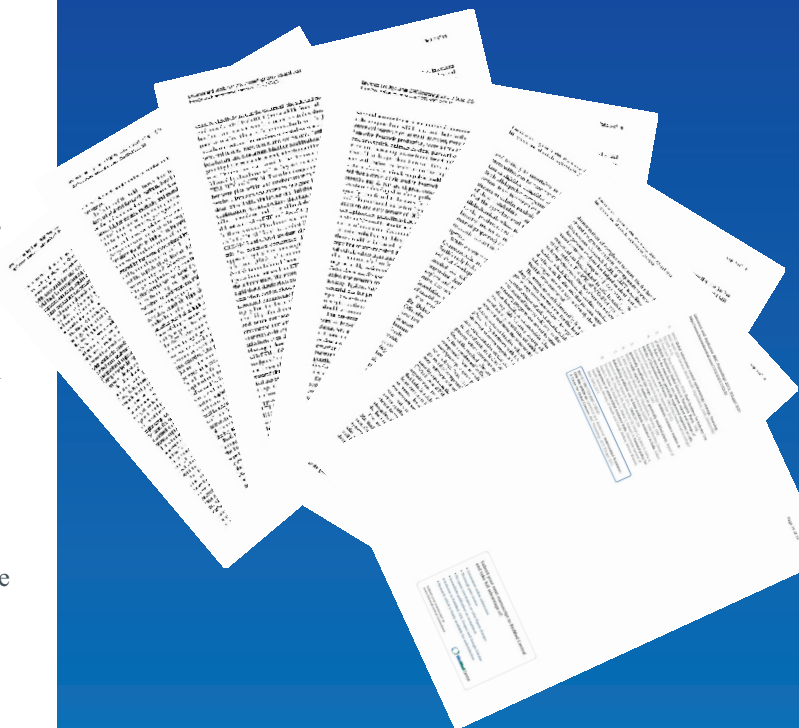
The Department of Microbiology and Fermentation Technology at Sam Higginbottom Institute of Agriculture, Technology and Sciences, (Deemed-to-be-University), Allahabad organized a three day National Conference on Antimicrobial Resistance: A Cause for Global Concern during 6-8th February, 2012. The event was attended by eminent scientists, academicians, industrialists and students from India and Abroad. The financial support for organizing the

conference was received from Indian Council of Medical Research, New Delhi, Indian Council of Agricultural Research, New Delhi, Department of Biotechnology, Govt. of India., New Delhi, Department of Science and Technology, Govt. of India., New Delhi, Council of Scientific and Industrial Research, New Delhi and U. P. Council of Science and Technology, Lucknow.

In view of its global significance with public health perspective, the proceedings of the meeting was compiled and submitted to Bio-Med Central, London for publication. BioMed Central is a STM (Science, Technology and Medicine) publisher of 243 open access online, peer-reviewed journals owned by Springer Science and Business media. BMC journals have an average impact factor of 3.0 (Thomson Reuters) and are indexed in PubMed Central, USA. BMC proceeding's open access policy allows maximum visibility of articles published in the journal and helps conferences reach a wide, global audience in the scientific community.

We are happy to inform that the meeting report of the conference has been published in BMC proceedings as a special supplement and can be accessed in the following hyperlink. The report is one of the highly accessed article of BioMedCentral proceedings.

<http://www.biomedcentral.com/1753-6561/7/S3/S1>



**Microbial Culture
Collection Bank**

Estd: 2007

Collection and preservation and distribution of microorganisms with agricultural, industrial and medical importance

Regular identification and characterization of microbial cultures

Objectives

375 Cultures

▶ Bacteria

▶ Fungi

▶ Algae

Contact

Head

Microbial Culture Collection Bank

Department of Microbiology and Fermentation Technology

Sam Higginbottom Institute of Agriculture, Technology and Sciences

Deemed to be University, Allahabad - 211007

Success

>> Cutting edge

>> Lucrative

>> Popular

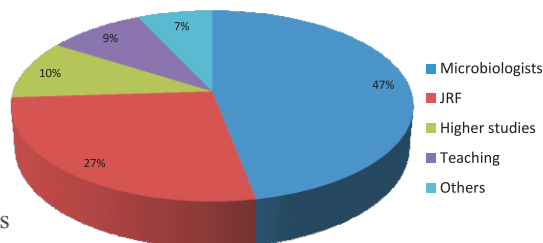
Microbiologists

are on the cutting Edge of Science. Projections suggest increasing demand for microbiologists in various sectors in the coming years. Microbiology thus, is emerging as the most popular career options among the youth of India. Career in microbiology can be a lucrative option in India as well as abroad.

The Society of Microbiologists at the Department of Microbiology and Fermentation Technology objectively emphasizes to promote microbiology to the students, helping to inspire, create interest in microbiology, encourage learning. The Society supports professional development of students as microbiologists through lectures, trainings and workshops and exposure through tours

production managers, Lab supervisors, Manager quality control and production, Research officers Executives in R&D industries, Scientific writers *etc.* Alternatively many are also pursuing higher education as doctoral and post doctoral scholars.

Employers value the scientific, analytical and problem-solving skills developed by microbiologists trained at the Department of Microbiology



Students

Placements

99%

**“...inspire...create interest...
encourage learning...
enhance personalities
to foray into diverse
avenues for professional
pursuits”.**

to various facets of the field.

Membership to a relevant society or professional body demonstrates commitment and provides valuable networking and career development opportunities.

Students of microbiology in the past have been successfully placed in various capacities as Analysts in quality control, Research assistants, Assistant

and Fermentation Technology.

The SOM at the Department of Microbiology and Fermentation Technology prepares the candidates to be strong in both basic and applied aspects of microbiology including special skills in laboratory techniques apart from enhancing their personalities as they foray into diverse avenues for their professional pursuits.

The initiative by the Society of Microbiologists to kindle the scientific temper is certainly appreciable and noteworthy. Having been associated with a few of the events organized by the Society of Microbiologists at the Department of Microbiology and Fermentation Technology, I have been pleased to note the immense potential the Society offers the students for their technical and professional pursuits. I commend the Society of Microbiologists on the completion of yet another successful session and wish many more accolades in the time to come.



*Prof. (Dr.) Krishna Misra
General Secretary
National Academy of Science, Allahabad*

The efforts made by the Department of Microbiology & Fermentation Technology under the able guidance of Prof. (Dr.) Rubina Lawrence in providing a substantial platform to the promising young researchers in the offing for their overall academic, professional and personal growth is certainly laudable. Under the parasol of the Society of Microbiologists the students undoubtedly traverse and discover innovative horizons for their future progression into the field of Microbiology. I wish the Society of Microbiologists achieve many more milestones as it proceeds farther ahead into the future.



*Dr. M. R. Suseela
Head, Division of Algology
National Botanical Research Institute, Lucknow*

It is a pleasure to note the substantial rate at which the Society of Microbiologists has escalated to high levels of excellence. I feel glad to witness the commendable efforts made by the Society to propagate the various aspects of Microbiology. The enthusiasm and energy among the students as they participate in various activities is also very heartening. I encourage and laud the Society for all its efforts and urge to strive on ahead to even more accomplishments.



*Prof. (Dr.) P. W. Ramteke
Dean, PG Studies, SHIATS*

It is indeed praiseworthy that the Society of Microbiologists in a short span of time has attained so many achievements that speak volumes about the dynamic leadership and the team effort that has put into it. I congratulate the Society of Microbiologists on the completion of yet another successful session and wish further growth and success in all its future endeavors.



*Prof. (Dr.) Sarita Sheikh
Dean, Ethilind School of Home Science
SHIATS*

ON YOUR MIND

LETTERS

Dignitaries

ON YOUR MIND

» LETTERS

Society of Microbiologists has given us a platform to expand our knowledge base and taught us to work together with team spirit. We are now capable to confidently express ourselves and withstand in front of the world.

*Mr. Mohit Vaish
M.Sc. Microbiology, Batch 2011*

SOM has given us a platform to express our ideas and to nurture our thought process. Through our participation in the organizing of several events we have gained a lot of knowledge.

*Ms. Azlee Fatima
Integrated M.Sc. Microbiology, Batch 2008*

The society has done a great deal in boosting the morale of the students by organizing guest lectures workshop and educational trip. It has developed us and taught us how to work as a team. I am thankful to the society.

*Ms. Srishity Sinha
B.Tech. Biotechnology I.M., Batch 2010*

SOM provides us with an exhilarating and extraordinary platform to re-invent our hidden virtues of talent through the various activities that are organized from time to time. This has helped in the development of our personality and will certainly be helpful for our future in various walks of life.

*Ms. Jagriti Singh
Integrated M.Sc. Microbiology, Batch 2008*

I enjoyed being a part of SOM. Society has been instrumental in bringing all of us together and has taught us to work as team. Society has helped us to gain knowledge by organizing events such as guest lectures, workshops and seminar. I am grateful to the society for helping me to grow up as an individual with extreme confidence.

*Mr. Prashant Bhargav
B.Tech. Biotechnology, I.M., Batch 2010*

As a part of the SOM I feel glad, motivated and get ample opportunities to represent ourselves and explore our ideas.

*Mr. Hemant Singh
Integrated M.Sc. Microbiology, Batch 2008*

The Society of Microbiology has helped us to upgrade our knowledge through seminar and workshop. It has served as a platform for the students to widen up their knowledge.

*Ms. Gauri Srivastav
B.Tech. Biotechnology I.M., Batch 2010*

It has been an incredible journey as a member of the SOM. The experience of working as a team, organizing events sharing and gaining knowledge has been enlightening. Immense support of peers and teachers, innovative thought and informative suggestions has been encouraging. It has led to venturing out and breaking of barriers of textual knowledge and classrooms walls to the outer realms enhancing and enriching my skills and capabilities.

*Ms. Kalpana Chaudhari
Ph.D Microbiology, Batch 2011*

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B. Tech. Biotechnology (I.M.) 2011

Appreciations



2012-13

TIME'S NEWS NETWORK

WORKSHOP ON
CYANOBACTERIA

Talks highlighted multifarious aspects of blue green algae. Attention was focused on conservation of these organisms taking into consideration their ecological and biotechnological significance.

The first lecture on in-

Attention was focused on conservation of these organisms taking into consideration their ecological and biotechnological significance.

The lecture was followed by a practical session where budding scientists got hands on experience of handling cyanobacteria. Starting from collection of samples, the participants learnt the methods of isolation, microscopic identification, maintenance and preservation of its cultures.

21 June, 2013 Dainik Jagran

माइक्रोबिल विरोधी प्रतिरोधक क्षमता पर पुस्तक का विमोचन
मैनी, इनाहाइटा . सिवेटेस में मुखवार
से माइक्रोबिल विरोधी प्रतिरोधक क्षमता पर पुस्तक का विमोचन किया गया। माइक्रोबिल विरोधी प्रतिरोधक क्षमता पर पुस्तक की अध्यक्षता, नब्बिना तेलस, डा. इंदरनाथ विष्णुगुप्त और प्रो. जाना बाबरा द्वारा संकेतित इस पुस्तक में पिछले बीसवीं सत्रायाम में आयोजित एक सत्रायाम के दौरान हुए परिणामों को बताया गया है। इंडि के कुलाधिपति डा. जे.ए.अंतिल के कुलाधिपति डा. राजेन्द्र बी.नाल ने संयुक्त रूप से इस पुस्तक का विमोचन किया। पुस्तक में माइक्रोबिल विरोधी प्रतिरोधक क्षमता के मनुष्यों और पशुओं में विकास पर विस्तृत प्रकाश डाला गया है।

21 June, 2013 Hindustan Times

SHIATS chancellor unveils book on antimicrobial resistance
ALLAHABAD: Chancellor, Sam Higginbottom Institute of Agriculture, Technology and Sciences (SHIATS) Jettu A Oliver unveiled a book on antimicrobial resistance in the presence of Rajendra B Lal, vice-chancellor, in a meeting on the theme "Antimicrobial resistance" on Thursday. Both the dignitaries commended the contribution of the editors. The book a compilation of scientific contributions of eminent scientists actively involved in combating the problem of antimicrobial resistance edited by Rubina Lawrence, Ebenezer Jeyakumar and George Thomas will be distributed globally by Narosa Publishers, New Delhi.

21 June, 2013 The Pioneer

Book on anti-microbial resistance released

PIONEER NEWS SERVICE ■ J. J. LABRAC

At a meeting held on Thursday at the Sree Heggibottom Institute of Agriculture, Technology and Sciences (SHIATS), Dr Jetti A. Oliver, Chancellor, released a book of groovy compilation on anti-microbial resistance in the presence of Prof Rajendra B. Lal, Vice-Chancellor. Both the dignitaries appreciated the commendable contribution of

Prof Rajendra B Lal stated that the editors were thoughtful in compiling it to the full cognisance of the fact that the problem of anti-microbial resistance represents a highly complicated system which has to be dealt with multidisciplinary approach.

It was recalled that ingudicious use of antibiotics and antimicrobial substances in human diseases and agricultural practices has caused a pervading menace of anti-

microbial resistance among the microbes of public health concern. Professor Rubin Lawrence at the Department of Microbiology and Fermentation Technology, SHATS, (Deemed-to-be University), Allahabad, working on this critical area of research, organised a three-day national conference

day-long, multi-sectoral conference on 'Anti-microbial Resistance: A Cause for Global' from February 6 to 8, 2012. It was the second in this series and various factors that influenced the emergence and spread of antimicrobial resistance and associated mechanism were discussed. Overwhelming response was received from scientists, academicians, industrialists and students from all quarters of the country.

The significance of the theme of the conference drew the attention of different government bodies and hence financially supported by the Indian Council of Medicine

Research, New Delhi, the Indian Council of Agricultural Research, New Delhi, the Department of Biotechnology, New Delhi, the Department of Science and Technology, New Delhi, the Council of Scientific and Industrial Research, New Delhi and the Uttar Pradesh Science and Technology

As most of the conference outcomes the scientific contributions from eminent scientists, medical fraternity, medical practitioners, agriculturists, environmentalists, microbiologists, pharmacologists, computational biologists, stakeholders, policy makers and industrialists who are actively involved in combating the problem and participated in this conference was compiled and edited by Professor Rubi Lawrence, Dr Ebenezer Jayakumar and Professor George Thomas. This book will be distributed globally by Narosa Publishers, New Delhi.

shortly. As drivers of antimicrobial resistance were mentioned, it was surprising that so infamous the book illustrates the prevalence of resistance among microbes of human and animal origin, various perspectives in the resistance flux with modern agricultural practices, distribution of resistance genes in the environment and the most challenges in pharmaceutical research.

The book gives a broad understanding to analyse the present scenario of antimicrobial resistance, interpret the trends and identify strategies to prevent or control the menace. It will be a source of inspiration to the leading drug developers and can also serve as a vehicle for elucidation of national policy guidelines.

साइनो बैक्टीरिया पर कार्यशाला

नेनी। सेमिहिनगबोटम इन्स्टीट्यूट ऑफ एड्युकेशन, टेकमालाजी एंड साइंसेस के मालगोबोटम एंड फरीदगंज विभाग की विभाग में साइंसेस के संरक्षण, हवाई तथा अन्तर्गत विषय पर कार्यवाही का आयोजन हुआ। मालगोबोटम विभाग की ओर से आयोजित कार्यक्रमों का सीजन जल, प्रसारण सुविधा, उपनिवेशों एवं प्रभाग, अन्तर्गत विभाग, राष्ट्रीय धारा अनुसंधान संस्थान एवं अन्य सहयोगियों ने किया। इस दौरान निम्नलिखित विभागों का भी प्रयास वास्तव में अध्ययन के बड़े क्षेत्रों में। उनकी खोज एवं अधिक इस्तेमाल के लिए महान उद्यम की जरूरत है।

आधुनिक खेती से
सुधरेगी किसानों
की हालत

नेनी। शियादस के कुंठि बिलान
केंद के ओर से बिकास खंड
चाका के भूखगम गांव में
औद्योगिक फसल के उत्पादन
तत्कनीक एवं प्रबंध विषय पर
किसानों को प्रशिक्षण दिया गांव।
केवीके के प्रोग्राम समन्वयक
डॉ. एसडी मेकट्टी ने सविष्यो
का जैविक खेती की विधि
विषयो पर चर्चा की।
कहा कि जैविक खाद से कुकुर
न केकल गुणवत्तापूर्ण उत्पादन
से मिले हैं, बरिक्त भूमि में
जीवाश्म पदार्थों की मात्रा भी बढ़ा
सकते हैं। जैविक खाद
ने एमटय, सौन, सिंग एवं थापा
को 'वीथी दीवार' करने
की जानकारी दी। वैज्ञानिक डॉ.
डीएस चौहान ने आम, अमरुद
एवं अलुवाल आदि फलों की
खेती के बारे में बताया।
सुखी यादव ने आमार जतावा,
अमरी फाला डेडल, रामजगत,
महेश सिंह, जांबु लाल आदि से

11 Oct., 2012 NIP

Workshop on Cyanobacteria held at SHIATS

STAFF REPORTER

ALLAHABAD: The Society of Microbiologists, Department of Microbiology & Fermentation Technology, Sam Higginbottom Institute of Agriculture Technology & Sciences organized a one day workshop on Collection, identification, and Isolation of Cyanobacteria on Wednesday. It was coordinated by Dr. M.R. Susheel, Deputy Director and Head, Algalogy section at the National Botanical Research Institute, Lucknow and her team; the workshop comprised of two lectures and a practical session.

The lecture highlighted on multifarious aspects of blue-green algae. Attention was focused towards the conserva-

tion of these organisms keeping in consideration their ecological and biotechnological significance. The first lecture on introduction to cyanobacteria elaborated upon the general characteristics, structure, isolation and maintenance of cyanobacteria. The second lecture steered the attention towards the biotechnological applications of cyanobacteria. The potential of these organisms in the production of Biodiesel, Bio-hydrogen gas, neuroprotectants, anticancerous and antimicrobial agents was stressed upon. Latest research findings on the use of cyanobacteria for replacement of damaged retina along with

their environmental application in population abatement were also presented during the workshop.

Lecture was followed by a practical session where the budding scientists got hands on experience on the handling of cyanobacteria, the participants learnt the methods for isolation, microscopic identification, maintenance and preservation of cyanobacterial cultures at the workshop.

It was evident through this workshop that algae are indeed minute power and resource factories and there is a need for more depth and focused research towards exploration and exploitation of cyanobacterial resources.

News Letter - 2013

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Society of Microbiologists

Department of Microbiology and Fermentation Technology

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