

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

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## PROFFESIONAL SUMMARY

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- 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

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- **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

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*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

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- **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

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- **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

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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.

Mohammed Monsoor Shaik

