Dr. KAJAL MISHRA

Assistant Professor Grade-II

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a) Research Profile

Dynamic researcher with expertise in polymer science, nanotechnology, biopolymers, and green composites. Focused on developing sustainable materials such as biodegradable plastics, wound-healing coatings, and polymer nanocomposites. Also focusing on polymer composites for biomedical applications, including wound healing, tissue engineering, and drug delivery systems.

b) Research Interests

Polymer science and engineering, Electrospinning and nanofibers, Porous and blended polymer composites, Biocomposites, Polymer surface modification and functional coatings, Polymer composites for biomedical applications

c) Academia

Indian Institute Technology Roorkee Ph. D. in Chemical Engineering *Specializing in Polymer Science and Engineering*	Roorkee, Uttarakhand 2024
Indian Institute of Technology BHU *M.Tech in Chemical Engineering*	BHU, Varanasi, U.P 2019
Guru Gobind Singh Indraprastha University University of Delhi B.Tech in Chemical Engineering	New Delhi 2017

d) Publications (Journals)

1) **Mishra K**, Sinha S. (2023). Optimization of the alkali treatment on the tempo-modified cellulosic nanoreinforcement in autoclaved epoxy matrix. Polymer composite. 23, 1-21, 10.1002/pc.27752

2) **Mishra K**, Sinha S. (2023) Response of extreme environmental aging on the novel Moringa stenopetala husk fiber/epoxy composites: Understanding the characteristics and thermokinetic behavior. Polymer Composites. 44, https://doi.org/10.1002/pc.27248

3) **Mishra K**, Sinha, Shishir. (2020). Development and assessment of Moringa oleifera (Sahajana) leaves filler/epoxy composites: Characterization, barrier properties and in situ determination of activation

energy. Polymer Composites. 41. 10.1002/pc.25771.

4) **Mishra K**, Sinha S (2021). Biodegradable green composite film developed from Moringa Oleifera (Sahajana) pod filler and PVA: Surface functionalization, characterization and barrier properties. Journal of Thermoplastic Composite Materials. doi:10.1177/08927057211007550

5) Srivastava, N**., Mishra, K**., Srivastava, M., Srivastava, K. R., Gupta, V. K., Ramteke, P. W., & Mishra, P. K. (2019). Role of Compositional Analysis of Lignocellulosic Biomass for Efficient Biofuel Production. New and Future Developments in Microbial Biotechnology and Bioengineering, 29–43. doi:10.1016/b978-0-444-64223-3.00003-5

6) **Mishra K**, Srivastava, N., Srivastava, M., Gupta, V.K. et al. Recent development on sustainable biodiesel production using sewage sludge. 3 Biotech **8,** 245 (2018). https://doi.org/10.1007/s13205-018-1264-5

e) Conference Publications

1) Mishra K, Sinha S. (2022) Extended investigation of Ficus religiosa based PVA electrospun nanofiber for cosmeceutical application. 3rd 3rd National Conference on Advances in Chemical Engineering and Science (ACES 2023), IISER Bhopal Materials Today: Proceedings. 72. https://doi.org/10.1016/j.matpr.2022.08.346

f) Conferences Attended

1) Mishra K., Sinha S. (2023). *A model for assessment of the stress and dielectric effect of polydisperse linear polymers.* **Gordon Research Conference (GRC), New Hampshire, USA.**
2) Mishra K., Sinha S. (2022). *Natural extract and polymeric film based nanofiber fabrication for intelligent and smart food packaging.* **14th International Conference on Advancements in Polymeric Materials (APM), Lucknow, India.**
3) Mishra K., Sinha S. (2022). *Fabrication and characterization of Moringa Oleifera seed fillers as novel reinforcement in epoxy composites.* **13th International Conference on Advancements in Polymeric Materials (APM), Bhubaneswar, India.**
4) Mishra K., Sinha S. (2022). *Assessment of Moringa Oleifera pod fiber based epoxy composites.* **International Conference on Polymer Chemistry (ICPOLC-22), Kolkata, India.**
5) Mishra K., Sinha S. (2022). *International Conference on Chemical Engineering: Enabling Transition Towards Sustainable Future.* **IIT Delhi, New Delhi, India.**
6) Mishra K., Sinha S., Srivastava N., Mishra P.K. (2018). *Pretreatment of sugarcane bagasse for green energy application.* **3rd National Conference on Materials for Energy Conversion and Storage, IIT BHU, Varanasi, India.**
7) Mishra K., Singh D., Srivastava N., Mishra P.K. (2018). *Process parameters evaluation to enhance cellulase production using residual algal biomass.* **5th International Conference on Waste to Energy, Hyderabad, India.**
8) Mishra K. (2018). *Study of lignin content in straw of thirty different rice cultivars.* **International Conference on Novel Applications of Biotechnology in Agricultural Sectors, BHU, Varanasi, India.**

g) Book Chapters

1) Role of Compositional Analysis of Lignocellulosic Biomass for Efficient Biofuel Production" **In: *New and Future Developments in Microbial Biotechnology and Bioengineering*, Editors: N. Srivastava, et al.**

Publisher: **Elsevier, Amsterdam, The Netherlands,** Year: **2019,** Pages: **29–43,** ISBN: **978-0-444-64223-3,** DOI: 10.1016/B978-0-444-64223-3.00003-5

2) Introduction" **In: Natural Fiber Composites**, **Editors: Shishir Sinha et al**, Publisher: **CRC Press**, Year: **2022**, Pages: **1-67**, ISBN: **9781003201724**, DOI**:** https://doi.org/10.1201/9781003201724

h) Patents – Granted & Published

Granted Patents:

PVA composite film reinforced by Moringa Oleifera (Sahajana) seed filler by solution casting method, Shishir Sinha and KajalMishra. Patent No. 426960, Application No: 202111004106

Published Patents:

Bilayered structure of electrospun nanofibers reinforced with natural extract and PVA for packaging food products, Kajal Mishra and Shishir Sinha [2023111052717 dated 20.05.2023

Any Other Information

Awards:
Women Researcher Award, 8th International Research Awards on Advanced Nanomaterials and Nanotechnology, London, UK