

Kawaljeet Kaur

Department of Biotechnology

Modern College of Arts, Science and Commerce
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Education

- 2024 Research Scholar
Department of Biotechnology,
Modern College of arts, science and commerce
(Savitribai Phule Pune University), Ganeshkhind, Pune, India - 411016
- 2020 M.Sc. Biotechnology, Savitribai Phule Pune University, India.
(Distinction – 83 %)
- 2018 Virology, Bioethics, and Photography.
St. Catherine’s College, University of Oxford, United Kingdom.
Betty and Donald Keating Scholarship Award.
- 2018 B.Sc. Biotechnology, Savitribai Phule Pune University, India.
(Distinction – 75.7 %)

Research Experience

- 2020-22 **Volunteer Researcher in Dr. Vinay Kumar Lab**
Modern College of Arts, Science and Commerce (Pune University),
Ganeshkhind, Pune.
Published research papers and review articles.
- 2019-20 **Graduate student researcher**
Modern College of Arts, Science and Commerce (Pune University),
Ganeshkhind, Pune.
Projects completed under Dr. Vinay Kumar: -
‘Genome-wide in silico identification and characterization of sodium-proton
(Na⁺/H⁺) antiporters in Indica rice’.
‘Genome-wide identification, characterization and transcriptional profiling of
NHX-type (Na⁺/H⁺) antiporters under salinity stress in soybean’.
- 2016-18 **Bachelor student researcher**
Modern College of Arts, Science and Commerce (Pune University),
Shivajinagar, Pune.
Projects completed under Dr. Rebecca Thombre: -
‘Rapid Milk Quality Detection Test Kit’.
‘Inhibitions of Biofilms formed by Multidrug resistance Gram-Negative
Bacteria using Biogenic Silver Nanoparticles’.
‘Inhibitory Potentials of biologically synthesized Silver Nanoparticles against
multidrug resistant bacteria from *Lantana camara*’.

Internships

- 2019 MGM College of Biomedical Sciences, Kamothe, Mumbai.
Molecular Biology, Hydroponics and Developmental Studies of Zebra Fish.
- 2017 Serum Institute of India Pvt Ltd. Training at Bacterial vaccine production and Quality control department.
- 2016 Workshop on MICROSCOPY under DBT- Star College Scheme, New Delhi.

Paper Publications

- 2024 Barathe, P., **Kaur, K.**, Reddy, S. et al (2024) Antibiotic Pollution and Associated Antimicrobial Resistance in the Environment. *Journal of Hazardous Materials Letters* 100105.
<https://doi.org/10.1016/j.hazl.2024.100105>
- 2022 Reddy S, **Kaur K**, Barathe P, Shriram V, Govarthanan M, Vinay V, (2022) Antimicrobial resistance in urban river ecosystems. *Microbiological Research* 127135. <https://doi.org/10.1016/j.micres.2022.127135>
- 2022 **Kaur, K.**, Reddy, S., Barathe, P. et al (2021). Microplastic-associated pathogens and antimicrobial resistance in environment. *Chemosphere* 133005. <https://doi.org/10.1016/j.chemosphere.2021.133005>
- 2022 Tan, P., Du, X., Shang, Y., Zhu, K., Joshi, S., **Kaur, K.**, Khare, T., Kumar, V. (2022). Ion transporters and their exploration for conferring abiotic stress tolerance in plants. *Plant Growth Regul* 96, 1–23.
<https://doi.org/10.1007/s10725-021-00762-0>
- 2021 **Kaur, K.**, Reddy, S., Barathe, P., Shriram, V., Anand, U., Proćków, J., & Kumar, V. (2021). Combating Drug-Resistant Bacteria Using Photothermally Active Nanomaterials: A Perspective Review. *Frontiers in microbiology*, 12, 747019. <https://doi.org/10.3389/fmicb.2021.747019>
- 2021 Malik, S., **Kaur, K.**, Prasad, S. et al. (2021) A perspective review on medicinal plant resources for their antimutagenic potentials. *Environ Sci Pollut Res*. <https://doi.org/10.1007/s11356-021-16057-w>
- 2021 Khare, T., Joshi, S., **Kaur, K.**, Srivastav, A., Shriram, V., Srivastava, A.K., Suprasanna, P., Kumar, V. (2021) Genome-wide in silico identification and characterization of sodium-proton (Na⁺/H⁺) antiporters in Indica rice. *Plant Gene* 26:100280. <https://doi.org/10.1016/j.plgene.2021.100280>
- 2021 Joshi S, **Kaur K**, Khare T, Srivastava AK, Suprasanna P, Kumar V. (2021) Genome-wide identification, characterization and transcriptional profiling of NHX-type (Na⁺/H⁺) antiporters under salinity stress in soybean. *3 Biotech* 11(1):16. doi: 10.1007/s13205-020-02555-0
- 2020 Thombre, R. S., Gomez, F., Parkhe, R., **Kaur, K.**, Vaishampayan, P., Shivakarhik, E., Bhalamurugan, S., Perumal, R., Mason, N. (2020) Effect of impact shock on extremophilic bacterium *Halomonas gomseomensis* EP-3 isolated from hypersaline Martian analogue site Laguna de Pena Hueca, Spain.

Planetary and space science 192:105041.
<https://doi.org/10.1016/j.pss.2020.105041>

Chapter Publications

- 2024 **Kaur, K.**, Barathe, P., Reddy, S., Mathur, V., Kumar, V. (2024). One Health Perspectives for Addressing Antimicrobial Resistance. In: Kumar, V., Shriram, V., Dey, A. (eds) *Medicinal Plants and Antimicrobial Therapies*. Springer, Singapore. https://doi.org/10.1007/978-981-99-7261-6_1
- 2024 Reddy, S., **Kaur, K.**, Barathe, P., Shriram, V., Paul, A.T., Kumar, V. (2024). Plant Essential Oils as Potent Antimicrobials. In: Kumar, V., Shriram, V., Dey, A. (eds) *Medicinal Plants and Antimicrobial Therapies*. Springer, Singapore. https://doi.org/10.1007/978-981-99-7261-6_2
- 2024 Barathe, P., Reddy, S., **Kaur, K.**, Shriram, V., Kumar, V. (2024). Application of Metabolomics for the Discovery of Potent Antimicrobials from Plants. In: Kumar, V., Shriram, V., Dey, A. (eds) *Medicinal Plants and Antimicrobial Therapies*. Springer, Singapore. https://doi.org/10.1007/978-981-99-7261-6_8
- 2022 **Kaur, K.**, Barathe, P., Reddy, S., Shriram, V., Dey, A., Gosavi, S., & Kumar, V. (2022). Nanoformulations Against Multidrug-Resistant Members of ESKAPE Pathogens. In: Kumar, V., Shriram, V., Shukla, R., Gosavi, S. (eds) *Nano-Strategies for Addressing Antimicrobial Resistance*. Nanotechnology in the Life Sciences. Springer, Cham. (pp. 385–411). https://doi.org/10.1007/978-3-031-10220-2_12
- 2022 Barathe, P., Reddy, S., **Kaur, K.**, Shriram, V., Bhagwat, R., Dey, A., Verma, S. K., & Kumar, V. (2022). Nanomaterial-Mediated Delivery of Antimicrobial Agents: ‘The Nanocarriers’ In: Kumar, V., Shriram, V., Shukla, R., Gosavi, S. (eds) *Nano-Strategies for Addressing Antimicrobial Resistance*. Nanotechnology in the Life Sciences. Springer, Cham. (pp. 109–155). https://doi.org/10.1007/978-3-031-10220-2_3
- 2022 Thombre R.S, **Kaur K.**, Jagtap S.S., Dixit J., Vaishampayan P.V., (2022) *Microbial Life in Space*. New Frontiers in Astrobiology, Elsevier. <https://ntrs.nasa.gov/citations/20210025473>
- 2022 Reddy, S., Barathe, P., **Kaur, K.**, Anand, U., Shriram, V., Kumar, V. (2022). Antimicrobial Resistance and Medicinal Plant Products as Potential Alternatives to Antibiotics in Animal Husbandry. In: Kumar, V., Shriram, V., Paul, A., Thakur, M. (eds) *Antimicrobial Resistance*. Springer, Singapore. https://doi.org/10.1007/978-981-16-3120-7_13
- 2021 **Kaur K**, Thombre R (2021) Nanotechnology: methods, applications and future prospects. In *Nanobiotechnology*. Elsevier 1-20. <https://doi.org/10.1016/B978-0-12-822878-4.00001-8>

Poster presentation

- 2022 **Kawaljeet Kaur**, Pramod Barathe, Varasha Shriram, Vinay Kumar, “Targeting Multi-Drug Resistant Efflux Pumps in *Escherichia coli* and *Klebsiella pneumoniae* Using Phytomolecules” Inbix 2022, Guntur University, Hyderabad
- 2022 Barathe P., **Kaur K.**, Sheiram V., Kumar V., “Diosgenin: A promising phytomolecule for combating *Enterobacter* spp.” Avishkar Research Competition.
- 2020 **Kaur, K.**, Khare, T., Joshi, S., Kumar, V., “Genome-wide identification of Novel Sodium-Proton Exchangers in Soybean”, ANUBHUTI Science Exhibition.
- 2018 **Kaur, K.**, Lad, A., “Rapid Milk Quality Detection Kit”, Avishkar University Level Research Competition.
- 2017 **Kaur, K.**, Badodekar, N., Thombre, R. S., “Inhibition of biofilms and efflux pumps of Multidrug-resistant gram-negative bacteria using biogenic silver nanoparticles”, The Sajjan Gupta-Konark Memorial Award, V.E.S College, Chembur, Mumbai.

Awards and Fellowships

- 2022 Zonal level research project competition “Avishkar”, University of Pune
- 2021 University 6th Rank in MSc Biotechnology, SPPU
- 2020 Graduate Aptitude Test in Engineering (GATE), MHRD.
- 2019 Merit Award – MSc academic performance.
- 2018 Betty and Donald Keating Scholarships award to study at St. Catherine’s College, University of Oxford, UK as registered Visiting Scholar.
- 2018 University level research project competition “Avishkar”, University of Pune.
- 2018 Excellent Academic Achievement Award.

Additional Courses

- 2022 UGC mandated two credit course on research and publication ethics (CPE: RPE), Centre for Publication Ethics, Savitribai Phule Pune University, Pune.
- 2022 Science popularisation program ‘Science Adda’
- 2021 Faculty development program on ‘IPR and Patenting’
- 2020 Astrobiology, Amity centre of Excellence in Astrobiology ACoEA, Amity University, Mumbai.
- 2020 Good Clinical Practice (GCP), NIDA
- 2018 Astrobiology, Modern College of Arts, Science and Commerce, Shivajinagar, Pune and Blue marble space institute of science, Seattle, USA.