




## Faculty Details proforma for Gargi College

Title	Dr.	First Name	Mamtesh	Last Name	Singh	Photograph
Designation		Assistant Professor				
Address		Department of Zoology, Gargi College, Siri Fort Road, Delhi -110049				
Phone No						
Office						
Residence*						
		Mobile*				
Email		s.mamtesh@yahoo.com				
Web-Page						
<b>Educational Qualifications</b>						
Degree		Institution				Year
Ph.D. (Biotechnology)		CSIR-Institute of Genomics and Integrative Biology (IGIB), Delhi				2012
M.Sc. (Zoology)		University of Delhi				2006
B.Sc. (H) Zoology		University of Delhi				2004
<b>Career Profile</b>						
1. <b>Assistant Professor</b> in Department of Zoology, Gargi College, University of Delhi, October 2015 till date. 2. <b>Assistant Professor (Ad Hoc)</b> in Gargi College, University of Delhi, January 2014 - October 2015. 3. <b>Assistant Professor (Ad Hoc)</b> in Daulat Ram College, University of Delhi, January 2013 - May 2013. 4. <b>Guest lecturer</b> in Daulat Ram College, University of Delhi, January 2012 - April 2012 and September 2012 - October 2012.						
<b>Administrative Assignments</b>						
<ul style="list-style-type: none"> <li>College website committee member (Since 2018-19), Convener since 2021-22</li> <li>College magazine committee member (Since 2018-19)</li> <li>Departmental Admission committee member (2020-21)</li> <li>Departmental magazine Faculty editor (2020-21)</li> </ul>						
<b>Areas of Interest / Specialization</b>						
Microbial/Environment Biotechnology - Using microbes for bio-products/natural products e.g. biopolymer, biofuel, secondary metabolites etc., biowaste hydrolysis and utilization, biodegradation & bioremediation.						
<b>Subjects Taught</b>						
<ul style="list-style-type: none"> <li>Animal Diversity (Non-Chordata, Chordata)</li> <li>Evolutionary biology</li> <li>Biochemistry</li> <li>Bioinformatics</li> </ul>						
<b>Research Projects (Major Grants/Research Collaboration)</b>						
<ul style="list-style-type: none"> <li><b>Early Career Research grant (ECR)</b> by SERB, India, October 2018- April 2022 Exploiting Bacillus, the microbial work-horse for biowaste utilization, biopolymer and biofuel production: Integrative and customised approach</li> </ul>						

- Grant for **Innovation project 2015-2016** by University of Delhi, Delhi.  
“Ecobiotechnological approaches for biowaste utilization: Biopolymer and Biofuel”
- **Two Short term projects under DBT start college scheme as PI** for undergraduate students “Biochemical characterization of bacterial isolates for their application in biowaste hydrolysis” from **January-May 2014** and “Exploring microbial diversity for biosurfactant production” **August-December 2014**.

#### Research Guidance

- **PhD co-supervisor** for two students (ongoing).
- Undergraduate students at Gargi College, University of Delhi under **Innovation project 2015-2016 as PI**.
- Undergraduate students at Gargi College, University of Delhi under **Two Short term projects, DBT start college scheme as PI in 2014**.

#### Awards and Distinctions

- **NESA Young Scientist Award-2018** by National Environmental Science Academy (NESA), Delhi
- AMI-Prof. J. V. Bhat award **2011-2012 for best paper** Patel et al., 2011 (Shared first authorship) published in Indian Journal of Microbiology.
- Senior Research Scholarship (SRF) 2008-2011 by University Grant Commission (UGC).
- **CSIR-UGC NET-JRF** December, 2005 for Scholarship of **Junior Research Fellow (JRF)** 2006-2008 by UGC, India.
- Scholarship and certificate for securing first position in the college in **B.Sc. (H) Zoology 1st year** 2001-2002.

#### Recent Publications

##### a. Research papers

1. Afreen, R., Tyagi, S., Singh, G. P., & **Singh, M\***. (2021). Challenges and perspectives of polyhydroxyalkanoate production from microalgae/cyanobacteria and bacteria as microbial factories: an assessment of hybrid biological system. *Frontiers in Bioengineering and Biotechnology*, 9, 624885.
2. Tyagi, S., **Singh, M.**, Singh, G. P., Afreen, R., Kaushik, N., Pruthi, A., ... & Tyagi, S. (2021). Exploiting Biological Waste Hydrolysate for its Management and Biological Polymer Production: Parameter Optimization and Biological Process Modeling. *J.Env.Bio-Sci.*, Vol.35 (1), June-2021 : 1-10
3. Jha, M., Singh, M., & Singh, G. P. (2021). Modeling of second-line drug behavior in the treatment of tuberculosis using Petri net. *Int.I J. Sys. Assu. Eng. Managem.*, 1-10.
4. Singh, G. P., Jha, M., & Singh, M. (2020). Modeling the mechanism pathways of first line drug in Tuberculosis using Petri nets. *Int.I J. Sys. Assu. Eng. Managem.* 11(2), 313-324.
5. **Singh M\***, Kumar P, Ray S, Kalia VC. (2015). Challenges and Opportunities for Customizing Polyhydroxyalkanoates. *Ind. J. Microbiol.* 55: 235-249. ISSN: 0973-7715 (\*: Corresponding author)
6. Patel SKS, Kumar P, **Singh M**, Lee JK, Kalia VC. (2015). Integrative approach to produce hydrogen and polyhydroxybutyrate from biowaste using defined bacterial cultures. *Bioresour. Technol.* 176: 136-141. ISSN: 0960-8524
7. Kumar P, **Singh M**, Mehariya S, Patel SKS, Lee JK, Kalia VC. (2014). Ecobiotechnological approach for exploiting the abilities of *Bacillus* to produce copolymer of polyhydroxyalkanoate. *Ind. J. Microbiol.* 54: 151-157. ISSN: 0973-7715
8. **Singh M**, Kumar P, Patel SKS, Kalia VC. (2013). Production of polyhydroxyalkanoate co-polymer by *Bacillus thuringiensis*. *Ind. J. Microbiol.* 53: 77-83. ISSN: 0973-7715
9. Patel SKS, **Singh M**, Kumar P, Purohit HJ, Kalia VC. (2012). Exploitation of defined bacterial cultures for production of hydrogen and polyhydroxybutyrate from pea-shells. *Biomass Bioenergy* 36:218-225. ISSN: 0961-9534
10. Patel SKS<sup>†</sup>, **Singh M<sup>†</sup>**, Kalia VC. (2011). Hydrogen and polyhydroxybutyrate producing abilities of *Bacillus* spp. from glucose in two stage system. *Ind. J. Microbiol.* 51: 418-423. (†: Equal contribution) ISSN: 0973-7715
11. **Singh M**, Patel SKS, Kalia VC. (2009). *Bacillus subtilis* as potential producer for Polyhydroxyalkanoates.

*Microbial Cell Factories* 8: 38. ISSN: 1475-2859

12. Kumar T, **Singh M**, Purohit HJ, Kalia VC. (2009). Potential of *Bacillus* sp. to produce polyhydroxybutyrate from biowaste. *J. Appl. Microbiol.* 106: 2017-2023. ISSN: 1365-2672

**b. Book**

**Edited (under process):** Microbial Products: Applications and Translational Trends, Eds.: Mamtesh Singh, Gajendra Pratap Singh, Shivani Tyagi. CRC Press-Routledge Taylor & Francis Group

**c. Book chapter**

1. Singh, G. P., Jha, M., & Singh, M. (2021). Petri net modeling of clinical diagnosis path in tuberculosis. In *Advances in Interdisciplinary Research in Engineering and Business Management* (pp. 401-412). Springer, Singapore.
2. Singh, G. P., Jha, M., & Singh, M. (2021). Applications of Petri Net Modeling in Diverse Areas. In *Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy* (pp. 437-449). Springer, Singapore.
3. Singh, G. P., Anthony, E. R., & Singh, M. (2020). A Graph-Theoretic Analysis on Functional EEG Network in Igraph R. In *Decision Analytics Applications in Industry* (pp. 541-555). Springer, Singapore.
4. Kalia, V. C., Ray, S., Patel, S. K., Singh, M., & Singh, G. P. (2019). The dawn of novel biotechnological applications of polyhydroxyalkanoates. In *Biotechnological applications of polyhydroxyalkanoates* (pp. 1-11). Springer, Singapore.
5. Patel, S. K., Sandeep, K., Singh, M., Singh, G. P., Lee, J. K., Bhatia, S. K., & Kalia, V. C. (2019). Biotechnological application of polyhydroxyalkanoates and their composites as anti-microbials agents. In *Biotechnological applications of polyhydroxyalkanoates* (pp. 207-225). Springer, Singapore.
6. Ray, S., Patel, S. K., Singh, M., Singh, G. P., & Kalia, V. C. (2019). Exploiting polyhydroxyalkanoates for tissue engineering. In *Biotechnological applications of polyhydroxyalkanoates* (pp. 271-282). Springer, Singapore.
7. Kalia, V. C., Ray, S., Patel, S. K., Singh, M., & Singh, G. P. (2019). Applications of polyhydroxyalkanoates and their metabolites as drug carriers. *Biotechnological applications of polyhydroxyalkanoates*, 35-48.
8. Singh GP, **Singh M**. (2019). Statistics in Research-II. Textbook of Research Methodology. Rastogi Publications.
9. Patel SKS, Kumar P, **Singh M**, Lee JK, and Kalia VC. (2015). Integrative approach for biohydrogen and polyhydroxyalkanoate production. *Microbial Factories*. Springer India. ISBN 978-81-322-2597-3.

**Conference Organization/ Presentations**

**Invited talk**

- “Bacterial biopolymer as green alternative: Limitations and Prospective”. In National Seminar “वैज्ञानिक और तकनीकी शब्दावली के दृष्टिकोण से विज्ञान/Science with the lens of scientific and technical terminology” 29-30 Jan, 2020 at Shyam Lal College, New Delhi

**Oral**

- **Mamtesh Singh**. “Going green ways with bacterial biopolymer - Limitations and prospectives” in National conference CIPSE-2016, Gargi College.

**Poster**

- **Kumar P, Singh M**, Patel SKS, Kalia VC. “Integrative approach for the production of hydrogen and polyhydroxybutyrate by *Bacillus* spp.” in 53<sup>rd</sup> Annual Conference of Association of Microbiologists of India (AMI).
- **Patel SKS**, Singh M, Kalia VC. “Hydrogen and polyhydroxybutyrate producing abilities of *Bacillus* spp. from glucose in two stage system” in 52<sup>nd</sup> Annual Conference of AMI.
- **Singh M** et al. “Functional complementation of phylogenetically diverse bacteria for producing hydrogen and bioplastic from renewable raw material” in 51<sup>st</sup> Annual Conference of AMI.
- **Singh M** et al. “Bioplastic production by microbial degradation of Biowaste” in 49<sup>th</sup> Annual Conference of AMI.

**Students’ oral presentation**

- Tyagi S, Singh M, **Talwar J**, **Tiwari A**. “Exploiting biowaste hydrolysis for biowaste management and utilization/

**जैव अपशिष्ट प्रबंधन और उपयोग के लिए जैव अपशिष्ट अवायवीय पाचन का शोषण** in National Seminar “Use of scientific & technical terminologies in sustainable environment development, its challenges, computational analysis and opportunities” held at Gargi College, on March 14-16, 2019. (1<sup>st</sup> prize for Best presentation).

- Singh M, Tyagi S, Singh GP, Afreen R. “Hydrolysis of sweet lime fruit waste, its optimization and modeling/ **मौसमी अपशिष्ट के अवायवीय पाचन से बायोपॉलिमर उत्पादन, इसका इष्टतमीकरण और मॉडलिंग**” in National Seminar “Use of scientific & technical terminologies in sustainable environment development, its challenges, computational analysis and opportunities” held at Gargi College, on March 14-16, 2019.

#### Students’ poster presentation

- Chawla H (Singh M\*) et al. “Hydrolysis of biowaste (sweet lime) in different concentration for production of polyhydroxyalkanoates” in CIPSE-2016, Gargi College.
- Deepika (Singh M) et al. “Studying the effect of incubation time on hydrolysis of waste (sweet lime) for optimization of PHA production” in CIPSE-2016.
- Kaur D (Singh M\*) et al. “Studying the effect of biowaste (sweet lime) concentration for efficient hydrolysis for utilization in downstream processes” in National symposium on ‘Trends in research and innovations in life sciences at undergraduate level’, Deen Dayal Upadhyaya College (DDUC), Delhi on March 30, 2016.
- Chosnit D (Singh M) et al. “Hydrolysis of biowaste as the promising strategy for downstream utilization: Studying the effect of incubation time” in National symposium, DDUC, Delhi.
- Pruthi A (Singh M\*) et al. “Exploiting biowaste (sweet lime) hydrolysis and its effect on biopolymer production” in Indo-US workshop on ‘Cell Factories’, IIT Bombay in March, 2016.
- Jha D (Singh M) et al. “Biowaste hydrolysis: An ecofriendly approach for biowaste management and its utilization” in Indo-US workshop, IIT Bombay.

#### Symposium/Conferences/workshop attended

- Convener for National Seminar “सतत पर्यावरण विकास: इसकी चुनौतियों, अभिकलनी विश्लेषण और अवसरों में वैज्ञानिक और तकनीकी शब्दावली का उपयोग”/“use of scientific & technical terminologies in sustainable environment development, its challenges, computational analysis and opportunities” organised by Department of Zoology, Gargi College, Delhi and Commission for Scientific and Technical terminology (CSTT), MHRD, Govt. of India held on March 14-16, 2019.
- Attended one week 1st workshop on “MOOCs, e-content development and open educational resources”, March 18-23, 2019 at HRDC, Jawaharlal Nehru University, Delhi
- Attended Faculty development Programme in NAAC sponsored seven day National workshop, January, 2019 at Kalindi College, Delhi
- Attended 111<sup>th</sup> orientation programme, October 8 - November 2, 2018 at HRDC JNU, Delhi
- National conference Combating industrial pollution for sustainable environment - A fusion of industrial and scientific efforts (CIPSE-2016), Gargi College, Delhi.
- 6th Workshop (2016) on Bioinformatics and Molecular Modeling in Drug Design, ACBR, Delhi.
- 49<sup>th</sup> (2008), 51<sup>st</sup> (2010), 52<sup>nd</sup> (2011), 53<sup>rd</sup> (2012) Annual Conference of AMI.
- 13<sup>th</sup> Human Genome Organization Meeting (HGM-2008), “Genomics and the Future of Medicine”, Hyderabad.
- 30<sup>th</sup> All India Cell Biology Conference and Symposium, India, “Molecules to Compartments: Cross-Talks and Networks”.
- 6<sup>th</sup> Annual Symposium (2006) ‘Frontiers in Biomedical Research’, ACBR, Delhi.

#### Association With Professional Bodies

- Association of Microbiologist of India-AMI (Lifetime member)
- National Environmental Science Academy-NESA (Lifetime member)
- Indian Nano Biologists Association-INBA (Lifetime member)

#### Other Activities

**Extra-curricular/other activities**

- Experience as examiner and in evaluation in Zoology courses' practical/theory examinations in University of Delhi.
- Resource person in summer workshop (2014) on Interdisciplinary sciences under star college scheme, DBT at Gargi College.
- Resource person for IGNOU Centre, Gargi College (May 2014, 2015, 2016 and 2018).
- Experience as mentor to students for projects under DBT star college scheme and Innovation project 2015-2016, University of Delhi on techniques and approaches in microbial biotechnology.
- Guided B.Sc., M.Sc., B.Tech students for their research project work.