

Dr. Sumaira Anjum

Assistant Professor (TTS)
Department of Biotechnology
Kinnaird College for Women, Lahore, Pakistan
sumaira.anjum@kinnaird.edu.pk



EDUCATION

PhD (Biotechnology)	Quaid-i-Azam University, Islamabad Pakistan. Thesis: “Green Synthesis of Antimicrobial Nanoparticles (Silver and Zinc Oxide) and Production of Commercially Important Secondary Metabolites from In Vitro-Derived Cultures of <i>Linum usitatissimum</i> L.”	2014-2018
M.Phil. (Biochemistry)	Quaid-i-Azam University, Islamabad Pakistan. Thesis: “Genetic Analysis of Families with Retinitis Pigmentosa” CGPA: 4.65/5.0 (Percentage: 90.45%) Distinction: Gold Medal	2009-2011

Research Projects

- Completed a SRGP research project on, “Effect of Light-emitting Diodes on Plant-mediated Biosynthesis, Morphology, Anti-cancerous and Antimicrobial activities of SmartMetallic Bombs (Silver and Zinc Oxide Nanoparticles)” as Principle investigator (PI), funded (0.43 Million) by HEC (Duration: 2019-2021).
- Technology Transfer Fund (TDF) on. “Development and Evaluation of Nanoformulations Against Fungal Spices Damaging Cotton Crop” submitted to Pakistan Academy of Sciences for funding (11.38 Million), duration (2024-2026).

Publications in Peer-reviewed Journals

Papers Published as First/Corresponding Author

- Mubashara Inam, Zahra Haider, **Sumaira Anjum***, Bushra Ahmad, Mohammad Soliman, Iftikhar Hussain, Christophe Hano, Differential impact of biogenic and chemically synthesized zinc oxide nanoparticles on anti-aging, anti-oxidant and anti- cancerous activities: a mechanism based study; New Journal of Chemistry, **2024**; 2; 3456. (IF: 3.3).
- Noor, B., Zubair, A., Shahzad, R. **Sumaira Anjum***, Mohmed M. S., Cerium Oxide Nanoparticles (CeO₂ NPs): A Dual Approach to Therapy and Toxicity in Hepatorenal Systems. *BioNanoSci.* **15**, 3 (2024) (IF:3.0).
- Zahra Tariq, Muhammad Imran Qadeer, Iram, Anjum, **Sumaira Anjum***, Murtaza Hasan, Nondiagnostic advancements in revolutionizing lactose intolerance: A minireview for health sciences”, Hybrid Advances, Volume 6, **2024**, 100264.
- Sumaira Anjum***, Nanotechnology at the Crossroads: Advancements and Ethical Dilemmas in Environment and Agriculture, *Nano*: **2024**, 17 (3), 24311.
- Momina Riaz Dar, Amna Komal Khan, Mubashra Inam, Christophe Hano, **Sumaira Anjum***; Differential Impact of Zinc Salt Precursors on Physiognomies, Anticancerous, and Antibacterial Activities of Zinc Oxide Nanoparticles; *Applied Biochemistry and Biotechnology*: **2023**, 1-26. (IF:3.1)

6. Mubashra Inam, Iqra Attique, Maryam Zahra, Amna Komal Khan, Mariam Hahim, Christophe Hano, **Sumaira Anjum***, Metal oxide nanoparticles and plant secondary metabolism: unraveling the game-changer nano-elicitors; *Plant Cell, Tissue and Organ Culture (PCTOC)*: **2023**, 1-18. (IF: 3.0)
7. Syeda Itrat Zahra Naqvi, Humera Kausar, Arooj Afzal, Mariam Hashim, Huma Mujahid, Maryam Javed, Christophe Hano, **Sumaira Anjum***, Antifungal Activity of Juglans-regia-Mediated Silver Nanoparticles (AgNPs) against *Aspergillus-ochraceus*- Induced Toxicity in In Vitro and In Vivo Settings; *Journal of Functional Biomaterials*: **2023**; 14 (4) 221-234 (IF: 4.8)
8. Zahra Tariq, Muhammad Imran Qadeer, Iram Anjum, Christophe Hano, **Sumaira Anjum***. Thalassemia and Nanotheragnostics: Advanced Approaches for Diagnosis and Treatment. *Biosensors*; **2023**, 13 (9), 1234. (IF: 5.4)
9. Mariam Hashim, Huma Mujahid, Samina Hassan, Shanila Bukhari, Iram Anjum, Christophe Hano, Bilal Haider Abbasi, **Sumaira Anjum***. Implication of Nanoparticle to Combat Chronic Liver and Kidney Diseases: Progress and Perspectives. *Biomolecules*; **2022**, 12 (11), 1337 (IF: 5.5)
10. **Sumaira Anjum***, Rimsha Chaudhary, Amna Komal Khan, Mariam Hashim, Iram Anjum, Christophe Hano, Bilal Haider Abbasi. Light-emitting diode (LED)-directed green synthesis of silver nanoparticles and evaluation of their multifaceted clinical and biological activities. *RSC Advances*; **2022**, 12, 22266-22284. (IF: 3.9)
11. **Sumaira Anjum***, Khadija Nawaz, Bushra Ahmad, Christophe Hano, Bilal Haider Abbasi. Green synthesis of biocompatible core-shell (Au-Ag) and hybrid (Au-ZnO and Ag-ZnO) bimetallic nanoparticles and evaluation of their potential antibacterial, antidiabetic, antiglycation and anticancer activities. *RSC Advances*, **2022**, 12, 23845- 23859 (IF: 3.9)
12. Amna Komal Khan, Sullivan Renouard, Samantha Drouet, Jean-Philippe Blondeau, Iram Anjum, Christophe Hano, Bilal Haider Abbasi, **Sumaira Anjum***, Effect of UV Irradiation (A and C) on *Casuarina equisetifolia*-Mediated Biosynthesis and Characterization of Antimicrobial and Anticancer Activity of Biocompatible Zinc Oxide Nanoparticles. *Pharmaceutics*. **2021**, 13 (11) 1977. (IF: 5.4)
13. **Sumaira Anjum***, Amna Komal Khan, Anza Qamar, Noor Fatima, Samantha Drouet, Sullivan Renouard, Jean Philippe Blondeau, Bilal Haider Abbasi, Christophe Hano. Light Tailoring: Impact of UV-C Irradiation on Biosynthesis, Physiognomies, and Clinical Activities of *Morus macroura*-Mediated Monometallic (Ag and ZnO) and Bimetallic (Ag-ZnO) Nanoparticles. *International Journal of Molecular Sciences*. **2021**, 22 (20) 11294. (IF: 5.6)
14. **Sumaira Anjum***; Ishaque, S.; Fatima, H.; Farooq, W.; Hano, C.; Abbasi, B.H.; Anjum, Iram. Emerging Applications of Nanotechnology in Healthcare Systems: Grand Challenges and Perspectives. *Pharmaceutics*. **2021**, 14, 707. (IF: 4.6)
15. Hashim, M.; Ahmad, B.; Drouet, S.; Hano, C.; Abbasi, B.H.; **Sumaira Anjum***. Comparative Effects of Different Light Sources on the Production of Key Secondary Metabolites in Plants In Vitro Cultures. *Plants*. **2021**, 10, 1521. (IF: 4.5)
16. **Sumaira Anjum***, Mariam Hashim, Sara Asad Malik, Maha Khan, José M Lorenzo, Bilal Haider Abbasi, Christophe Hano. Recent Advances in Zinc Oxide Nanoparticles (ZnO NPs) for Cancer Diagnosis, Target Drug Delivery, and Treatment. *Cancers*. **2021**, 13 (18) 4570. (IF: 5.2)
17. Khan, A.K.; Kousar, S.; Tungmunthum, D.; Hano, C.; Abbasi, B.H.; **Anjum, S***. Nano-Elicitation: As an Effective and Emerging Strategy for In Vitro Production of Industrially Important Flavonoids. *Appl. Sci*. **2021**, 11, 1694. (IF: 2.7)
18. Nawaz, K.; Chaudhary, R.; Sarwar, A.; Ahmad, B.; Gul, A.; Hano, C.; Abbasi, B.H.; **Anjum, S***. Melatonin as Master Regulator in Plant Growth, Development and Stress Alleviator for Sustainable Agricultural Production: Current Status and Future Perspectives. *Sustainability*. **2021**, 13, 294. (IF: 3.9)

19. **Anjum, S.***; Komal, A.; Drouet, S.; Kausar, H.; Hano, C.; Abbasi, B.H. Feasible Production of Lignans and Neolignans in Root-Derived In Vitro Cultures of Flax (*Linum usitatissimum* L.). *Plants* **2020**, *9*, 409. (IF: 4.5)
20. Rimsha C., Khadija N. Amna K. K., Christophe H., Bilal H. A., **Anjum S***. (2020). An Overview of the Algae-mediated Biosynthesis of Nanoparticles and their Biomedical Applications. *Biomolecules*. (IF: 5.5)
21. Amna K.K., Kausar H. , Samra S. J., Christophe H., Bilal H. A., **Anjum S***. (2020). Algal Genomics and Evolution: An Insight into the Biotechnological productions of industrially important Metabolites. *Biomolecules*. (IF: 5.5)
22. Shafiq M, **Anjum S***, Hano C, Anjum I, Abbasi BH. An overview of the applications of nanomaterials and nanodevices in the food industry. *Foods*. **2020**;9(2):148. (IF: 5.561)
23. **Anjum S***, Anjum I, Hano C, Sidra K. (2019). Advances in Nanomaterials as Novel Elicitors of Pharmacologically Active Plant Specialized Metabolites: Current Status and Future Outlooks. *RSC Advances*. *9*: 40404-40423. (IF: 3.9).
24. Saleem K, Khurseed Z, **Anjum S***, Hano C, Anjum I. (2019). Theranostic Applications of Nanomaterials in Leishmaniasis: A Focus on Recent Advances and Challenges. *Nanomaterials*. *9*: 1749-1766. (IF: 5.3)
25. **Anjum S**, Abbasi BH, Hano C (2017). Trends in accumulation of pharmacologically important antioxidant-secondary metabolites in callus cultures of *Linum usitatissimum* L. *Plant Cell, Tissue and Organ Culture (PCTOC)*. *129*: 73-83. (IF: 3.0)
26. **Anjum S**, Abbasi BH, Doussot J, Favre-Réguillon A, Hano C (2017). Effects of photoperiod regimes and ultraviolet-C radiations on biosynthesis of industrially important lignans and neolignans in cell cultures of *Linum usitatissimum* L. (Flax). *Journal of Photochemistry and Photobiology B: Biology*. *167*:216-227. (IF: 5.4)

27. **Anjum S**, Abbasi BH, Shinwari ZK (2016). Plant-mediated green synthesis of silver nanoparticles for biomedical applications: Challenges and opportunities. *Pakistan journal of Botany*. 48 (4): 1731-1760. (IF: 1.2)
28. **Anjum S**, Abbasi BH (2016). Thidiazuron-enhanced biosynthesis and antimicrobial efficacy of silver nanoparticles via improving phytochemical reducing potential in callus culture of *Linum usitatissimum* L. *International Journal of Nanomedicine*. 11:715-728.(IF: 8.0)
29. **Anjum S**, Abbasi BH (2016). Biomimetic synthesis of antimicrobial silver nanoparticles by using in vitro-propagated plantlets of a medicinally important endangered plant species: *Phlomis bracteosa*. *International Journal of Nanomedicine*. 11:1663-1675. (IF: 8.0)
30. Zafar Iqbal Khan, Fatima Ghulam Muhammad, Kafeel Ahmad, Mona Alwahibi, His- Hsien Yang, **Sumaira Anjum**, Khalid Iqbal, Emanuele Radicetti, Muhammad Iftikhar Hussain. Nickel toxicology testing in alternative specimen from farm ruminants in a urban polluted environment. *Journal of King Saud University-Science*; **2024**; Vol:36, pp. 103520.
31. Bisma Meer, Anisa Andleeb, Junaid Iqbal, Hajra Ashraf, Kushif Meer, Joham Sarfraz Ali, Samantha Drouet, **Sumaira Anjum**, Azra Mehmood, Taimoor Khan, Mohammad Ali, Christophe Hano, Bilal Haider Abbasi. Bio-Assisted Synthesis and Characterization of Zinc Oxide Nanoparticles from *Lepidium sativum* and their Potent Antioxidant, Antibacterial and Anticancer activities. *Biomolecules*; **2022**, 26, 828. (IF: 5.5).
32. Shah, M.; Nawaz, S.; Jan, H.; Uddin, N.; Ali, A.; **Anjum, S.**; Giglioli-Guivarc'h, N.; Hano, C.; Abbasi, B.H. Synthesis of bio-mediated silver nanoparticles from *Silybum marianum* and their biological and clinical activities. *Materials Science and Engineering: C*. **2020**, 110889. (IF: 8.457)
33. Usman, H.; Ullah, M.A.; Jan, H.; Siddiquah, A.; Drouet, S.; **Anjum, S.**; Giglioli-Guivarc'h, N.; Hano, C.; Abbasi, B.H. Interactive Effects of Wide-Spectrum Monochromatic Lights on Phytochemical Production, Antioxidant and Biological Activities of *Solanum xanthocarpum* Callus Cultures. *Molecules* **2020**, 25, 2201. (IF: 4.6)
34. Zaeem, A.; Drouet, S.; **Anjum, S.**; Khurshid, R.; Younas, M.; Blondeau, J.P.; Tungmunthum, D.; Giglioli-Guivarc'h, N.; Hano, C.; Abbasi, B.H. Effects of Biogenic Zinc Oxide Nanoparticles on Growth and Oxidative Stress Response in Flax Seedlings vs. In Vitro Cultures: A Comparative Analysis. *Biomolecules* **2020**, 10, 918.(IF: 5.5)
35. Faryal S., Muhammad Y., Hina F., Sadaf M., Faiz Ur R., Muzamil S., **Anjum, S.**, Nisa Mohammad a., Christophe H., Bilal Haider A (2021). Green and chemically synthesized zinc oxide nanoparticles: effects on in-vitro seedlings and callus cultures of *Silybum marianum* and evaluation of their antimicrobial and anticancer potential. *Artificial Cells, Nanomedicine, and Biotechnology*. 49 (1); 450-460. (IF: 5.8)
36. Abbasi BH, **Anjum S**, Hano C (2017). Differential effects of in vitro cultures of *Linum usitatissimum* L. (Flax) on biosynthesis, stability, antibacterial and antileishmanial activities of zinc oxide nanoparticles: a mechanistic approach. *RSC Advances*. 7: 15931– 15943. (IF: 3.9)
37. Zahir A, Abbasi BH, Adil M, **Anjum S**, Zia M, Ihsan-ul-haq. Synergistic Effects of Drought Stress and Photoperiods on Phenology and Secondary Metabolism of *Silybum marianum*. *Applied Biochemistry and Biotechnology*. **2014**; 174: 693-707. (IF: 3.0)

BOOKS/CHAPTERS PUBLISHED

1. Jessica Alyas, Noor Khalid, Sara Ishaque, Hijab Fatima, Mariam Hashim, Samina Hassan, Shanila Bukhari, Christophe Hano, Bilal Haider Abbasi, **Sumaira Anjum***. Light (High Light/UV Radiation) Modulates Adaptation Mechanisms and Secondary Metabolite Production in Medicinal Plants. Medicinal Plants. 2023; 363-390; Springer, Singapore.
2. Hijab Fatima, Sara Ishaque, Mariam Hashim, Christophe Hano, Bilal Haider Abbasi, **Sumaira Anjum***. Role of Hydrogen peroxide in Plant and Crosstalk with Signaling Networks, Growth, and Development. Hormonal Cross-Talk, Plant Defense and Development; 2023, Elsevier.
3. Lucija Markulin, Samantha Drouet, Laurine Garros, **Sumaira Anjum**, Duangjai Tungmunthum, Bilal Haider Abbasi, Randolph RJ Arroo, Eric Lainé, Mohamed Addi, Christophe Hano. Production of Antidiabetic Lignans in Flax Cell Cultures. Biotechnology of Anti-diabetic Medicinal Plants. 2022. 383-407. Springer, Singapore.
4. Rimsha C., Khadija N., Amna K. K., Christophe H., Bilal H. A., **Sumaira Anjum*** (2022). “Algal-mediated Biosynthesis of nanoparticles and their potential therapeutic applications”. Bioprospecting Algal for Nanosized Material; CRC Press.
5. Amna Komal Khan, Iram Anjum, Christophe Hano, Bilal Haider Abbasi, **Sumaira Anjum*** (2021). “An Overview on Feasible Production of Bioplastic Polyhydroxyalkanoate (PHA) in Transgenic Plants”. Bioplastics; Springer, Nature.
6. **Sumaira Anjum***, Amna Komal Khan, Bilal Haider Abbasi (2021). “Nanoparticles as Elicitors of Biologically Active Ingredients in Plants”. Plant Nanobiotechnology; Springer, Nature.
7. Lucija Markulin, Yuliia Makhno, Samantha Drouet, Sara Zare, **Sumaira Anjum**, Duangjai Tungmunthum, Bilal Haider Abbasi, Eric Lainé, Hanna Levchuk, Christophe Hano. (2021) On “the most useful” oleaginous seeds: *Linum usitatissimum* L., a genomic view with emphasis on the biosynthesis of important seed storage compounds. Oleaginous Seed Genomics; Springer, Nature.