

ASHOK KUMAR MANDAL

 ashokmandal@um.edu.my  + 977-9815832682

EDUCATION

Master of Medical Science by Research - Universiti Malaya, Malaysia
Expected Grade: Distinction (\approx 4.0 GPA; Full-time research)

May 2022- Jan 2025
[Thesis submitted]

Bachelor of Pharmacy - Sam Higginbottom University of Agriculture,
Technology and Sciences, India
Grade: 1st Division (78.64% \approx 3.99 GPA; 205 semester credits)

June 2015- June 2019

RESEARCH INTEREST

- Cardiometabolic Disorders
- Clinical Pharmacology
- Cell Signaling
- Epidemiology
- Vascular Physiology
- Pharmacognosy
- Evidence Based Medicine
- Nanodrug Delivery
- Proteomics
- Essential Oil
- Implementation Science
- Bioethics

RESEARCH NETWORK

Google Scholar

<https://scholar.google.com/citations?user=Q1HXdGAAAAJ&hl=en>

ORCID

<https://orcid.org/0000-0003-1210-4264>

ResearchGate

<https://www.researchgate.net/profile/Ashok-Kumar-Mandal>

Scopus

<https://www.scopus.com/authid/detail.uri?authorId=57220540948>

PUBLICATIONS

Research:

1. Farhan Mukhtar, Javed Iqbal, , Z. A., Muhammad Ayaz, Dr. Brijesh Sathian, Dr.Hala Albarqouni, Saeed Ur Rahman, Shah Hussain, Amir Sultan, Dr Jawed Iqbal, Iram Saba, Maoting Tang, & **Ashok Kumar Mandal**. (2024). Prevalence of Parental Stress Among Neonates Mother Admitted in Neonatal Intensive Care Unit (Nicu) of Tertiary Care Hospital: A Cross-Sectional Study. *Journal of Population Therapeutics and Clinical Pharmacology*, 31(2), 27-34. <https://doi.org/10.53555/jptcp.v31i2.4227>
2. **Mandal, A. K.**, Pandey, A., Pant, P., Sapkota, S., Yadav, P., & Bhandari, D. P. (2022). Formulation of Herbal Tea from Nepalese Medicinal Plants: Phenolic Assay, Proximate Composition and In-vivo Toxicity Profiling of Medicinal Plants with Nutritive Benefits. *Journal of Plant Resources*, 20(1), 139–149. <https://doi.org/10.3126/bdpr.v20i01.56603>
3. **Mandal, A. K.**, Paudel, S., Pandey, A., Yadav, P., Pathak, P., Grishina, M., Jaremko, M., Emwas, A.-H., Khalilullah, H., & Verma, A. (2022). Guava Leaf Essential Oil as a Potent Antioxidant and Anticancer Agent: Validated through Experimental and Computational Study. *Antioxidants*, 11(11), 2204. <https://doi.org/10.3390/antiox11112204>

4. **Mandal, A. K.**, Pandey, A., Sah, R. K., Baral, A., & Sah, P. (2021). In Vitro Antioxidant and Antimicrobial Potency of *Mimosa pudica* of Nepalese Terai Region: Insight into L-Mimosine as an Antibacterial Agent. *Evidence-Based Complementary and Alternative Medicine*, 2022(1), 6790314. <https://doi.org/10.1155/2022/6790314>
5. Sah, P., **Mandal, A. K.**, Saud, B., Yadav, S. K., Sah, S. K., Gyawali, M., & Karn, S. K. (2022). Knowledge, practices and compliance related to COVID-19 among Nepalese population in Province 2, Nepal. *Dialogues in Health*, 1, 100002. <https://doi.org/10.1016/j.dialog.2022.100002>
6. Phoolgen Sah, **Ashok Kumar Mandal**, Milan Gyawali, Mahasagar Gyawali. (2022). A Cross Sectional Study on Prescription Pattern and Combination Drug Therapy in Hypertension Among Patients Visiting Alka Hospital Kathmandu. *J Pharmaceut Res*, 7(1), 126-131. ISSN: 2573-962X

Review:

1. **Mandal, A. K.**, Sahoo, A., Almalki, W. H., Almuji, S. S., Alhamyani, A., Aodah, A., Alruwaili, N. K., Abdul Kadir, S. Z., Mandal, R. K., Almalki, R. A., Lal, J. A., & Rahman, M. (2024). Phytoactives for Obesity Management: Integrating Nanomedicine for Its Effective Delivery. *Nutrition Reviews*. <https://doi.org/10.1093/nutrit/nuae136>
2. Yadav, E., **Mandal, A. K.**, Sah, A. K., Poudel, S., Pathak, P., Khalilullah, H., Jaremko, M., Emwas, A. H., Yadav, P., & Verma, A. (2024). Exploring the Potential of Herbal Compounds as Autophagy Modulators in Alzheimer's Disease: A Comprehensive Review. *CNS & neurological disorders drug targets*, 10.2174/0118715273298025240905130205. Advance online publication. <https://doi.org/10.2174/0118715273298025240905130205>
3. Sahoo, Ankit, Khusbu Dwivedi, Waleed H Almalki, **Ashok Kumar Mandal**, Abdurrahman Alhamyani, Obaid Afzal, Abdulmalik Saleh Alfawaz Altamimi, et al. 2024. "Secondary Metabolites in Topical Infectious Diseases and Nanomedicine Applications." *Nanomedicine* 19 (13): 1191–1215. <https://doi.org/10.2217/nnm-2024-0017>
4. Rahman, M., Afzal, O., Ullah, S. N. M. N., Alshahrani, M. Y., Alkhatami, A. G., Altamimi, A. S. A., Almuji, S. S., Almalki, W. H., Shorog, E. M., Alossaimi, M. A., **Mandal, A. K.**, Abdurrahman, A., & Sahoo, A. (2023). Nanomedicine-Based Drug-Targeting in Breast Cancer: Pharmacokinetics, Clinical Progress, and Challenges. *ACS omega*, 8(51), 48625–48649. <https://doi.org/10.1021/acsomega.3c07345>
5. Sahoo, A., **Mandal, A. K.**, Kumar, M., Dwivedi, K., & Singh, D. (2023). Prospective Challenges for Patenting and Clinical Trials of Anticancer Compounds from Natural

- Products: Coherent Review. *Recent patents on anti-cancer drug discovery*, 18(4), 470–494. <https://doi.org/10.2174/1574892818666221104113703>
6. Dwivedi, K., **Mandal, A. K.**, Afzal, O., Altamimi, A. S. A., Sahoo, A., Alossaimi, M. A., Almalki, W. H., Alzahrani, A., Barkat, M. A., Almeleebia, T. M., Mir Najib Ullah, S. N., & Rahman, M. (2023). Emergence of Nano-Based Formulations for Effective Delivery of Flavonoids against Topical Infectious Disorders. *Gels*, 9(8), 671. <https://doi.org/10.3390/gels9080671>
 7. **Mandal, A. K.**, Sahoo, A., Dwivedi, K., Singh, R., & Kumar, V. (2022). Potential therapeutic application of biophenols – plants secondary metabolites in rheumatoid arthritis. *Critical Reviews in Food Science and Nutrition*, 63(27), 8900–8918. <https://doi.org/10.1080/10408398.2022.2062700>
 8. **Mandal, A. K.**, Katuwal, S., Tettey, F., Gupta, A., Bhattarai, S., Jaisi, S., Bhandari, D. P., Shah, A. K., Bhattarai, N., & Parajuli, N. (2022). Current Research on Zinc Oxide Nanoparticles: Synthesis, Characterization, and Biomedical Applications. *Nanomaterials*, 12(17), 3066. <https://doi.org/10.3390/nano12173066>
 9. Shrestha, D., Sharma, P., Adhikari, A., **Mandal, A. K.**, & Verma, A. (2021). A review on Nepalese medicinal plants used traditionally as Alpha-Amylase and Alpha-Glucosidase inhibitors against diabetes mellitus. *Current Traditional Medicine*, 7(5). <https://doi.org/10.2174/2215083807666210702144103>
 10. Sahoo, A., **Mandal, A. K.**, Dwivedi, K., & Kumar, V. (2020). A cross talk between the immunization and edible vaccine: Current challenges and future prospects. *Life Sciences*, 261, 118343. <https://doi.org/10.1016/j.lfs.2020.118343>

Book chapter

1. Dwivedi, K., **Mandal, A. K.**, Sahoo, A., Alam, K., & Rahman, M. (2023). Emergence of nano-based system for effective delivery of flavonoids against topical infectious disorders. *Nanostructured Drug Delivery Systems in Infectious Disease Treatment*, 395-409. <https://doi.org/10.1016/B978-0-443-13337-4.00014-8>
2. Sahoo, A., Yadav, P. K., **Mandal, A. K.**, Dwivedi, K., & Rahman, M. (2023). Key role of secondary metabolites in topical infectious disorders: Nanomedicine in its effective delivery. *Nanostructured Drug Delivery Systems in Infectious Disease Treatment*, 411-424. <https://doi.org/10.1016/B978-0-443-13337-4.00006-9>
3. Sahoo, A., **Mandal, A. K.**, Rahman, M., Dwivedi, K., & Alam, A. (2023). Onychomycosis with current treatment approaches: Emergence of niosomes in its effective treatment. *Nanostructured Drug Delivery Systems in Infectious Disease Treatment*, 167-182. <https://doi.org/10.1016/B978-0-443-13337-4.00005-7>
4. **Mandal, A.K.**, Poudel, M., Neupane, N.P., Verma, A. (2022). Phytochemistry, Pharmacology, and Applications of *Ocimum sanctum* (Tulsi). In: Masoodi, M.H., Rehman, M.U. (eds) *Edible Plants in Health and Diseases*. Springer, Singapore. https://doi.org/10.1007/978-981-16-4959-2_4

RESEARCH TECHNIQUES

Rat/Mice Experimentation

- Calorie Intake Monitoring
- Glucose and Cholesterol Measurement
- Oral Gavage
- Oral Glucose Tolerance Test
- Dietary Induced Obese and Hyperglycemic Model Development
- Anesthesia
- Euthanasia
- Organ Harvesting
- Blood Collection

Vascular Experimentation

- Organ Bath
- Wire Myography
- Small Resistance Artery Dissection
- Large Conduit Artery Dissection
- PVAT harvesting
- PowerLab handling (ADInstruments)

Proteomics

- Sample Preparation
- Data Processing and Analysis
- Pathway Enrichment Analysis
- Sample Digestion
- Gene Ontology Analysis

Molecular Technique

- Protein Quantification (BCA Assay)
- Microvolume Spectrophotometry
- Basic Western Blotting
- ELISA
- Immunohistochemistry (IHC)
- Immunofluorescence (IFC)

Natural Products Research

- Herbarium Preparation
- Extraction Of Essential Oil
- Enzyme Inhibition Activity
- Nanoparticle Green Synthesis
- Crude Extract Extraction
- Antioxidant Activity

- Total Phenolic Content Analysis
- Extract Concentration
- Total Flavonoid Content Analysis
- Acute Oral Toxicity Test

Computational Approach

- Biovia Discovery Studio
- Autodock Vina
- Chimera
- ADMET Analysis

Software

- Graphpad Prism
- SPSS
- R Studio (Basic)
- Getdata Graph Digitizer
- Rayyan
- Perseus Maxquant
- Origin
- Revman
- Covidence

Scientific Writing

- Grant Proposal Writing
- Review Article Writing
- Meta-Analysis
- Technical Report Writing

RESEARCH PROJECTS INVOLVEMENTS AND EXPERIENCES

Project 1

July 2022- Sep 2024

Department of Pharmacology, Faculty of Medicine, Universiti Malaya, Malaysia (**Masters' Project**)

Research supervisors: Dr. Sharifah Zamiah Binti Syed Abdul Kadir, Dr. Darmani Devi A/P Murugan

Title: The Potential Pharmacological Intervention of Des-Aspartate Angiotensin-I in Targeting Inflammation of Perivascular Adipose Tissue and Restoring Arterial Dilatation in Obese SD rat

- Honed **independent research skills** through designing **rat/mice obesity experiments** with minimal supervision

Outcome: Successfully carried out vascular experimentation using wire myography and organ bath across six obese and normal rats

- Applied **critical thinking** and **adaptability skills** through **experimental optimization** and **troubleshooting** during **wire myography** and **organ bath** experiments

Outcome: Adapted experimental protocols based on unexpected physiological responses and ensured 100% experiment success

- Demonstrated **advanced manual dexterity** and **attention to detail** via performing **Perivascular adipose tissue isolation**, **vasculature dissection** and **statistical analysis** of experimental data

Outcome: Achieved $\geq 90\%$ endothelial integrity across vascular reactivity experiments.

- Refined **leadership** and **mentoring skills** by co-supervising three undergraduate students in completing final year research projects

Outcome: One student accomplished her projects within time and was awarded bachelor in biomedical science, while two are still under my mentorship.

- Expanded **scientific research network** and **connections** by presenting at scientific conferences, symposia, and competitions
Outcome: Presented in two conferences and won a poster prize at the 2023 ACS Gii- ICCST7 Conference.

Project 2

April 2024- June 2024

Medical Humanities and Ethics Unit, Universiti Malaya, Malaysia
(Masters' Side Project)

Research Supervisors: Dr Nishakanthi Gopalan, Dr. Sharifah Zamiah Binti Syed Abdul Kadir

Title: Knowledge and Perception Toward Bioethics Among Health-Related Researchers: Evidence Synthesized Through Workshop

- Developed **Project planning** through **preparing and implementing research proposal** and **data collection tools**, which include questionnaires, consent forms, and discussion guides
Outcome: Designed questionnaires and discussions successfully identified the necessity of bioethics education to healthcare researchers.
- Enhanced **scientific communication** skills by **facilitating discussion groups** with 25 health related researchers (medical doctors, non-teaching and teaching staffs, postgraduate students) about informed consent, participant confidentiality, cultural sensitivity, adhering to ethical guidelines
Outcome: Increased engagement and potential for joint research initiatives among researchers of diverse disciplines
- Applied **ethical and scientific writing skills** via completing the ethical application and later submitting the study abstract to a conferences
Outcome: Study was ethically approved and accepted for oral presentation at FERCAP International Conference 2024
- Nurtured **analytical abilities** through **data anonymization and processing** of 25 participant data alongside data analysis using SPSS
Outcome: Assured that statistical test applied were relevant and unveils legit results.

Project 3

Aug. 2020-Jan.2021

Self-Directed Project **(Co-Principal Investigator)**

Title: Understanding the Knowledge and Compliance of Social Distancing, Use of Mask and Use of Sanitizer or Soap (SMS) Measures Against Covid-19 in Nepalese People of Province No. 2 (Madhesh Pradesh)

- Developed **critical thinking and technical writing** by preparing proposal, designing data quantitative surveys, and ethical approval application.

Outcome: Identified discrepancies in knowledge and compliance with COVID-19 preventive measures successfully acquiring ethical approval

- Acquired **project management and leadership** by facilitating a province-wide survey, overseeing eight data collectors from each district.

Outcome: Completed survey within six months

- Honed **public speaking and scientific presentation** skill by presenting proposal to an International NGO, Madhesi Association in America

Outcome: Awarded grant for conduction of this study

- Developed **epidemiological data analysis and reporting** while analyzing data using SPSS and compiling the final report

Outcome: Successfully presented findings to the funding agency

Project 4

Aug 2020-May 2022

Natural Product Research Laboratory, Nepal (**Project Leader**)

Project Director: Mr. Devi Prasad Bhandari

Title: Bioprospecting of Medicinal and Aromatic Plants (MAPs) of Nepal

- Acquired **phytochemical research skills** through **plant collection** alongside **extraction**, and **formulation of plant-based products** (herbal teas, toothpaste, mosquito repellent cream).

Outcomes: Published three research articles and developed prototypes of herbal toothpaste and mosquito repellent cream which were later launched by the Minister of Forests and Environment of Nepal

- Nurtured **leadership** through **leading a team** of three research assistants, and one lab technician acting as an authorized resource personnel

Outcomes: Successfully executed three projects within schedule and sufficiency of resources

- Refined **scientific reading and writing abilities** through carrying out **literature review** on medicinal and aromatic plant

Outcome: Published five narrative review articles and provided the lab of new research ideas and directions

- Improved **networking skills** via facilitating **collaborations** among Kathmandu University and Tribhuvan University professors
Outcome: Drove research into novel areas that were not feasible for a single institute to achieve
- Developed **management skills** through **completing lab procurements and liaising with suppliers** as per Nepal government purchasing guidelines
Outcome: Successfully installed a stability chamber in pharmacology lab and managed several procurements for smooth running of lab.
- Learned to **mentor** by **training 40 undergraduate students** in essential oil extraction, thin layer chromatography, in-vitro enzyme inhibition assay, and rodent handling.
Outcome: All students successfully completed and defended their final year thesis project

Project 5
June 2021-July 2021

Nepal Health Research Council, Ministry of Health and Population (MoHP), Nepal (**Field Researcher**)

Title: Situational assessment of antibiotics resistance in Kathmandu valley- A pilot study

- Refined **communication skills** through conducting survey using **questionnaires** at a community pharmacy
Outcome: Gained insight into situation of antibiotic resistance, and enhanced engaging skill with healthcare workers on research scope.

Project 6
Oct 2021-Dec 2021

Nepal Health Research Council, Ministry of Health and Population (MoHP), Nepal (**Field Researcher**)

Title: Seroprevalence and entomological study of Dengue and Scrub Typhus in Chitwan, Kaski and Dolakha of Nepal- A Pilot Study

- Gained **entomological techniques** through **adult mosquito capture, larvae collection, husbandry, and dengue vector identification**
Outcome: Successfully identified and collected dengue vector in a high-altitude region, raised community awareness about mosquito breeding prevention, and reared the collected larvae on study sites prior sending to laboratory at Kathmandu.
- Developed **field epidemiological skills** through conducting **questionnaires and blood collection** in mosquito sampled area.
Outcome: Contributed epidemiological data for underrepresented communities in Nepal

ACHIEVEMENTS

- 2022 – Ongoing **Universiti Malaya Scholarship Scheme (UMSS)** - Universiti Malaya
- Awarded a full-time graduate research assistantship (GRA)
- 2024 **Instructor** – 1st Malaysian Taiwan Forum of Evidence Based Medicine
- Trained 30 medical researchers and healthcare practitioner in conducting systematic review and meta-analysis
- 2023 **Winner of 2nd Best Poster Award** - ACS Gii- ICCST7 Conference, Malaysia
- Competed against 44 participants (National & International)
- 2023 **UM Research Bulletin Freelance Student Writer** – Research Services Division, Universiti Malaya
- Limited to 20 writers
 - Networked with UM researchers and wrote bulletin articles covering diverse research projects
 - Spotlitged two research projects:
-In Silico Magic in Drug Discovery: Quest for Dengue Therapeutics,(2023), UM Research Bulletin.
-From Concept to Creation: University Malaya Stellar Journey with cGMP-Standards Pilot Plant Set-up, (2023), UM Research Bulletin.
- 2015-2019 **COMPEX Scholarship** - Embassy of India, Kathmandu, Nepal
- Awarded a full scholarship to pursue undergraduate education in an Indian University
 - Recipients selected from a competitive nationwide entrance exam
 - Limited to only 12 recipients for Bachelor of Pharmacy program

CONFERENCE & SYMPOSIUM

- 24-27 Nov, 2024 24th FERCAP International Conference, Kathmandu, Nepal
Oral Presenter
Title: Necessity of Bioethics Training for Health Researchers and Volunteers Engaging in Community-Based Research
- 11-12 Sept, 2024 37th Malaysian Society of Pharmacology and Physiology (MSPP) Annual Scientific Meeting in conjunction with 9th Medical Research Symposium 2024, Kuantan, Pahang, Malaysia
Oral Presenter
Title: Investigation of the Influence of PVAT on the Pharmacological Potential of DAA-I in Regulating Mesenteric Arteries of Obese Rats.
- 26-28 Aug, 2024 Asia Pacific Delivery Science Conference (APDSC) 2024, Kuala Lumpur, Malaysia
Organizing Committee (Young Scientist Taskforce)
- 5-7 Aug, 2024 Implementation Science Summer Bootcamp 2024, Kuala Lumpur, Malaysia
Attendee

- 8-10 Dec, 2023 2023 American Chemical Society Global Innovation Imperatives (ACS Gii) & 2023 7th International Conference on Computation for Science and Technology (ICCST7), Kuala Lumpur, Malaysia
Poster Presenter
Title: In Silico Intervention of Des-Aspartate Angiotensin-1 as Potent Angiotensin II Type 1 Receptor Agonist (**2nd Best Poster Award**)
- 1 Nov, 2018 ACS Publications Forum Expanding Frontiers in Chemical Sciences in Partnership with Indian Academy of Science, Varanasi, India
Attendee
- 14-15 Sept, 2017 Nutrition in Disease and Wellness: Challenges in Health Care (NUTRICON-2017), Prayagraj, India
Poster Presenter
Title: A Coherent Exploration of *Ophiocordyceps sinensis*: Nutraceutical Fungus of Nepal Hilly Region

PROFESSIONAL EXPERIENCES

- Oct 2019 - Mar 2020 **Production Pharmacist** – SR Drugs Pvt. Ltd., Kathmandu, Nepal
- Develop **attention to detail** in dispensing active pharmaceutical ingredients and excipients for each batch manufactured while abiding to strict quality guidelines
 - Enhanced **organizational skills** through planning the duties of 100 employees while maintaining manufacturing records
 - Gained **regulatory compliance expertise** through upholding cGMP guidelines during pharmaceutical production
- Jul 2019 - May 2022 **Community Pharmacist (*Part-time*)** – Sadbhav Pharma Pvt. Ltd., Kathmandu, Nepal
- Developed **empathy** through active listening and objection handling while attending to customers
 - Improved **organizational skills** through stock and billing management

CERTIFICATION

- 2025 **Good Clinical Practice (GCP) Introduction E-Learning** – National Institute of Health and Care Research (NIHR) Research Delivery Network, UK
- 2024 **APRU Mini Certificate Training in Health Research Ethics**- Assoc of Pacific Rim Universities
- 2023 **Responsible Care and Use of Laboratory Rodents** - University of Cyberjaya, Malaysia
- 2022 **Human Research Protection Training [Exam ID: 6346658]** - AALAS Learning Library
- 2021 **Cannabis 101 - An introductory course on different aspects of cannabis** - Kanna Academy
- 2019 **Pharmacist Licensure examination [Registration No. G-3924]** - Nepal Pharmacy Council

WORKSHOPS & TRAININGS

- **Laboratory Safety Induction Training** - Occupational Safety and Health Policy Unit, Faculty of Medicine, Universiti Malaya

- **Molecular Docking and Dynamics Simulations Workshop: Basic Linux, GROMACS, AMBER, LAMMPS, & NAMD** - Mol Design Services, Universiti Malaya
- **Systematic Review and Meta-Analysis for Medicinal/Health Intervention** - Department of Pharmacology, Faculty of Medicine, Universiti Malaya
- **UMMC-MREC Ethics Application Workshop** - Universiti Malaya Medical Center, Medical Research Ethics Committee
- **Cell Culture Workshop** - FC-BIOS Sd. Bhd.
- **Training on Pharmacology & Phytochemistry** - Natural Product Research Laboratory, Thapathali, Kathmandu, Nepal

AFFILIATIONS, SKILLS, AND INTERESTS

Professional Association

- Nepal Pharmaceutical Association (NPA), Nepal
- Malaysian Society of Pharmacology and Physiology (MSPP), Malaysia

Languages

- English (Proficient)
- Hindi (Fluent)
- Nepali (Native)
- Maithili (Native)

Personal Interests

- Traveling
- Photography
- Scientific communications
- Hiking
- Reading about drug discovery
- Community outreach

STRENGTH

- Fast Learning
- Leadership
- Team Player
- Critical Thinking
- Independent Research
- Multi-Tasking

DECLARATION

I hereby declare that all information provided in my curriculum vitae is accurate as per my knowledge.