

Abhishek A

☎ +91 7012693085 | ✉ mailto:abhishek97@gmail.com | 🔗 LinkedIn | 📍 Ernakulam, Kerala, India

EDUCATION

Cochin University of Science And Technology <i>Doctor of Philosophy - Regenerative Biomaterials and Theranostics</i>	Ernakulam, Kerala, India April 2026 – Ongoing
Cochin University of Science And Technology <i>M.Tech. in Polymer Technology; CGPA: 8.52/10.00</i>	Ernakulam, Kerala, India Aug 2020 – Aug 2022
CIPET: Institute of Petrochemicals Technology <i>M.Sc. in Biopolymer Science; CGPA: 8.76/10.00</i>	Ernakulam, Kerala, India July 2017 – Jun 2019
Mahatma Gandhi University <i>B.Sc. in Chemistry; CGPA: 8.70/10.00</i>	Kottayam, Kerala, India July 2014 – May 2017

RESEARCH EXPERIENCE

Junior Research Fellow <i>Department of Polymer Science and Rubber Technology, CUSAT</i>	July 2023 – March 2026 Ernakulam, Kerala, India
--	--

- Currently working on the project "**Development of Inherently Radiopaque Biodegradable and Cost Effective TACE System with Liver Regeneration Potential for The Treatment of Hepatocellular Carcinoma**" under Prof G.S. Sailaja
- Development of natural radiopaque component using nanocellulose extracted from *Agave sisalana*.
- Preparation of drug-eluting chemotherapeutic porous microsphere base.

Project Officer <i>Indian Institute of Technology - Madras</i>	Nov 2022 – July 2023 Chennai, Tamil Nadu, India
--	--

- Worked at the Department of Metallurgical and Materials Engineering on NPOL - DRDO funded project.
- **Prepared specialty Inter Penetrating Polymer Network (IPN) based coatings for underwater sound damping applications.**
- characterized IPN samples via ATR FT-IR and Dynamic Mechanical Analysis (DMA).
- Designed and built a custom water-filled impedance tube for underwater impedance testing.

Postgraduate Research Assistant <i>Department of Polymer Science and Rubber Technology, CUSAT</i>	Dec 2020 – Aug 2022 Ernakulam, Kerala, India
---	---

- Worked on the project "Moldable Osteoinductive Bone Graft Formulations from Bioglass Intercalated Quaternized Chitosan - Sodium Alginate Polyelectrolyte complexes".
- **Synthesized and characterized polyelectrolyte complexes (PEC) from sodium alginate and in-house prepared quaternized chitosan (QCS) and Bioglass.** QCS and Bioglass were characterized by FT-IR and XRD.
- **Physically characterized PEC samples** for their Swelling, degradation studies and compressive strength
- ***In vitro* biologically characterized PECs for cell biocompatibility (MTT, Actin-DAPI) and bone regeneration markers - apatite layer formation (*In vitro* biomimetic mineralization and Alizarin Red S staining) also FE-SEM imaging done to observe mineralization.**
- Also worked in the preparation of phosphorylated nanocellulose and intrinsically radiopaque bone cements.

Project Trainee <i>Indian Institute of Technology - Kanpur</i>	Dec 2018 – May 2019 Kanpur, Uttar Pradesh, India
--	---

- Worked at the Department of Biological Sciences and Bioengineering on the project "Developing Photo-polymerizing Injectable Hydrogels for Improved Cartilage Repair"

- Chemically modified (methacrylation) gelatin, carboxymethyl cellulose and silk fibroin to synthesize gelatin methacrylate (Gel-MA), carboxymethyl cellulose methacrylate (CMC-MA) and silk fibroin methacrylate (Silk-MA).
- Characterized modified polymers via ¹H NMR and Trinitrobenzene sulfonic acid (TNBS) Assay.
- Modified polymers photo-crosslinked in presence of LAP photoinitiator and of irradiation with blue light to form hydrogels.
- Characterized hydrogels for cell biocompatibility (FDA/PI), degradation, compressive strength, and porosity

PROJECTS & PUBLICATIONS

1. Moldable Osteoinductive Bone Graft Formulations from Bioglass Intercalated Quaternized Chitosan - Sodium Alginate Polyelectrolyte complexes

- Project submitted as part of M.Tech coursework, publication in preparation.

2. Early Biomining Radiopaque Phosphorylated Nanocellulose Intercalated Brushite Self-Setting Composites for Periodontal Regeneration Sneha K R; Abhishek A; C. P. Muhammed Musthafa; Sabna C; Sailaja GS.

- Publication under review. Journal: Ceramics International, Manuscript ID: CERI-D-26-03910

3. Developing Photo-polymerizing Injectable Hydrogels for Improved Cartilage Repair

- Project submitted as part of M.Sc. Coursework.

4. Reclaimed Wastewater in the Semiconductor Industry

- The Handbook of Environmental Chemistry, Springer, Berlin, Heidelberg (2026), pp. 1–23.
DOI: https://doi.org/10.1007/978-94-007-1270-1_1270

AWARDS & ACHIEVEMENTS

Graduate Aptitude Test in Engineering (GATE) 2026

Ministry of Education, Government of India.

M.Tech. in Polymer Technology: Ist position (2020-22 Batch)

Cochin University of Science And Technology, Ernakulam, Kerala

Graduate Aptitude Test in Engineering (GATE) 2020

Ministry of Education, Government of India.

TECHNICAL SKILLS

Characterization: ATR FT-IR, Thermo Gravimetric Analysis, Dynamic Mechanical Analysis, FE-SEM, UTM, *In vitro* biomimetic mineralization, Swelling and degradation studies, UV/Vis spectrophotometry, Carbon Black Content Tester, MFI, Durometer hardness tester, HDT/VST Apparatus, Opacity tester, melting point apparatus, Moisture analyzer, Water vapor transmission rate (WVTR), Oxygen transmission rate (OTR). **Cell Culture** (L929 cell line).

Material Synthesis: Polymer Synthesis, Polymer Modification, Biomaterials, Biopolymers, Bioglass, Hydroxyapatite, Bone cement, Nanocellulose extraction and modification, Quantum dots, Inter-Penetrating Polymer Networks.

Languages: English (Professional), Malayalam (Native), Hindi (Communicative).

REFERENCES

Dr. G.S. Sailaja

Professor

Regenerative Biomaterials and Theranostics Lab

Department of Polymer Science and Rubber Technology

Cochin University of Science and Technology

Kochi, Kerala, India - 682022

mail: sailajags@cusat.ac.in, Website

Dr. Dhiman Chatterjee

Professor

Department of Mechanical Engineering

Indian Institute of Technology Madras

Chennai, Tamil Nadu, India - 600036

Mail: dhiman@iitm.ac.in

Dr. Kamaraj M

Professor

Department of Metallurgical and Materials Engineering

Indian Institute of Technology Madras

Chennai, Tamil Nadu, India - 600036

Mail: kamaraj@iitm.ac.in