DR. AMIT

Contact No.: +91- 8287642529, Email: amityadav@hrc.du.ac.in

Correspondence Address: H. No. 86, Street No. 19, C-block, Khajuri Khas,

New Delhi, Delhi – 110094

Current Position: Assistant Professor, Department of Zoology, Hansraj College, University of Delhi, New Delhi - 110007
From **07.10.2022** to **date**

Work Experience: worked as Assistant Professor, Department of Zoology, Deshbandhu College, University of Delhi, New Delhi – 110019 in the pay scale of academic level 10 on an ad-hoc basis as per the details given below:

From 22.11.2021 to 21.03.2022

From 23.03.2022 to 20.07.2022

From 22.07.2022 to 06.10.2022

Education:

Ph.D. Zoology • Department of Zoology, University of Delhi • July 2022

Thesis Title: Development of Analytical Methods by Employing Chemometrics to Evaluate the Adulteration and Authenticity of Coconut Oil in India.

M.Phil. Zoology • Department of Zoology, University of Delhi • October 2017 • (76.4%)

Dissertation Title: Isolation of Potential Mercury Resistant Bacteria (MRB) from Panipat Thermal Power Station (PTPS) dumpsite

M.Sc. Zoology • Hansraj College • University of Delhi • May 2016 • (67.67%)

Subject Specialization: Entomology

B.Sc. (H) Zoology • Swami Sharddhanand College • University of Delhi • June 2014 • (78.03%)

National Level Examination:

CSIR-UGC NET-JRF •Life Sciences • **December 2016** • (**55%**)

CSIR-UGC NET-LS • Life Sciences • **June 2016**

CSIR-UGC NET-LS • Life Sciences • **June 2015**

Brief About Research:

M.Phil. & Ph.D. Supervisor: **Prof. Dileep Kumar Singh** (Senior Professor), Lab No. 214, Soil Microbial Ecology and Environmental Toxicology Laboratory, Department of Zoology, University of Delhi.

Research Indices: Total Impact Factor: **54.66,** RG Score: **15.45,**
h-Index: **09,** i10-Index: **09**, Total Citations: **343**

Research Publications: 16 (Original Research papers: 13; Review papers:03)

Salient features of M.Phil. Work:

The aim of this study was to isolate bacteria that can remediate and detoxify mercury from the environment. Potential Mercury Resistant Bacteria (MRB) were isolated from the soil samples taken from the Panipat Thermal Power Station (PTPS) dumpsite. The finally isolated strain *Kocuria* sp. SDS10 and *Jeotgalicoccus* sp. SDS20 was found to take a mercury load of up to 10 ppm Hg.

Salient features of Ph.D. Work:

FTIR spectroscopy, along with multivariate chemometrics, has been implemented for the detection and quantification of PO and MO in VCO, and FCO in PCO with great accuracy and precision. In addition to adulteration detection, identifying the geographical origin of coconut oil is also one of the critical aspects of edible oil authenticity. To solve this issue, ICP-MS coupled with chemometrics has been used for the identification of the geographical origin of VCO samples in five provinces of India.

A significant contribution to research:

At our laboratory, we have developed analytical methods by employing FTIR, ICP-MS, and Chemometrics to evaluate the adulteration and authenticity of coconut oil in India. These developed analytical methods have been submitted to the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture for developing low-cost "field-deployable tools" (**portable devices**) to be able to detect coconut oil adulteration in the field.

Research Publications:

Total Impact Factor: **54.66,** RG Score: **15.45,** h-Index: **09,** i10-Index: **09,** Total Citations: **343**

1. Kumari, S., **Amit**., & Singh, D. K. (**2023**). Swift and precise detection of argemone oil adulteration in virgin coconut oil by implementing ATR-FTIR spectroscopy integrated with multivariate chemometrics and regression modelling. *Vibrational Spectroscopy*, 103525.
   Impact factor: **2.38,** Cite Score: **3.8**

2. Jamwal, R., **Amit**., Sengar, M., & Jamwal, R. (**2023**). Determination of the geographical origin of Mustard oil based on multi-elemental fingerprinting using inductively coupled plasma mass spectrometry (ICP-MS) and chemometric analysis. *Food Chemistry Advances*, 100233.

3. **Amit**., Kumari, S., & Jamwal, R. (**2023**). Use of FTIR spectroscopy integrated with multivariate chemometrics as a swift, and non-destructive technique to detect various adulterants in virgin coconut oil: A comprehensive review. *Food Chemistry Advances*, 100203.

4. Kumari, S., **Amit**., & Jamwal, R. (**2022**). Isolation and identification of Jeotgalicoccus sp. CR2 and evaluation of its resistance towards heavy metals. *Cleaner Waste Systems*, 3, 100062.

5. **Amit**., Jamwal, R., Kumari, S., Kelly, S., Cannavan, A., & Singh, D. K. (**2022**). Assessment of geographical origin of virgin coconut oil using inductively coupled plasma mass spectrometry along with multivariate chemometrics. *Current Research in Food Science*.
   Impact factor: **6.26**, Cite Score: **2.8**

6. **Amit**, Jamwal, R., Kumari, S., Dhaulaniya, A. S., Balan, B., & Singh, D. K. (**2020**). Application of ATR-FTIR spectroscopy along with regression modelling for the detection of adulteration of virgin coconut oil with paraffin oil. *LWT*, 118, 108754.
   Impact factor: **6.05**, Cite Score: **7.0,** Citations: **42**

7. **Amit**, Jamwal, R., Kumari, S., Kelly, S., Cannavan, A., & Singh, D.K. (**2020**). Rapid detection of pure coconut oil adulteration with fried coconut oil using ATR-FTIR spectroscopy coupled with multivariate regression modelling. *LWT*, 125, 109250.
   Impact factor: **6.05**, Cite Score: **7.0,** Citations: **21**

8. **Amit**, Jamwal, R., Kumari, S., Dhaulaniya, A. S., Balan, B., Kelly, S., Cannavan, A., & Singh, D. K. (**2020**). Utilizing ATR-FTIR spectroscopy combined with multivariate chemometric modelling for the swift detection of mustard oil adulteration in virgin coconut oil. *Vibrational Spectroscopy*, 109, 103066.
   Impact factor: **2.38**, Cite Score: **3.8,** Citations: **24**

9. Kumari, S., **Amit**, Jamwal, R., Mishra, N., & Singh, D. K. (**2020**). Recent developments in environmental mercury bioremediation and its toxicity: a review. *Environmental Nanotechnology, Monitoring & Management*, 13, 100283.
   Impact factor: **5.64**, Citations: **85**

10. Jamwal, R., **Amit**, Kumari, S., Balan, B., Dhaulaniya, A. S., Kelly, S., Cannavan, A., & Singh, D. K. (**2020**). Attenuated Total Reflectance–Fourier transform infrared (ATR– FTIR) spectroscopy coupled with chemometrics for rapid detection of argemone oil adulteration in mustard oil. *LWT*, 120, 108945.
    Impact factor: **6.05**, Cite Score: **7.0,** Citations: **35**

11. Jamwal, R., **Amit**, Kumari, S., Balan, B., Kelly, S., Cannavan, A., & Singh, D. K. (**2021**). Rapid and non-destructive approach for the detection of fried mustard oil adulteration in pure mustard oil via ATR-FTIR spectroscopy-chemometrics. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 244, 118822.
    Impact factor: **4.83**, Cite Score: **7.1,** Citations: **26**

12. Jamwal, R., **Amit**, Kumari, S., Sharma, S., Kelly, S., Cannavan, A., & Singh, D. K. (**2021**). Recent trends in the use of FTIR spectroscopy integrated with chemometrics for the detection of edible oil adulteration. *Vibrational Spectroscopy*, 103222.
    Impact factor: **2.38**, Cite Score: **3.8,** Citations: **39**

13. Jamwal, R., **Amit**, Kumari, S., Kelly, S., Cannavan, A., & Singh, D.K. (**2021**). Non-targeted fingerprinting approach for rapid quantification of mustard oil adulteration with linseed oil: an economically motivated adulteration. *Vibrational Spectroscopy*, 103226.
Impact factor: **2.38**, Cite Score: **3.8,** Citations: **04**

14. Balan, B., Dhaulaniya, A. S., Jamwal, R., **Yadav, A**., Kelly, S., Cannavan, A., & Singh, D. K. (**2020**). Rapid detection and quantification of sucrose adulteration in cow milk using Attenuated total reflectance-Fourier transform infrared spectroscopy coupled with multivariate analysis. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 240, 118628.
Impact factor: **4.83**, Cite Score: **7.1,** Citations: **22**

15. Balan, B., Dhaulaniya, A. S., Jamwal, R., **Amit**, Sodhi, K. K., Kelly, S., Cannavan, A., & Singh, D. K. (**2020**). Application of Attenuated Total Reflectance-Fourier Transform Infrared (ATR-FTIR) spectroscopy coupled with chemometrics for detection and quantification of formalin in cow milk. *Vibrational Spectroscopy*, 107, 103033.
Impact factor: **2.38**, Cite Score: **3.8,** Citations: **33**

16. Dhaulaniya, A. S., Balan, B., **Yadav, A.**, Jamwal, R., Kelly, S., Cannavan, A., & Singh, D. K. (**2020**). Development of an FTIR-based chemometric model for the qualitative and quantitative evaluation of cane sugar as an added sugar adulterant in apple fruit juices. *Food Additives & Contaminants: Part A*, 37(4), 539-551.
Impact factor: **3.5**, Cite Score: **5.2,** Citations: **09**

Research Publications under communication:

1. **Amit**, Kumari S., Jamwal R., Singh, D.K. **(2023)** Implementation of ATR-FTIR spectroscopy integrated with multivariate chemometrics as an expeditious, and non-calamitous technique for the quantification of palm oil adulteration in virgin coconut oil
Food Chemistry Advances, (3rd Revision)

FDP and FIPs participated:

1. Successfully completed One-Week Online National Faculty Development Program **"Basic IT Tools, Advanced Spreadsheet Tools and Statistical Software Package with SPSS"** jointly organized by the University of Delhi and Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi under the Pandit Madan Mohan Malaviya National Mission on Teachers, and Teaching (**PMMMNMTT**) of Ministry of Education, from 27th October to 03rd November 2022.
2. Successfully completed and secured **Grade A** in One Month **"Faculty Induction Programme"** (Blended Mode) organized by Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi from 1st December to 30th December 2022.

College-Corporate Life Contribution:

1. **Member**, Eco-Club, Deshbandhu College
2. **Member**, Departmental NAAC Committee, Deshbandhu College
3. **Member**, IQAC Extended Committee, Deshbandhu College
4. **Member**, Central Examination Committee, Deshbandhu College
5. **Geo-tagging** of the college campus for NAAC and Green-Audit work, Deshbandhu College
6. **Co-opted Member,** Proctorial Committee 2022-23, Deshbandhu College

Conferences/Workshops/Webinars Organized:

1. **Co-convenor** of the webinar "Save Soil, Save Life" organized by ECO-CLUB, Deshbandhu College in association with ISHA OUTREACH, on April 25, **2022**

2. **Organizing Member** of the E-workshop on "Development of Chick and Mouse Embryos: Experiments and Molecular Techniques", organized by the Department of Zoology, Deshbandhu College on March 12, **2022**

3. **Convenor** of Virtual field visit of "Reefs and Sea-Shores; Islands of Lakshadweep", organized by Deshbandhu College, the University of Delhi on 5th February **2022**

4. Contributed as **Mentor** in the three days "Capacity Building Workshops", organized by the Department of Biochemistry, Botany, and Zoology, Deshbandhu College, from December 22-24, **2021**

Research Project:

Project Title: Field-Deployable Analytical Methods to Assess the Authenticity, Safety and Quality of Food in India. (**2017-2021**)

Analytical Models have been developed and submitted to the Joint **FAO/IAEA** Division of Nuclear Techniques in Food and Agriculture, for developing low-cost field-deployable tools (portable devices) to be able to detect oil fraud in the field.

Membership in a Scientific Society

The Association of Microbiologists of India (**AMI**), **Life membership** since 2021.

Life membership number/ ID: **5151-2021**

Academic Participation during Ph.D.

Assisted M.Sc. final year students in their dissertation work. (**2017 – 2020**)

Assisted in conducting practical classes of the M.Sc. final year [Subject - Insect toxicology] (**2017-2019**)

Techniques, Software & Skills:

Tools and Techniques

Attenuated Total Reflection Fourier Transform Infrared (ATR-FTIR) Spectroscopy

Gas Chromatography (GC), Inductively coupled plasma mass spectrometry (ICP-MS)

Atomic Absorption Spectroscopy (AAS), Scanning Electron Microscopy (SEM)

Soxhlet Extraction Methodology by Soxhlet Apparatus, Thin Layer Chromatography (TLC)

Column Chromatography, Autoclave

Software

Unscrambler X, SPSS, OMNIC, Spectrograph

Skills

Chemometrics, Multivariate Statistics, Differentiation methods (PCA and LDA)

Regression Modelling (PCR and PLS-R)

Subjects taught:

Principles of Ecology, Fundamentals of Biochemistry, Biochemistry of Metabolic Processes

Languages:

English, Hindi

Conferences and Workshops Participated:

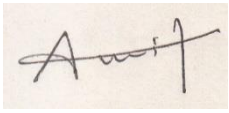
1. **Poster Presentation** in 2nd international colloquium on Deciphering Bioregulatory Mechanism in Health and Disease using 'Omics' Approach, organized by Department of Zoology, University of Delhi, Delhi, from February 24-25, **2022**

2. **Poster Presentation** in HEALTH 2021 "Cancer Biology: Advances and Challenges" Virtual Conference, organized by Department of Zoology, Deshbandhu College, from November 11th to 13th, **2021**

3. **Poster Presentation** in 2nd International Conference on Recent Advances in Agricultural, Environmental & Applied Sciences for Global Development (RAAEASGD), (**2019**) at Dr. YSPUHF Solan, Himachal Pradesh, India on "Detection and quantification of fried oil in mustard oil and coconut oil by ATR-FTIR spectroscopy combined with chemometrics"

4. **Poster Presentation** in International Conference Contemporary Issues in Integrating Health and Nutrition with the Emerging Areas of Food Technology, Agriculture, Environment and Allied Sciences, (**2019**) at Shyama Prasad Mukherji College for Women, University of Delhi, New Delhi, India on "ATR-FTIR spectroscopy along with multivariate chemometrics for the classification and detection of palm oil adulteration in extra virgin olive oil".

5. **Poster presentation** at 58th Annual Conference of Association of Microbiologists of India (**AMI-2017**) & International Symposium on "Microbes for Sustainable Development: Scope &Applications" (MSDSA-2017): on "Isolation of Potential Aerobic Denitrifying Bacteria from Yamuna River Water".



Place: New Delhi **Dr. Amit**