Curriculum-Vitae

Dr. Sweta Sharma
Assistant Professor
Department of Environmental Sciences
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Academic Qualifications:

- **B.Sc. (BZC)**, Ewing Christian College, University of Allahabad (2010)
- **M.Sc. (Environmental Science)** University of Allahabad (2013)
- **Ph.D. (Environmental Science)** University of Allahabad (2020)

Awards and Fellowships:

- **UGC-JRF (Environmental Science)**, 2015
- **ASRB-NET (Environmental Science)**, 2014
- **UGC-NET (Environmental Science)**, December 2014, June 2014

Experience:

- **Assistant Professor** (July, 2020 to April 2023), Department of Applied Science and Humanities, Faculty of Engineering and Technology, Khwaja Moinuddin Chishti Language University, Lucknow

Papers published in journals:

- **Sweta Sharma** and K. N. Uttam, Investigation of the manganese stress on wheat plant by attenuated total reflectance Fourier transform infrared spectroscopy, Spectrosc. Lett., 49: 520-528, 2016.
- **Sweta Sharma** and K. N. Uttam, Rapid analyses of stress of copper oxide nanoparticles on wheat plants at an early stage by laser induced fluorescence and attenuated total reflectance Fourier transform infrared spectroscopy, Vibrational Spectroscopy, 92: 135-150, 2017.
- **Sweta Sharma** and K. N. Uttam, Early diagnostic of mercury stress on wheat seedlings using attenuated total reflection Fourier transform infrared spectroscopy, Analytical Letters, 51: 1544-1563, 2018.

- Abhi Sarika Bharti, **Sweta Sharma**, Nidhi Shukla and K. N. Uttam, Steady state and time resolved laser-induced fluorescence of garlic plants treated with titanium dioxide nanoparticles, Spectroscopy Letters, 51: 45-54, 2018.
- **Sweta Sharma** and K. N. Uttam, Early stage detection of stress due to copper on Maize (*Zea mays L.)* by infrared and fluorescence spectroscopy, Journal of Applied Spectroscopy, 85: 771-778, 2018.
- **Sweta Sharma**, Rahul Uttam, Praveen Singh and K. N. Uttam, Detection of vibrational spectroscopic biomarkers of the effect of gold nanoparticles on wheat seedlings using attenuated total reflectance Fourier transform infrared spectroscopy, Analytical Letters, 51: 2271-2294, 2018.
- **Sweta Sharma**, Abhi Sarika Bharti, M. K. Tiwari and K. N. Uttam, Effect of manganese stress on the mineral content of the leaves of wheat seedlings by use of X-ray fluorescence excited by synchrotron radiation, Spectroscopy Letters, 51: 302-310, 2018.
- **Sweta Sharma** and K. N. Uttam, Nondestructive and Rapid Probing of the Biochemical Response of Arsenic Stress on the Leaves of Wheat Seedlings using Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy, Analytical Letters, 52: 268-287, 2019.
- **Sweta Sharma**, K.N. Uttam, Non-destructive and rapid interrogation of biochemical response of the leaves of wheat seedlings towards Al_2O_3 nanoparticles stress using attenuated total reflectance Fourier transform infrared spectroscopy, Vibrational Spectroscopy, 100: 142-151, 2019.
- **Sweta Sharma**, Rahul Uttam, Abhi Sarika Bharti and K.N. Uttam, Interaction of zinc oxide and copper oxide nanoparticles with the chlorophyll: a fluorescence quenching study, Analytical Letters, 52: 1539-1557, 2019.
- **Sweta Sharma** and K. N. Uttam, Non-invasive monitoring of biochemical response of wheat seedlings towards titanium dioxide nanoparticles treatment using attenuated total reflectance Fourier transform infrared and laser induced fluorescence spectroscopy**,** Analytical Letters, 52: 1629-1652, 2019.
- **Sweta Sharma**, A. K. Singh, M. K. Tiwari, and K. N. Uttam, Prompt screening of the alterations in biochemical and mineral profile of wheat plants treated with chromium

using attenuated total reflectance Fourier transform infrared spectroscopy and X-ray fluorescence excited by synchrotron radiation, Analytical Letters, 53; 482-508, 2019.

- **Sweta Sharma** and K. N. Uttam, Non-Destructive Assessment of the Impact of Selenium Treatment on the Biochemical Profile of the Leaves of Wheat Seedlings by Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy, Analytical Letters, 53: 1794-1811, 2020.
- **Sweta Sharma,** Rahul Uttam and K.N. Uttam, Interaction of Chlorophyll with Titanium Dioxide and Iron Oxide Nanoparticles: A Temperature Dependent Fluorescence Quenching Study, Analytical Letters, 53: 1851-1870, 2020.
- **Sweta Sharma**, Aarti Jaiswal and K. N. Uttam, Colorimetric and Surface Enhanced Raman Scattering (SERS) Detection of Metal Ions in Aqueous Medium Using Sensitive, Robust and Novel Pectin Functionalized Silver Nanoparticles, Analytical Letters, 53: 2355-2378, 2020.
- **Sweta Sharma**, Aarti Jaiswal and K. N. Uttam, Synthesis of Sensitive and Robust Lignin Capped Silver Nanoparticles for the Determination of Cobalt(II), Chromium(III), and Manganese(II) Ions by Colorimetry and Manganese(II) Ions by Surface-Enhanced Raman Scattering (SERS) in Aqueous Media, Analytical Letters, 54, 2051-2069, 2021.
- Abhi Sarika Bharti, **Sweta Sharma**, A.K.Singh, M.K. Tiwari, and K. N. Uttam, Non-destructive and Label Free Assessment of the Elemental Profile of Foliar by Synchrotron Radiation Induced Energy Dispersive X-Ray Fluorescence Spectroscopy, Journal of Applied Spectroscopy, 88:653–661, 2021.
- **Sweta Sharma**, Aarti Jaiswal, and K. N. Uttam, Determination of Chromium(VI), Chromium(III), Arsenic(V), Aluminum(III), Iron(II), and Manganese(II) by Colorimetry and Surface-Enhanced Raman Scattering (SERS) Using Ferulic Acid Functionalized Silver Nanoparticles, Analytical Letters, 52: 715-727; 2022.
- Sweta Sharma, Aarti Jaiswal, Aparna Tiwari, and K. N. Uttam, Rapid Detection of Metal Ions in the Aqueous Medium by Colorimetry and Surface Enhanced Raman Scattering Using Vanillic Acid-Coated Silver Nanoparticles, Analytical Letters, 55; 2738-2751, 2022.

- Shristi Sharma, **Sweta Sharma**, Abhi Sarika Bharti, M. K. Tiwari and K. N. Uttam, Non-Destructive Assessment of the Nutrient Profile of Underutilized Seeds Using Spectroscopic Probes, Analytical Letters, 56: 703-719, 2023.

Workshop participation:

- X-ray Micro Imaging using Synchrotron Radiation as Source (XMISR), Theme meeting/Workshop on 14-16 Sep, 2017, RRCAT Indus-2, Indore.

Paper presented in conferences, symposia and seminar

- Laser induced fluorescence study of heavy metal (copper) stress on *Zea mays*

  Sweta Sharma and K.N. Uttam, presented in the DAE-BRNS, National Laser Symposium (NLS-24) at Raja Ramanna Centre for Advanced Technology, Indore, Madhya Pradesh (December 2-5, 2015), ISBN: 978-81-903321-6-3, CP-10.1
- Study of the Chlorophyll Fluorescence Quenching Induced by Copper Nanoparticles

  Sweta Sharma, Rahul Uttam, Renu Singh, S.Kumar and K.N. Uttam, presented in the International Conference on Light Quanta: Modern Perspectives & Applications at Physics Department, University of Allahabad, Allahabad (December 14-16, 2015), P.B. 95, Abstract booklet pp-107
- Spectroscopic study of the chromium stress on chemical composition of the leaves of *Sorghum bicolor,* **Sweta Sharma** and K.N. Uttam, presented in the International Conference

  On Advances in Light Technologies and Spectroscopy of Materials at Department of Physics, University of Lucknow (January 16-18, 2016), PP-32, Abstract booklet pp-137
- Application of advanced spectroscopic techniques for the investigation of manganese stress on wheat plants, **Sweta Sharma**, M.K. Tiwari, and K.N. Uttam, presented in the National seminar on science and technology for the indigenous development at chemistry Department, University of Allahabad, Allahabad, March 29-30, 2016
- Spectroscopic investigation of nanoparticle stress on cereal crop: a case study of CuO NPs on wheat seedlings, **Sweta Sharma** and K. N. Uttam, presented in the DAE-BRNS Symposia on Condensed Matter Physics under Extreme Conditions at Bhabha Atomic Research Centre, Trombay, Mumbai (April 13-16, 2016), pp- 103
- Non-destructive spectroscopic investigation of the copper stress on Maize (*Zea mays L.)*

Sweta Sharma and K.N. Uttam, presented in the National Seminar on Science and Technology for National Development, organized by Allahabad Chapter, Indian Science Congress Association, Department of Chemistry, University of Allahabad, February 11-13, 2017, PP-B15, Abstract booklet pp-90

- Molecular dynamics of interaction between chlorophyll and zinc oxide nanopartilces: A steady state fluorescence quenching study, **Sweta Sharma** and K N Uttam, presented in the National Laser Symposium (NLS-25) KIIT, Bhubneshwar, 20-23 Dec (2016) Article: CP-10.4
- Investigation of spectral signatures of the ripening of chilli fruit by laser induced fluorescence spectroscopy, **Sweta Sharma**, Renu Singh and K. N. Uttam, presented in the International Conference on Emerging Materials & Applications, February 20-22, 2017, PP-91, Abstract booklet pp-97
- Non-destructive and rapid probing of biochemical response of arsenic stress on the leaves of wheat seedlings using attenuated total reflectance Fourier transform infrared spectroscopy, **Sweta Sharma** and K N Uttam, presented in the ISCA Allahabad Chapter during 24-25 Feb, 2018.
- Investigation of the effect of manganese stress on the mineral content of the leaves of wheat seedling by synchrotron radiation X-ray fluorescence spectroscopy, **Sweta Sharma**, Abhi Sarika Bharti, M.K. Tiwari And K.N.Uttam, presented in the 2nd Meghnad Saha Memorial International Symposium-cum-Workshop on Laser Induced Breakdown Spectroscopy-2018, Department of Physics, University of Allahabad, Allahabad, 19-21 Feb 2018.
- Non-destructive and rapid interrogation of biochemical response of the leaves of wheat seedlings towards Al_2O_3 nanoparticles stress at an early stage using attenuated total reflectance Fourier transform infrared spectroscopy, **Sweta Sharma** and K.N.Uttam, presented in the 7th International Conference on Perspectives in Vibrational Spectroscopy-2018, Bhabha Atomic research Centre, Mumbai, 25-29 Nov, 2018.
- Prompt screening of the alterations in biochemical and mineral profile of wheat plants stressed with chromium using attenuated total reflectance Fourier transform infrared spectroscopy and X-ray fluorescence excited by synchrotron radiation, **Sweta Sharma**

and K. N. Uttam, Presented in National Seminar in Future India: Science and technology, Organized by Allahabad Chapter, Indian Science Congress, Department of Chemistry, University of Allahabad, February 22-24, 2019, Abstract no. B 18.

- Non-invasive monitoring of biochemical response of wheat seedlings towards titanium dioxide nanoparticles treatment using attenuated total reflectance Fourier transform infrared and laser induced fluorescence spectroscopy, **Sweta Sharma** and K. N. Uttam, Presented in VIII International Conference on Perspectives in Vibrational Spectroscopy (VIII ICOPVS-2020) organized by Jawaharlal Nehru Centre for Advanced Scientific Research, Benguluru, Feb 24-29, 2020.
- Detection of Vibrational Spectroscopic Biomarkers of the Effect of Gold Nanoparticles on Wheat Seedlings Using Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy, **Sweta Sharma,** Rahul Uttam, Praveen Singh and K. N. Uttam, Presented in The Indian Science Congress Association (Allahabad Chapter), 14th National Conference on Science & Technology: Rural Development, DSMNRU, Lucknow, February 8-9, 2020. Abstract No. : 100.
- Detection of antioxidant compounds using Surface enhanced Raman scattering spectroscopy, **Sweta Sharma**, Aarti Jaiswal and K. N. Uttam, Presented in 29th National Laser Symposium, organized by Raja Ramanna Centre for Advanced Technology, Indore and Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore in collaboration with Indian Laser Association scheduled on February 12-15, 2021.
- Non-destructive Monitoring of the Ripening of Plum Fruits in Pre and Post Harvest Phases using Confocal Micro Raman and Laser Induced Fluorescence Spectroscopy, Sweta Sharma and K N Uttam, Presented in IX International Conference on Perspectives in Vibrational Spectroscopy (ICOPVS-2022) Organized by UGC-DAE Consortium for Scientific Research, & Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh, India 13-17 December, 2022.

Awards:

- Dr. Murli Manohar Joshi best paper presentation for "Application of advanced spectroscopic techniques for the investigation of manganese stress on wheat plants, Sweta Sharma, M.K. Tiwari, and K.N. Uttam, presented in the national seminar on science and

technology for the indigenous development at Chemistry Department, University of Allahabad, Allahabad", 2016

- Best paper presentation for "Non-destructive spectroscopic investigation of the copper stress on Maize (*Zea mays L.)"* Sweta Sharma and K.N. Uttam, presented in the National Seminar on Science and Technology for National Development, organized by Allahabad Chapter, Indian Science Congress Association, Department of Chemistry, University of Allahabad, February 11-13, 2017
- Best paper presentation for "Detection of Vibrational Spectroscopic Biomarkers of the Effect of Gold Nanoparticles on Wheat Seedlings Using Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy" Sweta Sharma, Rahul Uttam, Praveen Singh and K. N. Uttam, Presented in The Indian Science Congress Association (Allahabad Chapter), 14th National Conference on Science & Technology: Rural Development, organized by DSMNRU, Lucknow, February 8-9, 2020.

Administrative responsibilities:

- Warden of Girl hostel (17th September, 2020 to 16th September, 2021), Khwaja Moinuddin Chishti Language University, Lucknow
- Media Incharge (17 September, 2020 to 16th September, 2021), Khwaja Moinuddin Chishti Language University, Lucknow
- Assistant Centre Superintendent, March Examination 2020, Khwaja Moinuddin Chishti Language University, Lucknow
- Assistant Evaluation Incharge, December Examination 2022, Khwaja Moinuddin Chishti Language University, Lucknow
- NAAC, Criteria 7; Sub-incharge (21st April, 2022 to 17th April, 2023), Khwaja Moinuddin Chishti Language University, Lucknow