

Name of Faculty	Dr. Dharmalingam K	
Designation	Assistant Professor	
Nature of Job/Appointment	Regular	
Date of Joining	27-09-2021	
E-mail	dharmalingam_biotech@cbit.ac.in dharmamtech2013@gmail.com	
Education Qualifications	Name of the Degree	Class
Ph. D.	Chemical Engineering	Awarded
M.Tech.	Industrial Biotechnology	First Class (Distinction)
B.Tech.	Industrial Biotechnology	First Class (Distinction)
Work Experience		
Teaching	06 years and 3 months	
Research	06 years (Including Ph.D.)	
Industry	--	
Others	--	
Area of Specialization	Hydrogel technology, Biomaterials, Nanomedicine, Drug solubility, Microwave synthesis and Food packaging films	
Professional Memberships	Member in International Biodeterioration and Biodegradation Society, United Kingdom Lifetime member in Indian Initiative for Management of Antibiotic Resistance	
Responsibilities held at Institution Level	-- 1. Student Inter Institute participations / Home Institute participation 2. Weak student identification and Remedial classes 3. Alumni coordinator 4. ISO Associate Coordinator 5. Internships dept level coordinator 6. Mentor for students 7. Internships dept level coordinator 8. Course Expert Group member 9. Guest Lectures 10. Honors degree 2021 admitted batches coordinator	
Responsibilities held at Department Level		
Research Guidance	-- 1. Recipient of Ministry of Human Resource & Development (MHRD) scholarship for pursuing Ph.D. (2015 – 2020) 2. Received Young Scientist Award in 2002 by Regional Institute of Education, Mysuru (a constituent unit of NCERT, New Delhi) 3. Received best poster Award in the National Conference on 22 nd March 2024, at Arunai Engineering College, Tiruvannamalai, Tamil Nadu 4. Received best poster award in the 9th IFCoN 2023 held between 7 th and 10 th December 2023 at CSIR-CFTRI campus, Mysuru. 5. Received third prize in poster presentation in International conclave on AMR and future antibiotics (ICAFA) - 2023 organized by Department of Biological Sciences, SRM University, AP, on 8 th & 9 th November 2023.	
Awards Received		

6. Received best paper in 4th International Conference on “Challenges in Chemical and Biochemical Engineering for Sustainable Development (CBSD)” held between 23rd and 24th February 2022 and organized by Department of Chemical Engineering, Annamalai University, Tamil Nadu.

1. Microbiology
2. Industrial Biotechnology
3. Downstream Processing
4. Bioprocess Engineering
5. Biochemistry
6. Molecular Biology
7. Animal Biotechnology
8. Environmental Biotechnology
9. Food Biotechnology
10. Microbiology Laboratory
11. Biochemistry Laboratory
12. Bioprocess Engineering Laboratory
13. Downstream Processing Laboratory

Courses Handled at Under Graduate /
Post Graduate Level.

No. of Papers Published National Journals – Nil International Journals – 18 (SCI indexed)
National Conference – Nil International Conference – 1 (Scopus)

Projects Carried out

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Patents

1. Published a patent on “Swellable hydrogel films incorporated with quaternary ammonium compound” Application No: 202341034437 A. Publication date: 30/06/2023.
2. Published a patent on “Method of fabrication of highly resilient organic acid crosslinked carbomer based hydrogel films” Application No. 202441029006 A. Publication date: 19/4/2024.
3. Published a patent on “A Method for Development of Sustainable Packaging from Seaweeds and Biodegradable Composition Thereof” Application No. 202441044350 A. Publication date: 14/6/2024.
4. Published a patent on “Nonsteroidal Anti-Inflammatory Drug (NSAD) Loaded Hydrogel Films” Application No. 202441094199 A. Publication date: 13/12/2024.
5. Published a patent on “Antibacterial Swellable Nanocomposite Polymeric Films” Application No. 202441097799 A. Publication date: 20/12/2024.

Technology Transfer

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Invited Speaker

1. Delivered a guest lecture in the six-day Faculty Development Program (FDP) on “Emerging Trends and Advancements in Chemical and Food Processing Technology” organized by the Department of Chemical Engineering, Sri Venkateswara College of Engineering, Chennai, Tamil Nadu 31st May 2025.
2. Delivered an expert lecture in the “Hands-on Workshop on Biomaterials: Exploring the Cutting-Edge and Real-World Applications” organized by the Department of Biomedical Engineering, University College of Engineering (Autonomous), Osmania University, Hyderabad, on 19th March, 2025.
3. Delivered an invited talk on “Biomaterials and Fabrication Techniques” in a two-day hands-on workshop organized by the Department of Biomedical Engineering, University College of Engineering (Autonomous), Osmania University, Hyderabad, on 1st and 2nd March, 2024.
4. Delivered a guest lecture on “How to publish quality research articles in high impact factor journals” in a one-week refresher course for faculty members conducted by Kamaraj College, Thoothukudi, Tamil Nadu on 12.07.2022.
5. Delivered a guest lecture on “Recent Advances in

	Pharmaceutical Research - Nanoparticles and Hydrogel Technology” in one day National seminar on “Advanced Research and Career Opportunities in Pharmacy field” conducted by Chilkur Balaji College of Pharmacy, Hyderabad on 08.07.2022.
	6. Delivered a guest lecture on “Research Methodology - Publishing quality research articles in high impact factor journals” in one day National level virtual workshop conducted by Kamaraj College, Thoothukudi, Tamil Nadu on 30.10.2021.
No. of Books/Chapter Published with details	<ol style="list-style-type: none"> 1. K. Dharmalingam, R. Anandalakshmi, Polysaccharide Based Films for Food Packaging Applications, Advances in Sustainable Polymers: Processing and Applications, Springer Nature, 2019, 183-207. DOI: https://doi.org/10.1007/978-981-32-9804-0_9. 2. K. Dharmalingam, Abhishek Roy, R. Anandalakshmi, Essential oil in Active Food Packaging System, Biopolymer-Based Food Packaging: Innovations and Technology Applications, John Wiley & Sons, Inc., 2022, 422-444. DOI: https://doi.org/10.1002/9781119702313.ch13 3. Abhishek Roy, K. Dharmalingam, R. Anandalakshmi, Silver and ZnO Nanoparticles in Food Packaging, Biopolymer-Based Food Packaging: Innovations and Technology Applications, John Wiley & Sons, Inc., 2022, 368-393. DOI: https://doi.org/10.1002/9781119702313.ch11. 4. Varimadugu, A., CVS, A., Kansoth, A., Mokkapati, V., Koodalingam, D., Salla, S. (2023). Microbial Synthesis of Gold Nanoparticles. In: Maddela, N.R., Rodríguez Díaz, J.M., Branco da Silva Montenegro, M.C., Prasad, R. (eds) Microbial Processes for Synthesizing Nanomaterials. Environmental and Microbial Biotechnology. Springer, Singapore. 5. Govindugari Vijaya Laxmi, K. Dharmalingam; In Vitro Protocols for Micropropagation of Catharanthus roseus (L.) G. Don, Micropropagation of Medicinal Plants (2024) 2: 170. Bentham Publishers.
Details of Short-Term Training Programs/Faculty Development Programs/Seminars/Workshops/Other Trainings (Attended and/or organized).	<ol style="list-style-type: none"> 1. K. Dharmalingam and R. Anandalakshmi, Influence of citric acid on NaCMC-HPMC-ZnO hydrogel films for wound healing applications, International Conference on Advanced Materials Research (AMRC 2019), September 26, 27, 2019, National University of Singapore (NUS), Singapore. 2. K. Dharmalingam and R. Anandalakshmi, Rapid microwave-assisted synthesis and characterization of zinc-sulfate-calcium-phosphate/cellulose bionanocomposites, International Conference on Nanoscience and Technology (ICONSAT 2016), Feb 29 – March 2, 2016, IISER, Pune 3. K. Dharmalingam and R. Anandalakshmi, Solid dispersion of quercetin in HPMC matrix by microwave irradiation, Sophisticated Instruments in Modern Research, ICSIMR-2017, 30th June & 1st July, 2017, Indian Institute of Technology Guwahati, Assam 4. K. Dharmalingam and P. Mullai, Growth optimisation of marine microalgae <i>Nannochloropsis</i> sp. using response surface methodology in the International Conference on Recent trends in Agriculture and Biotechnology, Department of Biotechnology, Adhiyamaan College of Engineering, 26-27th February, 2015, Hosur, Tamil Nadu

5. K. S. Yoha, R. S. Saranya, P. Sathiyarosini, K. Dharmalingam, A study on antibacterial activity of methanolic leaf extract of *Andrographis paniculata* in the International Conference on Novel Trends in Biotechnology and Pharmaceutical Applications, Department of Biotechnology, Adhiyamaan College of Engineering, 18-19th March, 2014, Hosur, Tamil Nadu
6. K. Dharmalingam and P. Mullai, Extraction of oil from marine microalgae for biodiesel production in the 3rd National conference on Challenges in Biochemical Engineering and Biotechnology for Sustainable Environment, Department of Chemical Engineering Annamalai University, 2nd April, 2014, Chidambaram, Tamil Nadu
7. Attended AICTE sponsored 14 days Faculty Development Program on "Applications of Nanotechnology in Diagnostic and Therapeutic Procedures (ANDTP) 2013", held on 15th – 29th November 2013, organized by the Department of Biotechnology, Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Avadi, Chennai.
8. Attended TEQUIP II sponsored seven days Faculty Development Program on "Principles of Bioreactor Engineering" organized by Bharathidasan Institute of Technology, Tiruchirappalli from 16.12.2013 to 22.12.2013.
9. K. Dharmalingam and P. Mullai, Microalgae to Enhance Lipid Content for Biodiesel Production in the "International Conference on Science and Technology for Clean and Green Environment" at Zoology Wing, Annamalai University, 27-28th July, 2012, Chidambaram, Tamil Nadu
10. K. Dharmalingam and P. Mullai, Transesterification of Microalgae Oil into Biodiesel in the "National Conference on Environment, Biodiversity and bioethics- current trends and future perspectives" at Department of Zoology, Annamalai University, 23-24th March, 2012, Chidambaram, Tamil Nadu.
11. K. Dharmalingam, 2nd International Conference on Challenges in Biotechnology and Food Technology" at Department of Chemical Engineering, Annamalai University, Annamalai Nagar – 608002 on 9-10th January, 2012, Chidambaram, Tamil Nadu
12. K. Dharmalingam and P. Gopinath, Artificial Skin Using Cell Culture in the "National Conference on Current trends in Biotechnology" at Department of Biotechnology, Kamaraj College of Engineering and Technology, 26-27th February, 2009, Virudhunagar, Tamil Nadu.

Details of Journal Publications/
Conferences (National and International) Details provided below

International Journal

1. Mullai, P., S. M. Sambavi, S. Vishali, K. Dharmalingam, S. Sutha, S. Dinesh, T. Anandhi, Md Abdullah Al Noman, Abubakar M. Bilyaminu, and Anina James, 2025. "An integrated review on the role of different biocatalysts, process parameters, bioreactor technologies and data-driven predictive models for upgrading biogas." *Journal of Environmental Management* 384, 125508. (IF – 8.4)
2. Mullai, P., Vishali, S. and Dharmalingam, K., 2024. Residence time distribution experiments in a hybrid anaerobic blanket reactor treating real pharmaceutical wastewater. *Journal of the Taiwan Institute of Chemical Engineers*, p.105381. (IF – 5.5)
3. Mullai, P., Vishali, S., Sambavi, S.M., Dharmalingam, K., Yogeswari, M.K., Raja, V.V., Bharathiraja, B., Büşra, B., Abubackar, H.N., Al Noman, M.A. and Rene, E.R., 2023. Energy generation from bioelectrochemical techniques: Concepts, reactor configurations and modeling approaches. *Chemosphere*, p.139950. (IF – 8.1)

4. Vasu, P., Dharmalingam, K., Ramachandran, T. and Prakash, C., 2023. Fabrication and Characterization of Organo Modified Polysiloxane Softened Linen Fabrics by On-Loom Integrated Finishing. *AATCC Journal of Research*, 10(6), pp.323-331. (IF – 0.6).
5. Jahnu Saikia, K. Dharmalingam, R Anandalakshmi, Amay S Redkar, Venu Bhat, Vibin Ramakrishnan, 2021. Electric Field Modulated Peptide based Hydrogel Nanocatalyst. *Soft Matter*, 17, 42, 9725-9735 (IF - 3.67).
6. Mrinal Bhowmik, K. Dharmalingam, Sayan Halder, P. Muthukumar and R. Anandalakshmi, 2021. Fabrication, characterization and evaluation of desiccant doped hydrogel films for potential air-dehumidification applications. *Journal of Applied Polymer Science*, 139, 6, 51607 (IF – 3.12).
7. K. Dharmalingam and R. Anandalakshmi, 2020. Functionalization of cellulose-based hydrogel films with zinc oxide complex and grapefruit seed extract for potential applications in treating chronic wounds. *Polymer*, 202, 122620 (IF – 4.23).
8. K. Dharmalingam, R. Anandalakshmi and Shashank Shekhar, 2020. Microwave-induced solid dispersion of curcumin in HPMC matrix using water as hydration carrier. *Journal of Dispersion Science and Technology*, 42, 10, 1419-1430 (IF – 2.26).
9. K. Dharmalingam, Devivasha Bordoloi, Ajaikumar B. Kunnumakkara and R. Anandalakshmi, 2020. Preparation and characterization of cellulose-based nanocomposite hydrogel films containing CuO/Cu₂O/Cu with antibacterial activity. *Journal of Applied Polymer Science*, 137, e49216 (IF – 3.12).
10. K. Dharmalingam, Devivasha Bordoloi, Ajaikumar B. Kunnumakkara and R. Anandalakshmi, 2020. Formation and characterization of zinc oxide complexes in composite hydrogel films for potential wound healing applications. *Polymer Composites*, 41, 2274-2287 (IF – 3.17).
11. Aditya Koneru, K. Dharmalingam* and R. Anandalakshmi, 2020. Cellulose based nanocomposite hydrogel films consisting of sodium carboxymethylcellulose – grapefruit seed extract nanoparticles for potential wound healing applications. *International Journal of Biological Macromolecules*, 148:833-842. (*Equal contribution) (IF – 6.95).
12. K. Dharmalingam and R. Anandalakshmi, 2019. Fabrication, characterization and drug loading efficiency of citric acid crosslinked NaCMC-HPMC hydrogel films for wound healing drug delivery applications. *International Journal of Biological Macromolecules*, 134:815- 829 (IF – 6.95).
13. K. Dharmalingam, Ganesan Padmavathi, Ajaikumar B. Kunnumakkara and R. Anandalakshmi, 2019. Microwave-assisted synthesis of cellulose/zinc-sulfate-calcium- phosphate (ZSCAP) nanocomposites for biomedical applications. *Materials Science & Engineering C*, 100:535–543 (IF – 7.328).
14. Pankaj Jha, K. Dharmalingam, Takahisa Nishizu, Nakako Katsuno and R. Anandalakshmi, 2019. Effect of amylose-amylopectin ratios on physical, mechanical and thermal properties of starch based bionanocomposite films incorporated with CMC and nanoclay. *Starch-Stärke* 72(1-2):1900121 (IF – 2.74).
15. M.K. Yogeswari, K. Dharmalingam, K. and P. Mullai, 2019. Implementation of artificial neural network model for continuous hydrogen production using confectionery wastewater. *Journal of Environmental Management*, 252:109684 (IF – 6.78).
16. K. Dharmalingam, D. Pamu and R. Anandalakshmi, 2018. Comparison of solid state synthesis of zinc calcium phosphorous oxide (ZCAP) ceramics under conventional and microwave heating methods. *Materials Letters*, 212:207-210 (IF – 3.42).
17. Hasan, G. Waibhaw, S. Tiwari, K. Dharmalingam, I. Shukla and L.M. Pandey, 2017. Fabrication and characterization of chitosan, polyvinylpyrrolidone, and cellulose nanowhiskers nanocomposite films for wound healing drug delivery application. *Journal of Biomedical Materials Research Part A*, 105(9):2391-2404 (IF – 4.39).
18. K. Dharmalingam, M. K. Yogeswari, K. S. Yoha, R. S. Saranya, P. Sathiyarosini and M. Suganya, 2015. In vitro characterization of antibacterial activity for *Cataranthus roseus*. *International Journal of Life Science and Pharma Research*, 5(2):72-77.
19. M. K. Yogeswari, K. Dharmalingam, P. Ronald Ross and P. Mullai, 2015. Role of iron concentration on hydrogen production using confectionery wastewater. *Journal of Environmental Engineering*, 142(9):C4015017 (IF – 1.65).

International Conferences

1. Mrinal Bhowmik, Sayan Halder, K. Dharmalingam, R. Anandalakshmi, P. Muthukumar, Evaluation of Thermo-Kinetic and Absorption Characteristics of Pure Desiccants and Desiccant Mixtures, 10th International Conference on Materials Processing and Characterizations (ICMPC-2020), February 21- 23, 2020. *Materials Today: Proceedings*: <https://doi.org/10.1016/j.matpr.2020.02.430>.