Name : **Dr. G. MahendraPerumal**, M.Sc., B.Ed., Ph.D.,

Designation : Assistant Professor in Botany

Department : Department of Botany

Institute : V.H.N.S.N. College (Autonomous)

Virudhunagar- 626 001, Tamil Nadu

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Educational Qualifications:

S. No.	Degree	Institution	Year	Percentage
1	Ph.D. Botany (Specialization: Phycology)	Centre for Advanced Studies in Botany, University of Madras, Chennai, India.	Submitted -2007 Awarded - 2008	Highly commended
2	B.Ed.	Sri Ramakrishna Mission Vidyalaya College of Education, Periyanaickapalayam (Bharathiyar University) Tamil Nadu, India	1999 - 2000	71.2
3	M.Sc. Botany	Ayya Nadar Janaki Ammal College,Sivakasi (Madurai Kamaraj University) Tamil Nadu, India.	1997 -1999	73.9 (**Gold Medalist)**
4	B.Sc. Botany	Vivekananda College; Thiruvedakam (Madurai Kamaraj University), Tamil Nadu, India.	1994 -1997	71.0

Position and Employment:

S.No	Institution	Position	Period
1	V.H.N.S.N. College (Autonomous), -Madurai Kamaraj University Viudhunagar, 626 001, Tamil Nadu, India.	Assistant Professor in Botany	October 1st,2015 – till date
2	Sardar Patel Renewable Energy Research Institute, Anand (Gujarat), India.	Senior Scientist	January 2013 – July,2015
3	Department of Life and Physical Sciences, Lincoln University of Missouri, Jefferson City, MO, USA. 65102.	Post doctoral Research Associate	September, 2011 – April, 2012
4	Department of Biology, Brooklyn College of CUNY, Brooklyn, New York, USA. 11210.	Post doctoral Research Associate	July 2010 – September, 2011
5	Applied Biological Sciences, at Laboratory for Algae Research and Biotechnology Arizona State University, Arizona, USA.	Post doctoral Research Associate	November, 2008 – June, 2010
6	Discipline of Marine Biotechnology and Ecology, Central Salt & Marine Chemicals Research Institute (CSIR), Bhavnagar, Gujarat.	Research Associate	August, 2008 – Nov, 2008
7	ABL Biotechnologies Ltd. TICEL BIOPARK, Taramani, Chennai. India.	Research Associate	June 2007 - August 2008
8	Sri Viswa Santhi Educational Institutions Pvt. Ltd., Vuyyuru, Krishna Dist., Andhra Pradesh, India	Science Assistant	June 2001 - June 2002
9	J. Sikile College, Narsapur, W. Godavari Dist., Andhra Pradesh, India.	Lecturer in Botany	July 2000 – April 2001

Publications:

Book:

- **G. Mahendraperumal** and N. Anand, 2008. Manual of Freshwater Algae of Tamil Nadu. Bishen Singh Mahendra Pal Singh, Dehra Dun, India pp, 1-134 (ISBN 81-211-0694-8).

Research Papers:

- **G. Mahendraperumal** and N. Anand 2008. Diversity of Desmids (Zygnematales, Chlorophyceae) from Tiruchirappalli district of Tamil Nadu, *Indian Hydrobiology*, Vol, 11(2), pp.261-270.
- Nagaraj, S., Sundarapandian, SM., **Mahendraperumal, G**., Anand, N and Rengasamy, R. 2008. Pharmacognostical studies on *Pedalium murex* Linn. (Anau-nerunji). *Indian Journal of Botanical Research*, 4: 223-232. (ISSN- 0973-2233)
- **G. Mahendraperumal**, V. Ganesan and N. Anand 2009. Identification and phylogenetic analysis of filamentous Cyanobacteria using random amplified polymorphic DNA (RAPD) fingerprinting, Vol. 8 (6), pp. 974-978, *African Journal of Biotechnology* (ISSN: 1684-5315 impact factors 0.565).
- **G. Mahendraperumal** and N. Anand, 2010. Phylogenetic Evaluation of the Genera of *Oscillatoria* and *Lyngbya* spp using Amplified Ribosomal DNA Restriction Analysis (ARDRA) and Enterobacterial Repetitive Intergenic Consensus (ERIC) *Journal of Pure and Applied Microbiology,*Vol.4(1), pp. 161-167**. (ISSN:** 09737510-(Impact factor 0.073)
- Kandiah Anandarajah, **G. Mahendraperumal**, Milton Sommerfeld, and Qiang Hu, 2011. Induced freezing and desiccation tolerance in the microalgae wild type *Nannochloropsis* sp. and *Scenedesmus dimorphus. Australian Journal of Basic and Applied Sciences* 5(5): pp 678-686. (**ISSN:** 19918178).
- Kandiah Anandarajah, **G. Mahendraperumal**, Milton Sommerfeld, and Qiang Hu, 2012 Characterization of Microalga *Nannochloropsis* sp. mutants for improved production of biofuel. *Applied Energy.* 96: 371–377 (Impact factor 5.2).
- **Mahendraperumal Guruvaiah,** Keesoo Lee. 2014. Utilization of flue gas from coal burning Power Plant for Microalgae Cultivation for Biofuel Production. *International Journal of Innovative Technology and Exploring Engineering* Vol-3 (8) 7-10. (ISSN: 2278 – 3075-Impact factor 1.0)
- **Mahendraperumal Guruvaiah,** Keesoo Lee. 2014. Effect of flue gas on microalgae population and study the heavy metals accumulation in biomass from power plant system. *International Journal of Applied Science and Biotechnology*, Vol 2(2) 114-120. (ISSN: 2091 – 2609-Impact factor 3.41**)**
- **Mahendraperumal Guruvaiah,** Deval Shah, Ekta Shah 2014. Biomass and lipid accumulation of microalgae grown on dairy wastewater as a possible feedstock for biodiesel production. *International Journal of Science and Research* (Vol.2 (12) 909- 913. (ISSN- 2319-7064- Impact factor : 4.4)
- **Mahendraperumal Guruvaiah,** Madhuri Narra, Garima Dixit, Punit Karawadia and Deval Shah 2015. Isolation, screening and optimization of estuary region (Khambhat, Gujarat) Microalgae for

Lipid/oil production. *International Journal of Applied Science and Biotechnology*, Vol 3(2) 197-201. (ISSN: 2091 – 2609-Impact factor 3.41**)**

- **Mahendraperumal Guruvaiah,** Madhuri Narra, Ekta Shah, Jisha James and Anil Kurchania 2015. Utilization of dairy wastewater for pollutants removal and high lipid biomass production by a newly isolated microalgal strains *Chloromonas playfairii* and *Desmodesmus opoliensis (Accepted in International Journal of Applied Science and Biotechnology)*
- **Mahendraperumal Guruvaiah** 2018**.** A study on cyanobacterial consortium and water quality assessmenet from kulursandai reservoir,virudhunagar district, Tamilnadu. International journal of Advanced and innovative Research vol.7(6).1-8.
- **Mahendraperumal Guruvaiah** J.P. Nikkitha, P.Suresh, S.Kameshwaran, M.Rekha, and V.Shanmugaiah 2021. Bioactive metabolites from ethyl acetae extract of leaves of *melia dubia* L., against human and plant microbial pathogens. Journal of Research in microbiology 2(1) 13-21.

PAPERS / POSTERS /PARTICIPATION IN CONFERENCES

- **Mahendraperumal Guruvaiah,** and N.Indira presented a paper on 6.3.2020 "Purification of water by using indigenous plant products" at department of Botany, Pasumpon Thiru Muth Ramalinga Thevar Memorial College, Kamuthi.
- **Mahendraperumal Guruvaiah,** Deval Shah, Puneet Kavadia Presented a paper on "Biomass and lipid accumulation of microalgae grown on dairy wastewater as a possible feedstock for biodiesel" National seminar on Algae for sustainable agricultural production on September 29-30, 2014, at Department of agricultural Microbiology, Tamil Nadu Agricultural University, Madurai. (PP-77)

- **Mahendraperumal Guruvaiah**, Garima Dixit, Deval Shah and Murari Shyam**,** "Optimize *in-vitro* conditions for the growth of estuary microalgae and their screening for oil/fat content'' presented a research paper in the 48th Annual Convention of Indian Society of Agricultural Engineers (ISAE) and Symposium on Engineering Interventions in Conservation Agriculture, on February 21-23, 2014 at College of Technology and Engineering, Maharana Pratap University of Agriculture and Technology, Udaipur.
- **Mahendraperumal, G.** attended the workshop on "Biofuels and RNAi" organized by International Centre for Genetic Engineering and Biotechnology **(*ICGEB*),** New Delhi during 25th February 2013.
- **Mahendra Perumal**, **G.** Florenal Joseph, Dr. Tanner Schaub Sophia Registe and Dr. Juergen Polle, July 17-20th, 2011.Presented a poster on Isolation, screening and Characterization of Novel strains of microalgae for Biofuels production" held at St. Louis, USA.
- **Mahendra Perumal**, **G.** September 27-30th, 2010. Attended the "Algae Biomass Submmit" held at Phoenix Arizona, USA.
- **Mahendra Perumal**, **G.** February 7-8th, 2008. Presented a paper on "Desmids (Zygnematales, Chlorophyceae) of Tamil Nadu State, India" In: National Conference on Current Trends in Algal Biodiversity and Biotechnology held at Centre for Advanced Studies in Botany, University of Madras, Chennai.

- **Mahendra Perumal, G.** February 7-8th, 2008. Presented a poster on "Molecular Taxonomy of Algae" In: National Conference on Current Trends in Algal Biodiversity and Biotechnology held at Centre for Advanced Studies in Botany, University of Madras, Chennai.
- **Mahendra Peruma**l**, G.** February 22-28th 2007. Attended the National "Workshop on Taxonomy of Algae" held at Centre for Advanced Studies in Botany, University of Madras, Chennai.
- **Mahendra Peruma**l, **G**., Ganesan, V. and N. Anand. February 14-15, 2006. Presented a poster on "Biodiversity of fresh water Algae in some districts of Tamil Nadu" International Conference on Applied Phycology Algae in Biotechnology and Environment New Delhi.
- **Mahendra Perumal**, **G** and N. Anand, 3-7, January 2005. Presented a poster on "Biodiversity of fresh water Algae in Tamil Nadu" in the 92nd Indian Science congress held at Nirma University, Ahmedabad.
- **Mahendra Perumal**, **G** and N. Anand, September 8-9, 2004. Presented a poster on "Biodiversity of fresh water Algae in Tamil Nadu II" In: National symposium on Biology and Biodiversity of freshwater algae held at Centre for Advanced Studies in Botany, University of Madras, Chennai.
- **Mahendra Perumal, G**, Ezhilarasi, A. Ganesan, V. and N. Anand, March 11-13, 2004. Biodiversity of freshwater algae in Tamil Nadu. In: National symposium on Microalgal Biotechnology held at Bharathidasan University Trichirappalli, Tamil Nadu.
- **Mahendra Perumal, G** Attended the National Symposium February 25-27, 2003. on "Cyanobacteria and plants under environmental stress: Responses, defense strategies and biotechnological prospects at Banaras Hindu University, Banaras, India

Guest Lecture/ Invited talk:

- **Mahendra Perumal, G.** delivered guest lecture on 5.7.2018 "Microalgae for biofuel production" at Department of Botany, Tiruvedagam West, Madurai district 625234.
- **Mahendra Perumal, G.** delivered guest lecture and chief guest on 27.9.2019 "Microalgae usages" at at department of Botany, Pasumpon Thiru Muth Ramalinga Thevar Memorial College, Kamuthi.
- **Mahendra Perumal, G.** delivered guest lecture on 02.08.2021 in the summer training program in biological sciences(STPIS) organized by academy of sciences, department of Zoology, University of Madras, Guindy campus, Chennai.
- **Mahendra Perumal, G.** delivered guest lecture on 04.01.2022 in the summer training program 'Advanced Techniques for Microalgal Cultivation in biological sciences (STPIS) organized by at Centre for Advanced Studies in Botany, University of Madras, Chennai.
- **Mahendra Perumal, G.** delivered guest lecture on 27.07.2022 in the Summer Training Program in Biology (STPB-2022 organized by academy of sciences, department of Zoology, University of Madras, Guindy campus, Chennai.

- **Membership:** National Academy of Biological Sciences, India**.**

Ph.D. Guided/ Co-Guided: No: 1

J.P. Nikkitha "Studies on antimicrobial potential and phytochemical properties of medicinal plants"-3/4/2021.

Technical expertise:

- Taxonomical Techniques – Isolation, Screening, Identification and maintenance of cultures of fresh water and marine algae by traditional and modern cultivation techniques.
- Experience of fluorescence- activated cell sorting (FACS) for large scale isolation of algae
- Experience of UHPLC and Time of flight mass spectrometry (TOFMS) for screening the Lipid profile.
- Algae based Biofuel Production- operating different types of Industrial Photobioreactors system,
- Microscopy - Handling of bright-field, dark field microscope, digital imaging systems, microphotography.

Current Research experience:

1. Developing technically viable, scalable, end- end process to produce biofuel from algae, Operational protocol for sustainable mass cultures of selected algal strains, Determine nutrient requirements for maximum growth and biomass/ lipid yield. Determine the effect of light and temperature on growth and biomass/lipid yield
2. Cultivation of algae in different types of industrial photobioreactors system indoor and outdoor field (Large level of Photobioreactor and Open pond).
3. Testing whether the growth and oil content is different for the algae cultured in recycled culture medium with different recycle times. Characterize of recycled culture medium and balance nutrients, Identify the inhibitor for algae growth and oil accumulation and find the pretreatment method.
4. To study the feasibility of using carbon dioxide (CO_2) in flue gas from Power Plant to feed algae. The experiment will determine whether this process can in fact capture CO_2 and possibly reduce emissions said to contribute to climate change. In addition to mitigating climate change concerns, the algae contain oil that can be processed into biodiesel.
5. Environmental assessment and bioremediation aspects of various microorganisms isolated and studied in rural areas of Tamil nadu.

Research Support: (Ongoing Research Projects)

Sr. No.	Title	Cost (Rs)	Duration	Agency
1	Screening and improving biomass production and lipid accumulation of microalgae from estuary region (Khambhat, Gujarat) by conventional approach. (PI)	44,22,440	2011-2013	DST
2	Biochemical engineering of microalgae for enhanced lipid accumulation. (PI)	2,12,000	2012-2014	ICAR
3	Biomass and lipid accumulation of microalgae grown on distillery/diary wastewater as a possible feedstock for biodiesel.(PI)	5, 82,400	2012-2014	ICAR
4	Use of mutagenesis to improve the economics of cellulases production by an in-house isolate. (PI)	3,30,000	2012-2014	ICAR
5.	Development of an economically viable process technology for de-toxification of Jatropha de-oiled cake and simultaneous fuel gas production.(Co-PI)	47,62,000	2011-2014	DST
6.	Design and development of pilot scale cultivation and harvesting systems of oleaginous microalgae from west coast of India for biodiesel production (PI)	57,37,080	2015-2017	DBT
7.	Bioremediation of dairy wastewater by microalgae (PI)	6,00,000	2014-2016	Gujarat Council of Science and technology (GUJCOST)
8.	Development of low cost cultivation system using dairy wastewater/ fertilizer for the growth of microalgae under raceway pond conditions	2,80,000	2015-2016	ICAR
9.	Development of a flat plate photobioreactor for algal biomass cultivation using marine microalgae	1,50,000	2015-2016	ICAR