

Mohammed Monsoor Shaik, PhD, M.Sc., B.Sc.

PROFFESIONAL SUMMARY

- PhD in the area of biomedical engineering
- 7 years of academic and industrial research experience in GLP/GMP environment with background in biomedical applications, organic chemistry, nanotechnology, molecular biology, cell biology and microbiology
- Self-motivated and enthusiastic in exploring novel ways to solve complex research problems
- Hard-working, dedicated and motivated researcher with strong interpersonal skills
- Ability to comprehensively learn about new subject areas and environments
- Detailed multi-disciplinary scientific knowledge with presentation and teaching skills
- Great problem solving and organization skills

TECHNICAL EXPERTISE

- **Characterization techniques:** Differential scanning calorimetry (DSC), HIAC particle counter, Dynamic light scattering (DLS), Osmolality, Viscosity, Phase Contrast Microscopy, Flow Cytometry, X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), Thermogravimetric analysis (TGA), Brunauer-Emmett-Teller (BET) surface area, Zeta potential, Rheometer, Fluorometer, flame photometer, atomic absorption spectroscopy (AAS), , transmission electron microscopy (TEM) and Scanning electron microscopy (SEM)
- **Nanotechnology:** Synthesis of inorganic (Hydroxyapatite, silver) and organic (chitosan) nanoparticles
- **Material Science:** Fabrication of polymeric matrices for therapeutic applications ranging from wound healing to bone regeneration
- **Cell Biology**
 - **Cell culture Technique :** Culturing, maintenance of animal cells and *In vitro* diagnostics
 - **Animal Studies:** Experienced in handling animals and *in vivo* studies
 - **Molecular Techniques:** Isolation and purification of DNA & RNA, restriction digestion, bacterial cloning, PCR, RT PCR, transformation and transfection method
- **Microbiology Techniques:** Isolation and characterization of bacteria/yeast, 16s rRNA sequencing, culturing of bacterial cells, staining methods, cultivation of biofilms. Experience of working in Biosafety level-2 (BSL-2) laboratories
- **Environmental Engineering:** Anaerobic fermentation, Reactor scale-up to remediate the bauxite land fill, bioleaching of metals

WORK EXPERIENCE

BITS Pilani K K Birla Goa Campus

Oct 2018 – Nov 2019

Research Associate (Environmental Engineering)

- Designing and establishing a treatment process to neutralize highly alkaline redmud based on ABSTC regulatory objectives
- Generating data to substantiate the treatment process, regarding the safety and efficiency of waste and communicate them in technical reports and presentations
- Planning, carrying out the process trials in laboratory and pilot scale
- Scaling up the treatment process to neutralize redmud on the landfill
- Designing and validating the effluent treatment system by using algal ponds for safe disposal of the leachate
- Liaising with suppliers of raw materials/equipment

Birla Institute of Technology and Science, Pilani, India

Jan 2012 – Sep 2018

Doctoral Research (Biomedical Engineering)

- Fabricated the drug loaded tissue engineering scaffolds for chronic wounds by using novel melt-down neutralization method
- Developed "melt-down neutralization method" ensured the homogenous distribution of the drugs across the scaffolds, which ensured the sustained release of drug molecules.
- Developed bilayer scaffolds with a chitosan layer doped with silver and collagen layer doped with various polyphenol based anti-oxidants and the wound healing properties of these bilayer scaffolds were studied in *in vitro* and *in vivo* (Wistar rats) systems.
- Synthesis and characterization of inorganic (Hydroxyapatite, Silver) and organic (chitosan) nanoparticles.
- Formulated silver doped chitosan hydrogel for wound healing applications

Birla Institute of Technology and Science, Pilani, India

Jan 2012 – Apr 2018

Teaching Assistant

- Experimental Techniques: Cell culturing techniques.
- Microbiology Laboratory: Basic microbiological techniques.
- Instrumental Methods of Analysis Laboratory: Biophysical characterization techniques: X-ray diffraction, FT-IR spectroscopy, Atomic Absorption spectroscopy, Flame photometry, Fluorescence spectrometry, UV-Visible spectroscopy, and Thin Layer Chromatography.
- Measuring Techniques-I/ Biology laboratory: Basic techniques of quantitative biology.

AWARDS/HONORS/ACHIEVEMENTS

- Awarded "Best Paper Presentation" on "Preparation and characterization of Chitosan Nano- Silver bio-composites for wound healing applications" held at International Conference on Nano Materials: Science, Technology, and Applications, India 2013.
- Published five papers with reputed publishers such as ACS, Springer, American scientific publisher and Elsevier.

PAPERS PUBLISHED

- Shaik M. Monsoor, Ashwin Dapkekar, Jyutika M. Rajwade, Sachin H. Jadhav, and Meenal Kowshik. "Antioxidant-antibacterial containing bi-layer scaffolds as potential candidates for management

of oxidative stress and infections in wound healing." *Journal of Materials Science: Materials in Medicine* 30 (2019) 1-13.

- Shaik M. Monsoor and Meenal Kowshik. "Ellagic acid containing collagen-chitosan scaffolds as potential antioxidative bio-materials for tissue engineering applications." *International Journal of Polymeric Materials and Polymeric Biomaterials* (2018) 1-8.
- Shaik M. Monsoor and Meenal Kowshik. "Novel melt-down neutralization method for synthesis of chitosan-silver scaffolds for tissue engineering applications." *Polymer Bulletin* 73 (2016) 841-858.
- Deshmukh Ketaki, M. Monsoor Shaik, Sutapa Roy Ramanan, and Meenal Kowshik. "Self-activated fluorescent hydroxyapatite nanoparticles: a promising agent for bioimaging and biolabeling." *ACS Biomaterials Science & Engineering* 2 (2016) 1257-1264.
- Naik Kshipra, Pallavee Srivastava, Ketaki Deshmukh, Shaik M. Monsoor, and Meenal Kowshik. "Nanomaterial-based approaches for prevention of biofilm-associated infections on medical devices and implants." *Journal of nanoscience and nanotechnology* 15 (2015) 10108-10119.

EDUCATIONAL QUALIFICATIONS

- Ph.D., Biomedical Engineering : CGPA – 8.72
Birla Institute of Technology and Science Pilani, India (2012 – 2018)
- M.Sc., Biotechnology : CGPA – 6.25
Bangalore University, KA, India (2008 – 2010)
- B.Sc., Chemistry/Biotechnology/Biochemistry : CGPA – 7.9
Acharya Nagarjuna University, AP, India (2005 – 2008)

EXTRACURRICULAR ACTIVITIES

- Representative (Student Council), Bangalore City College, Bengaluru, KA, India. 2008 – 2010.
- Hostel Captain, Bhashyam Public School, Guntur, AP, India. 2001 – 2002.
- Participated in badminton, and volley ball competitions.

PERSONAL INFORMATION

I authorize the handling of personal information in this curriculum, according to D.Lgs n. 196/03 and following modifications and Regulations EU 679/2016 (General Regulations concerning Data Protection or GRDP) and art. 7 of University Regulations concerning protection of personal information.

Date: 01-06-2020

Mohammed Monsoor Shaik

