

DEPARTMENT OF MICROBIOLOGY

NEWS LETTER

The Department of Microbiology, Periyar University, was started during the academic year 2009-2010, with a vision of establishing world class Science and Technology base with a view to provide knowledge, skills and services in Microbiology with internationally competitive systems. The department consists of five faculty members and offers two years M.Sc. and one year M.Phil. Courses in Microbiology with intake of 24 and 15 students per year respectively. The department also offers Ph.D. Programme and as on date 30 Ph.D. scholars are doing their research on various current topics.

1. Department Profile

The major thrust areas of research in this department include **Bioactive compounds from Actinobacteria and its applications, Microbial Gene Technology, Environmental Microbiology, Bioremediation and Biogeochemistry, Medical Mycology and Ocular Microbiology, Enzyme Technology, Environmental Genomics, Immunomodulation and Cancer Biology**. The infrastructure includes basic instruments and modern analytical equipments for both teaching and research needs at the cost of Rs 40 lakhs. The equipments present in the department caters all the needs of the research scholars in various fields of Microbiology.

The department has so far received funding for research from various national organizations like DBT, CSIR, DST, ICMR, DRDO and UGC for about Rs. 1.5 crores and in addition about 6 projects in the cost of 2 crores were sent to the various funding agencies. The departmental library is equipped with more than 150 books and 6 Journals along with additional books in the central library of the University. The students of the programme are given good exposure in the field of microbiology by guest lecture programmes organised every month, in emerging aspects of microbiology. With a view to develop the extracurricular activities of the post graduate students the department has started an academic club namely **Periyar University Microbiology Club (PUMIC)** to display their talents, skills and develop their subject knowledge by conducting seminars, quiz programmes and industrial visits.

Within a short span of 4 years, the department has made tremendous contribution to academics and research. Four national level seminar / conferences were conducted in the thrust areas of research by the faculty members. The Head of the Department **Dr. R. Balagurunathan**, has discovered a new anti TB and anti HIV compound named "**Transitmycin**" in collaboration with TB Research Centre (ICMR), Chennai and Department of Biotechnology, IIT, Chennai and applied for Indian and International patent through PCT. The faculty members have published about 93 research papers in the national and International journals. The passed out students of M.Sc. and M.Phil. students are offered good positions in various academic and industrial concerns.

The department has also dreamt to develop young researchers to enlighten their knowledge with a view to conduct research, addressing the ongoing problems in the field of microbiology and to develop innovative technologies from industries, and to create awareness about the utilization of microbial resources present in the world. The department also strives to become one of the prominent centres for excellence in Microbial Technology field in the country in the upcoming years.

2. Mission

In accordance with the goals set forth by the Periyar University, the department has accomplished mission of establishing world class science and technology base and provide knowledge, skills and services with internationally competitive systems. The department has also dreamt to develop young researchers to enlighten their knowledge with several objectives as shown in the followings

- ❖ Prepare post graduate students for careers in microbiology and to participate in public services by providing high standard of academic curricula and training programmes in various disciplines of agriculture, medical and public health microbiology producing microbiologists with recognizable quality at the postgraduate level.

- ❖ Empower Post graduates and Researchers to recognize, investigate, engage with resolve and manage the myriad of microbiological problems affecting health, and the environment through the programme designs.
- ❖ Contribute to the health sciences by pursuing advanced microbiology knowledge and know-how through active contribution to high quality research and other scholarly activities
- ❖ Function as an expert resource within the local and regional geographical area regarding all issues related to medical and public health microbiology.
- ❖ To develop innovative technologies from Industries, entrepreneur in the field of Microbiology
- ❖ To promote an awareness on the utilization of microbial resources like single cell proteins (Spirulina & Mushroom) to the local women communities for their income generation.

5. Faculty Details

DEPARTMENT OF MICROBIOLOGY PERIYAR UNIVERSITY PERIYAR PALKALAI NAGAR SALEM -636 011		
NAME OF THE FACULTY	Room No.	
PROFESSOR & HEAD		
 Dr.R. BALAGURUNATHAN Specialization: Industrial Microbiology Bioactive Compounds from Extremophilic Microbes M.Sc., M.Phil., M.Phil., Ph.D. Email: rbalaguru@yahoo.com	305	
ASSOCIATE PROFESSOR		
 Dr.A. MURUGAN, M.Sc., Ph.D., Specialization: Environmental Genomics Email: amuruganpu@gmail.com	306	
ASSISTANT PROFESSORS		
 Dr.N. HEMALATHA Specialization: Microbial Gene Technology M.Sc., M.Phil., M.Phil., Ph.D. Email: aarthihema2004@yahoo.com	206	
 Dr.P.M. AYYASAMY Specialization: Environmental Microbiology Bioremediation M.Sc., Ph D Email: pmayyasamy@gmail.com	207	
 Dr.D. ARVIND PRASANTH Specialization: Ocular Microbiology Medical Microbiology M.Sc., Ph.D. Email: prasanthviji@gmail.com	205	
 Dr.R. DHANDAPANI Specialization: Bioprocess Technology Immunotechnology M.Sc., Ph.D. Email: danpani@gmail.com	202	

3. Vision

Our Department aspires to be a reference centre, committed to an academic excellence and to the attainment of national and international recognition for the quality of its educational, research, and service activities in agriculture, medical and public health microbiology.

4. Programmes Offered

The Department of Microbiology is offering post graduate and Research programmes in the field of microbiology. The course contents have been devised to enable the students to successfully compete in any competitive examinations, pursue academic research or become self employed. Periodical class test, assignments, seminars, field trip and internship training also form the part of the post graduate curriculum.

6. Projects Granted

S. No	Project Coordinator	Title of the Projects	Funding agency	Year	Amount(Rs.)
1	Dr. R. Balagurunathan	Potential anti-TB compounds from Actinomycetes	DST	2008 - 2010	9,16,000/-
2	Dr. R. Balagurunathan	Potential antifouling compounds from marine Actinomycetes	UGC	January 2010 - 2013	11,60,768/-
3	Dr. P. M. Ayyasamy	Prototype development and bioreactor designing for lab scale treatment of ground water& soil containing nitrate and fluoride	UGC	January 2010- 2013	12,96,267/-

4	Dr. R. Dhandapani	Combined approaches on acetyl CoA carboxylase activity in enhanced lipid production of microalgae	DBT	2011-2014	16,30,000/-
5	Dr. R. Balagurunathan	“Study to evaluate the baseline anti-TB and anti-HIV properties of novel antibiotic Transitmycin (Tr) isolated from novel marine <i>Streptomyces species R2</i> ”	ICMR	2011-2012	7,50,000/-
6.	Dr. R. Dhandapani	The role of Probiotics in the Control of Blue Green Algae and <i>Zoothamnium</i> sp for Sustainable South Indian Shrimp Culture.	DST-SERB	2012-2015	19,60,000/-
7.	Dr. R. Balagurunathan	Potential anti-leptospirosis drugs from marine actinomycetes	ICMR	2012-2015	26,00,000/-
8.	Dr. P. M. Ayyasamy	Detoxification of arsenic and iron from ground water and soil through bioreactor designing and different treatment columns	CSIR	2012-2015	15,92,000/-

7. Memorandum of Understanding (MoU)

1. MoU was made between Periyar University, Department of Microbiology and IPCA Pharmaceuticals, Mumbai on Development of antibiotics from Actinomycetes.
2. MoU between Periyar University, Microbiology Department and National

Institute for Research in Tuberculosis (ICMR) on Anti TB compounds from Actinomycetes.

3. MoU was made between Periyar University, Microbiology Department and GreenChem Herbal Extracts and Formulations Company, Bangalore on Bioactive herbal products against resistant pathogens.

8. Experts visited to department during 2009 - 2013

S.No	Name the Experts
1	Dr. Ilavazhagan , Director, DRDO, New Delhi
2	Dr. Sasibalasingh , Director, HRD, DRDO, New Delhi
3	Dr. P. Rajendran , Professor, Dept. of Microbiology, Sri Ramachandra Medical Coll & Res Inst, Chennai
4	Dr. Vanaja Kumar , Scientist – F & Head, Dept. of Bacteriology, TRC, [ICMR], Chennai
5	Dr. P. Lakshmanaperumalsamy , Registrar, Karpagam University, Coimbatore
6	Dr. R.C. Dubey , Dept. of Botany and Microbiology, Gurukul Kangri University, Uttarakhand
7	Dr. K. Kathiresan , CAS in Marine Biology, Annamalai University, Parangipettai
8	Dr. P. Gunasekaran , Prof. & Head in Genetics, Madurai Kamaraj University, Madurai
9	Dr. P.T. Kalaichelvan , Professor, CAS in Botany, University of Madras, Chennai
10	Dr. N. Thajuddin , Professor, Dept. of Microbiology, Bharathidasan University, Trichirappalli
11	Dr. K. Nataraja Seenivasan , Professor, Dept. of Microbiology, Bharathidasan University, Trichy
12	Sri. P.M. Pantulu , Scientist F., Head Marks Division, BIS Regional Office, Chennai
13	Dr. P. Devanandhan , MBBS, DO, Ph.D., Vasan Eye care Hospital, Salem
14	Dr V. Elangovan , Dean, Govt Mohan Kumaramangalam Medical College, Salem
15	Dr. D.V.R Sai Gopal , Prof & Head, Dept. of Virology, Sri Venkateshwara University, Tirupati
16	Dr. K. S. Sastry , Professor, Dept. of Virology, Sri Venkateshwara University, Tirupati
17	Dr. B. Sekar , Director, Pasteur Institute of India, Coonoor
18	Dr. S. Manian , Dean, Bharathiar University, Coimbatore
19	Dr. Soumya Swaminathan , Director, Scientist G, NIRT (ICMR), Chennai.

20	Dr. R. Babu Rajendran , Associate Professor, Dept. of Environmental Biotechnology, Bharathidasan University, Trichirappalli
21	Dr. K. Swaminathan , Prof. and Head, Dept. of Microbial Biotechnology, Bharathiar Univ., Coimbatore
22	Dr. K. Kadirvelu , Joint Director, DRDO, Bharathiar University campus, Coimbatore.
23	Dr. K. Lily Therese , Professor & HOD of Microbiology, Sankara Nethralaya, Vison Research Foundation, Chennai
24	Dr. K. Kumar , Prof. and Head, Dept. of Microbiology, TNAU, Coimbatore.
25	Dr. Thilagavathy Daniel , Professor, Dept. of Biology, Gandhigram Rural Institute, Gandhigram
26	Dr. L. Kannan , Professor in Marine Biology, Former Vice-Chancellor, Thiruvalluvar University
27	Dr. M. Krishnan , Professor & Head, Dept. of Eco-Biotechnology, Bharathidasan University, Trichy
28	Dr. N. Kannan , Principal, KSR College of Arts & Science, Tiruchengode
29	Dr. A. Michael , Associate Professor & Head, Dept. of Microbiology, PSG College, Coimbatore
30	Dr. S. Jayaraman , Professor & Head, Dept. of Microbiology, Mahatma Gandhi Government Dental College, Pondicherry
31	Dr. T.Tholkappain , Professor, Dept. of Microbiology, Agriculture College, Annamalai University, Annamalai nagar
32	Dr. Subha Gopal , Associate Professor & Chairperson, Dept. of studies in Microbiology, University of Mysore, Mysore
33	Dr. P. Sathiyamoorthi , Directorate of Agribusiness Development, TNAU, Coimbatore
34	Dr. T. Muthukumar , Assistant Professor, Department of Botany, Bharathiar University, Coimbatore
35	Dr. G. Gurusubramanian , Associate Professor, Dept. of Zoology, Mizoram University, Mizoram

9. Laboratory: The department has laboratories with high infra-structure. The infrastructure includes basic instruments and modern analytical equipments for both teaching and research needs at the cost of Rs. 70 lakhs. The Equipments present in the department caters all the needs of the research scholars in various fields of Microbiology. The department running efficiently with well-equipped instruments of Laminar flow chamber, Incubator, Hot air oven, Autoclave, Light Microscope, PCR, Electrophoresis, Gel documentation unit, Fermenter, Colorimeter, UV Vis Spectrophotometer, Colony counter, Deep freezer (-40°C), High speed centrifuge, Orbital Shaker, Water bath shaker, Vacuum evaporator, Sonicator, pH Meter, Lyophilizer and other basic instruments for microbiological aspects.

10. Library: Microbiology Department Library was established in the year 2009. The library aims at developing the knowledge in various fields to realize the vision quoted in the Periyar University logo “Arival Vilayum Ulagu” (Wisdom make the world). The library is playing an important role in bringing research and development in the field of Microbiology. The department library is well facilitated in major thrust areas books (152) of Microbiology, Biotechnology, Environmental Science, Food science, Bacteriology, Virology, Parasitology, Entomology, Soil and

Agricultural Microbiology, Immunology and Molecular biology from reputed National and International publishers. The library possess impressive research project Dissertations (211), Magazines, Science newsletters and General science articles etc., The journals (Current science, Indian Journal of Applied Microbiology, Indian Journal of Biotechnology, Advanced Bio-tech) are subscribed and it will be available in the upcoming years in our library.

11. Department achievements: Within a short span of years the department has made tremendous contribution to academics and research. Five national level seminar / conferences were conducted in the thrust areas of research by the faculty members. The Head of the Department Dr. R. Balagurunathan, has discovered a new anti TB and anti HIV compound named “Transitmycin” in collaboration with TB Research Centre (ICMR), Chennai and Department of Biotechnology, IIT, Chennai and applied for Indian patent and International patent through PCT. The faculty members have published about 93 research papers in the national and International journals. The passed out M.Sc. and M. Phil. students are offered good positions in various academic and industrial concerns.

12. UGC- Non SAP Award: The department is awarded with UGC-Non-SAP grant during 2010-11 and 2012-13 and sanctioned Rs.20 lakhs to strengthen

the department infrastructure facilities. In addition, the UGC also sanctioned 4 research fellowships under this programme.

13. Extension Activities: The Department had started the club namely “Periyar University Microbiology Club (PUMIC)” to bring light the impressive and admirable activities of both the students and the staff.

14. Fleming’s Journal club: Department of Microbiology started Fleming’s Journal club on 20th July 2012, inaugurated by the chairman of Fleming’s Journal club, Dr. R. Balagurunathan and Dr. R. Dhandapani, convener has given speech about the activities of the Fleming’s Journal club. The journal club will be conducted every Friday 3.30- 4.00 pm and a research scholar will present a current research paper published during that month/week in any of the international journal of their Ph.D. topic specialization. The main motto of this journal club is to know the current innovative methods and updates in their research field and a detailed discussion on the presented research paper in the presence of all faculty members, research scholars and students in the department of microbiology. In the first cycle, 19 scholars presented the current articles in their research fields, started from 20.07.12 to 30.11.12. Continuously we have started the second cycle on 7th

December 2012. From students and scholar’s side, this will improve their knowledge about their status of current research field, communication skills, interactive ability and presentation capability.

14. UGC Sponsored NET/SLET Coaching Classes: CSIR NET/SLET coaching class is essential for the students to strengthen their knowledge based on research. It is an extra qualification to decide their future in right path in our Periyar University, Department of Microbiology organised the NET/SLET coaching class for M.Sc. students and M. Phil. scholars. The inaugural programme for the NET/ SLET was held in the seminar hall, inaugurated by the Head of the Department, Dr. R. Balagurunathan on 26.07.2012. He was the chairman and Dr. N. Hemalatha, assisting as the coordinator for NET/SLET programme. Classes were held Monday to Friday from 4.00 to 6.00 pm for the period of two months from 26.07.2012 to 29.09.2012 as two schedules. A total of 38 classes were handled and about 45 topics were covered during this period by faculties and research scholars. Finally, the students’ feedback suggested that NET/SLET coaching classes were very useful to understand the in-depth mechanism present behind the topics crystal clearly and also to continue classes for the subsequent batch also.

15. Seminar / Symposia Organized

In addition, the department has organized 5 national seminars during the year 2009-2013

S. No.	Name of the Seminar	Organizing Secretary	Date
1	Research Project Funding	Dr. R. Balagurunathan	3 rd March 2009
2	National Seminar on “Recent trends in Microbial Technology with reference to Extremophiles” (<i>Extremos</i> 2010)	Dr. R. Balagurunathan	21 st -22 nd October 2010
3	National Seminar on “Current Trends in Viral Diseases and its Diagnosis” (CTVD-2011)	Dr. P.M. Ayyasamy	3 rd -4 th March 2011
4	9 th National Conference of Indian Association of Applied Microbiologists on the topic “Current Trends in Microbial Technology” (CTMT-2011)	Dr. N. Hemalatha	14 th -15 th October 2011
5	National seminar on “Molecular Aspects of Microbiology” (NSMM-2012)	Dr. D. Arvind Prasanth Dr. R. Dhandapani	7 th March 2012

National seminar on Recent Trends in Microbial Technology with Reference to Extremophiles (Extremo's 2010)

Welcome Address given by Dr. R. Balagurunathan



Releasing of souvenir by Prof. Dr. K. Muthuchelian



Special lecture by Prof. Dr. P. Gunasekaran



National seminar on Recent Trends in Microbial Technology with Reference to Extremophiles (Extremo's 2010) was organized on 21st and 22nd October 2010. The highlight of the event on the first day was releasing the souvenir on "Recent trends in microbial technology with reference to extremophiles" including the proceedings of the seminar. **Dr. G. Ilavazhagan**, (Director of Defence Institute of Physiology and Allied Sciences, DRDO, New Delhi) inaugurated and released the souvenir. **Dr.K.Kathiresan**, (Annalmalai University, Parangipettai) received the first copy of the souvenir. **Dr. R. Balagurunathan**, (Organizing Secretary, Periyar University, Salem)

highlighted on the need for research on extremophiles through his welcome speech. He hoped that this seminar will open new horizon in microbial technology in extreme environment. **Professor Dr. K. Muthuchelian**, (Vice-Chancellor, Periyar University, Salem) encouraged and motivated the young researchers by emphasizing the key role played by the extremophilic microbes on exploring their most valuable bioactive compounds (antibiotics, enzymes, etc) which are beneficial to mankind. He also stressed on the importance of genetic tool for the identification of various halophiles in dense mangroves, eastern and western ghats, a treasure house of halophiles, which is still at infant level. Professor **Dr. G. Ilavazhagan**, (DRDO, New Delhi) gave a brief view on various researches carried out in defense laboratory.

Dr.G. Manimekalai, (Kandasamy Kandar College, Velur) discussed on global warming and its consequences, recent advances in scientific technology like space research, robotic innovations and nanotechnology.

The following renowned scientists, **Prof. Dr. P. Gunasekaran**, (Madurai Kamarajar University, Madurai), **Dr. P. Rajendran** (Sri Ramachandra Medical College & Research Institute, Chennai), **Dr. Vanaja Kumar** (Tuberculosis Research Centre [ICMR], Chennai), **Dr. P. Lakshmanaperumalsamy** (Registrar, Karpagam University, Coimbatore), **Dr. R.C. Dubey** (Gurukul Kangri University, Haridwar), **Dr. K. Kathiresan** (Annalmalai University, Parangipettai), **Dr. N. Kannan**, (K S Rangasamy College of Arts and Science, Tiruchengode), **Dr. S. Ravikumar**, (Alagappa University, Thondi), **Dr. P. Sampathkumar** (Annalmalai University, Parangipettai), **Dr. S. Jayalakshmi** (Annalmalai University, Parangipettai) presented their special lectures on the various topics in extremophiles.

From all over India, about 250 young research scholars and students from 11 Universities and 32 Colleges were actively participated. About 111 research papers and 35 poster presentation were received focusing on various fields such as Diversity of Microbes, Medical Microbiology, Applied Microbiology, Nanoparticle synthesis, Industrial Microbiology and Marine Microbiology. In the valedictory function **Dr. S. Gunasekaran**, (Registrar, Periyar University) pinpointed about the value of science and scientific invention. He also

motivated and encouraged the students to concentrate more on research activities as India is in need of innovative works. **Dr. L. Kannan**, (Thiruvalluvar University) stressed on the fact that it was rare occasion where people from

varied fields have come in one platform. He stressed the scientific community to start research on extremophiles for the possible exploration of new microbes which leads to novel bioactive compounds.

National seminar on Current Trends in Viral Diseases and its Diagnosis (CTVD 2011)

Presidential address given by Prof Dr K Muthuchelian



Releasing of souvenir by Dr Elangovan



Valedictory address given by Prof Dr S. Manian



National seminar on Current Trends in Viral Diseases and its Diagnosis (CTVD 2011) was organized during **3 - 4 March 2011**. This seminar was inaugurated on 3rd March 2011 by **Dr. V. Elangovan**, Dean, Govt. Mohan Kumaramangalam Medical College, Salem.

National seminar was attended by 130 participants across various educational & research institutions in and around Tamilnadu. A total of 19 research papers were presented and discussed in the seminar. The seminar also witnessed posters in the current topic on various viral diseases, newer and emerging viruses, and Immunology of viral pathogens. The posters were well prepared and presented by participants across various research institutions and also from the host. The Welcome address was delivered by **Dr. R. Balagurunathan**, Head, Department of Microbiology. In his welcome address he thanked the VC for encouraging and motivating the faculty members for organizing such national seminars. **Prof. Dr. K. Muthuchelian**, Vice Chancellor, Periyar university in his presidential address stated that the impact of viral diseases globally and the need to address this problem. He also stressed the role of medicinal plants as antiviral compounds in the controlling of these diseases. **Dr. K. Elangovan** in his Inaugural address stressed the importance of clinical diagnosis of viral diseases and said that the medical research on viruses are low in number and motivated the younger generation to come forward to do in depth research in the pathogenesis of these viral diseases. The Souvenir of the seminar was released in the presence of Honorable Vice Chancellor by **Dr. K. Elangovan** and the first copy was received by **Dr. D.V.R. Sai Gopal**, Prof and Head, Department of Virology, Sri Venkateshwara University. In his felicitation address he said that humans were endangered by the attack of plant viral pathogens and he stressed to work in the role of virus against human system and the drug resistant pattern in viral infections.

The first guest lecture of the morning session was given by **Dr. P. Rajendran**, Prof, Dept. of Microbiology, Sri Ramachandra medical college and research institute Chennai on "Jumping Viruses"- Mystery of Cross Species Transmission". Then, **Dr. D.V.R Sai Gopal** Prof & Head, Department of Virology, Sri Venkateshwara University was delivered a lecture on "Plant viral diseases and its Diagnosis". Finally, the lecture was given by **Mr. M. Radhakrishnan**, Head, Department of Microbiology, Sri Shankara College of Arts and Science College, Kanchipuram on "Antiviral drug Development from Natural Products - Facts & Problems." In the second day (4th March 2011) of this seminar **Prof. Dr. K. S. Sastry**,

Sri Venkateshwara University, Tirupati has delivered a lecture on “Emerging and catastrophic plant virus and virus – like diseases in India” followed by **Dr. A. Micheal**, PSG collage of Arts and Science, Coimbatore and **Dr. B. Sekar**, Director, Pasteur Institute of India, Coonoor. Following this seminar valedictory

function started in the evening with the eminent persons. In this function **Dr. S. Gunasekaran**, Registrar of Periyar University has given a wonderful presidential address about the seminar. Prof. **Dr. S. Manian**, Bharathiar University, Coimbatore, given valedictory address and best presentation awards to the participants.

9th National conference of Indian Association of Applied Microbiologists (IAAM)

Lighting Kuthu Vizhakku in IAAM



Releasing of Conference souvenir



Inaugural Address by Prof. Dr.K. Muthuchelian



The 9th National conference of Indian Association of Applied Microbiologists (IAAM) on the motif “Current Trends in Microbial Technology” was organized on 14th and 15th October 2011. IAAM is one of the representative

and voluntary organizations of Microbiologists of basic and applied aspects which promote and encourage advanced research in all disciplines and inter disciplines of Microbiology. IAAM has so far organized 8 National conferences in all over India. Based on the department’s performances and strength IAAM had selected Department of Microbiology, Periyar University for their 9th national conference on CTMT 2011. The highlight of the conference was awarding the life time achievement awards to the members.

Based on the outstanding performance and the 25 years of experience in Microbiology related research, the eminent persons were selected by executive committee of IAAM. For this year, **Prof. Dr.K. Muthuchelian**, Vice Chancellor, Periyar University, **Dr. Sowmya Swaminathan**, NIRT (ICMR), **Dr. D.V.R. Sai Gopal**, Sri Venkateshwara University, Tirupathi and **Dr.A. Michael**, PSG College, Coimbatore are selected for the award. In addition to this award, every year the best teacher in Microbiology was also selected. This award goes to **Dr. R. Balagurunathan** for his contribution to teaching and research for the discovery of new anti TB and HIV antibiotic, Transitmycin.

The conference focuses the important areas like types and advancements in Microbial techniques, Improvements of food and agricultural products, Medicinal products and Environment pollution control measurements. **Dr. R. Balagurunathan** Head, Department of Microbiology is the convener of CTMT 2011. **Dr. N. Hemalatha** Assistant Professor, Department of Microbiology is the organizing secretary and the executive members are **Dr. P. M. Ayyasamy**, **Dr. D. Aravind Prasanth**, **Dr. R. Dhandapani**, Assistant Professors, Department of Microbiology.

The following eminent scientists **Dr. Sowmya Swaminathan**, Director, National Institute for Research in Tuberculosis (NIRT), **Dr. D.V.R. Sai Gopal**, Professor, Sri Venkateshwara University, **Dr. P. Rajendran**, Professor, Sri Ramachandra University, Chennai, **Dr.P.T. Kalaichelvan**, Professor, University of Madras, Chennai and **Dr. A. Michael**, PSG College, Coimbatore presented their special lectures on the various topics.

About 300 academicians, faculties, research scholars, students and personalities from various corporate societies in India are participated in the conference and 100 students are going to present their research papers, 43 students are

presenting their posters in CTMT 2011 on 14th and 15th October 2011. The valedictory address will be given by **Dr. P. Mathaiyan**, Registrar (i/c), Periyar University and distributed the certificate to the participants.

National seminar on Molecular aspects of Microbiology (NSMM 2012)

Inauguration of National Seminar on NSMM 2012



Presidential address given by Prof Dr. K. Muthuchelian



Plenary Lecture given by Dr. N. Thajuddin



National seminar on Molecular aspects of Microbiology (NSMM 2012) had its grand opening on 7th March 2012. The welcome address was delivered by **Dr. R. Balagurunathan**, Head, Department of Microbiology, Periyar University, Salem. In his welcome address, the head welcomed the gathering and pointed out that this is the fifth seminar organized by the microbiology department. The presidential address was given by **Prof. Dr. K. Muthuchelian**, Vice chancellor, Periyar University, Salem. In his presidential address he pointed out the developments and broad usage of molecular tools in every scientific aspect. He also stressed the importance of molecular tools in identifying the uncultivable microorganisms and the recent applications in medicine for diagnosis. He appreciated the head and the faculty members for bringing out this good theme in this conference. The Inaugural address was delivered by the chief guest **Dr. B. Sekar**, Director, Pasteur Institute of India, Connoor. He explained about the genotypical and phenotypical characteristics of *Mycobacterium leprae* and also about the recent advances in the application of molecular tools like PCR, VNTR in clinical microbiology. The conference souvenir was released by **Dr. B. Sekar**, Director, Pasteur Institute of India, Connor. The first copy was received by **Dr. N. Thajuddin**, Associate Professor, Bharathidasan University, Tiruchi.

The seminar had two plenary lectures given by eminent persons in the field of molecular microbiology. The first plenary lecture was given by **Dr. Subha Gopal**, Associate Professor and Chairperson, Department of studies in Microbiology, University of Mysore on the topic "Survival strategies of *Listeria monocytogenes* against oxidative stress". The second plenary lecture was given by **Dr. N. Thajuddin**, Associate Professor, Department of Microbiology, Bharathidasan University on "Challenges in Molecular Characteristics of Microorganisms". The seminar witnessed 100 participants from various Colleges and Universities. The poster and oral presentation of the research articles were conducted in the afternoon session. There were 29 posters and 9 research article for oral presentations.

16. Awards received by the Faculties



Dr. R. Balagurunathan received **Best Teacher Award** of the year 2009 from Sri Sankara Arts and Science College for recognition of outstanding contributions to the academic and research.



Dr. R. Balagurunathan received **Best Teacher Awards** of the year 2011 from Periyar University for recognition of outstanding contributions to the academic achievement.



Dr. R. Balagurunathan received **Outstanding Teacher Award** in Microbiology from 9th National Conference of Indian Association of Applied Microbiologists on 14th October 2011.



Dr. R. Balagurunathan received **MDT Investigator Award** from International Conference on Environmental Security for Food and Health By MDT Hindu College, Tirunelveli and KK trust on 18th Feb-2012.

Dr. P.M. Ayyasamy won **Best Paper Award** in the 1st EIT International Conference on Water Resources Engineering 2011 (EITWRE-2011) held at Thailand

17. Periyar University Microbiology Club (PUMIC)

To achieve further development the Department had started its club namely **Periyar University Microbiology Club (PUMIC)** - with its unique vision and mission and to bring impressive and admirable activities of both the students and the staff. A department becomes renowned only when its extra-ordinary activities of curriculum, co-curriculum and extra curriculum are made known to others. PUMIC club members are extremely happy and proud in bringing out the first PUMIC newsletter carrying its activities and achievements. No achievements are possible without any teamwork and the newsletter speaks volumes of the PUMIC team.

It has its chairman, **Dr. R. Balagurunathan**, Professor and Head of Microbiology; **Dr. N. Hemalatha**, Co-ordinator of PUMIC (2009 - 2010); **Dr. P. M. Ayyasamy**, Co-ordinator of PUMIC (2010 - 2011); **Dr. D. Arvind Prasanth (2011-12)** and **Dr. R. Dhandapani (2012-13)** Assistant Professors of Microbiology; and a highly supportive team as research scholars and students as club members.

Objectives of PUMIC

PUMIC has its targets set and strives hard every second to fulfil them to the best possible. The activities have been focussed on several objectives:

1. To allow students an opportunity to obtain an increased knowledge in diverse areas of interest in microbiology and also to gain a better understanding of the practical purposes of microbiology who in their future careers, can pursue further education to satisfy the high level subject knowledge requirement of the country.
2. To help students to get involved in basic and applied research in microbiology and related areas of science and technology in order to meet the development requirement of the nation and at large to cope up with the new challenges of the 21st century.
3. To organize the micro biology students into an effective group to promote student- faculty relations and to maintain a closer fellowship among all students interested in microbiology.
4. To help students in this field to obtain information concerning future education, available scholarships, fellowships and to provide opportunities for their placement.



PUMIC team of Periyar University (Year 2009)



5. To inculcate the sense of affinity in the minds of outgoing students by making them members of Alumini.
6. To enlighten our knowledge not only as an intellect but as a person on whole in all mental dimensions.

In line with the above goals, the club activities for the first semester had been targeted and accomplished successfully by the PUMIC team.

Role of PUMIC team during 2009 to 2013

S. No	Year	Name and Designation	Representatives
1.	2009-2013	Dr. R. Balagurunathan Professor and Head Convener of PUMIC	PUMIC TEAM
2.	2009-2010	Dr. N. Hemalatha Assistant Professor Coordinator of PUMIC	G. Venkatramanan R. Palanivelan P. Rajarajan R. Sakthipriya T. Shanmugasundaram S. Deepa
3.	2010-2011	Dr. P. M. Ayyasamy Assistant Professor Coordinator of PUMIC	V. Gopikrishnan R. Seenivasagan A. Ratha P. Suganthi A. Sakthidesai R. Dhanasekar
4.	2011-2012	Dr. D. Arvind Prasanth Assistant Professor Coordinator of PUMIC	P. Prabhakaran S. Jenny angel T. Shanmugasundaram A. Sai Arphitha K.S. Mohamed Yacoob Arsath E. Poongothai K. Bahawath Singh M. Kanimozhi
5.	2012-2013	Dr. R. Dhandapani Assistant Professor Coordinator of PUMIC	T. Silambarasan R. Dhanasekar G. Nagarajan E. Poongothai S. Loganathan G. Subramani
6.	2013-2014	Dr. N. Hemalatha Assistant Professor Coordinator of PUMIC	P. Suganthi T. Shanmugasundaram V. Harish S. Kamatchi

The PUMIC club had its splendid inauguration on 28th January, 2010, by former Vice Chancellor **Dr. M. Thangaraju**. During the function the Vice Chancellor gave a wonderful talk and shared with us his vision of education. On 3rd February we had a special meeting addressed by **Dr. S. Gunasekaran**, Registrar, Periyar University. Registrar's highly motivating speech had been an energetic starter inoculum for our club activities.

18. Special Lectures

Seminars are an opportunity for knowledge sharing and scholarly interaction. Seminars will certainly expose the students to acquire knowledge and inspire the scholars to do their objects and researches with accuracy and depth. It is conducted with at most seriousness and commitment where in

eminent scientists gave special lectures. The following reputed scientists delivered lectures on various topics.

Inauguration of PUMIC by Dr. M. Thangaraju, by former Vice Chancellor



**Special meeting addressed by
Dr. S. Gunasekaran, former Registrar**



1. The first stepping stone of PUMIC was a special lecture programme arranged on 28th January 2010 on the topic “**Bioprocess technology with reference to industrially important microorganisms**”, presented by **Dr. P.T. Kalaichelvan**, Professor, Centre for Advance studies in Botany, University of Madras, Chennai. He advised the students to undertake research in the field of Industrial application because Industrial sectors are pillars to improve country’s economic status.

Special Lecture given by Dr. P. T. Kalaichelvan



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2. To have a wider knowledge in Immunology we invited **Dr. A. Michael**, Head, Department of Microbiology, P.S.G. College of Arts and Science, Coimbatore. He gave a lecture on “**Antibody engineering**” on 8th February, 2010. He was a pioneer to study the process of chicken antibody production for a human cure which is an animal friendly idea. He briefed the steps involved in chicken antibody production against bacterial diseases and snake venoms.

Special Lecture given by Dr. N. Thajuddin



3. The next special lecture programme was on 10th March, 2010 on the topic “**Biodiversity and Biotechnological potential of cyanobacteria**” presented by **Dr. N. Thajuddin**, Professor, Department of Microbiology, Bharathidasan University, Trichirappalli, who has one and half a decade experience on Cyanobacterial research. He provided us with a broad range of information about cyanobacteria’s advantage as commercial product and technological development for marine cyanobacteria culturing. He explained how he succeeded in developing pigments from cyanobacteria that can be added to pastries. It has been a valuable session.

Special Lecture by Dr. Dr. K. Nataraja Seenivasan



4. The next special lecture was on “**Leptospirosis**” held on 17th March, 2010 by **Dr. K. Nataraja Seenivasan**, Reader, Bharathidasan University, Trichirappalli. Being a medical microbiology specialist he gave valuable information about commonly occurring outbreaks of Leptospirosis disease. He explained how he succeeded in designing diagnostic kit to easily detect the leptospirosis caused by indigenous strain. We all gained much information about the topic.
5. Our last seminar for this academic year was organised on 31st March, 2010 and **Dr. P. Rajendran**, Professor, Sri Ramachandra Medical College, Chennai delivered lectures on the topics “**Evolution of Microbes, Monkey and Man**” and “**Mysteries and Evolution of viral diseases**”. The sessions had been mind blowing, thought provoking and highly informative.

Welcome address given by Dr. R. Balagurunathan



Special Lecture delivered by Dr. Dr. P. Rajendran



All these lectures gave us wisdom about the developing trends in Microbiology and the fields of research that we could undertake. For our every seminar we had audience from many other departments who also got benefited out of all these useful seminars.

Apart from conducting seminars the club carried out many other activities too. Our students are flooded with many talents. To bring out their hidden Co-curricular talents cultural program was arranged on 10th February, 2010. It provided them a platform to express their talents. The students performed mono-acts, group songs, dances and jokes. It had been an enjoyable session to all.

PUMIC Logo opened by Dr. P. Rajendran



PUMIC Logo



A competition for logo designing was conducted among the students of Microbiology Department, wherein many M.Sc, M.Phil. and Ph.D. scholars participated. The logo designed by Research scholar **Mr. R. Pazhanimurugan** was unanimously selected by all. The computer designing of our logo was done by our M.Phil scholar, **Mr. P. Rajarajan**. **Dr. P. Rajendran** has launched the PUMIC Logo on 31st March, 2010.

On 17th February, 2010, the club arranged for a group discussion on the topic ‘Which scarcity is too dangerous today? – Space or Finance or Humanity or Awareness. The groups were formed

and each group was given twenty minutes to discuss and summarise the justification points of their group's topic. The members found the discussion interesting and the session ended with the concluding remarks of the convenor that scarcity of humanliness is an important issue to consider today. It has been an enjoying session to all.

As the first outsourcing programme we conducted a science quiz competition at school level on 24th February, 2010. Many schools in Salem were participated. Several rounds in this competition were conducted to test the student's memory power and also the depth and width of their knowledge in various fields. Cluny Matriculation Higher Secondary School, Salem, won the first prize and Holycross Matriculation Higher Secondary School won the second prize. An essay competition was arranged on 26th March among the students of various departments of Periyar University on the very apt and burning issue of today, "**Natural calamities and Global changes**".

Quiz competition at school level



Essay competition



Special Lecture by Dr. P. M. Pantulu



Seminars are an opportunity for knowledge sharing and scholarly interaction. Seminars will certainly expose the students to knowledge and inspire the scholars to do their objects and researches with accuracy and depth. It is conducted with utmost seriousness and commitment where eminent scientists gave special lectures. The following reputed scientists delivered lectures on various topics. The first stepping stone of PUMIC in the academic year 2010-11 was a general lecture programme arranged on 07th January 2011 in the topic "**Awareness Programme on BIS standardization**" presented by **Sri. P.M. Pantulu**, Scientist F., Head marks Division, BIS Regional Office, Chennai. He created an awareness to the participants on BIS standardization in Jewelleries. It is highly informative sessions especially for the consumers.

Special Lecture by Dr. P. Devanandhan



To have an informative knowledge in "Ocular Microbiology and Mycology: An Industrial Perspective" we invited **Dr. P. Devanandhan**, MBBS, DO, Ph.D., Dr. Agarwal's Eye Hospital, Salem – 636 007. He gave a wonderful lecture on "**An Industrial Perspectives with reference to fungi**" on 11th February, 2011. He had given an elaborate account on application of potential fungi for

the production of novel industrial products. He also pointed out microbes in ocular field and its preventions.

Next invited lecture programme was held on 14th March, 2011 on the topic “**Bioprocess Technology on Microbial Products**” presented by **Dr. N. Manivannan**, Assistant Professor, Department of Microbiology, Bharathidasan University, Trichirappalli, who has well known experience on Bioprocess technology, Fermentation Technology on the production of microbial products. He provided us with a broad range of information about biological process and its product. He also gave industrial process how the microorganisms involving to synthesis the metabolites and how to get extra cellular and intra cellular products.

In the academic year **2011-12**, the first invited guest lecture programme was organised on August 28th 2011 on the topic “**Molecular diagnosis of Ocular Infections**” by **Dr. K. Lily Therese**, Professor and Head, Department of Microbiology, Sankara Nethralaya, Chennai. In her talk she gave a very brief account on the various eye diseases that are prevalent in the country and the use of conventional culture methods to diagnose it. In her talk, she mentioned the hurdles that are faced during use of these conventional techniques and stressed the importance of molecular tools in the diagnosis of these diseases. She enlisted various PCR based methods, as they are a major breakthrough in the field of ocular microbiology as they guide the clinician for the rapid diagnosis of ocular infections. She highlighted the research activities of her department and the areas of her current research giving an overview of the different prospects of taking ocular microbiology. The student interacted with her and raised several questions to make the lecture an interesting one.

Special Lecture by Dr. K. Lily Therese



Next invited lecture programme was held on 25th September 2011 on the topic “**Biofertilizer Technology and its applications**” presented by **Dr. K. Kumar**, Professor and Head, Department of Microbiology, Agricultural University, Coimbatore. He gave a very detailed account of the Biofertilizer differentiating from the chemical fertilizer, the mechanism of nitrogen fixation and the molecular mechanisms involved in it. He also mentioned the advantages of using biofertilizer and stressed the student community to propagate this idea to the farmers, so that they are benefited by it. The seminar witnessed several interesting questions from the students which were clarified and it was a very informative lecture.

Special Lecture by Dr. K. Kumar



In the academic year 2012-2013, the first special lecture program for the academic year 2012-2013 was conducted on 31st October 2012 on the topic “**Hurdles for entrepreneur in Microbial Technology**” presented by **Dr. P. Sathiya moorthi**, Director, Directorate of Agri Business Development, Tamil Nadu Agricultural University, Coimbatore.

Special Lecture by Dr. P. Sathiya Moorthi

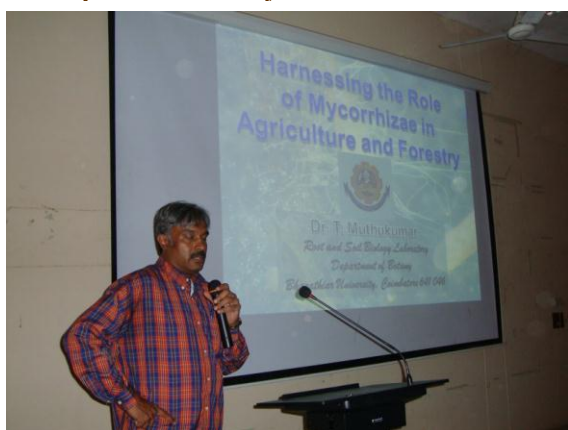


He advised the students to undertake research in the field of Industrial application because Industrial sectors are pillars to improve country's

economic status to develop new technology in Microbiology field. The students were inspired by his motivational speech and have decided to undertake industrial projects.

To have a wider knowledge in Biofertiliser technology we invited **Dr. T. Muthukumar**, Assistant Professor, Department of Botany, Bharathiar University, Coimbatore. He gave a lecture on “**Harnessing the role of Mycorrhizae in Agriculture and Forestry**” on 07th November, 2012. He was a pioneer to study the process on Agriculture and Forestry and shared some useful idea.

Special Lecture by Dr. T. Muthukumar



The next special lecture programme was held on 30th January, 2013 on the topic “**Bacillus thuringiensis toxins and their potential in insect management**” presented by **Dr. G. Gurusubramanian**, Associate Professor, Department of Zoology, Mizoram University, Alzawl, Mizoram. He is an expert in insect management. He provided us with a broad range of information about insect management advantage as

commercial product and technological development. It has been a valuable session.

Special Lecture by Dr. G. Gurusubramanian



19. Biannual Journal

Department of Microbiology, Periyar University also issuing a biannual Journal of “**Current Perspectives in Applied Microbiology**”, ISSN No: 2278-1250. It is a national peer-reviewed Journal dedicated to publish and disseminate significant research in the field of microbiology. Scope of the Journal includes: structure and function, biochemistry, enzymology, metabolism and its regulation, molecular biology, genetics, plasmids and transposons, general microbiology, applied microbiology, genetic engineering, virology, immunology, clinical microbiology, microbial ecology, environmental microbiology, food microbiology, molecular systematics, chemical or physical characterization of microbial structures or products, and basic biological properties of organisms.

20. Industrial Visit

An Industrial visit offers an opportunity for a rich experience, and a tremendous way to facilitate learning. In these Industrial visits, students have the chance to connecting with the people and place on a much deeper level than they ever could in the classroom. Industrial visits allow teachers and students to break out of their routines, to learn more about concepts they have been learning in class and in some cases to apply new knowledge as well. As part of the Academic curriculum, the department has arranged for Industrial visits to various institutes for M.Sc. and research scholars of Microbiology department guided by faculty members during every academic year.

Industrial visit at Sriram Institute for Industrial Research, Bangalore





**Industrial visit at Sakthi Sugars PVT limited,
Appakkudal, Erode**



**Industrial visit at National Institute of
Oceanography, Kerala**



Industrial visit to CMFRI, Kerala



**Industrial visit at Coir Research Institute,
Kerala**

Ph. D. Scholars and their Research Specialization in Department of Microbiology as on 1.1.2013

S. No.	Ph. D Scholars	Registration Year	Full Time/Part Time	Area of Research
1.	S. Selvakumar	2009	Part Time	Bioremediation of crude oil
2.	J. Jonshon	2009	Part Time	Biofilm forming bacteria
3.	L. Ashok Kumar	2009	Part Time	Bioactive compounds from Microorganisms
4.	A. Sureshbabu	2009	Part Time	Bioremediation of aromatic hydrocarbon
5.	K. R. Jaya	2009	Part Time	Bioremediation of fluoride
6.	C. Swaminathan	2010	Part Time	Studies on bioactive compounds of Microorganisms
7.	D. Sudha	2010	Full Time	Microbial decolorization of synthetic dyes
8.	V. Gopikrishnan	2010	Full Time	Bioactive compounds from Microorganisms
9.	R. Pazhani Murugan	2010	Full Time	Bioactive compounds from Actinomycetes
10.	P. Palanivel	2010	Part Time	Bioactive compounds from Microorganisms
11.	R. Palanivelan	2010	Full Time	Bioremediation of Textile Waste
12.	D. Menaga	2010	Full Time	Immuno modulatory activity from fungi
13.	R. Seenivasagan	2010	Full Time	Nitrate and fluoride removal from ground water
14.	P. Prabhakaran	2010	Full Time	Bioremediation of BTEX
15.	V. Baby	2010	Full Time	Biotransformation of metals from mine wastes
16.	G. Vidyadharani	2010	Full Time	Lipids from algae for biofuel production
17.	Priya Roy	2010	Full Time	Production of aphid resistant <i>Helianthus annuus</i>
18.	S. Jenny Angel	2010	Full Time	Biodegradable adhesives from microbial source
19.	D. Suresh	2011	Part Time	A Study on Azo dye degradation using Microbial Species
20.	S. Ramya	2011	Full Time	Biotechnological applications of extremophilic Actinomycetes
21.	R. Dhanasekar	2011	Full Time	The role of Probiotics and the biodegradation of organic matter in shrimp culture
22.	A. R. Anuradha	2011	Part Time	Ethnobotanical Studies in Relation to Anticancer Plants of Tirumala Hills
23.	P. Suganthi	2011	Full Time	Microbiological investigation of diabetic foot infection in tertiary care hospitals, Tamil Nadu

24.	T. Shanmugasundaram	2012	Full Time	Metal nano particles from actinobacteria and its biomedical applications
25.	M. Vikramathithan	2012	Full Time	The control of Blue Green Algae and <i>Zoothamnium</i> Sp., in Shrimp Culture
26.	T. Silambarasan	2012	Full Time	Secondary metabolites from marine algae
27.	K. Balakrishnan	2012	Full Time	Prevalence of candida species from cases of oral candidiasis in seropositive HIV patients in Salem and Namakkal Districts, Tamil Nadu
28.	S. Uma Maheshwari	2012	Full Time	A cross-sectional study of clinical types and etiological agents of superficial dermatophytosis at Salem zonal hospitals
29.	R. Arthi	2013	Full Time	Dermatophytes
30.	J. Thirumalairaj	2013	Full Time	Bioactive compound from marine Actinobacteria

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