



“Arise Awake and Stop Not
Till the Goal is Reached”

***INTERNATIONAL CONFERENCE
ON
“Converging Research Approaches in
Life Science for Future Advancement”
(CRALSFA- 2023)***

15th Feb 2023

PROCEEDING OF THE ABSTRACTS



**Organized by
PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY**

**Sengamala Thayaar Educational Trust Women's College (Autonomous)
(Accredited by NAAC: An ISO 9001:2015 Certified Institution)
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Proceeding of the Abstracts
INTERNATIONAL CONFERENCE
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15th Feb 2023

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ABOUT THE INSTITUTION

“Empowering women, Empowering the Nation”. Higher education, especially to women, empowers not only the family but also the Nation. Hence, higher education to women is often emphasized as a mission of capacity building of the Nation. The significance of this aspect has been rightly recognized and there has been a paradigm shift in the scenario of women education in the urban area. Nevertheless, higher education to women in the rural area needs encouragement, as the main source of income of their parent's is agriculture and the per capita income is relatively very low. In this context, “Sengamala Thayaar Educational Trust (STET) Women's College” was established at Sundarakkottai, a hamlet in Thiruvavarur District, in the year 1994 by Thirumathi Krishnaveni Vivekanandham, who entrusted the task of nurturing the institution to her illustrious son Dr. V. Dhivaharan, Correspondent with yonder vision for promoting higher education to women students in this backward area set goals to achieve the target. Sengamala Thayaar Educational Trust Women's College is recognized as one of the fore most Educational institutions in India. It has been accredited by the NAAC. It is an institution of ISO 9001:2015 standards certified one. The Internal Quality Assurance Cell (IQAC) of the College is extremely active and evolves strategies and actions to achieve the goal of the institution.

Our Group of Institutions includes

1. STET Women's College (Autonomous)
2. STET School of Management (Autonomous)
3. STET College of Education for Women

ABOUT THE DEPARTMENT

Department of Microbiology was started in the year 1995. It has grown from strength to strength and offers up to the highest Research Degree. The Department has successfully graduated more than 610 (PG) students and promote research activities leading to Ph.D., Programme. The Department has well ICT enabled class rooms and laboratory are equipped with Centralized Instrumentation Facility. It has sophisticated instruments like HPLC, GC, Multi focus microscope, Thermal cycler, Inverted Tissue Culture Microscope, Immunofluorescent Microscope, AAS, Flame Photometer, Gel Documentation system and Bioreactor. Biominin Laboratories are functioning as the center for Tissue culture, biofertilizers, vermicompost production, micronutrient preparations for 14 crop varieties and mushroom cultivation. Many funded projects are received from the Management and Government Funding agencies and are being operated by the Department. The students of our Department have excelled in both academic as well as extracurricular activities. Our students of Microbiology secured University Rank in every year. The atmosphere of the Department is always focused on student centric methods. The Department has made significant contribution to the fungal taxonomy. So far, 258 new species, 35 varieties, 4 new genera, 6 new generic records, 36 new records and 6 are rare foliicolous fungi from India were discovered by our Research Scholars. Free Bioinstrumentation training programme is being conducted every year during the summer for other college students. The excellent infrastructure facilities are available in the Department and the quality of education offered by the dedicated eminent teaching faculty. The strength of the Department lies in the potential involvement and serving the humanity using biological science as tools. The Department is doing collaborative research activities with functional MoUs. Incubation center is functioning to promote and facilitate Start-up. Extension activity and consultancy services are being conducted to promote the rural women Entrepreneurs.

ACKNOWLEDGEMENT

This International Conference provides an opportunity for the meeting of International Researchers, Scientists and specialists in various research and development fields of Life Sciences. The conference offers a premise for global experts to gather and interact intensively on the topics of emerging area of life science. We were privileged to say that this conference will definitely offer suitable solutions to the global issues.

The International Conference on “Converging Research Approaches in Life Science for Future Advancement” includes plenary session with invited speakers and oral presenters. This conference is open to students, Research Scholars, Academicians and Scientists of the departments of Life Science from affiliated Colleges, Universities, Research organizations and Industries, so as to create platform to showcase their findings and deliberations. The International Conference has been planned to provide the opportunity to give presentation by the research aspirants and to spread their wisdom of knowledge to the scientific Community.

We are Express our deep sense of gratitude to Our Chairman Dr V Dhivaharan without his support and guidance we won't achieve anything in the world. We would like to thanks to young dynamic Correspondent DrJeyanandhDhivaharanen couraging us with his valuable thoughts.. We wish to express our sincere respect to our beloved Principal DrS.Amudha, And Vice Principal Dr B Kayathribai. Dr K Thiyagesan delivered his presidential address and shared his remarkable knowledge. The audience were impressed with his immense Knowledge on life science Discipline. Dr N Thajuthin addressed the gathering as a keynote speaker and shared his wide spectrum of knowledge.

Dr.Kumaresan Ramanathan,Professor of Medical Biochemistry,Department of Biomedical Sciences, Faculty of Medical Sciences, Institute of Health, Jimma University, Ethiopia delivered plenary talk I in the field of “Disease” and also his joyful events. Dr. R.Venkatajothi, Department of Medical Microbiology, Basic Medical Sciences, Michael ChilufyaSata School of Medicine, Copperbelt University, Hill Crest, Ndola, Zambia, delivered her Plenary talk II on the “Emerging area of herbal medicine in cancer”. We extended our delightful wishes to

DrA.PanneerSelvam Sir. He is one of the well wisher of our institution. and shared his mind provoking thoughtful information to the scientific community. We have arranged a paper presentation opportunity for our delegates to put forward their reforming thoughts in this vast field.

We extend out gratefulness to the supporting organizations, which have provided support to this conference financially and technically, in spite of the present economic scenario. The success of this Conference is solely on the dedication and efforts of innumerable people who started working on the preparations for almost a year in many ways to make this Conference become reality. We would also like to thank our media partners Eventually we wish to special thanks and appreciation to all.

Organizing Committee



SENGAMALA THAYAAR EDUCATIONAL TRUST
WOMEN'S COLLEGE (Autonomous)
SUNDARAKKOTTAI, MANNARGUDI
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PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY

***International Conference On “Converging Research Approaches
In Life Science For Future Advancement” (CRALSFA- 2023)***

Date: 15.02.2023

Venue: Conference Hall

Registration: 09.00 am – 10.00 am

SESSION I: INAUGURATION - 10.00 am to 10.45 am

SESSION-I	
Inauguration - 10.00 am to 10.45 am	
Prayer Song	
Lighting the Lamp	
Welcome Address	Dr.N.Uma Maheswari, Vice-Principal and Head, PG and Research Department of Microbiology, S.T.ET Women's College (A), Mannargudi.
Inaugural Address	Dr.S.Amudha Principal S.T.ET Women's College (A), Mannargudi.
Presidential Address	Dr.K.Thiyagesan, Principal (Rtd.), A.V.C College (A), Mannampandal, Mayiladuthurai.
Keynote Address	Dr. N. Thajuddin D.Sc., Professor, Department of Microbiology, Bharathidasan University, Tiruchirapalli.
Honoring the Dignitaries and Release of Souvenir	
Tea Break- 10.45 am to 11.00 am	
SESSION-II-11.00 am to 12.00 pm	
Introduction of the Chief Guest	Dr.M.Kannahi Assistant Professor, Director, CDC, PG and Research Department of Microbiology.
PLENARY TALK- I	Dr.Kumaresan Ramanathan, Professor of Medical Biochemistry, Department of Biomedical Sciences, Faculty of Medical Sciences, Institute of Health, Jimma University, Ethiopia.
SESSION-III- 12.00 pm to 1.00 pm	
Introduction of the Chief Guest	Dr.J.Victoria, Assistant Professor, PG and Research Department of Microbiology.
PLENARY TALK- II	Dr. R.Venkatajothi, Department of Medical Microbiology, Basic Medical Sciences, Michael ChilufyaSata School of Medicine, Copperbelt University, Hill Crest, Ndola, Zambia.

Lunch Break - 1.00 am to 2.00 pm	
SESSION-IV- TECHNICAL SESSION I & H2.00 pm to 3.30 pm	
Venue: Conference Hall and VB- I Floor B3	
Oral Presentation I	Chairperson: Dr.V.Ambikapathy, Associate Professor, Department of Botany and Microbiology, A.V.V.M Sri Pushpam College, Poondi. Rapporteur: Dr.R.Mangalanayaki, Assistant Professor, PG and Research Department of Microbiology.
Oral Presentation II	Chairperson: Dr.P.Prabakaran Assistant Professor, Department of Botany M.R.Govt. College, Mannargudi Rapporteur: Mrs.T.Tamilvani Assistant Professor, PG and Research Department of Microbiology.
SESSION-V – VALEDICTORY FUNCTION 3.30 p.m to 4.00 p.m	
Report of the Conference	Dr.N.Uma Maheswari, Vice-Principal and Head, PG and Research Department of Microbiology, S.T.ET Women’s College (A), Mannargudi.
Valedictory Address	Dr.A.Panneerselvam D.Sc., Editor in Chief - International Journal of Scientific Transaction in Environment and Technovation, Associate Professor (Rtd.), Department of Botany and Microbiology, A.V.V.M Sri Pushpam College (A), Poondi, Thanjavur.
CERTIFICATE DISTRIBUTION	
Vote of Thanks	Dr.G.Manimekalai, Assistant Professor, PG and Research Department of Microbiology.
National Anthem	

INTERNATIONAL CONFERENCE

ON

“Converging Research Approaches in Life Science for Future Advancement”
(CRALSFA- 2023) on 15th February- 2023

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PRESIDENTIAL ADDRESS

Dr.K.Thiyagesan

PRESIDENTIAL ADDRESS

Dr.K.Thiyagesan,

Principal (Rtd.),

A.V.C College (A), Mannampandal, Mayiladuthurai.



First of all, I would like to congratulate The Department of Microbiology, STET Women's College, Sundarakottai, Tamilnadu, India, and the Organising Committee for organizing an International Conference on Convergence of Research Approaches in Life Sciences, which has great potentials for the advancement of research in future.

“Convergence Research”, is the integration of knowledge, methods and expertise and the merging of approaches and insights from historically distinct disciplines such as engineering, physics, computer science, chemistry, mathematics, and the life sciences as today's grand challenges could not be solved by one discipline alone. It focuses on addressing complex research problems in science, engineering and society especially those focusing on societal needs. Solving of many pressing societal problems, such as pandemics, antibiotic resistance, global climate change, and sustainable development requires integrating expertise across disciplines and such integrative research are labeled as Interdisciplinary, Trans disciplinary, and Convergence research , sometimes called as collectively as ITC research. Convergence research has two primary characteristics viz.,1) driven by a specific and compelling problem that arises either from deep scientific questions or pressing societal needs and 2) deep integration across disciplines with intermingling of knowledge, theories, methods, data and research communities that intentionally brings together intellectually diverse researchers to develop effective ways of communicating across disciplines to pursue a common research challenge.

A successful example of classic convergence is the Manhattan Project, where physicists, chemists, and engineers successfully worked in the 1940s to control nuclear fission and produce the first atomic bomb. Another successful example of convergence research is the Human Genome Project, forging a multi-institutional bond integrating biologists, chemists and computer scientists, under an organizational model known as consortium science with teams of teams organize with a common goal to share benefits equitably within and beyond institutional boundaries, where chemists tinkered with reactions to sequence DNA, computer scientists pieced together roughly three billion data points into a complete genome, and biologists mapped health outcomes to specific genes.

Other examples of such emerging technologies using convergence tools include the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative seeks to improve our understanding of how individual cells and neural circuits interact, in order to develop new ways to treat and prevent brain disorders, the National Cancer Moonshot Initiative launched to accelerate research to develop cancer vaccines and early detection methods and genomic tumor analysis, and the integration of new technologies and methods from genomics, information science, nanotechnology, and molecular biology could to four emerging technology categories: advanced imaging in the body, nanotechnology for drug and therapy delivery, regenerative engineering, and big data and health information technology. Convergence i.e., the integration of engineering, physical sciences, computation, and life science will provide profound benefits for medicine and health, energy, and environment.

Brain science is presently supported by major funding programs that span the world with the the United States launched the BRAIN Initiative i.e., Brain Research through Advancing Innovative Neurotechnologies, a public private effort aimed at developing new experimental tools that will unlock the inner workings of brain circuits in late 2013 and at the same time, the European Union launching a 10-year funding program, the Human Brain Project (HBP) to build a collaborative infrastructure for advancing knowledge in the fields of neuroscience, brain medicine, and computing. Similarly, Japan launched Brain Mapping by Integrated Neurotechnologies for Disease Studies (Brain/MINDS), a program to develop innovative technologies for elucidating primate neural circuit functions, in 2014. In 2016, China followed with the China Brain Project (CBP), a 15-year program targeting the neural basis of human cognition. Canada, South Korea, and Australia followed suit, launching their own brain programs.

At the heart of the current momentum for convergence is the realization that physical, chemical and biological sciences can each benefit from being more fully integrated into the intellectual milieu of the other. Convergence provides an opportunity to discuss strategies to advance science and to elevate discussions on how to tackle fundamental structural challenges in our research universities, funding systems, policies, and partnerships. An accelerated convergence research strategy can lead to truly major advances in fighting cancer, dementia, and diseases of aging, infectious diseases, and a host of other pressing health challenges besides having the potential to alleviate the increasing humanitarian and fiscal costs of health care.

Another example of convergence research is that the engineers at Brown University have designed a biochip that can measure glucose concentrations in human saliva by a technique that involves a convergence of nanotechnology and surface plasmonics, which explores the interaction of electrons and photons.

Convergence techniques could enable rewiring the genes of mosquitoes to eliminate Zika, dengue, and malaria could help solve the emerging threat of drug-resistant bacterial strains. Convergence-based immunotherapy could activate a person's immune system to fight cancer, reprogramming a person's T-cells or antibodies to find and attack tumor cells. Big-data techniques could be used to generate and analyze huge amounts of data on people's exposures to industrial chemicals, environmental toxins, and infectious agents, creating a new field of “chemistry of nurture,” to complement the “chemistry of nature” developed by the documentation of the human genome.

The cyber –physical systems are other examples of convergence of the life sciences, physical sciences, computer sciences and engineering. An example of these systems include a Cyber-Physical System for Monitoring, Analysis and Mitigation of Urban Noise Pollution that uses machine learning, Big Data analysis and public participation in scientific research to monitor and mitigate urban noise pollution more effectively.

Another area of convergence research is Synthetic biology, which aims to construct or redesign biological entities to solve problems through another convergent field — nanotechnology —the convergence of chemistry, physics, engineering, life sciences, materials science and many other disciplines. Engineering biology, a synthetic biology builds technologies that solve engineering challenges in health care, energy and the environment and biorenewable chemicals that brings together biologists and chemists to build a sustainable bio-based chemical industry.

The development of the modern cochlear implant — a breakthrough device that allows deaf and hearing-impaired people to understand speech — is a triumph of engineers and physicians with a team that included not just engineers and otolaryngologists (ear, nose, and throat doctors), but also audiologists, neuroscientists, and psychiatrists, all working to solve a problem that many experts called unsolvable: using multiple electrodes implanted deep in the ear (cochlea) to stimulate the auditory nerve and restore hearing. It was a perfect example of convergence. The research represented more than an interdisciplinary collaboration. It was the integration of distinct disciplines and technologies into a “unified whole” that gave rise to new ideas, approaches, and discoveries. In essence, it was the definition of convergence.

Convergence is referred to as the “third revolution” in life sciences; it follows the first revolution of the 1950s to 1970s, when molecular and cellular biology advances flung open the door to new understanding of disease states, and the second revolution in the 1980s and 1990s that ushered in genome sequencing and unprecedented genetic insights. Although all three revolutions relied on synergy between disciplines, convergence is the broadest both in terms of the disciplines and technologies it encompasses and the potential for scientific impact. The need for convergence springs from the vast amount of data that life sciences are amassing.

Although taking a convergence approach could potentially benefit research endeavors in any discipline, it could especially transform health care. For example, researchers are turning to machine learning algorithms, which use data to learn patterns and make predictions, to create tools for computer-based scoring of mammography and histology images that can identify individuals at risk of breast and prostate cancer, respectively, more accurately than clinicians. This field of computer science could improve clinical decision-making in myriad of areas including possible applications to identify risk factors for heart attacks and strokes.

Other examples convergence research include novel diagnostic and therapeutic approaches of spherical nucleic acids (SNAs), and the PRINT (particle replication in nonwetting templates) approach, which involves the creation of nanoparticles of virtually any shape for a variety of applications.

The outline of blueprint for a convergence research in immunology includes approaches from science, engineering, and clinical medicine to produce vaccines against highly mutating pathogens, therapies for autoimmune diseases and cancer, and ways to predict disease states by convergence of high-performance computing, physical theory, high-throughput sequencing, and clinical research to define virus vulnerabilities and human immune repertoires and to rationally engineer vaccines against scourges such as HIV and Covid and the use of novel instruments and nanoparticles for monitoring the human immune system to predict disease onset and learn how to manipulate it in order to design therapies.

Nexus of systems biology and systems pharmacology is required for understanding of how complex biological entities function, and this knowledge results from integrating multiple molecular and cell-level components and properties through computational modeling to generate hypotheses and predictions and to explore examples of whole organ phenotyping methods and molecular mechanisms of drug interactions

Regenerative engineering, which focuses on the role of materials and novel approaches to control cell fate, describes the scaffold (which is materials based), the cells (which are biology based), stem cell–biomaterial interactions, and the control of cell behavior by both genetic and materials manipulation and elucidate the effects of the chemical choice of the materials on which the cells grow as well as the physical architecture of the surface, which provides spatial cues.

Role of Microfabrication such as microfluids to areas such as protein crystallography, cell and tissue culture, single-cell genomic analysis, bioanalytic chemistry, and nanoliter-scale synthetic chemistry is another advancement as a result of convergence research.

The new field of synthetic biology, which is defined as the application of engineering principles and designs to biology, has resulted in progress in health, such as the creation of new pharmaceuticals, progress in producing new fuels, such as the creation of advanced biofuels from sugar and algae, the formation of engineered bio-based chemicals; food and feed applications and terrestrial crops with its ethical, legal, and social implications.

Just as advances in information technology, materials, imaging, nanotechnology and related fields — coupled with advances in computing, modeling and simulation — have transformed the physical sciences, so are they are beginning to transform life science. The result is critical new biology-related fields, such as bioengineering, computational biology, synthetic biology and tissue engineering. At the same time, biological models (understanding complex, self-arranged systems) are already transforming engineering and the physical sciences, making possible advances in biofuels, food supply, viral self assembly and much more.

When biologists and quantitative scientists work together in close partnership, their respective areas of expertise enrich the other; such experiences are the cornerstones of convergence. Pushing the concept of convergence even farther, convergence need to include social sciences and the humanities. For example Humanities could come into play in addressing how a new medical device could be covered by insurance and exploring the business and ethical aspects of introducing it to the general population.

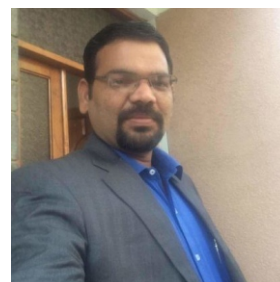
Convergence of the life sciences with fields including physical, chemical, mathematical, computational, engineering, and social sciences is a key strategy to tackle complex challenges and achieve new and innovative solutions. However, institutions face a lack of guidance on how to establish effective programs, what challenges they are likely to encounter, and what strategies other organizations have used to address the issues that arise. This advice is needed to harness the excitement generated by the concept of convergence and channel it into the policies, structures, and networks that will enable it to realize its goals. Even though the potential of convergence research is widely recognized, questions remain about how to design, facilitate, and assess such research and to address barriers from outdated educational approaches to rigid organizational structures slowing the progress. I hope this conference will deliberate and discuss these issues and contribute to new approaches and advancement of this science. Thank you for giving me an opportunity to be a part of this excellent endeavor.

ABSTRACT OF PLENARY TALK

ABSTRACT OF PLENARY TALK-I

Prof. Kumaresan Ramanathan

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INFECTIOUS DISEASES AND VASCULAR ENDOTHELIAL CELL DYSFUNCTION

ABSTRACT

Many serious infectious diseases and syndromes, including sepsis, hemolytic-uremic syndrome (HUS), severe malaria, and dengue hemorrhagic fever are characterized by excessive vascular permeability, microvascular thrombosis, and inflammation that results from diffuse endothelial cell dysfunction and cardiovascular diseases. Many of these infectious patients are usually treated with antimicrobial agents and they may be ignored in the assessment of other organs' functions like the cardiovascular system. The ignorance of this non-communicable disease in infectious patients leads to morbidity and mortality. This may be due to two major reasons; 1) increased intensity of antimicrobial use following the increased burden of infectious disease, antimicrobial resistance (AMR) remains a huge concern in the progress of treating infectious diseases, 2) the infectious patients are more likely to die from a non-infectious related cause and this may be predominantly due to endothelial dysfunction and cardiovascular diseases. This may be due to a lack of potential research studies related to the relationship between infectious diseases and their role in endothelial and CVD function. Rapid diagnosis and early intervention can potentially improve clinical outcomes in individuals affected by potentially life-threatening infectious diseases. This factor acquired greater importance in the clinical management of infectious diseases.

Keywords: Antimicrobial resistance, CVD, Microvascular thrombosis and Endothelial cell dysfunction

ABSTRACT OF PLENARY TALK - II

ABSTRACT OF PLENARY TALK-II

Dr. R. Venkatajothi

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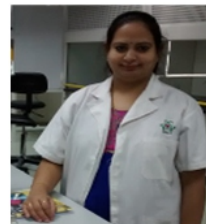
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THE EMERGING HERBAL REMEDIES IN CANCER RESEARCH AND ITS FUTURE PROSPECTS ABSTRACT

Cancer is a severe health problem that continues to be a leading cause of death globally. It is the second major cause of deaths worldwide. Lung, prostate, colorectal, stomach and liver cancer are the most common types of cancer in men, while breast, cervical, colorectal, lung and thyroid cancer are the most common among women. For example, breast cancer is the most prevalent cancer among women and a challenge for the scientific and medical community. As of the end of 2020, there were 7.8 million women alive who were diagnosed with breast cancer in the past 5 years, making it the world's most prevalent cancer. Still remains an incurable disease and a significant public health problem. Standard treatments for cancer are surgery, radiation, chemotherapy and hormone therapy etc. These treatments have the potential to stop the growth and spread of cancer, particularly when the condition is diagnosed at an early stage. Increasing knowledge of the molecular mechanisms underlying cancer progression has led to the development of a vast number of anticancer drugs. However, the use of chemically synthesized drugs has not significantly improved the overall survival rate over the past few decades. Drug development using natural products has been extensively explored by researchers. As a result, new strategies and novel chemoprevention agents are needed to complement current cancer therapies to improve efficiency. Medicinal herbs and their derivative phytochemicals are being increasingly recognized as useful complementary treatments for cancer. Naturally available products such as herbals, plants, vegetables, fruits and mushroom have ability of prevention or may reduce the risk of cancer. Approximately 60% of drugs presently used for cancer treatment have been isolated from natural products. Phytochemical constituents contain substantial quantities of molecules that have the chemo preventive potential to fight against cancer development. Such compounds had anti-oxidant and anti-inflammatory properties. The use of herbal medicinal products for treating cancer is gaining acceptance, and many formulations have been patented and tested at the clinical trial stage. Herbal products and medicine increasingly gaining for treatment. Several herbal medicine have been patented and also at clinical testing as well as in research stage.

Keywords: Cancer, Chemoprevention, Herbals, Phytochemicals.

Dr.V.Dhivahran,
Chairman,
STET Group Of Institutions,
Mannargudi.



MESSAGE

As a conference chair of this conference, I am pleased to welcome you all for this International conference on “Converging Research Approaches in Life Science for Future Advancement” (CRALSFA- 2023)

STET Women's College is a camouflage wealth of knowledge, innovation and technology that lies with in for the empowerment of Women so as to National Development as its motto. STET Women's College itself is a niche of opportunities to all aspiring young women graduates and researchers especially from rural community.

To synchronous with the growth of technological innovations in the field of Biological Sciences, the PG and Research department of Microbiology brings before you, this International conferenceon, “Converging Research Approaches in Life Science for Future Advancement” (CRALSFA- 2023) .This conference is a unique forum for exchange of innovative ideas, technical expertise for technological advancements in the field of Life science. It includes keynote address from Academicians and paper presentation by research scholars and students. It is a matter of joy for us to welcome the participants to this conference.

I wish the organizing committee for making it as a successful event and sponsors for funding this conference. In a nutshell, the conference promises to transcend to a new and unprecedented level of excellence. It is thus the zenith where technology and skill meets opportunities and guidance. It is one of a milestone event in Microbiology Department added a feather of excellence to its crown

A handwritten signature in black ink, appearing to read 'Dhivahran', with a long, sweeping horizontal line extending to the right.

Dr.JeyanandhDhivaharan

Correspondent

STET Women's College (Autonomous)

Mannargudi.



It is my pleasure to welcome all the participants today for this international conference on “Converging research approaches in life science for future advancement” (CRALSFA-2023)

STET Women's College endeavor are being made to bring out the abeyant forte of women and ameliorate their time ahead. Entrepreneurship is the best way to advance ingenious but we need those ideas not only to create material value but also to foster social progress.

I wish and thank all the eminent speakers and guests from different walks of life you have come here to share their knowledge and vast experience with the student community. Through this conference, I would like to engage with all of you in an open and constructive dialogue about innovative ideas and technical improvement for new researchers in the field of life science

I wish the organizing committee and sponsors for financing this conference. It is a breakthrough performance of department of Microbiology to authenticate its enthusiasm and vitality.



Dr.S.Amudha,
Principal,
STET Women's College (Autonomous).
Mannargudi.



As a principal of this institution, I feel extremely glad to welcome everyone to this international conference on “Converging research approaches in life science for future advancement” (CRALSFA-2023)

I would wish to felicitate our guests of honor who have set a benchmark in the success of this conference and are helping students stay updated with the latest trends.

On behalf of STET Women's College, I am highly obliged to the research scholars who have made it in the conference and presenting their papers on various themes of innovative research approaches, which is need of the hour. These papers would ultimately enlighten all of us present here on the need for all life science researchers and using it judiciously, saving it for our future generations.

I strongly feel that acting collectively is the need of the hour and uniting our students for this event. It is my most sincere hope that owing to our relentless endeavors, this conference will help our students take strong resolutions on how they can move closer towards the attainment of their goals.

I wish the organizing committee and sponsor for supporting this conference. Through this meet, the department of Microbiology prove its versatility and added the gem of pinnacle.

A handwritten signature in green ink, appearing to be 'S. Amudha', with a long horizontal stroke extending to the right.

Dr.N.Thajuddin, D.Sc., FRSB, FLS., FMSI, FMBSI, FNABS.

Professor, Department of Microbiology, School of Life Science,
Bharathidasan University, Trichy



Greeting Message

I am delighted to know that the PG and Research Department of Microbiology, Sengamala Thayaar Educational Trust Women's College, (Autonomous) Sundarakkottai, Mannargudi- 614016, Tamil Nadu, India in organizing **International Conference on “Converging Research Approaches in Life Science for Future Advancement”** (CRALSFA- 2023) on 15th February, 2023. Every progress related to human health has been achieved through biological research and every medical intervention in use today is the result of innumerable discoveries in biology, some made in the distant past. Due to increasing population, rapid industrialization, urbanization and fast exploitation of natural resources, the choice of the topic is really the need of the hour, since students and researchers can understand the benefits of biodiversity, need for *in situ* and *ex situ* conservation and utilize them on varied areas such as agriculture, environment, energy and health for the benefit of society at large scale.

The organizers should be appreciated for choosing the thrust areas of the conference from Clinical and Molecular Microbiology, Drug design and Delivery, Microbial products, Microbial Nanotechnology, Dairy and Food Microbiology, Plant-Microbe Interaction, Agricultural Microbiology, IPR etc. I am sure that the deliberations from this conference will enlighten the young minds to pursue their career in the frontiers of Bioscience research, in view of commercial opportunities available in economically vital areas of human and animal health. Taking this opportunity, I congratulate the Chairman, STET Group of Institutions, Correspondent, STET Women's College, Principal and organizing secretary, Dr. N. Uma Maheshwari and the organizing committee members of this conference on a topic of current interest.

I wish the international conference a significant one with a great success.

Dr. M. Kalaiselvam

Professor and Director
CAS in Marine Biology
Faculty of Marine Sciences
Annamalai University
Parangipettai - 608 502



I am happy to learn that the International Conference on "Converging Research Approaches in Life Sciences for Future Advancement - 2023 (CRALSFA-2023)" is being organized by PG and Research Department of Microbiology, STET, Bharathidasan University and scheduled to be held on 15 February, 2023. Life sciences hold the key for the sustainable development of society and deliver valuable biomedical for human health care, augmentation of food and feed, biopesticides, and herbicides, conservation of environment, and other applications. Sustained Agriculture and development of novel health care biopharmaceuticals are highly competitive and utmost priority in the sustenance of life. The use of nanomaterials in the production of goods, drug formulations and delivery has shown superior properties compared with their conventional counterparts, due to their distinctive nanoscale features. Clinical biotechnology is known to decrease infection, reduce scar tissue growth, and to promote bone growth among other benefits. Microbial biotechnology has potential to provide solutions against several agriculture-related problems such as insect pest management, adverse effects of chemical pesticides, and development of improved crop varieties. I wish that the scientific deliberations based on recent developments and future perspective of Life science that is to be held during the conference would contribute to creation of a world that is hunger-free and disease-free in the future.



**Prof. A. Panneerselvam, D.Sc.,
Editor in Chief
International Journal of Scientific Transactions in
Environment and Technovation**



Message

It gives me great pleasure in felicitating the Department of Microbiology, STET College (Women), Mannargudi for organizing the International Conference on “Converging Research Approaches in Life Science for Future Advancement (CRACSFA – 2023)” on 15th February 2023.

My heartiest congratulations to the organizers for choosing an appropriate theme for the international conference.

I hope the Scientists participating in conference will deliberate the issues and come out with proper recommendations which will be immense use for the industrialist and public.

I wish the International Conference a grand success.

A handwritten signature of A. Panneerselvam in blue ink. The signature is written in a cursive style and is positioned above the printed name.

Professor. A. Panneerselvam, D.Sc.,

ABS. NO: CRALSFA – 23/238

***ANALYSIS OF ANTIMICROBIAL ACTIVITY OF LIQUID MICROBIAL
CONSORTIUM (LMC)***

Ms.R.Padmini,

**Research Scholar and Assistant Professor, Department of Biochemistry,
Marudhar Kesari Jain College for Women**

ABSTRACT

Bio-fertilizer has been identified as an alternative for increasing soil fertility and crop production in sustainable farming. India is one of the important countries in biofertilizer production and consumption. In order to encourage the organic agriculture by biofertilizers, five biofertilizers namely Rhizobium, Azotobacter, Azospirillum, Phosphate solubilizing bacteria and mycorrhiza have been incorporated in the FCO. However the nutrients like N, P and K are highly essential for plant growth and Metabolism. It is also evident that plants utilizes nutrients in greater amounts from soil in modern intensive cultivation and needs replenishment. Under such conditions Microorganisms offer good alternative technology to replenish crop nutrients. A variety of laboratory methods can be used to evaluate or screen the *in vitro* antimicrobial activity of an extract or a pure compound. The most known and basic methods are the disk-diffusion and broth or agar dilution methods. Other methods are used especially for antifungal testing, such as poisoned food technique. Agar disk-diffusion testing developed the official method used in many microbiology laboratories for routine antimicrobial susceptibility testing. Stability of the product is improved by resolving various physical and contamination problems like adhesion to the target site, activation time and the purity of the mother culture used for the subsequent preparation of the product respectively. Degradation of organic waste by use of a microbial consortium is safe, efficient and economic. Therefore, this study was taken up to recycle the organic liquid waste into effective compost using a microbial consortium. Hence, we can conclude that consortium can serve as a biological tool for the removal of organic liquid wastes from the environment and degradation can be applied to increase the fertility of the soil. In conclusion, of the present investigation LMC contain potential antimicrobial components that may be of great use for the development of industries as a therapy against various pests and diseases. The combinations of microbes possess significant inhibitory effect against tested pathogens.

Keywords: LMC, Fertility, Antimicrobial Activity & Microorganisms