

RESUME

RAJESH P P

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OBJECTIVE

A PhD holder from Indian Institute of Technology, Kharagpur who is keen to pursue research career in the field of life science.

EDUCATION

2019-Present Korea Maritime and Ocean University

Post-Doctoral Scholar

- **Broad Area of Research**

Bioelectrochemical System

2012-2017 Indian Institute of Technology, Kharagpur

PhD Research Scholar

- **Broad area of research:**

Microbial Fuel Cell

Title of the Thesis:

Improving performance of microbial fuel cell by enhancing the bio-catalytic activity of anodic inoculum and electrodes

2010-2012 Indian Institute of Technology, Guwahati

M.Tech Biotechnology

First Class with Distinction- 8.64 (CGPA)

- Modules included Biotechniques, Genetic Engineering, Microbial Biotechnology, Biosensors, Quantitative biology, Biomolecular and Cellular Process Engg., Plant Molecular Farming, Essential of Genetics, Analytical Biotechnology Lab, Bio-Engineering Lab and Project.

- Practical experience on Plant tissue/cell culture techniques and analytical techniques like HPLC, mass spectrometer and TLC.
- Practical experience of a wide range of molecular biology techniques and confidence in interpreting results of experimental data.
- Attended various research seminars and presented the findings from the M.Tech project to a panel of Lecturers and PhD students.

2003-2007

University of Kerala, India

B.Tech Biotechnology and Biochemical Engineering

First Class- 6.6 (CGPA)

- Modules included Biochemistry, Microbiology, Molecular Biology and Genetics, Protein Engineering, Immunology, Enzyme Engineering, Plant and Animal Cell Technology, Bioinformatics, Environmental Engineering, Lab in Molecular biology and Biochemistry, Bioprocess Engineering, Chemical Engineering and Final Year Project.

2001-2003

Tagore Vidyaniketan, India

First Class with Distinction- 80%

- Modules include Mathematics, Biology, Chemistry and Physics.

1998-2001

Technical High School, India

First Class- 82.6%

- Modules include Electrical engineering, Mechanical engineering, Engineering Drawing.

WORKING EXPERIENCE

- Senior Research Fellow in Department of Civil Engineering, IIT Kharagpur for the DST project entitled 'Development of Microbial Fuel Cell for Direct Electricity Recovery during Waste Water Treatment' from 12/7/2012 to 31/3/2016

PROJECT UNDERTAKEN

- **'OPTIMIZATION OF AN ANAEROBIC DIGESTER AND DESIGNING OF A BIOREACTOR'**

Project undertaken during under graduation. Work carried out at the Biotechnology department of the University of Kerala. Have developed a bioreactor which is installed at the college canteen which utilizes canteen waste in the production of biogas.

- **'ESTABLISHMENT OF CELL SUSPENSION CULTURES AND EFFECT OF CULTURE CONDITIONS ON PRODUCTION OF BIOACTIVE COMPOUNDS FROM OVARY EXPLANTS OF *CAMELLIA SINENSIS*'**

M. Tech Project work carried out at the Department of Biotechnology, Indian Institute of Technology, Guwahati. This study includes the establishment of cell suspension cultures, growth kinetics of cells and the effect of culture conditions on the synthesis of Bioflavonoid from *Camellia sinensis* cell lines.

- **'DAIRY WASTEWATER BASED MICROBIAL FUEL CELL FOR ELECTRICITY GENERATION: EFFECT OF PARAMETERS AND OPTIMIZATION'**

M. Tech Project work carried out at the Department of Biotechnology, Indian Institute of Technology, Guwahati. Have developed and optimized an air cathode single chamber microbial fuel cell utilising dairy wastewater for electricity generation.

- **'Development of Microbial Fuel Cell for Direct Electricity Recovery during Waste Water Treatment'**

Project undertaken during research at the Civil Engineering Department, IIT Kharagpur. Major focus on the project was developing new strategies for enhancing the performance of microbial fuel cell and to scaleup the system for practical application.

TECHNIQUES KNOWN

Molecular biology tools such as SDS PAGE, Agarose Gel Electrophoresis, DNA Sequencing, analysis tools such as Gas chromatography, HPLC, Spectrophotometer, Scanning electron microscopy, Fourier Transform Infrared Spectra analysis, X-ray Diffraction analysis and electrochemical tools such as Cyclic voltammetry, Linear sweep voltammetry, Electrochemical Impedance Spectra analysis

PUBLICATIONS

Rajesh, P. P., Noori, Md. T., Ghangrekar, M. M., 2014. Controlling methanogenesis and improving power production of microbial fuel cell by lauric acid dosing. *Water Science and Technology*, 70(8): 1363-1369. Impact Factor-1.247, Citations -17.

Rajesh, P. P., Jadhav, D. A., Ghangrekar, M. M., 2015. Improving performance of microbial fuel cell while controlling methanogenesis by *Chaetoceros* pretreatment of anodic inoculum. *Bioresource Technology*, 180: 66-71. Impact Factor-5.807, Citations -29.

Rajesh, P. P., Noori, Md. T., Ghangrekar, M. M., 2015. Graphene Oxide/Polytetrafluoroethylene (PTFE) composite anode and inoculum pre-

treatment for improving performance of microbial fuel cell. Journal of Clean Energy Technologies,6(3), Citations-1

Rajesh, P.P., Ghangrekar, M. M. 2015. Bioelectricity generation from marine algae *Chaetoceros* using microbial fuel cell. In *Proceedings of the First International Conference on Recent Advances in Bioenergy Research* (pp. 295-303). Springer India.

D Paul, MT Noori, **PP Rajesh**, MM Ghangrekar, A Mitra 2017. Modification of carbon felt anode with graphene oxide-zeolite composite for enhancing the performance of microbial fuel cell. Sustainable Energy Technologies and Assessments, 26, 77-82, Citation Score-3.79, Citations-10

Rajesh, P. P., Noori, Md. T., Ghangrekar, M. M 2018. Pre-treatment of anodic inoculum with nitroethane to improve performance of a microbial fuel cell. Water Science and Technology, 77(10), 2491-2496, Impact Factor-1.247, Citations -2.

CONFERENCES

Rajesh, P.P., Ghangrekar, M. M. 2015. Bioelectricity generation from marine algae *Chaetoceros* using microbial fuel cell. Paper presentation in First International Conference on Recent Advances in Bio-energy Research (ICRABR-2015), Kapurthala, India, March 15-18.

Rajesh, P.P., Ghangrekar, M. M., 2016. Optimum dose of *Chaetoceros* for controlling methanogenesis to improve power production of microbial fuel cell. Poster presentation in Asia-Pacific Conference on Biotechnology for Waste Conversion (BioWC2016) Hong Kong SAR, China, 6-8 December 2016.

Rajesh, P.P., Noori, Md. T., Ghangrekar, M. M. 2015. Graphene Oxide/Polytetrafluoroethylene (PTFE) composite anode and inoculum pre-

treatment for improving performance of microbial fuel cell. 6th International Conference on Clean and Green Energy (ICCGE 2017), Frankfurt, Germany, February 8-10, 2017.

Ghadge, A. N., **Rajesh, P.P.**, Chatterjee, P., Ghangrekar, M. M. 2013. "Scaling up of a Microbial Fuel Cell Having an Air-Breathing Cathode and Multiple Electrodes". International Congress on Materials and Renewable Energy, Athens, Greece.

Rajesh, P.P., Pakshirajan, K., 2011. "Dairy Wastewater Based Microbial Fuel Cell For Electricity Generation: Effect Of Parameters And Optimization". NHBT Conference – Trivandrum, India.

ACHIEVEMENTS

- Qualified GRE (2008)
Verbal – 600, Quantitative – 680, Analytical writing – 3.0
- Qualified Graduate Aptitude Test in Engineering
GATE 2010 with 95 percentile
GATE 2012 with 90 percentile

FELLOWSHIPS RECEIVED

- Awarded the Ministry of Human Resource Development scholarship July'10 to May'12.
- Senior Research Fellow from Department of Science and Technology from 12/7/2012 to 31/3/2016
- IIT Kharagpur Institutional fellowship from 15/4/2016 to 15/4/2017

AWARDS

- Gandhian Young Technological Innovation (GYTI) awards-2015 for the project entitled "Utilization of marine algae as substrate and methanogen inhibitor in microbial fuel cell"
- Springer award-2015 for the best paper presented in International Conference on Recent Advances in Bio-energy Research (ICRABR-2015), Kapurthala, India.

INDUSTRY EXPOSURE

- 20 days training in Plant DNA Fingerprinting at Rajiv Gandhi Centre for Biotechnology, Trivandrum
- 20 days Industrial training at Hindustan Latex, India
- Visited leading biotechnology institution in India such as IISc (Bangalore), RGCB (Trivandrum), ICRISAT (Hyderabad), Sartorius Biotechnologies (Bangalore)

OTHER QUALIFICATIONS

Statistical tools: SAS, SPSS, MS Excel, Origin

Languages: C, C++

REFERENCES

Dr M M Ghangrekar

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Kharagpur

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Dr K Pakshirajan

Department of Biotechnology

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