

Dr. Shatavari Kulshrestha



Designation: Assistant Professor

Email ID: shatavari.kulshrestha@dpu.edu.in

Qualification: Ph.D. Biotechnology

Area of Specialization: Microbial biofilms, Nanobiotechnology, Antimicrobial photodynamic therapy (aPDT)

EDUCATIONAL QUALIFICATIONS:

Ph.D. in Biotechnology Interdisciplinary Biotechnology Unit, A.M.U., Aligarh, India – 202002 PhD thesis title: “Nanoparticle induced suppression of microbial biofilm” Supervisor: Prof. Asad U. Khan	2012-2015
M. Sc. in Biotechnology Department of Biotechnology, H.P.U., Shimla, India – 171005	2009-2011
B. Sc. in Biotechnology Banasthali University, Vanasthali (Tonk), Rajasthan, India -304022	2006-2009

RESEARCH EXPERIENCE:

Doctoral Research Interdisciplinary Biotechnology Unit, A.M.U., Aligarh, India – 202002	2012-2015
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- Synthesis of graphene/zinc oxide nanocomposite and evaluation of its effect on *Streptococcus mutans* biofilm and its cariogenic potentials. Investigation of its applicability as a coating material for dental implant surface to inhibit biofilm growth.

- Synthesis of Calcium fluoride nanoparticles and assessment of their effect on *Streptococcus mutans* biofilm and its virulence factors associated with caries development in *in vitro* and *in vivo* models.
- Formation of graphene oxide-silver nanocomposite by an eco-friendly and less toxic route of green synthesis to reduce the agglomeration of silver nanoparticle. Analysis of the effectiveness of this nanocomposite in prevention of biofilm of both gram-positive and gram-negative bacteria.

Post graduate Research project

2009 – 2011

- Department of Biotechnology, H.P.U., Shimla, India – 171005
- Title: Optimization of process parameters for fruit juice clarification using silica immobilized xylanase from *Pseudomonas* sp.XPB-6
- *Modules studied include:* Enzymology, Biochemistry, Applied microbiology

ACADEMIC EXPERIENCE:

Assistant professor

2016 - 2018

Dr. D.Y. Patil Biotechnology and Bioinformatics Institute,
Tathawade, Pune – 411033

- Teaching theory part and taking practical classes for M.Sc., M.Tech. and B. Tech students
- Mentored and supervised research projects
- Along with academic duties worked on various administrative fronts
- Handled Food and hospitality part in the organizing committee of scientific conference
- Organised industrial tour and conference visits for student for better understanding of processes

Undergraduate Project Supervised

2017

- *Name of Student:* Nilofar Khan (B. tech Biotechnology)
- *Institute:* Dr. D.Y. Patil Biotechnology and Bioinformatics Institute
- *Topic:* Biosynthesis of silver nanoparticles using *Acacia Catechu* (kattha) extract: a study on their dye degradation and antimicrobial potential

OTHER EXPERIENCE:

Robotics Instructor (online part-time)

Nov 2022- April 2023

Playto Labs, Bangalore, India

- Taking Robotic classes for international and national students (age group: 8 to 12 years)
- Helped students in robotic projects for submission in national competition held at IIT

Online tutor

Jan 2019 – May 2021

Tutor.com (A service of Princeton Review), USA

Takelessons.com, USA

- Tutored instant biology and microbiology problem solving sessions
- Taking AP biology classroom sessions
- Followed guidelines and strong ethics of organization while handling student

AWARDS AND ACHIEVEMENTS:

UGC-BSR Fellowship (JRF and SRF)	2012- 2015
CSIR- UGC NET (Junior Research Fellowship) examination	2013
CSIR- UGC NET (Lectureship eligibility) examination	2012
Graduate Aptitude Test in Engineering (GATE) Biotechnology	2011
DBT post graduate fellowship (M.Sc. Biotechnology)	2009

PUBLICATIONS:

Shah S, Gaikwad S, Nagar S, **Kulshrestha S**, Vaidya V, Nawani N, Pawar S. Biofilm inhibition and anti-quorum sensing activity of phytosynthesized silver nanoparticles against the nosocomial pathogen *Pseudomonas aeruginosa*. *Biofouling*. **2019** Jan 2;35(1):34-49.

Kulshrestha S, Khan AU. Nanomedicine for anticancer and antimicrobial treatment: an overview. *IET Nanobiotechnology*. **2018** Aug 8;12 (8):1009-17.

Kulshrestha S, Qayyum S, Khan AU. Antibiofilm efficacy of green synthesized graphene oxide-silver nanocomposite using *Lagerstroemia speciosa* floral extract: a comparative study on inhibition of gram-positive and gram-negative biofilms. *Microbial pathogenesis*. **2017** Feb 1;103:167-77.

Misba L, **Kulshrestha S**, Khan AU. Antibiofilm action of a toluidine blue O-silver nanoparticle conjugate on *Streptococcus mutans*: a mechanism of type I photodynamic therapy. *Biofouling*. **2016** Mar 15;32(3):313-28.

Kulshrestha S, Khan S, Hasan S, Khan ME, Misba L, Khan AU. Calcium fluoride nanoparticles induced suppression of *Streptococcus mutans* biofilm: an in vitro and in vivo approach. Applied microbiology and biotechnology. **2016** Feb 1;100(4):1901-14.

Kulshrestha S, Khan S, Meena R, Singh BR, Khan AU. A graphene/zinc oxide nanocomposite film protects dental implant surfaces against cariogenic *Streptococcus mutans*. Biofouling. **2014** Nov 26;30(10):1281-94.

Sharma PK, **Kulshrestha S**, Chand D. Optimization of process parameters for fruit juice clarification using silica immobilized xylanase from *Pseudomonas* SP. Pure and Applied Biology. **2012** Sep 1;1(2):52.

CONFERENCE PROCEEDINGS:

Attended, “National conference on recent trends in Food and Agri Biotech”, Singhad college of Engineering Department of biotechnology, **14-15 September 2017**.

Attended and was the **member of organizing committee** “Recent Advances in Modern Biology and biotechnology 2017”, Dr. D.Y. Patil Biotechnology and Bioinformatics Institute Tathawade, Pune, India, **16-17 March 2017**.

Attended, “International symposium on Emerging discoveries in microbiology”, School of Life Sciences, Jawaharlal Nehru University, New Delhi, India, **7-10 December, 2015**.

Attended, international conference on nanoscience and nanotechnology “Aligarh Nano IV International 2014” organised by Department of Applied Physics, Z.H. College of Engineering & Technology, Aligarh Muslim University, Aligarh, India, **8-10 March, 2014**.

Presented poster at National Symposium on “New facets of Biotechnology from Genes to Proteins” sponsored by UGC, DST and DBT, Govt. of India, New Delhi, organized by Interdisciplinary Biotechnology Unit, Aligarh Muslim University, Aligarh, India, **15-17 January, 2014**.

Presented a poster at “3th Annual meeting of the Indian Academy of Biomedical Sciences & Symposium on Modern Trends in Human Diseases” organized by Department of Biochemistry, JNMC, Aligarh Muslim University, Aligarh, India, **14 -15 December, 2013**.

CERTIFICATIONS:

The beginner's course for clinical research, Udemy: Online Courses, **April 2022**

CRISPER basic certification course, BioTechNika, **July 2021**

WORKSHOPS:

Attended, “Workshop on Fundamentals of Health Professions Education” organized by the University Centre for Professional Education and Faculty Development, DPU, Pune, **22 to 26 May, 2023**

Attended, “Science Communication Workshop” Aligarh Muslim University, Aligarh, India, **26 March, 2015.**