

## Johra Zafarullah Khan

Highly-analytical scientific professional with enriched research and teaching experience in the fields of **Biotechnology**. Successful in leading research at the multi-institutional level and teaching variety of subjects at Bachelors and Masters level. Accredited for authoring high-profile publications to share research outcomes across scientific and public communities. Possesses refined analytical and critical thinking skills in revising strategies to meet evolving priorities and shifting needs. Equipped with blend of interpersonal and organisational abilities strengthened by positive attitude, patience, reliability, and diplomacy to work independently and with cross-functional teams across diverse educational settings.

### Major Strengths:

- Stellar track record of supervising multi-faceted projects as well as spearheading product development and device integration to design electrochemical biosensors for personalised health care.
- 10 years of experience in teaching at undergraduate and master level with a focus on science, technology, and engineering across prominent international universities.
- Proficient in advising students, offering lectures, and conducting practical sessions with explanation about the purpose of the experiment and the procedures that follow to seek results.
- Expertise in identifying critical improvement areas and interpreting assessment outcomes to improve students' overall academic performance.
- Proficient in developing durable relationships with senior management, cross-functional teams, and research subordinates to enable inter-disciplinary and application-oriented research.

### Major Areas of Research

Biotechnology, Nanotechnology, Pharmacokinetic, Toxicological, Electrochemical Biosensors, Nano Medicine, Drug Delivery

### Education and Credentials

#### Fellow of Higher Education Advance (UK) – Fellowship no- 232450

#### Doctor of Philosophy (PhD) in Biotechnology | 2008

Department of Biotechnology, Gauhati University, Assam, India

**Topic: Studies on screening and strain improvement of local cellulolytic fungi and kinetic studies of cellulose for process standardisation.**

#### Master of Science (M.Sc.) in Botany (Specialization- Microbiology) | 2004

Nagpur University, Maharashtra, India

#### Bachelor of Science (B.Sc.) General Science | 2001

C. C. S. Univ. Meerut (U P), India

### Career Profile

|  |                       |
|--|-----------------------|
| <b>Associate Professor of Molecular Biology</b> , College of Applied Medical Sciences, Majmaah University, KSA | <b>2014 – Present</b> |
| <b>Associate Professor of Molecular Biology</b> , Department of Applied Science, HIMT, India                   | <b>2009 – 2014</b>    |
| <b>Junior Research Fellow</b> , Department of Biotechnology, University of Gauhati, Assam, India               | <b>2006 – 2008</b>    |

### Research Experience

- Conducted in-depth research to explore mechanism of communicable and non-communicable diseases and drug delivery systems development.

- Spearheaded research teams, product development, and device integration to design electrochemical biosensors for personalised health care.
- Identified new funding opportunities for future research and partnered with experts, institutions, and clinics to promote research at clinical level.
- RT-qPCR
- Yeast two hybrid assay
- GUS assay
- Emasculation
- Colony PCR
- PCR
- Gel electrophoresis
- SDS-Page
- Animal Cell culture
- RNA isolation and purification procedure
- DNA isolation and purification procedure
- Molecular biology techniques
- Safe handling of common laboratory animal and plants
- Handling bioreactor
- Basic Computational biology
- Molecular cloning
- MTT Assay
- MS Office - Word, Excel, Power Point

### **Teaching Experience**

Instruct students and perform research focused on science, technology, and engineering across highly collaborative environments. Develop cost-effective biotechnologies, toxicological, electrochemical biosensors, nano medicine, and drug delivery for different communicable/non-communicable diseases and biomedical engineering. Guide and mentor students for senior design project. Currently serving as thesis advisor for four Master students.

- Offered numerous invited biotechnology-related lectures for personalised health care and educational development at various reputed institutions.
- Supported collaborators in course modification and quality development according to modern day research advancements.

### **Instructional Experience:**

- CPR-234 General Biology
- MDL-351 Principals of Biochemistry
- MDL-361 Medical Biochemistry
- MDL-474 Clinical Biochemistry
- MDL 476- Medical Genetics
- MDL- 482 Applied Clinical Biochemistry
- MDL 485- Cellular and Molecular Biology

### **Administrative Responsibilities**

- Faculty Representative Council
- Department Quality for NCAAA Committee
- Chemistry Course Coordinator
- Molecular Biology Course Coordinator

- Department Laboratory Committee

### Technical Skills

- Enzyme Linked Immunosorbent Assay (ELISA)
- Polymerase Chain Reaction (PCR)
- Molecular (Gene) Cloning
- Western Blotting
- Flow cytometry
- Tissue Culture
- Wet Lab

### Grants Contributions

#### **Study of the Gene Variants and Single Nucleotide Polymorphisms (SNPs) Associated with Migraine in Young Saudi Females.**

PI: Johra Khan, CO-PI: Lubna Al Asoom Ministry of Education, Saudi Arabia (2020 – 2022).

The study is conducted to study the SNPs related to migraine in female of Arab origin, The SNPs identification is targeted as future therapeutic drug targets. Study was conducted in Majmaah and Female campus and the institute of research and medical consultation (IRMC) of Imam Abdulrahman bin Faisal University (IAU), Dammam, Saudi Arabia.

#### **Microbial characterisation of E. coli and Salmonella having zoonotic potential from U.P' HIIMT, Department of Biotechnology.**

PI: Johra Khan, CO-PI: Mithun Rudrapal Ministry of Education, India (2009 – 2012)

Study of the antipathogenic properties of the probiotic organisms against diarrhoeogenic E.coli and toxigenic Salmonella and selection of potent isolates for formulating a consortium of probiotics for controlling the pathogens (in vitro and in vivo studies using Swiss albino mice).

#### **Processing, preservation, and storage of Eri-pupae for human consumption.**

PI: Johra Khan, Government of Assam, India (2006 – 2009)

The growing demand of Eri-pupae as a nutritive food item has led to undertake the study to standardise a method of processing and preservation as well as packaging the pupae to make them available in the market. As an initial step therefore, certain biochemical properties such as - total carbohydrate, protein (CFTRI, Mysore), lipid and total free amino acids were analyzed. From the fresh pupae altogether 18 amino acids could be detected by thin layer chromatography. Finally, the finished products (water activity 0.58) were made available in the market.

### Professional Membership and Committee Assignments

- Member of Royal Society of Biology, UK
- Member of Middle East Molecular Biology Society, UAE
- Member of Science Advisory Board, USA.
- Member in International Society of Global Health

### Professional License

- Basic Life Support (CPR) Provider (Saudi Heart Association) - Licence no- 00105110704629
- Basic Life Support (CPR) Provider (American Heart Association) - Licence no- 00105911203874
- Basic Life Support (CPR) Instructor (Saudi Heart Association) - Licence no- 215608247201

### Books

- Textbook of Biochemistry (M.Sc. B.T.) for the PTU.
- Textbook of Molecular Biology (M.Sc. B.T.) for the PTU.
- Laboratory Manual (Microbiology Lab Technology) for the Master skill (MUCH) Malaysia.

## Editor

- **Food and Agricultural Byproducts as Important Source of Valuable Nutraceuticals, Publisher- Springer, ISBN- 978-3-030-98759-6, 978-3-030-98760-2 (eBook); <http://doi.org/10.1007/978-3-030-98760-2>**

## Patents

**A smart gadget for rehabilitation of eyes, distinctly for dry eye disease; application no- 202221044760a**

## Peer Reviewed Publications

1. **Khan, Johra; Rasmi, Yousef; Kirboga, K Kubra; Ali, Ahmad; Rudrapal, Mithun; Patekar, R Rohan. Development of gold nanoparticle-based biosensors for COVID-19 diagnosis. Beni-Suef University Journal of Basic and Applied Sciences (2022). (Impact Factor- 0.25).**
2. **khan.Johra. Human Monkeypox-An Update. Indo Global Journal of Pharmaceutical Sciences. 12, 248-252.**
3. **Singla, K. Rajeev; Wang, Xiaoyan; Gundamaraju, Rohit; Joon, Shikha; Tsagkaris, Christos; Behzad, Sahar; Khan, Johra; Gautam, Rupesh; Goyal, Rajat; Rakmai, Jaruporn; Dubey, Ankit K.; Simal-Gandara, Jesus; Shen, Bairong. Natural products derived from medicinal plants and microbes might act as a game-changer in breast cancer: a comprehensive review of preclinical and clinical studies. Critical Reviews in Food Science and Nutrition (2022), 15; 1-14. (Impact Factor- 11.18).**
4. **Mithun Rudrapal, Siddhartha Maji, Shiv Kumar Prajapati, Payal Kesharwani, Prashanta Kumar Deb, Johra Khan, Randa Mohamed Ismail, Rani S Kankate, Ranjan Kumar Sahoo, Shubham J Khairnar, Atul R Bendale. Protective Effects of Diets Rich in Polyphenols in Cigarette Smoke (CS)-Induced Oxidative Damages and Associated Health Implications. Antioxidants (MDPI), 11(7); (2022). (Impact Factor- 7.6)**
5. **Ismail Celik, Mithun Rudrapal, Pradeep Kumar Yadalam, Sampath Chinnam, Thodur Madapusi Balaji, Saranya Varadarajan, Johra Khan, Shankargouda Patil, Sanjay G Walode, Dhiraj V Panke. Resveratrol and Its Natural Analogues Inhibit RNA Dependant RNA Polymerase (RdRp) of Rhizopus oryzae in Mucormycosis through Computational Investigations, Polycyclic Aromatic Compounds; (2022) (Impact Factor- 2.2)**
6. **Sadaf Jahan, Neeru Singh Redhu, Arif Jamal Siddiqui, Danish Iqbal, Johra Khan, Saeed Banawas, Mohammed Alaidarous, Bader Alshehri, Shabir Ahmad Mir, Mohd Adnan, Aditya Bhushan Pant. Nobiletin as a Neuroprotectant against NMDA Receptors: An In Silico Approach, (2022), Pharmaceutics (MDPI); (Impact factor-6.5)**
7. **Babatunde Oluwafemi Adetuyi, Oluwaseun Abraham Adebisi, Oluwatosin Adefunke Adetuyi, Olubanke Olujoke Ogunlana, Pere-Ebi Toloyai, Chukwuebuka Egbuna, Chukwuemerie Zedech Uche, Johra Khan, Obinna Chukwuemeka Uchenna Adumanya, Kingsley C Patrick-Iwuanyanwu. Ficus exasperata Attenuates Acetaminophen-Induced Hepatic Damage via NF- $\kappa$ B Signaling Mechanism in Experimental Rat Model, BioMed Research International (2022), (Impact factor- 2.6).**
8. **L Al Asoom, J Khan, A Al Sunni, N Rafique, R Latif, M Alabdali. A Pilot Mitochondrial Genome-Wide Association on Migraine among Saudi Arabians. International Journal of General Medicine (2022) 15, 6249 (Impact Factor- 2.1)**
9. **Rudrapal, Mithun, Neelutpal Gogoi, Dipak Chetia, Johra Khan, Saeed Banwas, Bader Alshehri, Mohammed A. Alaidarous, Umesh D. Laddha, Shubham J. Khairnar, and Sanjay G. Walode. Repurposing of Phytomedicine-Derived Bioactive Compounds with Promising Anti-SARS-CoV-2 Potential: Molecular Docking, MD Simulation and DrugLikeness/ADMET Studies. Saudi journal of biological sciences (2021). (Impact Factor- 4.2)**
10. **Rudrapal, Mithun, Johra Khan, Abdul Aziz Bin Dukhyil, Randa Mohammed Ibrahim Ismail Alarousy, Emmanuel Ifeanyi Attah, Tripti Sharma, Shubham Jagdish Khairnar, and Atul Rupchand Bendale. Chalcone Scaffolds, Bioprecursors of Flavonoids: Chemistry, Bioactivities, and Pharmacokinetics. Molecules 26, no. 23 (2021): 7177. (Impact Factor4.4)**
11. **Johra Khan, Mithun Rudrapal, Eijaz Ahmed Bhat, Ahmad Ali, Mohammad Alaidarous, Bader Alshehri, Saeed Banwas, Randa Ismail, Chukwuebuka Egbuna. Perspective insights of Bionanomaterials for the Treatment of Neurological Disorders, Front. Bioeng. Biotechnol. 9:724158. <https://doi.org/10.3389/fbioe.2021.724158> (Impact Factor- 5.89)**

12. Praveen Kumar P, Rizwaan Abbas Shaik, Mithun Rudrapal, **Johra Khan**, Mohammad A. Alaidarous, Shubham Jagdish Khairnar, Atul R. Bendale, Vaishali D. Naphade, Ranjan Kumar Sahoo, James H. Zothantluanga, Sanjay G. Walode, **Cerebroprotective Effect of Aloe Emodin: In Silico and In Vivo Studies. Saudi Journal of Biological Sciences, Accepted, 2021. (Impact Factor- 4.2)**
13. **Johra Khan**, Lubna I Al-Asoom, Maryam Khan, Ishani Chakrabartty, Sayequa Dandoti, Mithun Rudrapal, and James H. Zothantluanga. Evolution of RNA viruses from SARS to SARS-CoV-2 and diagnostic techniques for COVID-19: a review, **Beni-Suef University Journal of Basic and Applied Sciences**, 10;60, <https://doi.org/10.1186/s43088-021-00150-7>
14. Eijaz Ahmed Bhat, Nasreena Sajjad, Saeed Banawas, and **Johra Khan**. Human CALHM5: Insight in large pore lipid gating ATP channel and associated neurological pathologies, **Mol Cell Biochem**. 2021 Oct;476(10):3711-3718. <https://doi:10.1007/s11010-021-04198> Epub 2021 Jun 5. PMID: 34089472. **(Impact Factor- 3.28)**
15. Chukwuebuka Egbuna, Kingsley Patrick-Iwuanyanwu, Eugene N. Onyeike, **Johra Khan**, Bader Alshehri. FMS-like tyrosine kinase-3 (FLT3) inhibitors with better binding affinity and ADMET properties than sorafenib and gilteritinib against acute myeloid leukemia: in silico studies. **Journal of biomolecular Structure & Dynamics, Dyn. 2021 Sep 6:1-12.** doi: <http://doi:10.1080/s07391102.2021.1969286> Epub 2021 Sep 6. PMID: 34486940. **(Impact Factor- 2.6)**
16. **Johra Khan**, Correlation of being overweight and obese with liver function and metabolic syndrome in Saudi females. **Int J Clin Exp Med 2021;14(8):2201-2208.**
17. Chukwuebuka Egbuna, Vijaykumar K. Parmar, Jaison Jeevanandam, Shahira M. Ezzat, Kingsley C. Patrick-Iwuanyanwu, Charles Oluwaseun Adetunji, **Johra Khan**, Eugene N. Onyeike, Chukwuemerie Zedech Uche, Muhammad Akram, Mervat S. Ibrahim, Nihal M. El Mahdy, Chinaza Godswill Awuchi, Kaliyaperumal Saravanan, Habibu Tijjani, Uchenna Estella Odoh, Mohammed Messaoudi, Jonathan C. Ifemeje, Michael C. Olisah, Nebechi Jane Ezeofor, Chukwudi Jude Chikwendu, and Chinwe Gloria Ibeabuchi. Antihyperlipidemic Effects of Silver Nanoparticles Synthesised from Ventilago Maderaspatana Leaf Extract on Streptozotocin Induced Albino Rats, **Tropical Journal of Natural Product Research 5 (6), 1066-71,2021.**
18. **Johra Khan**, Prashanta Kumar Deb, Somi Priya, Karla Damián Medina, Rajlakshmi Devi, Sanjay G. Walode, and Mithun Rudrapal. Dietary flavonoids: cardioprotective potential with antioxidant effects and their pharmacokinetic, toxicological and therapeutic concerns. *Molecules*, <https://doi.org/10.3390/molecules26134021> **26 (4021), 2021. (Impact Factor- 4.4)**
19. Chukwuebuka Egbuna, Vijaykumar K. Parmar, Jaison Jeevanandam, Shahira M. Ezzat, Kingsley C. Patrick-Iwuanyanwu, Charles Oluwaseun Adetunji, **Johra Khan**, Eugene N. Onyeike, Chukwuemerie Zedech Uche, Muhammad Akram, Mervat S. Ibrahim, Nihal M. El Mahdy, Chinaza Godswill Awuchi, Kaliyaperumal Saravanan, Habibu Tijjani, Uchenna Estella Odoh, Mohammed Messaoudi, Jonathan C. Ifemeje, Michael C. Olisah, Nebechi Jane Ezeofor, Chukwudi Jude Chikwendu, and Chinwe Gloria Ibeabuchi, Toxicity of nanoparticles in biomedical application: nanotoxicology, **Journal of Toxicology, 2021,** <https://doi.org/10.1155/2021/9954443>
20. Yousef Rasmi, Xiaokang Li, **Johra Khan**, Tugba Ozer, Jane Ru Choi. Emerging point-of-care biosensors for rapid diagnosis of covid-19: current progress, challenges, and future prospects, **Analytical and bioanalytical chemistry, Vol 413, 4137-4159.** <https://doi.org/10.1007/s00216-021-03377-6> **(Impact Factor- 4.1)**
21. **Johra Khan**, Lubna Ibrahim Al Asoom, Ahmad Al Sunni, Nazish Rafique, Rabia Latif, Seham Al Saif, Noor B Almandil, Dana Almohazey, Sayed AbdulAzeez, J Francis Borgio. Genetics, pathophysiology, diagnosis, treatment, management, and prevention of migraine, **Biomedicine & Pharmacotherapy; Vol 139 May 2021.** <https://doi.org/10.1016/j.biopha.2021.111557> **(Impact Factor- 6.5)**
22. Maria Kletecka-Pulker, Himel Mondal, Dongdong Wang, R. Gonzalo Parra, Abdulkadir Yusif Maigoro, Soojin Lee, Tushar Garg, Eoghan J. Mulholland, Hari Prasad Devkota, Bikramjit Konwar, Sourav S. Patnaik, Ronan Lordan, Faisal A. Nawaz, Christos Tsagkaris, Rehab A. Rayan, Anna Maria Louka, Ronita De, Pravin Badhe, **Johra Khan**, and Atanas G. Atanasov et al., Impacts of biomedical hashtag-based twitter campaign: #dhpsp utilisation for promotion of open innovation in digital health, patient safety, and personalised medicine, **Current Research in Biotechnology; Vol 3 April 2021.** <https://doi.org/10.1016/j.crbiot.2021.04.004>
23. Dipak Kumar, Sadaf Jahan, Andleeb Khan, Arif Jamal Siddiqui, Neeru Singh Redhu, Wahajuddin, **Johra Khan**, Saeed Banwas, Bader Alshehri, Mohammed Alaidarous. Neurological manifestation of sars-cov-2 induced inflammation and possible therapeutic strategies against covid-19, **Molecular Neurobiology; March 2021.** <https://doi.org/10.1007/s12035-021-02318-9> **(Impact Factor- 5.59)**

24. Eijaz Ahmed Bhat, **Johra Khan**, Nasreena Sajjad, Ahmad Ali, Fahad M Aldakeel, Ayesha Mateen, Mohammed S Alqahtani, Rabbani Syed. SARS-CoV-2: insight in genome structure, pathogenesis and viral receptor binding analysis– an updated review, **International Immunopharmacology**; Vol 95, Issue 63; February 2021. <https://doi.org/10.1016/j.intimp.2021.107493>
25. Syed Nasir Ahamed, **Johra Khan**, Syed Rahamathulla, T.C. Venkateswarulu, S. Krupanidhu. Metabolic and molecular effects of edible oils on PPAR modulators in rabbit liver, **International Journal of Life Sciences**; Vol 8, Issue 2; February 2021.
26. Nasreena Sajjad, Mohammad Muzaffar Mir, **Johra Khan**, Irfan A Rather, Eijaz Ahmed Bhat. Recognition of TRAP with TRAFs: Current Understanding and Associated Diseases, **International journal of biochemistry & cell biology**; Vol 115; October 2019. <https://doi.org/10.1016/j.biocel.2019.105589> (Impact Factor- 5.08)
27. Amal Alotaibi, **Johra Khan**. Study of Hepatitis B Virus Infection and Its Genotypes in Tribal People, **Asian Journal of Pharmaceutical and Clinical Research**; Vol 10 Issue 4 April 2017 Page: 51-55. <https://doi.org/10.22159/ajpcr.2017.v10i4.14087>.
28. Amal Alotaibi, **Johra Khan**. Kinetic Study and Basal Media Modification of Cellulase Enzyme Production by Mutated Strain of *Aspergillus Fumigates* (Af1), **International Journal of Pharma and Bio Sciences (Af1)**, 2016 Jan; 7(1): (B) 193 – 200.
29. **Johra Khan**, Amal Alotaibi, Manab Deka. Effect of Colchicine Induced Mutation on Cellulase Enzyme Production by *Aspergillus Fumigatus*, **World Journal of Pharmaceutical Research**, Vol 4, Issue 06, 2015. 461-471.
30. Heavin Hannan, Nawal Al Yassin, Sara Aba Hussien, **Johra Khan**. Evaluation Microbiological Air Contamination in Al Majmaah University, **International journal of Science and Research**; March 2015, 4(3): 2141-2144.
31. **Johra Khan**, Rizvi Moattar Raza, and Manab Deka. Effect of UV and Colchicine on Cellulase Enzyme Production by *Aspergillus Terreus*, **Indian Journal of Applied Research**, Volume: 5 (2), 2015, 681-684.
32. **Johra Khan**, Manab Deka. Effect of UV Irradiation on Cellulase Production by *A. Fumigatus* Isolated from Agriculture Wastes; **Asian Journal of Microbiology, Biotechnology & Environmental Sciences**, 2008, 10(1): 123-126.

## Book Chapters

1. **Johra Khan**, Molecular Variants for HBsAg: Surface and Subtype, Molecular Variants for HBsAg: Surface and Subtype, Intechopen, 2020, Pages 1-12: <http://dx.doi.org/10.5772/intechopen.85282>.
2. **Johra Khan**, Yousef Rasmi. Computer-aided Design and Diagnosis Method for Cancer Detection, Book- Computer-aided Design for Biomedical Applications, Elsevier, Pages; 137- 152.
3. Gulzar Ahmed Rather, Saqib Hassan, Surajit Pal, Mohd Hashim Khan, Heshu Sulaiman Rahman and **Johra Khan**. Antimicrobial Efficacy of Biogenic Silver and Zinc Nanocrystals/Nanoparticles to Combat the Drug Resistance in Human Pathogens. Book Nanocrystals, Intechopen, 2021, Pages; 1-16. <http://dx.doi.org/10.5772/intechopen.99200>.
4. Chukwuebuka Egbuna, Muhammad Akram, Surajudeen Abiola Abdulrahman, Andrew G. Mtewa, Mithun Rudrapal, Kingsley C. Patrick-Iwuanyanwu, Saher Rahat, Iram Ghaffar, Amna Siddique, Jonathan C. Ifemeje, Michael C. Olisah, Mihnea-Alexandru Găman, Bui Thanh Tung, Chandan Shivamallu, and **Johra Khan**. Bactericidal Effects of Phytochemicals on *Mycobacterium leprae*, the Causative Agent of Leprosy, Book- Neglected Tropical Diseases and Phytochemicals in Drug Discovery, 271-277, 2021, Wiley, India, 350-376.
5. Muhammad Akram, Chukwuebuka Egbuna, Mehwish Iqbal, Zarrin Basharat, Mithun Rudrapa, Kingsley C. Patrick Iwuanyanw, and **Johra Khan**. Dracunculiasis (Guinea worm disease) and phytochemicals in drug discovery, Book; Neglected Tropical Diseases and Phytochemicals in Drug Discovery, 271-277, 2021, Wiley, India.
6. **Johra Khan**, Ahmad Ali, Praina Balyan, Eijaz A. Bhat. Role of *Nigella sativa* as immunomodulator. Book- Black seeds (*Nigella sativa*), Pages- 337-353, Springer Nature.
7. Praina Balyana, **Johra Khan**, and Ahmad Ali. Therapeutic potential of *Nigella sativa* in the prevention of aggregation and glycation of proteins. Book- Black seeds (*Nigella sativa*), Pages 337-353, Springer Nature. Pages 313-335.