

CURRICULUM VITAE

Dr. Rakhshinda Sadiq

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RESEARCH PROFILE/ RESEARCH INTERESTS

- Toxicologist and molecular biologist specializing in mechanistic toxicology, investigating molecular pathways of toxicity associated with engineered nanomaterials and emerging biological agents.
- Experienced in *in vivo*, *ex vivo*, and advanced human *in vitro* models, with international research training at the U.S. FDA–National Center for Toxicological Research (NCTR).
- Research interests focus on biosecurity, nanosafety, predictive toxicology and human health risk assessment to support evidence-based biosafety and biodefense strategies.

ACADEMIC CAREER

PhD (Biotechnology): 2008-2014

Research Project: “Toxicological Assessment of Metallic Nanoparticles”.

University: National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad / Pakistan Institute of Engineering and Applied Sciences (PIEAS), Pakistan / National Center for Toxicological Research (NCTR), U.S. Food and Drug Administration (FDA), Jefferson, AR, USA.

MSc. (Biochemistry): 1999 - 2001

Research Project: “Antagonistic potential of yeast sludge against aflatoxin B1”.

University: University of Agriculture, Faisalabad, Pakistan.

PROFESSIONAL CAREER

2017- To date

Assistant Professor

Department of Biotechnology

Women University Mardan (WUM), Khyber Pakhtunkhwa, Pakistan

2024- 2025

Acting Head

Department of Biochemistry

Women University Mardan (WUM), Khyber Pakhtunkhwa, Pakistan

2024- 2025

Coordinator Faculty Affairs

Women University Mardan (WUM), Khyber Pakhtunkhwa, Pakistan

2017- 2024

Acting Head

Department of Biotechnology

Women University Mardan (WUM), Khyber Pakhtunkhwa, Pakistan

2017- 2023	Additional Registrar (Additional Charge) Women University Mardan (WUM), Khyber Pakhtunkhwa, Pakistan
2018- 2020	Additional Director Admissions ((Additional Charge) Women University Mardan (WUM), Khyber Pakhtunkhwa, Pakistan
2015- 2016	Assistant Professor Department of Bioinformatics & Biotechnology International Islamic University (IIU), Islamabad, Pakistan
2004- 2008	Teacher (Chiniot Islamia High School) Faisal Town, Faisalabad, Pakistan.
2002 -2004	Teacher (SOS Hermann Gmeiner School) SOS Children’s Village Faisalabad, Pakistan.

ORGANIZATIONAL EXPERIENCE

1. Member research committee, Women University Mardan, 2017.
2. Member statutory bodies (Academic Council, Departmental Boards of Study, Board of Faculty), Women University Mardan, 2017.
3. Member statutory bodies (Finance and Planning Committee, Senate, Syndicate, and Selection Board) 2017 – 2023.

HONORS & AWARDS

1. Recipient of the STEM faculty training fellowship in the UK, awarded under the Pak-UK Education Gateway Project by the British Council Pakistan. (2025).
2. PhD fellowship under indigenous PhD fellowship program offered by higher education commission (HEC) Pakistan. (2008-2014).
3. Six months’ research training fellowship at National Center for Toxicological Research (NCTR) Jefferson Arkansas, FDA, USA offered by higher education commission (HEC) Pakistan. (2011).

INTERNATIONAL /NATIONAL CONFERENCES/ WORKSHOPS/ TRAININGS ORGANIZED

1. 11th International Conference entitled “The Future Reimagined: Innovation through Science, Social Science & Global Collaboration (FutureCON-2026)” February 10 – 12th, 2026, Women University Mardan, (Venue: Al-Hamra Hotel Mardan, Pakistan) (**Organizer**).
2. One day Cascading Training Sessions-STEM Faculty Trainings under Pak – UK Education Gateway Project, A collaborative initiative of British Council and the Higher Education Commission (HEC) Pakistan, at the Women University Mardan, 16th October 2025, (**Organizer & Trainer**).
3. 9th International Conference entitled “Sustainable Development Goals for a Better Future (ICSDGBF-2025)”. February 19-20th, 2025. Women University Mardan, (Venue: COMSTECH, Islamabad, Pakistan) (**Principal Organizer**).

4. DOSTI Peshawar Women Literature Festival 2nd Edition (Exhibition, Book Fair, Mushaira, Panel Discussion & Anti-Corruption Walk), Women University Mardan Chapter, 5th December, 2024, **(Principal Organizer)**.
5. One- day Training Workshop on Essential of Intellectual Property Rights (IPR), Women University Mardan, 11th November 2024 **(Organizer)**.
6. Two- days Hands on Training Work shop on Biosafety and Lab waste Management, Women University Mardan, 23rd and 24th October, 2024 **(Principal Organizer)**.
7. Exhibition on; Innovative Ideas Hunt: Recycling, Reuse and Reduce, Women University Mardan, 12th September, 2024, **(Principal Organizer)**.
8. International Webinar on; Current Scenario and Future Challenges of Global Climate Change, Women University Mardan, 10th September, 2024 **(Organizer)**.
9. 6th International Conference entitled “Scientific outlook of sustainable development goals”. January 15-16th, 2024. Women University Mardan, (Venue: Hotel Margala Islamabad, Pakistan) **(Principal Organizer)**.
10. Five days training workshop on basic lab techniques, Organized by Department of Biotechnology and Microbiology, Women University Mardan, 4- 8th December, 2023 **(Principal Organizer)**.
11. Two-day international workshop entitled "Fundamentals and applications of NMR spectroscopy, October 26th- 27th, 2021 (Venu: Women University Mardan, Khyber Pakhtunkhwa, Pakistan) **(Principal Organizer)**.
12. 3rd International conference entitled “Empowering nation through sciences”, April 24th -25th, 2019, Women University Mardan (Venue: Hotel Margala Islamabad, Pakistan) **(Principal Organizer)**.

RESEARCH PROJECT AWARDED AS PRINCIPLE INVERTIGATOR (PI)

1. Institutional strengthening grant for upgrading libraries of PKR 2.882190 million by Higher Education Commission (HEC), Pakistan. (2018) **Completed**
2. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled “Copper nanoparticles: a 28-day repeated-dose oral toxicity study in mice”. (2015) **Completed**

RESEARCH PROJECTS AWARDED AS CO- PRINCIPLE INVERTIGATOR (CO-PI)

1. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 1.0 million) for the project entitled “Graphene oxide as catalyst and catalyst support: A Green and facile approach towards aerobic oxidation of cyclohexane.” (2022), **Completed**
2. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 1.0 million) for the project entitled “Nitrogen-doped carbon materials from nitrogen rich precursors (Chicken feathers) for supercapacitor application”. (2021), **Completed**.
3. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled “Biological synthesis of silver nanoparticles and their antilishmaniasis activity”. (2020), **Completed**.
4. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled “Thin Film coating on surgical tools using PVD techniques”. (2020), **Completed**.
5. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the

project entitled “Characterization and evaluation of exotic Brassica germplasm in Mardan based on morphological, biochemical and molecular markers”. (2019), **Completed**.

6. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled “Extraction of phycobiliproteins from *Oscillatoria* microalgae and assessment of its medicinal and food benefits”. (2019), **Completed**.

CONFERENCES / PRESENTATIONS

1. **Rakhshinda Sadiq**, Comparison of bioethanol production from fruit and vegetable peels using *Saccharomyces cerevisiae* at 11th International Conference on “*The Future Reimagined: Innovation through Science, Social Science & Global Collaboration (FutureCON-2026)*”, Women University Mardan, February 10 – 12th, 2026, Mardan, Pakistan.
2. **Rakhshinda Sadiq**, Reline-derived deep eutectic solvent-mediated nanoparticle synthesis: A study on cytotoxicity and hemolysis at 9th International Conference on “*Sustainable Development Goals for a Better Future (ICSDBGF-2025)*”, Women University Mardan, February 19-20th, 2025, , Mardan, Pakistan.
3. **Rakhshinda Sadiq**, Evaluation of total aflatoxin content in dry fruits samples at 7th Pak-Turk International Conference on “*Emerging Technologies in the field of Sciences and Engineering*”. University of Wah, October 14-15, 2024, Wah, Pakistan.
4. **Rakhshinda Sadiq**, Ethanol production from potato peels and poultry manure mixture using baker’s yeast (*Saccharomyces cerevisiae*), 8th International Conference “*Sustainable Livelihood: Climate-Smart Agriculture for Food and Security*”, Agriculture University of Poonch Rawalakot, 3rd–4th July 2024 Rawalakot, Azad Kashmir, Pakistan. _
5. **Rakhshinda Sadiq**, Achieving the sustainable development goals through the utilization of nanotechnology, 6th International Conference “*Scientific Outlook of Sustainable Development Goals*”. Women University Mardan, 15-16th January, 2024, Mardan, Pakistan
6. **Rakhshinda Sadiq**, Hina Jabeen, Akhtar Rasool. “Subchronic oral toxicity of copper nanoparticles.” 2nd International Conference on Emerging Trends in Science and Technology, Faculty of Science and Technology, Fatima Jinnah Women University, 2-6th October 2023, Rawalpindi. **Pakistan**
7. **Rakhshinda Sadiq**, Qaiser M. Khan, Ameena Mobeen and Tao Chen. Toxicological assessment of metallic nanoparticles. 1st International Conference on “*Biotechnology: Prospects and Challenges in Agriculture, Industry, Health and Environment*”, April 22-26, 2013 Faisalabad, **Pakistan**.
8. **Rakhshinda Sadiq**, Qaiser M. Khan and Ameena Mobeen. *In vivo* genotoxicity assessment of metallic nanoparticles (Fe₂O₃, Al₂O₃ and Cu) with micronucleus and comet assay. 6th International Conference on Nanotoxicology (Nanotoxicology 2012), September 4-7, 2012, Beijing, **China**.
9. Wei Ding, Michelle E. Bishop, Javed A. Bhalli, **Rakhshinda Sadiq**, Yan Li, Tao Chen. Tissue- specific genotoxicity of titanium dioxide nanoparticles evaluated using the *in vivo* Comet assay. 51st Annual Meeting of Society of Toxicology, March 7-11, 2012, San Francisco, CA, **USA**.

10. Yan Li, Javed A. Bhalli, **Rakhshinda Sadiq**, Wei Ding, Mason Pearce, Roberta A. Mittelstaedt, Robert H. Heflich and Tao Chen. Micronuclei in TK6 cells were increased by silver nanoparticles in a dose-, size- and surface coating-dependent manner. 51st *Annual Meeting of Society of Toxicology*, March 7-11, 2012, San Francisco, CA, **USA**.
11. Xinrong Chen, Yongbin Zhang, Jian Yan, **Rakhshinda Sadiq**, and Tao Chen. Regulatory role of miR-34a in mutation rate in human lymphoblast cells. 51st *Annual Meeting of Society of Toxicology*, March 7-11, 2012, San Francisco, CA, **USA**.

TRAININGS/WORKSHOPS

1. Two days' workshop on "Strengthening of Institutional Biosafety Committees by Training IBC Members on Responsible Research, Know Your Collaborator, and Due Diligence", organized by the Government College University, Faisalabad, and the Pakistan Council of Scientific and Industrial Research, Lahore, in collaboration with the Health Security Partners (HSP), USA, November 18-19, 2024
2. On day training workshop on Essentials of intellectual property rights (IPR) organized by department of Biotechnology, Biochemistry and Microbiology, Women University Mardan. November 11, 2024.
3. Two days' refresher training on "Bio risk Management" organized by Association for Biorisk Management Pakistan in collaboration with Health Security Partners and Biotechnology Laboratory-Women University Mardan, Khyber Pakhtunkhwa, Pakistan, January 18-19, 2023.
4. Three days training on "Biorisk Management" organized by Association for Biorisk Management Pakistan in collaboration with Health Security Partners and Biotechnology Laboratory- Women University Mardan, Khyber Pakhtunkhwa, Pakistan, 17-19 October 2021.
5. One-day workshop on "Organic Food and Health: Avenues of Innovation and Entrepreneurship", Organized by Pakistan Council for Science & Technology (PCST), Peshawar, 30 November, 2017.

PUBLICATIONS

1. Marhaba, Gul, F., Sawaira, Sajid, M., Wisal, S., Ali, M., Sharif, N., **Sadiq, R.**, & Bibi, A. (2026). Prevalence and clinical features of iodine deficiency induced hypothyroidism in district Mardan, Pakistan, *The Research of Medical Science Review*, 4, 376- 384.
2. Sharif, N., Bibi, A., **Sadiq, R.**, Ullah, I., Rauf, A., Arshad, M. T., Bashir, S., Zamir, H., Gull, S., Anwar, T., & Laryea, E. (2025): Computational identification of potent multi-target natural ligands for Alzheimer's disease therapeutics. *Scientifica*, 2025, 1-17.
3. Alam, M., Bibi, A. Ali, A., Khan, M. A., Sharif, N., **Sadiq, R.**, Wisal, S., Ali, M., Khan, K. N., & Lubna. (2025): A cross-sectional study on anemia prevalence, risk factors, nutritional practices and the efficacy of iron-fortified flour. *Journal of Medical & Health Sciences Review*, 2, 6840- 6850.
4. Saleem, A., **Sadiq, R.**, Serwar, M., Bibi, N., Asghar, K., Zari, A., Arzo, K., Begum, T., Gul, S., Akbar, M., Kanwal, S., Maleeha, S., & Saeed, I. (2025): Prevalence of malaria in blood smears of human population in district Mardan. *Indus Journal of Bioscience Research*, 3, 67-71.

5. **Sadiq, R.** Serwar, M., Saleem, A., Bibi, N., Arzo, K., Gul, S., & Asghar, K. (2025) Nature's Medicine: Probiotics and Prebiotic. In: Gut Microbiota and Holistic Health: The Role of Prebiotics and Probiotics, Eds. Adil, R. M., Salman, M., Mehmood, K., Saeed, Z, (Unique Scientific Publishers), 17-24.
6. Serwar, M., **Sadiq, R.**, Rana, U. A., Siddiqi, H. M., Adomkevicius, A., Coca-Clemente, J. A., Braga, F., & Hardwick, L. J. (2024): Porous nitrogen-doped carbons derived from poultry feathers for electrochemical capacitors. Journal of Physics and Chemistry of Solids, 196, 112393.
7. **Sadiq, R.**, Khan, Q. M., Mobeen, A., & Shah, A. (2021): Genotoxicity of aluminium oxide, iron oxide, and copper nanoparticles in mouse bone marrow cells. Archives of Industrial Hygiene and Toxicology. 72, 315-325.
8. Saeeda, S., Afzal, A., Yousaf, M. J., Ali, F., Noreen, S., Ahmad, K., **Sadiq, R.**, Sharif, N., Shah, A., & Ali, F. (2021): Influence of macronutrients, phytohormones and organic manure on *Gladiolus grandiflorus* L. growth, flowering and cormels. Bioscience Research, 18, 2652–2656.
9. Ali, F., Shakeel, M., Yousaf, M. J., Noreen, S., Ahmad, K., **Sadiq, R.**, Sharif, N., Saeeda, S., & Shah, A. (2021): Detection of dengue virus in suspected patients of 2013–2014 dengue outbreak in Swat, Khyber Pakhtunkhwa, Pakistan. Bioscience Research, 18, 2999–3014.
10. Jabeen, H., **Sadiq, R.**, Mushtaq, M., Zeb, N., Butt, S., Masood, F., Anwar, A., & Rasool, A. (2021): Production of quality compost from pennywort plant wastes. Pakistan Journal of Biochemistry and Biotechnology, 2, 248–260.
11. Zeb, S., Zeb, N., Bibi, Z., Jabeen, H., & **Sadiq, R.** (2020): Purification of amylase produced by *Thermophilic Bacillus sp.* TS9. National Journal of Biological Sciences, 1, 31- 49.
12. **Sadiq, R.**, Khan, Q. M., Mobeen, A., & Hashmat, A. J. (2014): *In vitro* toxicological assessment of iron oxide, aluminium oxide and copper nanoparticles in prokaryotic and eukaryotic cell types. Drug and Chemical Toxicology, 38, 152–161.
13. Li, Y., Bhalli, J. A., Yan, J., Pearce, M. G., **Sadiq, R.**, Cunningham, C., & Chen, T. (2013): Cytotoxicity and genotoxicity assessment of silver nanoparticles in mouse. Nanotoxicology, 8(1), 36–45.
14. Chen, X., Zhang, Y., Yan, J., **Sadiq, R.**, & Chen, T. (2013): miR-34 suppresses mutagenesis by inducing apoptosis in human lymphoblastoid TK6 cells. Mutation Research – Genetic Toxicology and Environmental Mutagenesis, 758, 35–40.
15. **Sadiq, R.**, Bhalli, J. A., Yan, J., Pearce, M. G., Li, Y., Mustafa, T., Watanabe, F., Pack, L. M., Biris, A. S., Khan, Q. M., & Chen, T*. (2012): Genotoxicity of TiO₂ anatase nanoparticles in B6C3F1 male mice evaluated using Pig-a and flow cytometric micronucleus assays. Mutation Research – Genetic Toxicology and Environmental Mutagenesis, 745, 65–72.

THESIS SUPERVISED

1. **MPhil (Biotechnology):** 10 students supervised to completion
2. **BS (Biotechnology) :** 20 undergraduate research projects supervised