

Dr. T. Mathimani

INSPIRE Faculty

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Dr. T. Mathimani, INSPIRE Faculty from Department of Energy and Environment, National Institute of Technology Tiruchirappalli, Tamil Nadu has **10 years** of extensive research experience in microalgal and cyanobacterial biotechnology, lipidomics, fatty acid chemistry, bio-products extraction and biofuel sectors. He has expertise in GC, HPLC, TOC-TN analyzer, PCR, HTL, Lyophilizer, Plate reader, Viscometer, Fluorescence spectrophotometer, Rotary evaporator, raceway pond cultivation of algae and management, and other molecular techniques. Regarding the research stream he chose to work, dwindling of fossil fuels, and their emission of greenhouse gases have incited his research interest towards exploring pertinent feedstock for alternative, and sustainable green energy i.e., Algae for biodiesel. Based on the vast experimental effort, he has **“formulated lucrative seawater medium”** and developed **a lab to land technology** for cultivating *Chlorella vulgaris* at outdoor to the tune of 5000 L and standardized an efficient dewatering protocol for cost-effective production of biodiesel. He has carried out pioneering work in phycology and made biodiesel-diesel blends for compression ignition engine performance and emission characteristics. He has **submitted 14 microalgal sequences** to NCBI. To his credit, the **cumulative impact factor** of journal publication is **112.23** (as on 2019).

Alma meter

- **BSc., Biotechnology**, Periyar University, 2007, **Grade: First Class with Distinction**
- **MSc., Biotechnology**, Periyar University, 2009, **Grade: 1st rank**
- **Ph.D., Microbial Biotechnology**, 2017, Bharathidasan University

Research Experience

- **INSPIRE –JRF**

Duration: 2010-2012

Institution: Bharathidasan University, Trichy, Tamil Nadu

Funding agency: DST, *Govt. of India*

- **INSPIRE –SRF**

Duration: 2012-2015

Institution: Bharathidasan University, Trichy, Tamil Nadu

Funding agency: DST, Govt. of India

- **National Post-Doctoral Fellow**

Duration: 2016-2018

Institution: Indian Institute of Technology, Kharagpur, India

Funding agency: SERB, Govt. of India

- **INSPIRE Faculty**

Duration: 2018- till date

Institution: National Institute of Technology, Tiruchirappalli, Tamil Nadu, India

Funding agency: DST, Govt. of India

Area of interest:

- Microalgal and cyanobacterial biotechnology
- Lipidomics and fatty acid chemistry
- Bio-products from algae
- Biofuel

- Wastewater treatment
- Metabolic Engineering

Awards and Recognition

- ◆ **UNIVERSITY 1ST RANK (GOLD MEDALIST)** in Post-Graduation- Biotechnology.
- ◆ **INSPIRE Fellowship** awarded by DST, Govt. of India.
- ◆ **NATIONAL Post-Doctoral fellowship** awarded by SERB, Govt. of India.
- ◆ **INSPIRE Faculty** awarded by DST, Govt. of India.
- ◆ **Cleared TAMIL NADU STATE ELIGIBILITY TEST (SET)** for Lectureship
- ◆ **BEST PAPER AWARD** in a National Conference organized by Periyar University, Tamil Nadu.

Sponsored Project

Project title: “Switchable polarity solvents, magnetic nanocomposites and metabolic engineering approach for enhancing Triacylglycerol content in marine microalgae towards economic biodiesel production”

Role: Principal Investigator

Funding agency: DST, Govt. of India

Grant: 85 Lakhs

Duration: 2018-2023

Publications in highly reputed journals (as on August 2019)

Total number of publications: 19

Cumulative impact factor: **112.23**

h- index: 11

Citations: 317

Research Gate: https://www.researchgate.net/profile/Thangavel_Mathimani

Google Scholar: <https://scholar.google.co.in/citations?user=hCtva6oAAAAJ&hl=en>

S. No	Authors	Title	Name of the journal	Vol.	Page No	Year	Impact factor
1.	Mathimani, T., Uma, L., & Prabakaran, D.	Homogeneous acid catalysed transesterification of marine microalga <i>Chlorella</i> sp. BDUG 91771 lipid–An efficient biodiesel yield and its characterization.	Renewable Energy	81	523-553	2015	5.43
2.	Mathimani, T., Beena Nair, B., & Ranjith Kumar R.	Evaluation of microalga for biodiesel using lipid and fatty acid as a marker–A central composite design approach.	Journal of the Energy Institute	89	436-446	2015	3.77
3.	Mathimani T, Uma L, et al.	Optimization of direct solvent lipid extraction kinetics on marine trebouxiphycean alga by central composite design–Bioenergy perspective.	Energy Conversion and Management	142	334-46	2017	7.18
4.	Mathimani T, Uma L, et al.	Assessment of Assessment of fuel properties, engine performance and emission characteristics of outdoor grown marine <i>Chlorella vulgaris</i> BDUG 91771 biodiesel.	Renewable Energy	105	637-46	2017	5.43

5.	Mathimani T. , Bhumathi D, et al.	Semicontinuous outdoor cultivation and efficient harvesting of marine <i>Chlorella vulgaris</i> BDUG 91771 with minimum solid co-precipitation and high floc recovery for biodiesel.	Energy Conversion and Management	149	13-25	2017	7.18
6.	Dineshababu G, Uma VS, Mathimani T. , et al.	On-site concurrent carbon dioxide sequestration from flue gas and calcite formation in ossein effluent by a marine cyanobacterium <i>Phormidium valderianum</i> BDU 20041.	Energy Conversion and Management	141	315-24	2017	7.18
7.	Mathimani T. , Nirupama Mallick	A comprehensive review on harvesting of microalgae for biodiesel - key challenges and future directions	Renewable and Sustainable Energy Reviews	91	1103-1120	2018	10.55
8.	Mathimani T. , Uma L et al.,	Formulation of low-cost seawater medium for high cell density, lipid, fatty acids of <i>Chlorella vulgaris</i> BDUG 91771 using central composite design in biodiesel perspective	Journal of Cleaner Production	198	575-586	2018	6.39
9.	A. Saravanana, Mathimani T et al.	Biofuel policy in India: A review of constraints in biofuel for sustainable marketing	Journal of Cleaner Production	193	734-747	2018	6.39
10.	Desika Prabakar, Subha Suvetha K, Varshini T. Manimudi, Mathimani T	Pretreatment technologies for industrial effluents: Critical review on bioenergy production and environmental concerns.	Journal of Environmental Management	218	165-180	2018	4.86

	et al.						
11.	Shankha Koley, Mangesh S. Khadase, Mathimani T. et al.	Catalytic and non-catalytic hydrothermal processing of Scenedesmus obliquus biomass for bio-crude production - A sustainable energy perspective	Energy Conversion and Management.	163:	111-121	2018	7.18
12.	Mathimani T. , Arianna Baldinelli et al.	Review on cultivation and thermochemical conversion of microalgae to fuels and chemicals: Process evaluation and knowledge gaps.	Journal of Cleaner Production	208	1053-1064	2018	6.39
13.	Mathimani T. , Nirupama Mallick.	A review on hydrothermal processing of microalgal biomass to bio-oil- Knowledge gaps, and recent advances towards sustainable fuel production	Journal of Cleaner Production	217	69-84	2019	6.39
14.	Shankha Koley, Mathimani T. , et al	Microalgal biodiesel production at outdoor open and polyhouse raceway pond cultivations: A case study with Scenedesmus accuminatus using low-cost farm fertilizer medium.	Biomass and Bioenergy	163	120-165	2019	3.53
15.	M.P. Sudhakar, B. Ramesh Kumar, Mathimani T. , et al.	A review on bioenergy and bioactive compounds from microalgae and macroalgae-sustainable energy perspective.	Journal of Cleaner Production	228	1320-1333	2019	6.39
16.	Deviram Garlapati, Muthukumar Chandrasekaran , ArulAnanth	Role of cyanobacteria in agricultural and industrial sectors: An outlook on economically important	Applied Microbiology and Biotechnology	103	4709-4721	2019	

	Devanesan, Mathimani T et al.	byproducts					3.67
17.	Gopalakrishnan Kumar, Mathimani T et al.	Application of nanotechnology in dark fermentation for enhanced biohydrogen production using inorganic nanoparticles.	International Journal of Hydrogen Energy	44	1310 6- 1311 3	2019	4.08
18.	Arivalagan Pugazhendhi, Mathimani T et al.	Biobutanol as a promising liquid fuel for the future - recent updates and perspectives.	Fuel	253	637- 646	2019	5.12
19.	SS Kumar, V Kumar, SK Malyan, J Sharma, Mathimani T et al.	Microbial fuel cells (MFCs) for bioelectrochemical treatment of different wastewater streams	Fuel	254	1155 26	2019	5.12
Cumulative Impact factor							112.23

Contact

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