

## CURRICULUM VITAE

### **Dr. Ravneet Kaur**

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### **Ph.D. Supervisor:**

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**Objective:** To serve the field with full dedication and professionalism and be a part of the organization for which commitment is the motto.

<b>EDUCATION</b>	
	<ul style="list-style-type: none"><li>■ Ph.D. Biotechnology [Department of Microbial Biotechnology, Panjab University, Chandigarh, India]: 05.08.2022</li><li>■ MSc. Biotechnology [School of Agricultural Biotechnology, Punjab Agricultural University, Ludhiana, Punjab, India]: 2012 (7.61/10)</li><li>■ BSc. Biotechnology (Hons.) [Post Graduate Govt. College for Girls, Sector-42, Chandigarh, India]: 2009</li><li>■ Senior Secondary [G.M.S.S.S-37, Chandigarh, India; (C.B.S.E.)] 2006</li><li>■ Matriculation [G.M.S.S.S-40, Chandigarh; India (C.B.S.E.)] 2004</li></ul>
<b>RESEARCH EXPERIENCE</b>	
<b>During Ph.D.</b> (08.05.2017-31.05.2022)	Worked as JRF and SRF (CSIR-JRF fellowship) at CIAB, Mohali, Punjab, India during the whole duration of Ph.D. degree. <ul style="list-style-type: none"><li>■ <b>Development of Biomass Directed Metal Oxide Nanocomposites for Applications as UV Protectant, Antimicrobial Agent and Photocatalyst.</b></li></ul>
<b>During MSc.</b>	<ul style="list-style-type: none"><li>■ <b>Marker Assisted Introgression of the <i>Opaque 2 (O2)</i> Gene into Elite Maize (<i>Zea Mays L.</i>) Inbred Lines.</b></li></ul>
<b>As JRF</b> (1/8/12-4/3/14) PAU, Ludhiana	<ul style="list-style-type: none"><li>■ <b>Genetic Enhancement of Maize for Tolerance to Drought and Water Logging Stress using Molecular Approaches.</b></li></ul>

## RESEARCH INTERESTS

- Green synthesis of metal oxide nanoparticles
- Photocatalysis
- Bioremediation
- Antimicrobial formulations and coating development
- UV protection applications

## TEACHING EXPERIENCE

### Working as Junior Research Fellow (PAU, Ludhiana):

Taught practical courses to students of M.Sc. and PhD as part of the job profile of JRF at School of Agricultural Biotechnology, P.A.U, Ludhiana. (01/08/2012- 04/03/2014).

### Working as Assistant Professor:

Taught to students of M.Sc. and B.Sc. as part of the job profile of Assistant professor at Shaheed Udham Singh College of Research and Technology, Tangori, Mohali. I have guided two masters' students in their dissertation work also. (27/07/2015- April 2017).

## PUBLICATIONS

1. Chandna, S., Paul, S., **KAUR, R.**, Gogde, K. and Bhaumik, J., 2022. Photodynamic Lignin Hydrogels: A Versatile Self-Healing Platform for Sustained Release of Photosensitizer Nanoconjugates. ACS Applied Polymers Materials 2022, 12, 8962–8976. DOI: 10.1021/acsapm.2c01319.
2. **Kaur, R.**, Thakur, N. S., Chandna, S. and Bhaumik, J., 2021. Sustainable lignin-based coatings doped with titanium dioxide nanocomposites exhibit synergistic microbicidal and UV-blocking performance toward personal protective equipment. ACS Sustainable Chemistry and Engineering. 9, 11223–11237. DOI: 10.1021/acssuschemeng.1c03637.
3. **Kaur, R.**, Bhardwaj, S. K., Chandna, S., Kim, K. H. and Bhaumik, J., 2021. Lignin-based metal oxide nanocomposites for UV protection applications: a review. Journal of Cleaner Production. 317, 128300. DOI: 10.1016/j.jclepro.2021.128300.
4. **Kaur, R.**, Thakur, N. S., Chandna, S. and Bhaumik, J., 2020. Development of agri-biomass based lignin derived zinc oxide nanocomposites as promising UV protectant-cum-

antimicrobial agents. *Journal of Material Chemistry B*. 8, 260–269. DOI: 10.1039/C9TB01569H.

5. Chandna, S. Thakur, N. S., **Kaur, R.** and Bhaumik, J., 2020. Lignin-bimetallic nanoconjugate doped pH-responsive hydrogels for laser-assisted antimicrobial photodynamic therapy. *Biomacromolecules*, 8, 3216–3230. DOI: 10.1021/acs.biomac.0c00695.
6. Chandna, S. Thakur, N. S., **Kaur, R.** and Bhaumik, J., 2019. Engineering lignin stabilized bimetallic nanocomplexes: structure, mechanistic elucidation, antioxidant and antimicrobial potential. *ACS Biomaterials Science and Engineering*. 5, 3212–3227. DOI: 10.1021/acsbomaterials.9b00233.
7. **Kaur, R.**, Kaur, G., Vikal, Y., Gill, G. K., Sharma, S., Singh, J., Dhariwal, G. K., Gulati, A., Kaur, A., Kumar A. and Chawla, J. S., 2020. Genetic enhancement of essential amino acids for nutritional enrichment of maize protein quality through marker assisted selection. *Physiology and Molecular Biology of Plants*. 26, 2243–2254. DOI: 10.1007/s12298-020-00897-w.
8. Pooja, Munjal, R., Bhaumik J. and **Kaur, R.**, 2020. Role of zinc oxide nanoparticles in mitigation of drought and salinity- a review. *International Journal of Current Microbiology and Applied Sciences*. 9, 467–481. DOI: 10.20546/ijcmas.2020.911.058.

#### BOOK CHAPTER

1. **Kaur, R.**, Chandna, S., Bhardwaj S. K., Bhaumik, J. “Synthesis and Application of Lignin-Based Metal Oxide Nanocomposites in Photocatalysis”. In *Sustainable Agriculture Reviews* 56, Springer Nature. 2022; pp 87–113.
2. Sharma, A., Paul, S., Charu, **Kaur, R.**, Bhaumik, J., Pal, S. “Lignin-based hybrid materials in wastewater cleanup”. In *Metagenomics to Bioremediation, Applications, Cutting Edge Tools, and Future Outlook*. Developments in Applied Microbiology and Biotechnology. 2023; pp 619-640.
3. Chandna, S., Gogde, K., **Kaur, R.**, Sagar, V. and Bhaumik, J. “Nano-biosensors for plant biomass: concept and applications”. In *Role of nanoparticles in plant nutrition under soil pollution*, Springer. 2022; pp 199–221.
4. Paul, S., Bhardwaj S. K., **Kaur, R.**, Bhaumik, J. “Lignin-Derived Hybrid Materials as Promising Adsorbents for the Separation of Pollutants”. In *Multidisciplinary Advances in Efficient Separation Processes*, ACS Publications: 2020; pp 225-261.

## **PATENT FILED**

1. Bhaumik, J., Kaur, R., De, A., Paul, S., Pujari, A. K., and Gogde, K. “Synthesis of agri-biomass based biocompatible nano-fertilizers and nano-pesticides and applications thereof”. Indian patent application no: 202211066111, filed on 18<sup>th</sup> November, **2022**.
2. Bhaumik, J., Vrati, S., Reddy, Y. N., Chandna S., Paul, S., **Kaur, R.**, Agarwal, S. and Chandru, S. “Lignin based polypyrrole nanoformulations as highly effective antiviral agents against SARS-CoV-2”. Indian patent application no: 202111014735, filed on 15<sup>th</sup> April, **2021**.
3. Bhaumik, J., Bhardwaj, S. K., Reddy, Y. N., and **Kaur, R.** “Light activatable polypyrrolic metal organic framework composites and applications thereof”. Indian patent application no: 202011028994, filed on 8<sup>th</sup> July, **2020**.
4. Bhaumik, J., **Kaur, R.**, Chandna, S., Thakur, N. S., and Reddy, Y. N. “Agri-biomass derived lignin based green metal oxide nanocomposites for UV protective, antimicrobial and photocatalytic applications”. Indian patent application no: 201811048198, Provisional filed on 21<sup>st</sup> December **2018**, Full patent filed on 9<sup>th</sup> May, **2019**.

## **WORK PRESENTED IN CONFERENCE**

1. **Kaur, R.**, Thakur, N. S., Chandna, S., Bhaumik, J. One pot synthesis of lignin derived zinc oxide nanocomposites and their application as promising antimicrobial and UV blocking agents. 2nd Indian Materials Conclave and 31st AGM Kolkata, February 11-14, 2020. (Poster)
2. **Kaur, R.**, Thakur, N. S., Chandna, S., Bhaumik, J. One pot synthesis of lignin derived zinc oxide nanocomposites and their application as promising antimicrobial and UV blocking agents. Innovations in Bioprocess Technology 2019 (IBT2019), CIAB Mohali, December 11-13, 2019. (Poster)
3. **Kaur, R.**, Thakur, N. S., Chandna, S., Bhaumik, J. Agri-biomass based lignin derived zinc oxide nanocomposites as promising antimicrobial and UV blocking agents. Symposium on Agricultural, Food and Nutritional Biotechnology and Bioprocessing-Chintan 2019, NABI-CIAB, Mohali, November 18-19, 2019. (Oral presentation).
4. **Kaur, R.**, Chandna, S., Thakur, N. S., Reddy, Y. N., Bhaumik, J. Agro-biomass based lignin-metal oxide nanoclusters as potential UV-protectant-cum-antimicrobial agents,

Recent Advances in Organic & Bio-organic Chemistry (RAOBC-2019), IISER Mohali, March 22-24, 2019. (Poster)

5. **Kaur, R.**, Chandna, S., Thakur, N. S., Reddy, Y. N., Bhaumik, J. Agro-biomass based lignin-metal oxide nanoclusters as potential UV-protectant-cum-antimicrobial agents, MICROCON 2019, BioNest-Panjab University, March 6-8, 2019. (Poster)
6. **Kaur, R.**, Chandna, S., Thakur, N. S., Bhaumik, J. Agro-biomass based lignin-metal oxide nanoclusters as potential UV-protectant-cum-antimicrobial agents, Bengaluru INDIA NANO 2018, Bangalore, December 5-7, 2018. (Poster)
7. **Kaur, R.**, Chandna, S., Thakur, N. S., Bhaumik, J. Biomass derived (lignin based) metal oxide nanoclusters as potential UV-protectant and antimicrobial agents. Young scientist symposium- Chintan 2018, NABI-CIAB, Mohali, November 29-30, 2018. (Poster).
8. Bhaumik, J., **Kaur, R.**, Chandna S., Reddy Y. N. and Paul, S. Valorization of lignocellulosic biomass via nanolignin complex development for biomedical and industrial applications, Currents Trends and Future Prospects in Biotechnology' (BiocAMP 2018] organized by University Institute of Engineering Technology (UIET), Panjab University, Chandigarh, November 1-2, 2018. (Poster).
9. International Conference on Plant Biotechnology for Food Security: New Frontiers. From 21-24 February 2012. (Poster)
10. International Conference on Sustainable Agriculture for Food and Livelihood Security. From 27-29 November 2012. (Poster)

#### **WORKSHOP ATTENDED**

1. "Valorization of lignocellulosic biomass towards sustainable fuels, chemicals and materials". TEQIP-III sponsored online short term course held on September, 18-22, 2020, organized by Centre for Energy and Environment Dr. B. R. Ambedkar National Institute of Technology Jalandhar.
2. "DST-ACS workshop on scholarly publication, peer review, ethics & plagiarism, science communication and career". Organized by INST, Mohali on 20<sup>th</sup> November, 2019, at INST, Mohali.
3. "Academic publishing for quality research: How to get published and avoid pitfalls". Organized by Wiley on 7<sup>th</sup> December, 2019, at IISER, Mohali.
4. "Management of biomass (agri waste and municipal waste) into bioresources". DST GoI sponsored 5<sup>th</sup> workshop held on April 23<sup>rd</sup>, 2019, at Panjab University, Chandigarh.