CURRICULUM VITAE

Dr.V.PUGALENTHI
Associate Professor
Department of Biotechnology
University College of Engineering
Bharathidasan Institute of Technology (BIT) Campus
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- **Research Areas:**
  - Biofuels and Biopolymers
  - Bioenergy and Bioproducts
  - Microbial Technology
  - Nanobiotechnology
  - Biosensors

- **Educational Qualifications:**

Qualification	College/University	Year of completion
Postdoc	National Chiao Tung University, Taiwan	2006
Ph.D.,	A.C.College of Technology Anna University, Chennai	2003

- **Experience:**

Name of Institution	Designation	From	To
UCE, BIT campus Anna University	Associate Professor	2012	Till date
BIT campus Anna University	Assistant Professor	2009	2012
BIT campus Anna University	Senior Lecturer	2007	2009
National Chiao Tung University, Taiwan	Post-Doctoral Researcher	2004	2006

- **Award / Honour Received:**
  - Senior Research Fellowship, Council of Scientific and Industrial Research (CSIR), Government of India. (1999 - 2002)
- **Membership of Scientific and Professional Societies:**
  - Indian Society for Technical Education
  - The Indian Science Congress Association
  - Materials Research Society of India
- **Mentor for Young Scientist:**
  - Dr. P. Muthuselvam, working as Young Scientist (DHR) "Simultaneous suppression of onco-miR and induction of tumor suppressor miRNA for improved cancer therapy" Rs.41,06,550/-, (2020- Till date).

- **Ph.D. Research Guidance - (Completed):**

Sl. No	Name of the scholar	Title of the thesis
1.	Dr.S. Mohanraj	Biohydrogen production using pure strains and mixed culture: Effect of phytosynthesized Iron, palladium and copper nanoparticles
2.	Dr.M. Rengasamy	Transesterification of non-edible vegetable oils for the production of biodiesel using synthesized metal nanocatalysts
3.	Dr.M.G. Balamurughan	Phytosynthesis of transition metal nanoparticles and their application in biodecolorization of dyes
4.	Dr.K. Anbalagan	Nano-catalyzed fermentation process for biohydrogen production from lignocellulosic wastes
5.	Dr.S. Kodhaiyolii	Phytogenic Bimetallic Nanoparticles Supplemented Fermentation Process for Simultaneous Production of Biohydrogen and Bioethanol
6.	Dr.K. Brindha	Nano-Assisted Fermentation Process for the Simultaneous Production of Renewable Biohydrogen and Biopolymer

- **Ph.D. Research Guidance (Ongoing): 3**

- **Completed PG/UG Projects:**

  a. **Number of M.Tech. Projects Completed: 23**

- Biosynthesis of biopolymers and Zinc-Manganese bimetallic nanoparticles – Tasmita Roy (2022)
- Plant species involved in the diet of Hangul Deer *Cervus elphus hanglu* identified using DNA metabarcoding approach – A. Bharathsubramanyam (2021).

- Biosynthesis and characterization of zirconium nanoparticles and biopolymer – C.Suganya Devi (2020)
- Effects of biosynthesized nanosilica and biopesticides on seed germination and seedling growth of tomato -M. Vinodhini (2019)
- Biotransformation of Cr (VI) to Cr (III) using isolated *Acintobacter baumannii* - A. Karthika (2018)
- Enhancement of seedling growth in maize using synthesized biopolymer - S. Ponnarmadha (2017).
- Fermentative biohydrogen production from xylose using mixed culture and co-culture – K. Thiripurasundari (2016).
- Copper nanoparticles supplemented fermentative process for biohydrogen production using *Enterobactor cloacae* – B. Praveena (2015).
- Fermentative hydrogen production from groundnut shells using anaerobic bacterial culture – R. Legadevi (2014).
- Biobutanol production from vegetable waste using *C. acetobutylicum* and mixed culture – S. Saranya (2014).
- Bioelectricity generation from glucose and vegetable waste using microbial fuel cells – V. Sasipriya (2014).
- Development of nano-biohydrogel using synthesized silver nanoparticles and synthesized biopolymer for antibacterial applications – V. Theresa (2013).
- Fabrication of Pt nanocatalyst monolayer(s) on pedot support by galvanic displacement reaction: Application to methanol oxidation – G. Balaji (2012).
- Synthesis and fabrication of conducting polymer-metal oxide-An electrode material for supercapacitor – B. Kaniamuthan (2012).
- Generation of nanostructured Pt on a conducting polymer support through galvanic displacement: Application to methanol oxidation reaction – K. Suganya (2011).
- Controlled fabrication of Polyaniline-Au_{nano}-Tyrosinase enriched crude extract of potato biosensor platform for the determination of phenolic compounds – S. Kodhaiyolii (2010).
- Production of xylitol from rice straw using isolated strain XYL1 – G. Rajapriya (2010).
- Production of polyhydroxy butyrate from distillery wastewater using isolated microbial strain BP1 – A. Susikala (2010).
- Pure and HNO_3 treated multiwalled carbon nanotubes for fiber optic gas sensor – L. R. Shobin (2010).
- Bioleaching of chromium using sulphur oxidizing bacteria in fluidized bed bioreactor – S. Arunkarthick (2009).
- Production and characterization of bioflocculant using *Virgibacillus sp.* – V. Nagarajan (2009).

- Biodesulphurization of coal using sulphur removing bacteria in packed bed bioreactor –B. Senthil Kumar (2009).
- Bioreduction of hexavalent chromium using chromium resistant bacteria in bubble column reactor – N. Sathish (2009).

b. **Number of B.Tech. Project Completed:** 2-4 per batch

- **Publications:**

Books / Book chapters:

- Mohanraj, S, Brindha, K., Rajaguru, P. and **Pugalenthi, V.** (2023) The Nanocatalysed Anaerobic Dark Fermentation Process: Advances in Biohydrogen Production, A Closer Look at Anaerobic Digestion, Nova Science Publisher (ISBN: 979-8-89113-358-7), Chapter 7,
- S. Mohanraj, Ashok Pandey, S. Venkata Mohan, K. Anbalagan, S. Kodhaiyolii, and **V. Pugalenthi** "Metabolic Engineering and Molecular Biotechnology of Biohydrogen Production", Biohydrogen Second Edition, Elsevier, pp-413-429, 2019
- Anbalagan, K, Mohanraj, S, Kodhaiyolii, S and **Pugalenthi, V**, 'Enhanced biohydrogen production from glycerol using pretreated mixed culture', Recent Advances in Bioenergy Research vol.III (ISBN No. 978-81-927097-2-7) pp. 273-279, 2014.
- Mohanraj, S, Anbalagan, K, Kodhaiyolii, S and **Pugalenthi, V,** 'Biohydrogen productions using single chamber membrane free microbial electrolysis cell with stainless steel cathode', Recent Advances in Bioenergy Research vol.III (ISBN No. 978-81-927097-2-7) pp. 419-426, 2014.
- Rengasamy, M, Pugalenthi,V, Mohanraj, S, Anbalagan, K and Kodhaiyolii, S, 'Production of biodiesel from neem oil using synthesized iron nano catalyst', Recent Advances in Bioenergy Research vol.III (ISBN No. 978-81-927097-2-7) pp. 337-345, 2014.

International Journals:

- Brindha, K., Mohanraj, S., Rajaguru, P., **Pugalenthi, V.** (2023). Simultaneous production of renewable biohydrogen, biobutanol and biopolymer from phytogenic CoNPs-assisted Clostridial fermentation for sustainable energy and environment. Science of The Total Environment, Vol.859, Part 1, 160002. Impact Factor: 9.8
- S.Kodhaiyoli, S. Mohanraj, M. Rengasamy, **V. Pugalenthi**, (2019) Phytofabrication of bimetallic Co–Ni nanoparticles using Boerhavia diffusa leaf extract: analysis of phytocompounds and application for simultaneous production of biohydrogen and bioethanol, Mater. Res. Express Vol. 6 pp.1-13. Impact Factor : 2.3
- S. Senthil Kumar, P. Muthuselvam, **V. Pugalenthi**, N. Subramanian, K.M. Ramkumar, T. Suresh, T. Suzuki, P. Rajagurua (2018) Toxicoproteomic analysis of human lung epithelial cells

exposed to steel industry ambient particulate matter (PM) reveals possible mechanism of PM related carcinogenesis, Environmental Pollution, Vol. 239, pp. 483-492. Impact Factor: 8.9

- Rengasamy, M, Mohanraj, S, Anbalagan, K, & **Pugalenthi**, V (2017) Synthesis of maghemite nanoparticles, biodiesel and hydrogen: One pot sequential reactions'. Applied Catalysis A: General, Vol. 546, pp.22-29. Impact Factor: 5.5
- Mohanraj, S, Anbalagan, K, Rajaguru, P & **Pugalenthi**, V (2016), 'Effects of phytogenic copper nanoparticles on fermentative hydrogen production by *Enterobacter cloacae* and *Clostridium acetobutylicum'*, International Journal of Hydrogen Energy, Vol.41, Issue 25, pp 10639-10645 Impact Factor: 7.2
- Rengasamy, M, Anbalagan, K, Kodhaiyolii, S & **Pugalenthi**, V (2016), 'Castor leaf mediated synthesis of iron nanoparticles for evaluating catalytic effects in transesterification of castor oil', RSC Advances, vol. 6, pp. 9261-9269. Impact Factor: 3.9
- K. Anbalagan, S. Mohanraj and **V. Pugalenthi** (2015) Rapid phytosynthesis of nano-sized titanium using leaf extract of Azadirachta indica. International Journal of ChemTech Research, vol. 8, no. 4, pp 2047-2052.
- S. Mohanraj, S. Kodhaiyolii, M. Rengasamy, **V. Pugalenthi**, (2014) Phytosynthesized iron oxide nanoparticles and ferrous iron on fermentative hydrogen production using Enterobacter cloacae: Evaluation and comparison of the effects. International Journal of Hydrogen Energy, Vol. 39, No. 23, pp. 11920-11929 Impact Factor: 7.2
- S. Mohanraj, K. Anbalagan, S. Kodhaiyolii and **V. Pugalenthi**. (2014) Comparative evaluation of fermentative hydrogen production using *Enterobacter cloacae* and mixed culture: Effect of Pd (II) ion and phytogenic palladium nanoparticles**.** Journal of Biotechnology, Vol. 192, pp. 87-95. Impact Factor: 4.1
- Sameena. N. Malika , **V. Pugalenthi**, Atul. N.Vaidyaa , Prakash. C. Ghoshc , Sandeep. N. Mudliar (2014) Kinetics of nano-catalysed dark fermentative hydrogen production from distillery wastewater. Energy Procedia, Vol.54,pp 417-430
- S. Mohanraj, S. Kodhaiyolii, M. Rengasamy, **V. Pugalenthi**, (2014) Green synthesized iron oxide nanoparticles effect on fermentative hydrogen production b*y Clostridium acetobutylicum.* Applied Biochemistry and Biotechnology, Vol. 173, pp. 318-331. Impact Factor: 3.0
- Mookan Rengasamy, Krishnasamy Anbalagan , Sundaresan Mohanraj,Velan Pugalenthi (2014) 'Biodiesel Production from Pongamia pinnata Oil using Synthesized Iron Nanocatalyst', International Journal of ChemTech Research, Vol.6, No.10, pp 4511-4516.
- L.A.Lu, J.C.Tsai, **V. Pugalenthi**, S.Sung, J.G.Lin (2006) Optimization of a high-rate composting of barely dregs with sewage sludge. Proceedings of the Water Environment Federation, Residuals and Biosolids Management, pp. 220-233(14).
- S. Balasubramanian and **V. Pugalenthi** (2000) A comparative study of the determination of sulphide in tannery waste water by ion selective electrode (ISE) and iodimetry. Water Research, Vol.34, No.17, pp. 4201-4206. Impact Factor: 12.8

- S. Balasubramanian and **V. Pugalenthi** (1999) Determination of total chromium in tannery wastewater by inductively coupled plasma- atomic emission spectrometry, flame atomic absorption spectrometry and UV-visible spectrophotometric methods.Talanta, 50, 457-467. Impact Factor: 6.1
- S. Balasubramanian, **V. Pugalenthi**, K.Anuradha and S.Chakradhar (1999) Characterization of tannery effluents and the correlation between TDS, BOD, and COD. J. Environ. Sci. Health, Part A,A34, (2), 461-4 Impact Factor: 2.1

➢ **National Journals:**

- M. Rengasamy, S. Mohanraj, S. Harsha Vardhan, R. Balaji, and **V. Pugalenthi**, (2014) Transesterification of castor oil using nano-sized iron catalyst for the production of biodiesel, Journal of Chemical and Pharmaceutical Sciences, Issue 2, pp. 108 – 112.
- Balamurughan M G, Mohanraj S, Kodhaiyolii S, and **Pugalenthi V**, (2014) *Ocimum sanctum* leaf extract mediated green synthesis of iron oxide nanoparticles : spectroscopic and microscopic studies, Journal of Chemical and Pharmaceutical Sciences, Issue 4.pp.201-204.
- K. Muthukumar, C. Bharath, **V. Pugalenthi** and M. Velan (2009) Biodegradation kinetics of benzoic and anthranilic acids by *Micrococcus sp.* Journal of scientific and industrial research, Vol.68. pp 900-903. Impact Factor:0.555
- S. Balasubramanian and **V. Pugalenthi** (1999) Determination of major inorganic pollutants in tannery effluents**.** Ind. J. Environ. Protection**,** Vol.19, No.1, 15-18.

➢ **Sponsored Research Projects:**

Sl.No	Name of the project	Funding agency	Project value (Rs.)	Duration	Status
1.	Chemoprevention of toxic effects of transition nanomaterials by targeting inflammatory miRNA using dietary polyphenolic compounds -(as Co-PI).	ICMR	43.29 lakhs	2016 – 2019	Completed
2.	Developing a human cell based multigene promoter-fluorescent	ICMR	47 lakhs	2015 - 2018 -	Completed

	protein fusion-reporter genotoxicity assay-(as Co-PI).				
3.	Fluorescent protein-reporter based assay to measure toxicity of nanomaterials. (lakhs under (as Co-PI),	DST nano-mission	79.96 lakhs	2014 – 2017	Completed
4.	Enhancement of biohydrogen production using integrated nanoparticles catalysed fermentation – MEC and process modeling (as PI).	DBT	68.42 lakhs	2010-2012	Completed

- **National / International Conferences Participated:**

(i) International Conferences

- Brindha, K, Suganya Devi, C and Pugalenthi, V, 'Honey mediated phytosynthesis and characterization of zirconium nanoparticles' Shastri Indo-Canadian Institute (SICI) sponsored Recent technologies and advanced materials for green energy and sustainable environment (RTAMGESE 2021)' March 12 and 13, 2021.
- Anbalagan, K, Chinna Pandi, R and Pugalenthi, V, 'Phytofabrication of Lead Oxide Nanoparticles using Senna Auriculata Leaf Extract', TEQIP II sponsored International Conference on Advances in Biological, Chemical & Physical Science (ABCPS) organized by Department of Biotechnology, Chemistry, Physics, Anna University – BIT Campus, Tiruchirappalli, March 13 -15, 2017.
- Brindha, K, Renuga, J, Kodhaiyolii, S and Pugalenthi, V, 'Biosynthesis of Iron Nanoparticles using *Clostridium acetobutylicum*' , TEQIP II sponsored International Conference on Advances in Biological, Chemical & Physical Science (ABCPS) organized by Department of Biotechnology, Chemistry, Physics, Anna University – BIT Campus, Tiruchirappalli, March 13 -15, 2017.
- Kodhaiyolii, K, Thiripurasundari, K and Pugalenthi, V, 'Fermentation Biohydrogen Production from Xylose using Co-culture of *Clostridium acetobutylicum* and *Enterobacter cloacae*' , TEQIP II sponsored International Conference on Advances in Biological, Chemical & Physical Science (ABCPS) organized by Department of Biotechnology, Chemistry, Physics, Anna University – BIT Campus, Tiruchirappalli, March 13 -15, 2017.

- Ponnarmatha, S, Eevera, T and Pugalenthi, V, 'Biopolymer production from mixed fruit waste using isolated bacterial strains', TEQIP II sponsored International Conference on Advances in Biological, Chemical & Physical Science (ABCPS) organized by Department of Biotechnology, Chemistry, Physics, Anna University – BIT Campus, Tiruchirappalli, March 13 -15, 2017.
- Kodhaiyolii, S, Cindhiya, I, Mohanraj, S, Anbalagan, K and Pugalenthi, V, 'Biopolymer synthesis by isolated bacterial strain from soil', International Conference on Advances in Biotechnology and Bioinformatics (ICABB 2013), November 25th - 27th, 2013.
- Theresa, V, Kodhaiyolii, S, Mohanraj, S, Anbalagan K & Pugalenthi**, V**, 'Development of nano-biohydrogel for antibacterial studies', NanoBio 2013, Collaborative International Conference, 27 -29th June 2013.
- Pugalenthi, V, Tsai, JC, Lu, LA and Lin, JG, 'Fast Composting of Beer Manufactory Wastes Using Thermophilic Bioreactor', International Conference on Advances in Industrial Wastewater Treatment, Organised by Anna university jointly with Institut National de la Recherche Agronomique, France and German Embassy-New Delhi, India, 2005, February 9-11.
- Lu, LA, Tsai, JC, Pugalenthi, V and Lin, JG, 'High-rate composting of sludge with barley dregs and use of compost as a novel biosorbent', IWA specialized conference – Sustainable sludge management: State of the art, Challenges and perspectives, Russia, 2006.

(ii) <u>National Conferences</u>

- Karthika, A, Kodhaiyolii, S, Rajaguru, P and Pugalenthi, V, 'Biotransformation of Hexavalent Chromium using Mixed Culture', Third National Seminar on Advanced Oxidation Processes organized by Department of Chemistry, Bharathidasan Institute of Technology, Anna University, Tiruchirappalli in association with Society for Environmental Chemistry and Allied Sciences, (SECAS), India during 17th -19th December, 2017.
- Brindha, K, Rajapriya, G, Rengasamy, M and Pugalenthi, V, 'Extracellular Bacterial Synthesis of Photocatalytic Titanium Nanoparticles', Third National Seminar on Advanced Oxidation Processes organized by Department of Chemistry, Bharathidasan Institute of Technology, Anna University, Tiruchirappalli in association with Society for Environmental Chemistry and Allied Sciences, (SECAS), India during 17th -19th December, 2017.
- Lakshmi Priya, G, Susikala, A, Anbalagan, K and Pugalenthi, V, 'Biosynthesis of Zinc Nanoparticles using *Escherichia coli*', Third National Seminar on Advanced Oxidation Processes organized by Department of Chemistry, Bharathidasan Institute of Technology, Anna University, Tiruchirappalli in association with Society for Environmental Chemistry and Allied Sciences, (SECAS), India during 17th -19th December, 2017.
- Rengasamy, M, Anbalagan, K, Mohanraj, S and Pugalenthi V, 'Biodiesel production from pongamia pinnata oil using synthesized iron nanocatalyst', National conference on Recent Advances in Chemical Engineering (RACE) organized by Department of Chemical Engineering, Annamalai University, July 12-13, 2014.

- Balasubramanian, S and Pugalenthi, V, 'Determination of chromium in Tannery wastewater by ICP, AAS, and Spectrophotometry- a comparative study', XIII ISAS National Symposium (INSAT-98) Analytical Techniques 2001, Organised by Indian Society of Analytical Scientists, B A.R.C Mumbai at IISc, Bangalore. 1998, Nov 24-25.

➢ **List of Seminar / Short Term Course /FDP/ Workshop organized:**

- TEQIP II Sponsored Two Days Workshop on Advances in Biotechnology. 16^{th} - 17^{th} March 2016
- TEQIP II Sponsored Faculty Development Programme on Emerging Trends in Biotechnology. 19^{th} - 25^{th} August 2013
- TEQIP II Sponsored Pedagogical Training Programme in association with National Institute of Technical Teachers Training and Research Chennai - 600 113, 9^{th} to 20^{th} December 2013

➢ **List of Seminar / Short Term Course /FDP/ Workshop attended:**

- TEQIP II Sponsored Two week Faculty Development program on "Implications of chemical sciences in Biotechnology" organized by Department of Biotechnology, Bharathidasan Institute of Technology Campus, Anna university, Thiruchirappalli. June 22 – July 05, 2016.
- TEQIP II Sponsored Two weeks Faculty Development program on "Frontiers Research in Applied Sciences" organized by Department of Chemistry, Bharathidasan Institute of Technology Campus, Anna university, Thiruchirappalli. June 03 – June 16, 2015.
- TEQIP II Sponsored Two weeks Faculty Development program on "Nano Technology Applications in Engineering and Technology" organized by Department of Petrochemical Technology, Bharathidasan Institute of Technology Campus, Anna university, Thiruchirappalli. May 06 – May 19, 2015.
- TEQIP II Sponsored Two weeks Faculty Development program on "Comprehensive Approach of Biotechnological Applications" organized by Department of Biotechnology, Bharathidasan Institute of Technology Campus, Anna university, Thiruchirappalli. April 16 – April 29, 2015.
- DBT Sponsored Short Term Training Course on "Biomedical Applications of RNAi Technology" organized by Department of Biotechnology, Bharathidasan Institute of Technology Campus, Anna university, Thiruchirappalli. January 28 – February 10, 2015.
- Workshop on "Quality Initiatives in Technical & Higher Educational Institutions" organized by Engineering Staff Collage of India, Hyderabad. 08 October – October 10, 2014.
- Industry Certification Faculty Development Programme on Catalysis – Practical Approach organized by Silicon Micro Systems, Bangalore, Nov'11^{th} – 15^{th}, 2013
- MHRD Sponsored Advanced Technology Program on "Current Trends In Nanotechnology" organized by Department of Mechanical Engineering, National Institute of Technology, Warangal, Andra Pradesh. June 30 – July 12, 2008.
- Workshop on Nanomaterials Characterization and their Process Applications" organized by NIT-Tiruchirappalli, Feb 28, 2008.