

Urvashi Sahu, PhD

Curriculum Vitae

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I am a highly skilled individual with diverse knowledge on scientific research and writing in the area of Biological Sciences and Entomology. Recently completed Ph.D. in Biological Sciences subject from CSIR-CFTRI, Mysuru and hold a Master's and Bachelor's degree in Zoology from University of Delhi, which provides with the strong foundation in scientific research and technical expertise. My commitment to excellence and proficiency in research and writing makes me a valuable asset in the field of scientific research and development.

Education

- 2018-2023 **Doctor of Philosophy**, Biological Sciences (Entomology), *CSIR-CFTRI, Mysuru, India.*
- 2015-2017 **Masters of Science**, Zoology (Specialization in Entomology), *Department of Zoology, Miranda House, University of Delhi, New Delhi, India.*
- 2012-2015 **Bachelors of Science**, Zoology, *Gargi College, University of Delhi, New Delhi, India.*

Work Experience

- Jan 2020-
Jan 2023 **Senior Research Fellow**, *CSIR-Central Food Technological Research Institute, Mysuru, India.*
- Worked on Ph.D. research project entitled- "Physiological and toxicological responses against phytochemical volatiles in *Sitophilus oryzae* (Rice weevil): A comprehensive study.
- Jan 2018-
Jan 2020 **Junior Research Fellow**, *CSIR-Central Food Technological Research Institute, Mysuru, India.*
- Worked on Ph.D. research project entitled- "Physiological and toxicological responses against phytochemical volatiles in *Sitophilus oryzae* (Rice weevil): A comprehensive study.
- Oct 2017-
Jan 2018 **Young Professional Researcher**, *ICAR-Indian Agricultural Research Institute, New Delhi, India.*
- Worked on a DAC funded project entitled- "Efficacy of phosphine fumigant against storage pests of wheat, rice, pulses and coffee beans; residue analysis for quarantine & long-term storage purpose".
- Jul 2017-
Sep 2017 **Executive Subject Matter Expert**, *Edunguru, Sahara India, New Delhi, India.*
- Created educational content for school level online platform for subjects-Science, Social Sciences and Languages.
 - Provided ideas for visual presentation in the education videos in the form of animation.
- Jul 2016-
Feb 2017 **Subject Matter Expert**, *Evelyn Learning Solutions, New Delhi, India.*
- Created education content and provided solutions for the University level course for Subjects- Biology, Nursing and Psychology.

Research Experience

- 2018-2023 **Ph.D. research project on Physiological and toxicological responses against phytochemical volatiles in *Sitophilus oryzae* (Rice weevil): A comprehensive study**, under the supervision of Dr. S. Ezil Vandan, CSIR-CFTRI, Mysuru, India.
- Bio-efficacy of phosphine gas and plant-derived volatile molecules as fumigant toxicants against stored grain pests.
 - Physiological effects of fumigants on insects and resistance development in insect pests.
 - Prediction of target sites of insecticides on insect detoxifying enzymes using molecular docking approach.
 - Residue analysis of fumigants on insects and grains and standardization of GC and GC-MS based methods for insecticide identification.
 - Development of insecticidal nanoformulations effective as fumigants against storage pests.
 - Application of ozonation as effective way of disinfestation of stored commodities.

Oct-Dec 2017	<p>Research work on “Efficacy of phosphine against stored product insect pests of wheat, rice, pulses and coffee; residue analysis for quarantine & long-term storage purpose”, under the supervision of Dr. Chitra Srivastava, (retired) ICAR-IARI, New Delhi and Dr. Sumitra Arora, Principal Scientist, ICAR-NCIPM, New Delhi.</p> <ul style="list-style-type: none"> Responsible for culturing and maintenance of different populations of economically important storage insect pests from multiple locations across India. Detected level of phosphine resistance in stored grain insect pests using phosphine fumigation bioassays. Conducted phosphine fumigation trials in FCI godowns in New Delhi region. Execution of research experiments and compilation of study results.
2017	<p>Masters dissertation research on “Bioremediation of Mercury” under the supervision of Dr. Dinesh Kumar Singh, Department of Zoology, University of Delhi, New Delhi, India.</p>

Publications

2021	<p>Sahu U, Ibrahim SS and Vendan SE. Persistence and ingestion characteristics of phytochemical volatiles as bio-fumigants in <i>Sitophilus oryzae</i> adults. Ecotoxicology and Environmental Safety, 210(111877), 1:9. (IF: 7.12).</p>
2023	<p>Sahu U, Theertha DP, Nazeer M, Madhurya L and Vendan SE. Physico-chemical stress alters cuticular semiochemical secretions in the red flour beetle, <i>Tribolium castaneum</i> adults. Journal of Pest Science, 1-10. (IF: 5.74).</p>
2023	<p>Ibrahim SS, Sahu U, P Karthik, Vendan SE. Eugenol nanoemulsion as bio-fumigant: enhanced insecticidal activity against the rice weevil, <i>Sitophilus oryzae</i> adults. Journal of Food Science and Technology, 60(4), 1435-1445. (IF: 3.75).</p>
2023	<p>Madhurya L, Panneerselvam A, Gawali PP, Sreekrishnakumar AK, Sahu U and Vendan SE. Profiling of semiochemicals from three stored product beetles by solid phase microextraction coupled with gas chromatography-mass spectrometry. Natural Product Research, 1-7. (IF: 2.45).</p>
2023	<p>Madhurya L, Nazeer M, Sahu U and Vendan SE. Contamination risk of aluminium phosphide residues on the packed wheat grain sacs. Journal of Entomological Research, 47(2), 458-460. (IF: 0.18).</p>
2021	<p>Madhurya L, Sahu U, SE Vendan, SS Devi and CS Vivek Babu. Scope of herbal hand sanitizers to fight against SARS-CoV2 virus. Tropical Biomedicine, 38(4), 605-612. (IF: 0.77).</p>
2021	<p>Sahu U, Sreevathsan S, Mudliar SN and SE Vendan. Fumigant toxicity of garlic essential oil with the combined effect of ozone gas and determination of phytochemical residues from the treated rice weevil <i>Sitophilus oryzae</i> and wheat grains. In: Jayas D.S. and F. Jian (eds), Proceedings of the 11th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2020), Winnipeg, Canada.</p>
2021	<p>Sahu U, Malik T, Ibrahim SS, Vendan SE and Karthik P. Pest management with green nanoemulsions (Book Chapter). Book-Bio-based Nano-emulsions for Agri-Food Applications, Elsevier.</p>

Skills

Scientific	<p>Toxicity assessment: Toxicological tests/ bioassays.</p> <p>Fumigation: Phosphine gas, ozone gas, plant derived volatile molecules.</p> <p>Chromatography and residue analysis: GC, GC-MS.</p> <p>Microscopy: Optical microscopy, Scanning electron microscopy.</p> <p>Histopathology: Microtomy, tissue sectioning and staining.</p> <p>Microbiology: Antibacterial assays, Antifungal assays.</p> <p>Molecular biology: <i>in-vivo</i> and <i>in-vitro</i> biochemical assays, Enzyme inhibition studies, Cellular toxicity, DNA separation, purification, PCR amplification, qRT-PCR.</p> <p>Bioinformatics: Protein structure modelling, Binding site prediction, Molecular Docking.</p>
Technical	<p>Designing and implementation of scientific experiments.</p> <p>Data analysis, Data representation, Scientific report writing, editing and presentation.</p>

Software	SPSS, Microsoft Word, Excel, PowerPoint, Access, AutoDock.
Technology development	Developed herbal based disinfectant products including sanitizers (gel and liquid), disinfectants for fumigation of bulk goods and small packaged products.

Awards and Achievements

2023	NESA Young Researcher Award.
2022	CSIR International Travel Grant Award.
2021	First Prize - Innovation Design Thinking event, National Seminar on WorldFood Day, Department of Food Technology, Karpagam Academy of Higher Education, India.
2021	Best Presentation Award - International Virtual Conference on Emerging Trends in Food Protectants and Infestation Control held at CSIR-CFTRI, Mysuru, India.
2019	Best Presentation Award - 1 st National Agrochemicals Congress, ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India.
2016	Qualified CSIR-UGC NET - All India Rank 75.

Presentations

2023	Poster Presentation , 29 th ICFoST Conference organized by AFSTI(I), Kollam and Cochin Chapter, India. Impact of physico-chemical stress on the secretion of carcinogenic benzoquinones in red flour beetle, <i>Tribolium castaneum</i> adults.
2021	Oral Presentation , 11 th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2020), University of Manitoba, Winnipeg, Canada. Fumigant toxicity of garlic essential oil with the combined effect of ozone gas and determination of phytochemical residues from the treated rice weevil <i>Sitophilus oryzae</i> and wheat grains.
2021	Poster Presentation , International Conference on Emerging Trends in Food Protectants and Infestation Control, CSIR-Central Food Technological Research Institute, India. Fumigant toxicity of selected phytochemicals against <i>Callosobruchus maculatus</i> adults and investigation of phytochemical residue removal process on the fumigated pulses. Received Best presentation award.
2019	Poster Presentation , 1 st National Agrochemicals Congress, ICAR-IARI, New Delhi, India. Penetration potential of phytochemical fumigants in rice weevil, <i>Sitophilus oryzae</i> adults. Received Best presentation award.
2018	Poster Presentation , 6 th International Food Convention (IFCoN), CSIR-CFTRI, India. Impact of allyl disulphide on the morpho-structure of cuticular surface in rice weevil.
2018	Poster Presentation , International Conference on Recent Advances in Food Processing Technology, MOFPI-IIFPT, Thanjavur, India. Correlating the insecticidal toxicity of phytocompounds with volatile sedimentation property.

Relevant Trainings and Workshops

2022	Grain Storage and Pest Management , UPL and CSIR-CFTRI, Mysuru, India.
2022	Molecular Imaging and Spectroscopy , DST and IIT-Delhi, India.
2022	Principles of Flow cytometry and its applications , Department of Biological Sciences, IISc, Bangalore, India.
2021	Antimicrobial resistance in Food chain , Department of Microbiology, CSIR-CFTRI, Mysore, India.

2020	Molecular cloning strategy and Experimental design , <i>The Centre for Stem Cell and Cancer Genomics, Coimbatore, India.</i>
2020	Genomic data analysis and experimental strategy , <i>The Centre for Stem Cell and Cancer Genomics, Coimbatore, India.</i>
2019	Plant Biologics and Immunodiagnosics , <i>Bharathiar University, Coimbatore, India.</i>
2018	Bioresource Database in Research and Education , <i>University of Agricultural Sciences, Bengaluru, India.</i>
2016	Microbial Genomics and Metagenomics , <i>Department of Zoology, University of Delhi, India.</i>

Organizational and other Co-curricular activities

Mentoring	Dissertation project students , <i>CSIR-CFTRI, Mysuru.</i> Estimation of dust, heavy metal and pesticide residue contaminants of the fresh food collected at Mysuru, Karnataka, India. <ul style="list-style-type: none"> • Provided assistance in planning, experimentation and data analysis.
Coordinator	<ul style="list-style-type: none"> • Organizational assistant for Stakeholders Workshop on Grain Storage and Pest Management, UPL Ltd. and CSIR-CFTRI, Mysuru, India, 2022. • Organizational assistant for Azadi ka Amrit Mahotsav webinar on Innovations and Advancements in Food Protection and Grain Storage, CSIR-CFTRI, Mysuru, India, 2022. • Convener, Departmental Seminar Series, CSIR-CFTRI, Mysuru. • Volunteered for North Eastern Region (NER) Twinning Programme and Foldscope Seminar.
Memberships in Scientific bodies	National Environment Science Academy (NESA). Indian Science Congress Association (ISCA). Member of CSIR-CFTRI Science Communication Team, 2019.
Co-curricular	Qualified for National Cadet Corps (NCC) 'B' level Examination, 2013. National Service Scheme (NSS) college society member, 2013.

References

Dr. S. Ezil Vendan

Senior Scientist,
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Control Department,
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Dr. Prakash M Halami

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