



A Newsletter From The PG & Research Department Of Microbiology



June-December 2020 • Issue 01 • Volume 01

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MESSAGE FROM THE SECRETARY

Dear students, staff and readers of MICROSPOT,

"Write what should not be forgotten." — Isabel Allende

Dwaraka Doss Goverdhan Doss Vaishnav College remains as an educational institution with high standards in education, teaching and creating students with virtuous social responsibilities. The student centric academic structure of the college, aims at overall development of our students and also in developing outstanding professional skills. We, in addition to tremendous progress in academics, also encourage our students and staff, to develop relevant extracurricular capacities to excel in an ever changing world.

Therefore, I am confident that the Department newsletter 'MICROSPOT' from the PG & Research Department of Microbiology would be an excellent platform for members of the department to document the proceedings, and provide the students, a splendid opportunity to contribute. This newsletter would serve as a wonderful avenue to record the activities of the department and at the same time, serve as a reminder of the fun-filled days of each and every student during their studies at DGVC. My heartfelt congratulations to staff members and students for their fruitful effort.

With Best Wishes.



FROM THE PRINCIPAL'S DESK

Dear readers,

It gives me great pride and satisfaction in addressing you through this newsletter 'MICROSPOT' published by the PG & Research Department of Microbiology. At Dwaraka Doss Goverdhan Doss Vaishnav College, apart from providing high standards of academic education, we believe in promoting platforms that help students identify and build their diverse talents.

A newsletter reflects the activities and engagement of the students as well as staff in all sorts of activities undertaken by a Department and helps to develop writing skills among students. It also inculcates in students significant qualities such as resource management, punctuality and responsibility which will play an important role in their future. I congratulate the Editorial Board of this newsletter who have played wonderful role in accomplishing the tasks and bringing out such a wonderful piece of publication. I am confident that this Department newsletter will send a positive signal to the staff, students and all its readers, who are interested in the field of microbiology.

All the best!

MESSAGE FROM THE HOD



Dear Students and family members of DG Vaishnav College!

Our college and the Department has achieved remarkable success despite unprecedented challenges in 2020, including the worldwide COVID-19 pandemic. Department has well qualified and dedicated faculty with well-developed laboratories. We impart quality education through sound theoretical knowledge, hands on laboratory as well as computational skill and exposure to recent technologies by visiting industries & expert talk. We encourage our students continue to be active in research, publishing papers, presenting at conferences, and winning awards.

I always believe teachers are the one who can make a difference. In addition to being strongly committed to our teaching mission, our faculty continue to publish and present top scholarly work on a range of diverse topics. I would like to thank Professors Dr. S. Vijayalakshmi and Dr. Radhika Jevanand, the pillars of department for their dedicated and commitment during their service. This newsletter is an attempt to highlight the achievements of the department, in spite of the space constrain we have showcased the best and look forward to have more in the future on a Biannual editions.

Dr. P. Vidya

OUR DEPARTMENT - AS WE MARCH TOWARDS 25 YEARS OF EXCELLENCE

Our Microbiology department was established in the year 1997 by Prof. S. P. Thyagarajan (D.Sc. in Microbiology). In these 24 years, the department flourished well in the area of research by introducing M.Phil and research programme. In the year 2015, M.Phil program was commenced thanks to by Dr. Elanchezhian Manickan, Professor and Head, Department of Microbiology, Dr ALM Post Graduate Institute of Basic Medical Sciences, University of Madras & Dr. S. Sasikala, Associate Professor & Head, Department of Microbiology, Presidency College who served as commission members and provided valuable inputs.



For Ph.D. program, the expert committee Dr. Thangam Menon, Professor and Head, Department of Microbiology, Dr ALM Post Graduate Institute of Basic Medical Sciences, University of Madras & Dr. N. Anbumani, Professor, Department of Microbiology, Sri Ramachandra Medical College visited the department on 20th October, 2016 and Ph.D degree program came into inception in the year of 2019.

Professor S. P . Thyagarajan (D. Sc Microbiology)

OUR DEPARTMENT - AS WE MARCH TOWARDS 25 YEARS OF EXCELLENCE



M.Phil., programme in Microbiology Year of Inception – 2015

Our Department, with hard and sincere efforts of the HOD, Principal and faculty, established the M. Phil programme with affiliation to University of Madras in the year 2015.

Dr. Elanchezhiyan Manickam, Professor and Head, Department of Microbiology, Dr. ALM Post Graduate Institute of Basic Medical Sciences, University of Madras and Dr. Sasikala, Associate Professor and Head, Department of Microbiology, Presidency College, Chennai were kind enough to serve as commission members and help us secure the M. Phil affiliation from the University of Madras.



Ph. D. programme in Microbiology Year of Inception – 2019



To improve higher education and research, our Department with consent of our Principal and college Management established the Ph.D. programme with affiliation to University of Madras in the year 2019.

We currently have scholars enrolled in this programme who are actively participating in emerging areas of scientific research. We aspire them to contribute significantly to science and thereby shine in their career...



OUR VISION

- To provide a captivating and pertinent Microbiology curriculum that will train students at a high standard of systematic literacy and divulge proper skill sets.
- To nurture professionals to categories tasks with a broad perspective and knowledge and take inventiveness in interdisciplinary education and research.



OUR MISSION

MISSION 1

To become a student-oriented centre of international repute, where student from all strata of the society are given a chance to bring out their best through continuous stimulus of scholarly progression and intellectual development.

MISSION 2

To enhance the intellectual foundation of our students and prepare them for life in a complex, dynamic world where they would preserve, add to, evaluate, and transmit knowledge in the field of Microbiology and become responsible contributing citizens of society, who can take up leadership positions around the globe.

MISSION 3

To groom proficient students as scientific workforce in national and global excellence for industry and to make accessible a large pool of well-educated entities as potential pedagogue.

THE PG & RESEARCH DEPARTMENT OF MICROBIOLOGY



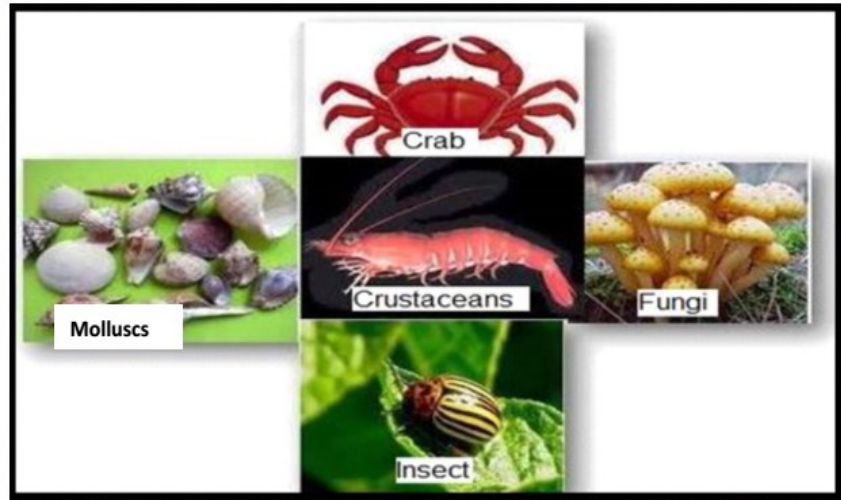
Chitin – The wonder polysaccharide
- Dr. S. Jagadeeswari

Chitin is the totally biodegradable natural polysaccharide biologically produced by living creatures on the earth in huge quantities. A polymer composed totally of acetylglucosamine is called chitin, and one composed totally of glucosamine is called chitosan. Chitin upon deacetylation produces chitosan. Chitin/Chitosan is a white and porous polysaccharide that formsabase for the hard shell of crustaceans like crabs, lobsters and squids.

The chemical structure of Chitin/Chitosan is quite similar to that of cellulose and its production is next to the cellulose, which is biologically produced by plants. It is estimated that the total production of Chitin on the earth annually is about 1 to 100 billion tons. It is also estimated that about 150,000 tons of Chitin are available for commercial use annually. Due to its biocompatibility with human body tissue, the cicatrizant properties of chitin and chitosan have demonstrated their effectiveness for all forms of dressings - artificial skin, corneal bandages and suture thread in surgery - as well as for implants or gum cicatrization in bone repair or dental surgery.

Betschitib W, an artificial skin based on chitin, has been made in Japan since 1987. The chemical structure of chitin, a natural polymer, is very close to that of mucopolysaccharides, whose biological tolerance has been demonstrated for a long time. Chitin is a particularly effective hydrating agent. In addition, the great advantage of chitin and its derivatives is the lasting quality of their hydrating effect.

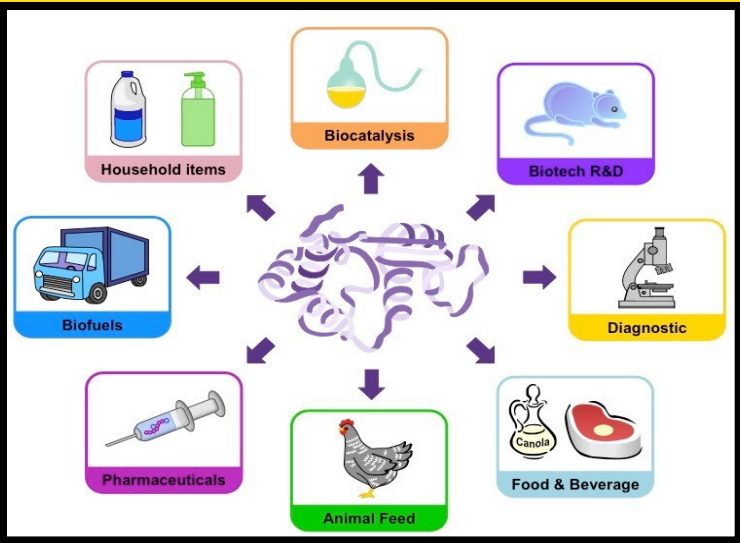
Employed as a chelating agent, chitin and its derivatives are used for treating drinking water by separating organic compounds and heavy metals, and for treating sewage by precipitating certain anionic wastes and capturing pollutants such as DDT and PCBs
The Environmental Protection Agency (EPA) has already approved the use of chitosan in water at concentrations of up to 10 mg per liter. For sewage treatment, chitosan can be used at up to 5 ppm. It reduces the oxygen demand by 80 to 85% and reduces the phosphates level to less than 5 ppm.



Emerging applications of Bioenzymes produced from Food Waste
- Dr. B. Kirthiga

During the past few years, there has been serious public concern about the ecological problems arising due to the usage of synthetic cleaning agent which releases toxic chemicals and modulates the pH of the environment. Recently, enzyme bio cleaners have been introduced to retain the natural properties of the environment. Enzyme biocleaners are an organic solution produced by the simple fermentation of fresh vegetable wastes, fruit wastes with addition of brown sugar and water by using selective microorganisms like Yeast and Bacteria. This fermentation creates natural chains of proteins, mineral salts, organic acids, alcohol and enzymes.

This solution has the capacity to breakdown, change, create and catalyze functions that make it a wonderful cleaning aid in household as well as in industrial and medical applications. The enzyme bio-cleaners are referred to as natural green chemicals since they become a perfect future consumer preference for miscellaneous applications and sustainable environment. Bioenzymes are the recent advancement of scientific research because of its specific applications in the vast range of fields.



Dr. S. Jagadeeswari Ph.D



Dr. B. Kirthiga Ph.D

Contribution of women in science

- Dr. A. Mageswari

Almost always behind the screen, hidden or ignored from the public’s eye, women have played a major role in the development of biotechnology and medicine. In history, achievements of only a few women, whose contributions would be impossible to ignore have been given due credit and recognition. Though this is being broken and success of women coming into limelight because of advancement in communication technologies, the pace is yet to pick up. Here let us look at few women from yesteryears as well as today who have profusely contributed to branches of life sciences including biotechnology and microbiology.

In the past, though Watson and Crick are well-known, equal recognition is due in literature for Rosalind Franklin who played a fundamental role in deciphering the structure of DNA. Similarly, it was Esther Lederberg who discovered the lambda phage which is now a major tool for studying gene regulation and genetic recombination. Bioinformatics, the field that is quite ubiquitous now to researchers was initially developed by a woman, Margaret Dayhoff. In the current date, Jennifer Doudna and Emmanuelle Charpentier helped pioneer CRISPR, a revolutionary technique for genome editing. We are well aware of the Pfizer, the pharma giant. Angela Hwang is the group president and has been leading the Pfizer Biopharmaceuticals Group. Similarly, Andrea Wainer is the Executive Vice President at Abbott Laboratories, also a pharma giant. These are only a few examples but, they are a source of inspiration to women, especially in India where a large female population study life science at a graduate level but when it comes to serious research, refrain themselves.



Dr. A. Mageswari Ph.D



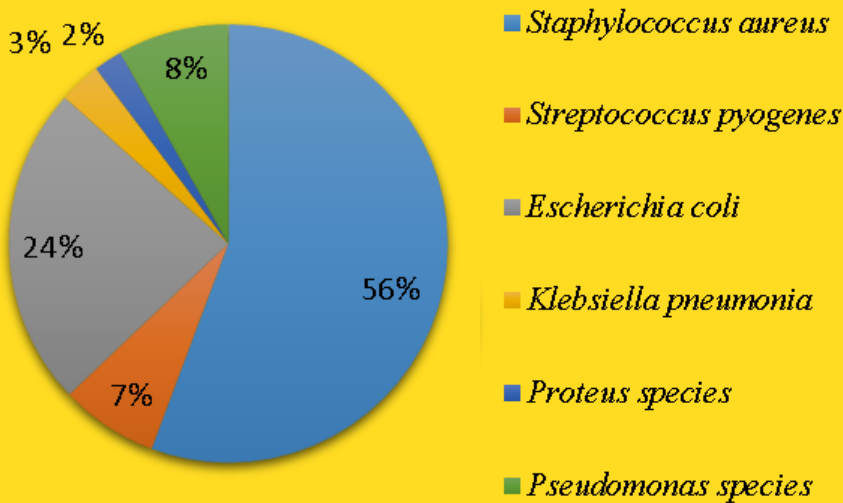
Dr. M. Abirami Ph.D

Wound infection

- Dr. M. Abirami

According to the Centre for Disease Control and Prevention (CDC), *S. aureus* is the major causative organisms of wound infection followed by *E. coli*. Surgical site infection (SSI) is mainly caused by nosocomial infection (2 – 20 %) and it leads to increase the cost of treatment, morbidity and mortality. The surgical site wound infections are of two types viz primary infection that occurs during surgery (causing severe infection to the patient within a week) and secondary infection that occurs after surgery which are obtained from exogenous and endogenous microorganisms.

SSI is the most researched and particular type of health care associated infections in low and middle income countries (LMICs), as per the World Health Organization's (WHO) Clean Care is a Safer Care programme. SSI influences up to one-third of individuals who have performed a surgical operation. Though worldwide assessments of SSI range between 0.5 and 15 %, findings in India typically indicates higher amounts varying from 23 to 38 %. SSI was noticed to become connected to the nature of wounds and that depends entirely on the operation location. The most common pathogenic species in SSIs were *S. aureus*, *P. aeruginosa*, and *E. coli* and the existence became higher after cardiovascular and gastrointestinal surgery. As a result, avoiding these infections is difficult and comprises the application of a sequence of preventive measures that should be taken. Fortunately, the application of these actions is not standard in the world. In India, no international/national standards for the prevention of SSI have been developed, and also some discrepancy in the existing health policies. Therefore, an efficient and implementable National Guideline for LMICs, including India, is needed.



Post - Operative Wound Infection

Induction Program 2020 for Freshers, 5th November 2020

Dr. Prem Saran Tirumalai, Food and Dairy Testing Lab & Assistant. Professor, Dayalbagh Educational Institute, New Delhi delivered a valuable talk on a new field of Methicillin resistant space craft, NASA as well as about gut microbes & Psychobiotics to students.



Farewell and Freshers day, 4th December, 2020

The Micromatsuri, Microbiology Association, PG and Research Department of Microbiology, D.G. Vaishnav College, organized the Farewell and Freshers program for batches 2018 -2020 & 2020 – 2022 in the online platform through google meet.

Virtual Webinar on “Role of Bioinformatics in Life Sciences”, 5th December, 2020

Dr. C.R.Hemalatha, Senior Lecture, Sri Ramachandra Institute of Higher Education and Research, shared her insights on recent discipline with its roots in the construction of molecular sequence databases, along with major advances in computer technology and the development the development of a variety of biochemical wet-lab (laboratory bench-work) techniques that allow rapid generation and analysis of genomic and proteomic data.



Guest lecture on “The obstacle crossing and considerations in thesis writing”, 23th December, 2020

Dr. P.Vidya, Head of the Department, Microbiology, D.G.Vaishnav College, delivered a talk on hurdles faced by students in the preparation of thesis and overcoming it. She explained how to search a topic, review of literature and how to frame a hypothesis before starting a research work and concluded her talk by providing a clear view on thesis writing.



A MOU was signed between the Department of Microbiology, D.G.Vaishnav College and IndiSeq Genomics, Thirumangalam, Chennai on 18th Sep, 2020 to develop collaborative activities in the areas of applied research and to enhance the academic knowledge and practical expertise in the area of research.

RESEARCH PUBLICATIONS

Our Scientific Research Publications...



Dr.S.Jagadeeswari

M.D. BalaKumaran, R. Ramachandran, P. Balashanmugam, S. Jagadeeswari & P.T. Kalaichelvan; Comparative analysis of antifungal, antioxidant and cytotoxic activities of mycosynthesized silver nanoparticles and gold nanoparticles. Materials Technology. 2020. <https://doi.org/10.1080/10667857.2020.1854518> [Impact Factor : 1.738]

Dr.A.Mageswari

Ramachandran Srinivasan, Amballa Chaitanyakumar, Parthiban Subramanian, Anbazhagan Mageswari, Ajitha Gomathi, Velmurugan Aswini, Aathi Muthu Sankar, Mohandass Ramya, Kodiveri Muthukaliannan Gothandam; Recombinant engineered phage-derived enzymatic in *Pichia pastoris* X-33 as whole cell biocatalyst for effective biocontrol of *Vibrio parahaemolyticus* in aquaculture. International journal of biological macromolecules. 2020; 154: 1576-1585. <https://doi.org/10.1016/j.ijbiomac.2019.11.042> [Impact Factor : 5.162]

ONLINE CERTIFICATE COURSES

17 Postgraduate students from the Department of Microbiology completed the NPTEL certification courses.

FACULTY PARTICIPATION

Type of Program	International Level	National Level	State Level
Seminars/ Workshops	5	34	1
Paper Presentation	1	5	2
Online Courses	1	10	-
Faculty Development Programme	3	20	-

HOW ARE WE PREPARED FOR THE NEXT PANDEMIC



Researchers at the Center for Disease Dynamics, Economics & Policy (CDDEP) working with the University of Virginia’s Biocomplexity Institute (US) have received a \$10 million, five-year collaborative “Expeditions in Computing” grant from the National Science Foundation. The purpose of the grant is to use innovative technological and scientific advancements to plan for and respond to epidemics and pandemics, including outbreaks of deadly novel viruses and even the common flu, which sickens and kills millions of people each year.

This study aims to develop transformative and scalable computing and data science technologies to revolutionize real-time epidemiology for controlling disease outbreaks. The consortium includes teams of researchers at 14 academic institutions, working with renowned international partners who are determined to find ways to stop or mitigate outbreaks before they spread across the globe.

“In the inter-connected world that we live in, there is a need for extensive collaboration and coordination among agencies and governments across the globe in order to transform our global ability to respond to infectious disease and protect humanity,” said Dr. Jyoti Joshi, Head-South Asia for CDDEP.

Such partnerships will enhance forecasting allocation during response and mitigation, while also studying the effects of epidemics on social and political structures across the globe. The computational advances can also be applied to other fields beyond epidemiology including cybersecurity, ecology, economics, and social sciences. progression of epidemics, support efforts for resource

STUDENT'S FEAT

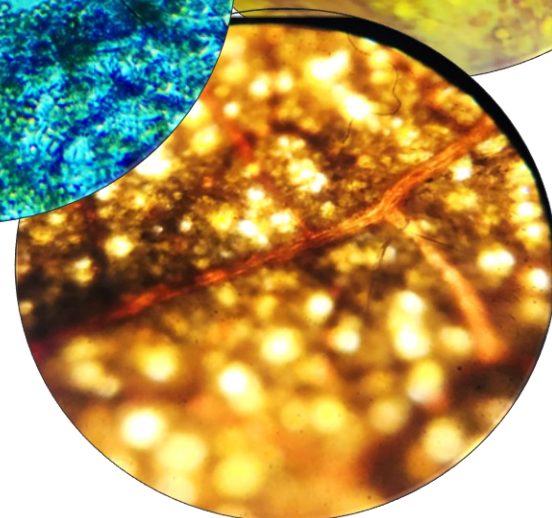
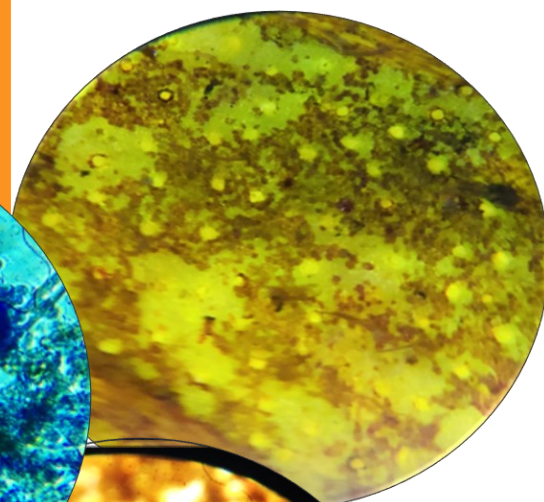
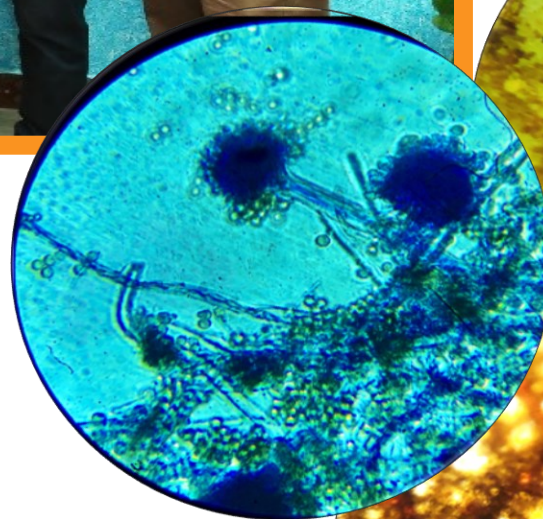
Ms. Sharmila pursuing Ph.D. Microbiology at our Department has received New world record from Nobel World Records for Maximum Number of Collection in microbial existence - 17,017 photos of Bacteria, Fungi, Algae, Soil, Water, Leaves, Roots, Fruits, Seeds, Bird feathers, Vegetables, Blood, Insects, Parasites and so on, observed under 100X, 45X, 10X and 5X magnification.

From Nobel world records Dr L. Aravind [International Director-Nobel World Records & CEO], S.V.Thirugnanaraman Managing Director at Nobel world records they have honored her at her home located at Manali New Town, Chennai.



“This feat would not be possible without my family members and all my teachers from Department of Microbiology, DGVC, who I thank profusely and am very grateful to have”

- SHARMILA



I have received “Outstanding Entrepreneur Award “by Akshay Sharma in South Indian Women Achievers Awards (SIWAA) which was held on 22nd of December 2020 at SPR City Perambur.

In the past, I have been blessed to have been honoured by Sri. Shravana Lakshman (Founder & President -The News Paper Association of Karnataka), Sri. H.D. Kumaraswamy (Former Chief Minister of Karnataka) and Sri. K. Gopalaiah (Minister of Excise Department) Government of Karnataka.

From my Childhood (starting at the age of 7) I have actively engaged in social service and have volunteered at orphanage chains. Nothing could equalize the happiness that I get by seeing smiles on those pretty faces while I do my service. I am sure that I will be enlightening unprivileged people of our nation with my caring hands!



Our student had cleared the Graduate Aptitude Test (GATE), an examination that tests the comprehensive understanding of various undergraduate subjects in science for admission into the Masters Program and Job in Public Sector Companies.

We are very happy to announce that she has also secured admission to MS Biology Programme at the California State University in the USA.



Proud Alumni

Dr. C. R. Hemalatha,
Assistant Professor,
Bioinformatics,
Sri Ramachandra Faculty of
Engineering and Technology,
Batch: 2001 – 2003



Proud Alumni

B. Jeevanand Raju
Hygiene & EHSMS
Senior Manager
Shangri –La Hotel & Traders
Qaryat Al Beri, Abu Dhabi
Batch: 2000-2002

This is truly a proud moment to reminisce my PG days nearly two decades ago. Memories rush in like a river all at once though those were the absolutely beautiful gadget-free days! College life is the best part in every person's life. It is a time full of experiences, learning new things. There is no doubt that the time spent in our college becomes the best time of our lives. It actually becomes a second home, where we meet various unique people, come to make some amazing friends, make some mistakes, and finally, we get to graduate too among all the other things.

Today I am what I am because of all my teachers who not only taught us from scratch but also paved ways for us to be self-starters, allowing us to make decisions and try the roads less-travelled. We were the last batch of students having a non-semester pattern syllabus. I am very confident in the subject today only because we studied more, following a slow and steady rhythm which helped us retain information better. Our batch boasted of 24 students in the first year which became 15 in the following year. We were a mixed group of a few ethnic groups in India and had a bunch of NRIs too. The excellent bond we shared, awesome days of camaraderie and goodwill are always cherished. We had a great batch of seniors too who were so playful and helpful, all in one who showed us the many do-hows that we know today.

Self-development is one of the most important transition which happens to a student, especially during postgraduate education. We grow and become more mature over the duration of our course based on our own journey and experiences throughout college life. A few disappointments and heartbreaks too made us more human and humble. It takes decades to understand that these college experiences make us stronger to face life better. It gave us more confidence and self-sustenance to be on our own. It is my pleasure to thank the management of DGVVC, our teachers, my batch-mates, seniors, juniors and all the supporting staff for nurturing us and moulding us into what we are today!

The spirit of the college life is hard to recapture sometimes, but the Alumni gives an excellent opportunity to go down that memory lane. It gives me great pleasure and privilege to be writing for the Alumni of our reputed department and esteemed college. I am and have always been proud to be a student and alumnus of D.G. Vaishnav College and more so of the P.G Department of Microbiology.

It has truly been one of the best experiences of my student life which has obviously laid the foundation that has led to the growth and development of my very successful career. It has been a remarkable journey ever since and I am truly ever grateful to my respected professors and lecturers for their groundwork, guidance, trust, endorsement and constant motivation that they have best owed in me. The learning curve was definitely in the log phase and it is this knowledge, skill, discipline and core values developed from here that has enabled me to carve out a niche for myself. I must say that without the mentorship and advice of our HOD Dr. (Mrs.) P. Vidya I would not have established myself in my career. And I am sure that I am not the only student to have gained from her support.

I am indeed delighted to be associated with the college and my professors even after many years of my student life and I'm sure it will continue to be so for many more years to come. I thank and appreciate the Alumni Association of the Department and to the college at large for this stupendous effort to keep us all bound together, which is definitely a thing to reckon with. It is an absolute honor.



Proud Alumni

Deepa Reddy
Regulatory Compliance
Coordinator
MD Anderson Cancer Center,
Houston TX USA
Batch 1997-1999

I am Deepa Reddy from the batch of 1997-1999 Department of Microbiology. College life is known as one of the most memorable years of one's life. I would like to thank DG Vaishnav for making my college life the most memorable one.

I am grateful to be a part of this college. Being the first batch of Microbiology Department, we always had the most loving and memorable memories. The education I received prepared me for a successful career for which I am deeply grateful. The teachers of DG Vaishnav Microbiology department are the greatest gift that made a tremendous difference for many people including me. Their expertise inspired me to learn more and be the best that I can be with all the humility. I greatly applaud their efforts.

I am currently working as a Regulatory Compliance Coordinator for Department of Stem Cell Transplantation and Cellular Therapy at MD Anderson Cancer Center Houston TX 77054. MD Anderson Cancer Center is ranked as one of the top two hospitals in cancer care. I started my career as a Food Microbiologist for The Oberoi Flight Services right out of college.

After my marriage, I moved to the US and started my career at a CRO specialized in cGMP/cGLP compliant service to biological drug development and manufacturing activities worldwide. I owe my success to my teachers and college that laid the foundation.



Proud Alumni

Priya Veluswamy,
Group leader in heart
surgery research
Magdeburg University
Hospital, Germany.

I am Priya Veluswamy, group leader in heart surgery research in Magdeburg University Hospital, Germany. My deep-seated academic interest started when I was a master student in the Department of microbiology in D.G. Vaishnav college during the academic year 2000-2002.

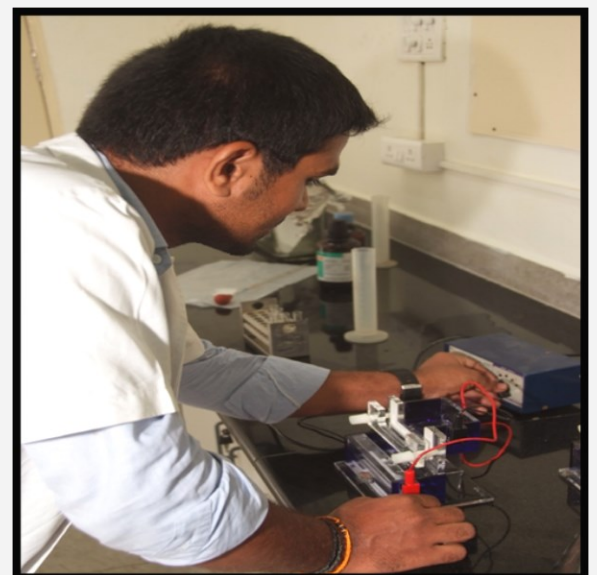
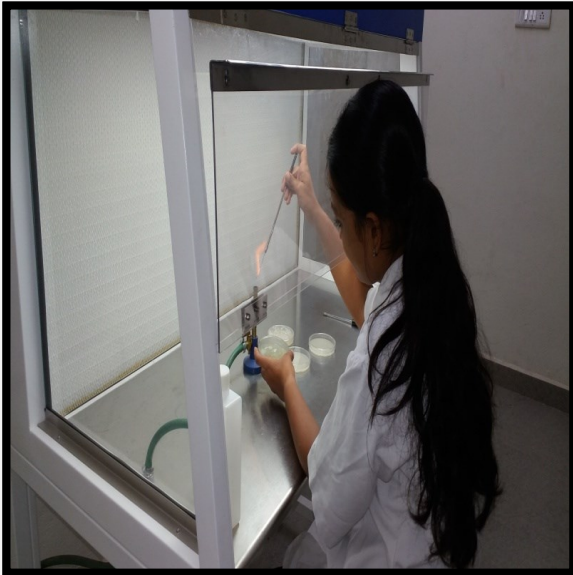
D. G. Vaishnav college is one of the reputed colleges in Chennai, which shows constant dedication and competence towards academia, in conducting several thought-provoking and intellectual activities like symposium, national and international seminars, inter-collegiate quiz competitions, cultural activities etc.

One of the main highlights of our college is that the management team are always very keen in recruiting excellent and highly skilled staff members to each department to constantly maintain the qualitative output of the institution. I personally believe that the excellent staff members are the major assets of our college as I had developed and enjoyed my learning skills by a wonderful staff team in the department of applied microbiology.

I am always amazed by the teaching and team leading skills of our HOD mam, Dr. P. Vidya, who is heading the department of applied microbiology for very many years. She had implemented a wonderful organization of lab structures that led us to gain finest practical knowledge during the master program.

It was totally a wonderful and memorable period of my academic journey. I am proud to be an alumina at the department of applied microbiology in D.G. Vaishnav college that was an amazing portfolio, which provided us with all types of basic knowledge in the field of microbiology and furthermore trained us with the good organization skills that helped us in scheduling our studies. "I, in this occasion, convey my thanks to D.G Vaishnav college, Chennai and the staff members of applied microbiology department for their efforts to bring out memorable souvenir . I wish a great success."

DEPARTMENT INFRASTRUCTURE



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- Dr. Radhika Jevanand M.Sc.,M.Phil.,Ph.D. Assistant Professor
- Dr. S. Jagadeeswari M.Sc.,M.Phil.,Ph.D., SET Assistant Professor
- Dr. B. Kirthiga M.Sc.,M.Phil.,Ph.D Assistant Professor
- Dr. M. Abirami M.Sc.,M.Phil.,Ph.D Assistant Professor

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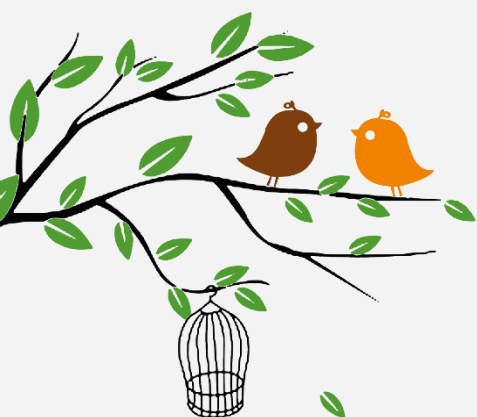
Dr. P. Vidya

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