

CURRICULUM VITAE

Name : **Dr.Manivannan.G**
Designation : Assistant Professor
Department : Biotechnology
Year of Experience : 24 Years
Area of Specialization : Microbial Biotechnology-
Spirulina Production Technology



Educational Qualification:

Degree	Institution	University	Year of Passing
B.Sc Zoology	Vivekanada College, Thiruvudagam west	Madurai Kamaraj University	1994
M.Sc Microbiology	V.H.N.S.N. College Virudhunagar	Madurai Kamaraj University	1996
M.Phil Biotechnology	Bharathidasan University	Bharathidasan University	2006
Ph.D Microbiology	Madurai Kamaraj University	Madurai Kamaraj University	2014

Educational Excellence:

University First Rank in Post Graduation for 1994-1996 Batch

College Second Rank in Under Graduation for 1991-1994 Batch

Award Received:

Honored with **Senior Educator and Scholar award** in the field of Microbiology by National Foundation for Entrepreneurship Development, Coimbatore on 5th September 2021

Teaching Experience:

- Worked as **Head, Department of Microbiology and Biotechnology**, N.M.S.S.Vellaichamy Nadar College, Madurai, Tamilnadu - 625 019 from 15.07.2017 to 31.08.2021 (**4 Years**)
- Worked as **Assistant Professor (Under FIP Programme) in the Department of Zoology**, N.M.S.S.Vellaichamy Nadar College, Madurai, Tamilnadu - 625 019 from 15.07.2015 to 14.07.2017 (**2 Years**)
- Worked as **Lecturer from 29.07.1998 to 16.07.2000 and Head in-charge from 17.07.2000 to 14.07.2015** in PG Department of Microbiology and Biotechnology UG), N.M.S.S.Vellaichamy Nadar College, Madurai, Tamilnadu - 625 019 (**16 Years 11 months**).
- Worked as Guest Faculty in Microbiology, Annai Dora College of Nursing Andipatti from 2008-2012

Consultancy Experience:

Worked as **Consultant Microbiologist** in:

- Golden Hospital, Gomathipuram, Madurai-20
- Surgical Gastroenterological Hospital, Anna Nagar Madurai-20
- Anbu Hospital, Theppakulam, Madurai
- Gnanamani Hospital, Sattur
- Gangai Mineral Water Company, Kochadai, Madurai

Academic achievements:

- Introduced New courses like B.Sc Biotechnology, B.Sc Microbiology, Certificate Course in Medical Laboratory Technology and Medical Coding at NMSSVN College, Madurai

Additional Responsibilities:

- Board Chairmen for the Department of Microbiology and Biotechnology, N.M.S.S.V.N College, Madurai-19 from 2007 to June 2015 & 2017 to till date.
- Doctoral Committee Member at Department of Environmental Science, Periyar University, Salem
- Board of Study Member in the Department of Microbiology, V.H.N.S.N College, Virudhunagar and Madurai Kamaraj University, Madurai
- Board of Study Member in the Department of Biotechnology, M.S University, Tirunelveli
- Board of Study Member in School of Biological Sciences, Department of Microbiology & Madurai Kamaraj University.
- Board of Study Member in the Department of Microbiology, ANJAC & SFR College, Sivakasi

- Board of Study Member in the Department of Microbiology, Nehru Arts and Science College, Coimbatore.
- Board of Study Member in the Department of Botany, Yadava College (Men's), Madurai.
- Evaluator and Question paper setter for Microbiology and Biotechnology examinations conducted by MK University, Madurai, MT University, Kodaikanal, Dr.MGR Medical University, Chennai and other Autonomous colleges in Tamilnadu.

Projects Undertaken:

Post Graduation:

Preliminary studies on antimicrobial substances from *Acalypha indica*, *Parthenium hysteroporus* and *Tridax procumbens* against selective microorganisms

M.Phil:

Characterization of Phosphate Solubilizing Microorganisms isolated from rhizosphere soils and their effects on the growth of Tomato and Chilli plants

Ph.D:

Isolation, Characterization and Efficiency of Phosphate Solubilizing Microorganisms Isolated from soil

Research Projects completed:

Title of the Project	Funding Agency	Duration
Potential of various Ayurvedic medicines as antimicrobial agents against pathogenic bacteria	Tamilnadu State council for Science and Technology, Chennai	1999-2000
Identification of <i>Candida</i> sp in HIV infected patients	Tamilnadu State council for Science and Technology, Chennai	2001-2002
Purification, Characterization and antimicrobial analysis of lectin isolated from marine red algae <i>Gracilaria edulis</i>	Tamilnadu State council for Science and Technology, Chennai	2006-2007
Molecular level identification and Characterization of petroleum degrading microorganisms isolated from oil spilled area	Tamilnadu State council for Science and Technology, Chennai	2008-2009
Isolation and characterization of microbial pigments from marine microorganism and their effect on pathogens	Tamilnadu State council for Science and Technology, Chennai	2010-2011
Production of silver nanoparticles by <i>Ocimum</i> leaf extract and analysis of antimicrobial properties	Tamilnadu State council for Science and Technology, Chennai	2012-2013

Publications:

- Jeyakumar Williams, P.Samuel Naveen, **G.Manivannan**, V.Ajithkumar and M.Premanathan(2003). Culture and Sensitivity Pattern of Candidiasis in HIV/AIDS patients, Indian Medical Gazzette,307:379-383

- Mariappan Premanathan, Krishnamoorthy Karthikeyan, Kadarkaraithangam Jeyasubramanian, **Govindasamy Manivannan** (2011). Selective toxicity of ZnO nanoparticles toward Gram positive bacteria and cancer cells by apoptosis through lipid peroxidation. *Nanomedicine: Nanotechnology, Biology and Medicine*. 7:184-192 [**Elsevier Inc Publication, Impact factor. 6.930 (2012)**]
- **G.Manivannan**, S.Venkatesan, M.Kirithika and K.Rajarathinam (2011). Studies on Phosphate Solubilizing Microorganisms Isolated from the Rhizosphere Soils of Tomato and Chilli. *College Sadhana- Journal for Bloomers of Research*.4:283-287
- Karthikeyan Krishnamoorthy, **Govindasamy Manivannan**, San Jae Kim, Kadarkaraithangam Jeyasubramanian, Mariappan Premanathan (2012). Antibacterial Activity of MgO Nanoparticles based on peroxidation by oxygen vacancy.*J.Nanopart.Res.*14:1063 [**Springer Science Publication, Impact factor: 3.287(2011)**]
- J.Fredrick and **G.Manivannan** (2012) The problem of climate change and interlinking of rivers. *Kisan World*.39(5):28-30
- Periyasamy Rameshkumar, Shanmukhanand Pothana, **Govindasamy Manivannan** and Suruliraj Manikandan(2014). Microbiological and Molecular Characterization of Sulphur Oxidizing *Pseudomonas* sp. PRK786 Isolated From Cattle Manure Compost. *International Journal of Advanced Research*. 2(3) :714-722
- Periyasamy Rameshkumar, Shanmukhanand Pothana, Koppulan Vijayaraj, **Govindasamy Manivannan** and Prabhu (2014). Identification and Purification of Membrane-bound NAD (P) + - Dependent d-Glucose Dehydrogenase (nGDH) and Thiosulfate Dehydrogenase (TDH) from Cattle Manure Sulphur-Oxidizing *Pseudomonas* PRK786. *International Journal of Advanced Research* 2(5) :665-674
- Periyasamy Rameshkumar, Shanmukhanand Pothana, **Govindasamy Manivannan** and Murugasan Murali (2014). Heavy Metal Response Behaviors Of Sulfuroxidizing *Pseudomonas* sp. PRK786. *International Journal of Advanced Biotechnology and Research*15(2).106-116
- Periyasamy Rameshkumar, Shanmukhanand Pothana, SurulirajManikandan and **Govindasamy Manivannan** (2014) Sulphur oxidizing bacteria (sob): optimization of

their physiological characteristics”-Asian Jr .of Microbiol. Biotech.Env.Sc. 16 (3) : 593-600

- **G.Manivannan** and K. Rajarathinam Characterization of Newly Isolated Phosphate Solubilizing Bacterial Strain *Burkholderia anthina* from rhizosphere soil of Tomato, International Journal of Innovations in Agricultural Sciences (IJIAS). 2018. 2(4); 220-229
- Sivagamasundari, T. , Dr. Jeyakumar N. and **Dr. Manivannan G.** “Plasmid Encoded Genes Specifying Diesel Oil Degradation from *Bacillus* sp and *Enterobacter hormaechei*” International Journal of Current Research in Life Sciences. 2018. 7(02):1009-1011

New Phosphate Solubilizing Microorganisms Submitted in GenBank(NCBI)

S.No	Identified Organisms	GenBank Number/ Accession Number	GI Number
1.	<i>Burkholderia anthina</i>	JXO25731.1/ XO25731	392283719
2.	<i>Paenibacillus</i> sp.	FJ938235.1/ FJ938235	238579802
3.	<i>Acinetobacter calcoaceticus</i>	FJ972682.1/ FJ972682	238632215
4.	<i>Burkholderia</i> sp.	JX025732.1/ JX025732	392283720

Publication in Proceedings:

- N.C.J. Packia Lekshmi. S, Viveka, M.B. Viswanathan, **G. Manivannan** and T. Mini Shobi (2014)GC-MS Characterization of Volatile Odorous Compounds in *Allium Ceba* Nanobio Pharmaceutical Technology Applications and Perspectives ELSEVIER 488-494
- Sathiya S.M, G.S. Okram, S.Mariya Dhivya, **G.Manivannan**, M.A.Jothirajan (2016) Interaction of Chitosan/Zinc Oxide nanocomposites and their antibacterial activities with *Escherichia coli* : Materials Today Proceedings 3: 3855-3860
- Mariya Dhivya, S, Sathiya S.M, **G.Manivannan**, M.A.Jothirajan (2016) A comparative study on the biopolymer functionalized iron oxide Nanocomposite for antimicrobial activity : Materials Today Proceedings 3: 3866-3871

Book Chapter:

Shanmugapriya S., **Manivannan G.**, Selvakumar Gopal, and Sivakumar Natesan. Extracellular Fungal Peroxidases and Laccases for Waste Treatment: Recent Improvement. A. N. Yadav et al. (eds.), Recent Advancement in White Biotechnology Through Fungi, Fungal Biology. Springer Nature Switzerland AG 2019.

Research Papers Presented in Seminar and Conference:

- Presented a research paper entitled „Studies on Phosphate solubilizing Microorganisms isolated from rhizosphere soil“ in National Seminar on Recent Advances in Plant Biology held at V.H.N.S.N. College, Virudhunagar on 10th & 11th Aug, 2006.
- Presented a research paper entitled „Characterization of Phosphate solubilizing Microorganisms isolated from rhizosphere soil“ in 48th Annual conference of AMI held at IIT Madras, Chennai from 18th to 21st Dec, 2007.
- Presented a research paper entitled „Studies on the growth and biological constituents of *Spirulina platensis* at different growth conditions“ in International Colloquium on Emerging Biotechnologies in Agriculture, Animal Health and Productivity held at Alagappa University from 22nd to 26th Feb, 2009.
- Presented a research paper entitled „Studies on Phosphate solubilizing Microorganisms isolated from soil“ in International Conference on Biotechnology For a Better Life-2010 held at Kalasalingam University, Krishnankovil on 15th-16th Nov 2010.
- Presented a research paper entitled „Study on Phosphate solubilizing Microorganisms isolated from soil“ in National Seminar on Biotechnological Interventions in Green Technology For Sustainable Agriculture (BIGSTA“11) held at Manonmaniam Sundaranar University, Alwarkurichi on 22nd-24th Sep 2011.
- Presented a research paper entitled „Isolation and partial characterization of blue pigment isolated from *Pseudomonas* sp during fipronil biodegradation“ in National Conference on Innovations and New Horizons in Algal Technology and Biotechnology –Ora-2015“ held at KCET, Virudhunagar on 26th & 27th Feb 2015.

Invited Lectures:

- Biological N₂ Fixation at N.S College, Theni on 31.10.2003
- Spirulina Production Technology at Kamaraj College, Toothukodi on 24.09.2006

- Spirulina Production at Dhanalakshmi Srinivasan College of Arts and Science for Women, Perambalur on 12.10.2006
- Collection, Transport and Processing of Clinical specimens at Nehru College of Arts and Science, Coimbatore on 10.08.2007
- Microbial Feed at Kamaraj College, Toothukodi on 15.02.08
- Spirulina Biotechnology at Kamaraj College, Toothukodi on 22.02.08
- Industrial Spirulina Production Technology at V.H.N.S.N. College, Virudhunagar on 03.03.2009
- Went as Resource person for Spirulina Cultivation Training programme for women self-help group of Virudhunagar district held at V.H.N.S.N. College, Virudhunagar from 10.10.2009 to 13.10.2009.
- Spirulina Production Technology in the International seminar on Microbes-Elixir of life held at Dr.MGR-Janaki College for Arts and Science on 28th & 29th Oct 2010.
- Spirulina in Health in the National seminar on Milieu Health 2011 held at Department of Microbiology and Biotechnology, Udaya College of Arts and Science, Vellamodi, Tamilnadu on 8th Feb 2011.
- Spirulina Production Technology for Healthy Future (as Invited Lecture) in International Conference on Phytochemicals in Health and Disease: Challenge and Future Opportunities (ICPHD-2013) held at Department of Biochemistry & Biotechnology in Collaboration with Faculty of Marine Sciences, Annamalai University, Annamalainagar on 23-25th Jan 2013.
- Infectious Diseases at Department of Biomedical Engineering, RVS School of Engineering and Technology, Dindigul on 21st Feb 2013.
- Production and Application of Spirulina in State Level Symposium on Recent Trends in Biological Sciences- Micro Orbis¹⁵ held at Department of Microbiology, Sri Ram Nallamani Yadav College of Arts & Science & Pharmacy, Tenkasi on 21st Jan 2015

- Production of Spirulina at Department of Microbiology, ANJA College, Sivakasi on 10th Feb 2015
- Spirulina Production Technology in National Level Seminar on Emerging Trends in Microbiology held at P.G. Department of Zoology, Rani Anna Govt. College for Women, Tirunelveli on 19th Feb 2015
- Microbiological Analysis of Clinical Specimens at Department of Microbiology, VHNSN College, Virudhunagar on 19th Feb 2015
- Spirulina Production Technology at Department of Biotechnology, Sri Kaliswari College, Sivakasi on 2nd July 2015.
- Industrial production of Spirulina in two days workshop on Algal and Mushroom production technology held at Department of Biotechnology, Kamaraj College of Engineering and Technology, Virudhunagar on 15.09.16
- Spirulina Processing Technology at Department of Biochemistry, Rev.Jacob Memorial Christian College, Ambilikkai on 20.12.2016
- Application and Production of Spirulina in Microbiology Association at Department of Microbiology, PKN Arts and Science college, Thirumangalam on 28.01.2017
- Spirulina cultivation and the challenges faced (TNSCST Sponsored program for rural people at Virudhunagar District) at Department of Microbiology, ANJA College, Sivakasi on 11.10.2017
- Spirulina Cultivation Technology at Department of Zoology, VHNSN College, Virudhunagar on 20.01.2018
- Spirulina Production technology at Department of Zoology, Kamaraj College Thoothukudi on 26.9.2018
- Spirulina Production Technology in Entrepreneurship awareness Camp held at P.K.N Arts and Science College, Thirumangalam on 7.8.2019
- SCP production at Department of Biotechnology and Bioinformatics, Bishop Heber College (Autonomous), Trichy held on 19.09.2019

- Production of Mushroom Technology in NSS Camp held at P.K.N Arts and Science College, Thirumangalam on 07.01.2020
- Workshop on Spirulina Production Technology at Department of Botany, VOC College, Thoothukudi on 04.02.2020
- Webinar on Entrepreneurial approach on *Spirulina* Production Technology at Department of Biotechnology, Kalasalingam University on 10.07.2020.
- Webinar on Innovative Ideas for Research paper Writing conducted by Institution's Innovation Cell, St. Mary's College (Autonomous) Thoothukudi on 19.12.2020.
- One day Workshop on Spirulina Production Technology at Research Department of Botany, VHNSN College, Virudhunagar on 05.03.2021
- Advanced Forensic DNA Technology in the Two Days National Level Virtual Conference On Technological Advancements in Forensic Science organized by Department of Allied Health Sciences, Forensic Science Division, Noorul Islam Centre for Higher Education on 07.05.2021 & 08.05.2021
- National Webinar on Industrial Spirulina Production Technology organized by Department of Microbiology, ANJA College, Sivakasi on 02.06.2021
- Webinar on Startup Strategies for Mass Cultivation of Algae organized by Department of Microbiology PSG College of Arts and Science, Coimbatore on 17.07.2021
- Conducted hands -on training on Spirulina Cultivation organized by Department of Biotechnology, V.V. Vanniaperumal College for Women, Virudhunagar on 23.03.2022
- Entrepreneurial Approach on Spirulina Production organized by Department of Zoology(Under DBT Star College Scheme), NMSSVN College, Madurai on 28.03.2022
- One Day Workshop on Entrepreneurship Opportunities in Life Sciences organized by Entrepreneurship Development Cell, Nagarathinam Angalammal Arts & Science College, Madurai on 30.03.2022

Seminar and Workshops Organized:

- Conducted a State Level Symposium on Recent Trends in Advanced Molecular Microbiology held on 11.10.2000 at N.M.S.S.V.N College, Madurai.

- Conducted a National Level Seminar on Recent Trends in Genomics held on 18.03.10 at N.M.S.S.V.N College, Madurai.
- Conducted a State Level Workshop on Bioinformatics held on 27th & 28th Jan 2011 at N.M.S.S.V.N College, Madurai.
- Conducted a National Seminar on Future Prospects in Omics held on 8th Mar 2012 at N.M.S.S.V.N College, Madurai.
- Conducted a National Seminar on Trends in Bioprospecting held on 27th Dec 2012 at N.M.S.S.V.N College, Madurai.
- Conducted a National Level Seminar on Perspectives of Coral ecosystem held on 10th March 2016 at N.M.S.S.V.N College, Madurai.
- Conducted a State Level Workshop on Diagnosis of infectious diseases held on 28th March 2017 at N.M.S.S.V.N College, Madurai.
- Conducted a National Seminar on Bioentrepreneurship held on 23rd Feb 2018 at at N.M.S.S.V.N College, Madurai.

Training Programme Attended:

- Underwent a three months training in Medical Microbiology at Meenakshi Mission Hospital, Madurai from 28.06.1996 to 28.09.1996
- Participated in one day training programme on Vermi Composting held at TNAU, Madurai on 04.10.06
- Participated in one day training programme on Mushroom Cultivation held at TNAU, Madurai on 16.02.2009
- Underwent Hands on Training for Teachers, Engineering students & research scholars on Application of PCR in Molecular Marker Techniques & Diagnosis held at Sri Paramakalyani College, Alwarkurichi on 8th & 9th Nov, 2010.
- Underwent Hands on Training programme on Routes of administration on animal held at Dept. of Pharmacology, Sankaralingam Bhuvaneshwari College of Pharmacy on 16.09.2011
- Participated in training programme on Microbial Techniques sponsored by Ministry of Human Resource development, New Delhi held at Centre of Advanced Study in Marine Biology, Annamalai University on 16th & 17th Mar 2014.

Symposium and Seminar attended:

- Participated in one day Symposium on Sericulture held at Dept of Zoology, Vivekananda College, Thiruvudagam West on 10.12.1993
- Participated in National Seminar on Biology and Biotechnology of Cyanobacteria held at DPT centre for BGA Biofertilizer, School of Biological Sciences, Madurai Kamaraj University, Madurai on 22.04.1995.
- Participated in one day Citizenship Training Programme held at N.M.S.S.V.N College, Madurai on 16.03.2005.
- Participated in 4th International symposium on Biocontrol and Biotechnology organized by Lady Doak College, Madurai from 27.11.06 to 29.11.06.
- Participated in State level seminar on Examination reforms held at N.M.S.S.V.N College, Madurai on 16.02.2008.
- Attended an orientation programme for Science Faculty members held at N.M.S.S.V.N College, Madurai from 11.02.2009 to 14. 02.2009.
- Participated in Conference on Biotechnology, Fusion of Advanced Research and Teaching held at School of Biotechnology, Madurai Kamaraj University, Madurai from 02.01.10 to 04.01.10.
- Participated in National Seminar on Banana Processing and Value Addition held at Sri Sankara Educational & Charitable Trust, Trichy on 27th & 28th Mar 2010.
- Participated in Science Academics Lecture Workshop on Recent Advances in Biotechnology of Health and Disease held at School of Biotechnology, Madurai Kamaraj University, Madurai on 7th & 8th Oct 2011.
- Participated in two days Seminar on Creations of Top-Class Institutional Facilities in Universities and Colleges held at Madurai Kamaraj University, Madurai on 28th & 29th Sep 2012.
- Participated in one day Seminar on Kalviyenum Velvizhi held at N.M.S.S.V.N College, Madurai on 1.2.2014
- Participated in one day UGC sponsored seminar on Examination Reforms held at N.M.S.S.V.N College, Madurai on 22.2.2014

Extracurricular Activities:

- Participated in ten days special camp on Youth for Rural construction/Mass Literacy organized at Thiruvallavanallur organised by National Service Scheme, Madurai Kamaraj University from 29.04.1992 to 8.05.1992
- Attended Adventure of Cycle Expedition from Thiruvallavanallur west to Manjalar Dam covering total distance of 140 Kms in one day organised by National Service Scheme, Vivekananda College, Thiruvallavanallur west on 28.03.1993
- Participated in English Enrichment camp conducted at Vivekananda College, Thiruvallavanallur west from 24.06.1993 to 28.06.1993

Subject Specialization:

- **Spirulina Production Technology**
- Microbiological analysis of clinical specimens
- Medical Laboratory Techniques
- Genetic Engineering Techniques
- Antimicrobial activity of Plant extracts, Microbial Products and Nanoparticles
- Molecular and Microbial Genetic Techniques

Project Research Work Guided:

- Guided more than 100 M.Sc Microbiology, B.Sc Biotechnology, B.Sc Microbiology and B.Sc Zoology student projects.

Acted as Resource Person for Various Programme



Acted as Resource person during Spirulina Cultivation Training programme for women self help group of Virudhunagar district held at V.H.N.S.N. College, Virudhunagar from 10.10.2009 to 13.10.2009

Extension Activities: Spirulina Production Technology

I have developed a prototype model and commercial spirulina production unit in the temple city Madurai in the year 2002 with the fermentation capacity of 15000 liters. The annual production of dry mass was about 0.5 ton. The fermentation capacity gradually increased to 72,000 liters with approximate annual production of dry mass of 2.0 tons due to continuous and close monitoring. I have conducted Training programmes every year to motivate and educate the student community in the field of Spirulina production biotechnology. The scope of the training programme is to enlighten the student's prospects and to create entrepreneurship skill among them. So far, more than 500 students from Arts and Science colleges as well as Engineering colleges were benefited through this training programme. This Spirulina production Training programme is also extended to self help group in Tamilnadu. Nearly about 75 peoples were benefited so far. I have also been working as consultant for Higrow Biotech, Madurai and Diamond Agro Farms, Tuticorin. I have given invited lectures in International, National and College Association functions (List mentioned in Invited Lectures) regarding Spirulina production technology and health benefits of spirulina.

Personally Designed Various Prototype Model of Spirulina Production Tank



On Site Training Programme on Spirulina Production Technology for College Students



Spirulina Production On Site Training Programme for Self Help Group, Vilupuram district



Extension Activities: Cucumber Cultivation using Polyhouse Technology

I have also extended my consultancy service to JM Agro Farms, Anupapatti, Madurai for the cultivation of cucumber under polyhouse Technology from 2017.



Dr.G.MANIVANNAN