

DR. MUZAFFAR IQBAL M.Pharm., Ph.D.

Assistant Professor

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Educational Qualification

Course	Board/University	Dissertation title	Division (%), Year
Ph.D. (Pharmaceutical Medicine)	Jamia Hamdard, New Delhi, India	Determination of Interchangeability of Different Brands of Valsartan Formulations in Human Subjects Using Pharmacokinetic End-points	2008
Master of Pharmacy (Pharmacology)	-do-	Influence of Telmisartan, Aspirin, and Clopidogrel on Doxorubicin-induced Cardiotoxicity in Rats	74% -2004 With Class Honor
Bachelor of Pharmacy	-do-	-	68% - 2002

Research Expertise

- **Instrument operation:** Highly expertise in operating and trouble shooting of UHPLC MS/MS, HPLC with PDA, UV and Florescence detector, Spectrophotometer, Spectrofluorometer.
- **Bioanalytical method development and validation:** Development and validation of highly sensitive and robust assay of pharmaceutical products, new molecule entities (NCE) and plant active constituents in biological fluids (plasma, serum, urine, whole blood, tissue) by modern analytical technique (UHPLC-MS/MS) according to USFDA/EMA guideline. Sample preparation by techniques like protein precipitation, liquid liquid extraction and solid phase extraction. Implementation of greener approach in bioanalytical method development and validation
- **Pharmacokinetics and metabolism:** Application of in house developed bioanalytical method into pharmacokinetic study in human and experimental animals. Comparative bioavailability study of controlled release formulation with conventional formulation in experimental animal. Pharmacokinetic drug interaction study of conventional medicine with complementary and alternative medicine in experimental animal. In vitro drug metabolizing enzymes and transporters study in liver microsomes.
- **Bioavailability and bioequivalence research:** Supervision of comparative bioavailability and bioequivalence study of test products with innovators in healthy human volunteers for marketing authorization across the globe. Protocol and CRF writing, Screening of healthy volunteers, ICF presentation and execution of study as per SOP and GCP
- **Phase III clinical trials:** Study design, Protocol, Investigator Brochure and CRF writing. Site initiation, monitoring and close out of Phase III clinical trial as per SOP and GCP. CRF review, Source data verification, and Query resolution as per SOP and GCP. Drafting response of query raised by regulatory on clinical study
- **Biochemical pharmacology and toxicology:** Estimations of oxidative stress markers such as Glutathione Reductase (GR), Glutathione peroxidase (GPx), Catalase, Glutathione-S-Transferase (GST), lipid peroxidation. Lipid profile (Total cholesterol, HDL, TG).
- Expertise in experimental animal handling e.g. rabbit, rat and mice.
- **Biostatistics:** Well versed with basic Biostatistical analysis. Microsoft excel, Pharmacokinetic parameters calculation, Graph Pad, ANOVA, t-test.

Research Publications in ISI Indexed Journal

1. **Iqbal M***, Khalil NY, Alanazi AM, Al Rashood KA. A simple and sensitive high performance liquid chromatography assay with fluorescence detector for determination of canagliflozin in human plasma Anal. Methods, 2015, DOI: 10.1039/C5AY00074B [in press]
2. Ezzeldin E, Asiri YA, **Iqbal M**. Effects of Green Tea Extracts on the Pharmacokinetics of Quetiapine in Rats. Evid Based Complement Alternat Med. 2015 (2015), 615285, Pages 4. <http://dx.doi.org/10.1155/2015/615285>.
3. Bhat MA, **Iqbal M**, Al-Dhfyar A, Shakeel F. Carvone Schiff base of isoniazid as a novel antitumor agent: Nanoemulsion development and pharmacokinetic evaluation Journal of Molecular Liquids. 2015;203:111-119
4. Shakeel F, Haq N, **Iqbal M**, Alanazi FK, Alsarra IA. Measurement, Correlation, and Thermodynamics of Solubility of Isatin in Nine Different Green Solvents at (298.15 to 338.15) K. J. Chem. Eng. Data, [in press] DOI: 10.1021/je501036r
5. **Iqbal M***, Ezzeldin E, Al-Rashood KA, Shakeel F. A validated UPLC-MS/MS assay using negative ionization mode for high-throughput determination of pomalidomide in rat plasma. J Chromatogr B Analyt Technol Biomed Life Sci. 2015 Jan 14;983-984C:76-82.
6. **Iqbal M***, Ezzeldin E, Al-Rashood KA, Bajrai A A. A Simple and Fast UHPLC-MS/MS Assay for Rapid Determination of Vilazodone in Plasma Sample. Accepted in J. Anal. Toxicol. [in press]
7. **Iqbal M***, Bhat MA, Shakeel F. Development and validation of UHPLC-MS/MS assay for rapid determination of a carvone Schiff base of isoniazid (CSB-INH) in rat plasma: application to pharmacokinetic study. Accepted in Biomed. Chromatogr.[in press]
8. **Iqbal M***, Khalil NY, Imam F, Khalid Anwer M. A validated high-throughput UHPLC-MS/MS assay for accurate determination of rivaroxaban in plasma sample. J. Thromb. Thrombolysis. 2014 Aug 9. [in press].
9. **Iqbal M***, Ezzeldin E, Al-Rashood KA, Asiri YA, Rezk NL. Rapid determination of canagliflozin in rat plasma by UHPLC-MS/MS using negative ionization mode to avoid adduct-ions formation. Talanta. 2015; 132: 29–36.
10. Wani TA, **Iqbal M**, Darwish IA, Khalil NY, Zargar S. Development and validation of sensitive uplc-ms/ms based method for the estimation of crizotinib in human plasma. Dig. J. Nanomat. Biost. Vol. 2014; 9(2): 693 –704.
11. Al-Harbi NO, Imam F, Nadeem A, Al-Harbi MM, **Iqbal M**, Rahman S, Al-Hosaini KA, Bahashwan S. Protection against tacrolimus-induced cardiotoxicity in rats by olmesartan and aliskiren. Toxicol Mech Methods. 2014 Sep 23: 1-6. [in press]

12. Al-Harbi NO, Imam F, Al-Harbi MM, **Iqbal M**, Nadeem A, Sayed-Ahmed MM, Alabidy AD, Almukhallafi AF. Olmesartan attenuates tacrolimus-induced biochemical and ultrastructural changes in rat kidney tissue. *Biomed Res Int*. 2014;2014: 607246.
13. Al-Harbi NO, Imam F, Nadeem A, Al-Harbi MM, **Iqbal M**, Ahmad SF. Carbon tetrachloride-induced hepatotoxicity in rat is reversed by treatment with riboflavin. *Int Immunopharmacol*. 2014;21(2):383-8.
14. **Iqbal M***, Ezzeldin E, Wani TA, Khalil NY. Simple, sensitive and rapid determination of linifanib (ABT-869), a novel tyrosine kinase inhibitor in rat plasma by UHPLC-MS/MS. *Chem Cent. J*. 2014; 8(1):13.
15. Al-Harbi NO, Imam F, Al-Harbi MM, **Iqbal M**, Nadeem A, Al-Shahrah OA, Karashy HM, Al-Hosaini KA, Ahmed M, Bahashwar S. Treatment with aliskiren ameliorates tacrolimus-induced nephrotoxicity in rats. *J Renin Angiotensin Aldosterone Syst*. Apr 15 2014 (in press)
16. Wani TA, Khalil NY, Darwish IA, **Iqbal M**. Highly sensitive ultra-performance liquid chromatography/tandem mass spectrometry method for the determination of cinacalcet in human plasma. *Curr. Pharm. Anal*. 2014; 10 (1): 51-57.
17. **Iqbal M***, Ezzeldin E, Al-Rashood KA, Al-khamees KI, Khan RMA, Raish M, Anwer T. Simple and Rapid Determination of Zafirlukast in Plasma by Ultra-performance Liquid Chromatography Tandem Mass Spectrometric Method: Application into Pharmacokinetic Study in Rabbits. *Drug Research (Stuttg)*. 2014; 64(8):412-9.
18. **Iqbal M***, Alam A, Wani TA, and Khalil NY. Simultaneous determination of reserpine, rescinnamine and yohimbine in human plasma by ultra-performance liquid chromatography tandem mass spectrometry. *J Anal Methods Chem*. 2013; 2013 Article ID 940861
19. Anwer T, Sharma M, Gyas K, **Iqbal M**, Ali MS, Alam MS, Safhi MM, Gupta N. *Rhus coriaria* ameliorates insulin resistance in non-insulin-dependent diabetes mellitus (NIDDM) rats. *Acta Poloniae Pharmaceutica, Drug Research*. 2013;70(5): 861-867
20. Saleem S, Shaharyar MA, Khusroo MJ, Ahmad P, Rahman RU, Ahmad K, Alam MJ, Al-Harbi NO, **Iqbal M**, Imam F. Anticancer potential of rhamnocitrin 4'- β -D-galactopyranoside against N-diethylnitrosamine-induced hepatocellular carcinoma in rats. *Mol Cell Biochem* 2013;384(1-2):147-53.
21. Al-Jenoobi FI, Alam MA, Alkharfy KM, Al-Suwayeh SA, Korashy HM, Al-Mohizea AM, **Iqbal M**, Ahad A, Raish M. Pharmacokinetic interaction studies of fenugreek with CYP3A substrates cyclosporine and carbamazepine. *Eur J Drug Metab Pharmacokinet*. 2014; 39(2):147-53
22. Al-Jenoobi FI, Al-Suwayeh SA, **Iqbal M**, Alam MA, Al-Kharfy KM, Korashy HM, Al-Mohizea AM, Ahad A, Raish M. Effects of *Nigella sativa* and *Lepidium sativum* on Cyclosporine Pharmacokinetics. *Biomed Res Int*. 2013;2013:953520
23. Kazmi I, Afzal M, Rahman S, **Iqbal M**, Imam F, Anwar F. Antiobesity potential of ursolic acid stearoyl glucoside by inhibiting pancreatic lipase. *Eur J Pharmacol*. 2013; 709(1-3):28-36.

24. **Iqbal M***, Wani TA, Khalil NY, Darwish IA. Development and validation of ultra-performance liquid chromatographic method with tandem mass spectrometry for determination of lenalidomide in rabbit and human plasma. *Chem Cent J*. 2013; 7(1):7.
25. Haque N, **Iqbal M**, Alanazi FK, Alsarra IA, Shakeel F. Applying green analytical chemistry for rapid analysis of drugs: Adding health to pharmaceutical industry. *Arabian Journal of Chemistry*. Published online 12 Dec 2012. [in press]
26. Batolar LS, **Iqbal M***, Monif T, Khuroo A, Sharma PL. Bioequivalence and pharmacokinetic comparison of three metformin extended/sustained release tablets in healthy Indian male volunteers. *Arzneimittelforschung*, 2011;1: 1-5
27. Imam F, Md. Anwer MK, **Iqbal M**, Alam S, Khayyam KU, Sharma M. Tuberculosis: Brief overview and its shifting paradigm for management in India. *Int. J. Pharmacol*. 2010; 6 (6): 755-783.
28. **Iqbal M***, Khuroo A, Batolar LS, Tandon M, Monif T, Sharma PL. Pharmacokinetics and bioequivalence study of three oral formulations of valsartan 160 mg: a single-dose, randomized, open-label, three-period crossover comparison in healthy Indian male volunteers. *Clinical Therapeutics* 2010; 32(3):588-96.
29. **Iqbal M***, Dubey K, Anwer T, Ashish A, Pillai KK. Protective effects of telmisartan against acute doxorubicin-induced cardiotoxicity in rats. *Pharmacol. Rep.* 2008; 60(3):382-90.
30. Anwer T, Sharma M, Pillai KK, **Iqbal M**. Effect of *Withania somnifera* on insulin sensitivity in non-insulin-dependent diabetes mellitus rats. *Basic Clin Pharmacol Toxicol*. 2008; 102(6):498-503.

Research Publications in Non-ISI Indexed Journal

1. Alkharfy KM, Al-Jenoobi FI, Alam MA, Al-Mohizea AM, Al-Suwayeh SA, Korashy HM, Khan RM, **Muzaffar I**. *Lepidium Sativum* but not *Nigella sativa* Affects Carbamazepine Disposition in an Animal Model. *Drug Metab Lett*. 2013;7(1):47-51
2. **Iqbal M***, Alam P, Anwer MT. High Performance Liquid Chromatographic Method with Fluorescence Detection for the Estimation of Thymoquinone in *Nigella sativa* Extracts and Marketed Formulations. 2013; 2: 655 doi:10.4172/scientificreports.655
3. **Iqbal M***, AL-Rashood KA. Development and full validation of a quantitative assay for the determination of valsartan in human plasma and its application for bioequivalence study. *Clinical Research and Regulatory Affairs*. 2011; 28 (1): 7-13
4. **Iqbal M***. Clinical Perspective on the Management of Hypertension. *Indian Journal of Clinical Medicine*. 2011; 2: 1-17

5. Gill TK, Agrawal AR, Iqbal M*, Monif T, Sharma PL. Generic Substitution and Bioequivalence of Sodium Valproate at Steady-state in Healthy Volunteers. Clinical Research and Regulatory Affairs 2008, 25 (3) 183-195

Research Grants and Supports

- Project submitted to KACST for March 2014 competition as Principal Investigator. *Flavonoid-mediated modulation of the CYP3A enzyme and P-glycoprotein transporter: Potential effects on the bioavailability and disposition of tyrosine kinase inhibitors* (Code: 13-MED1168-02-R)
- Working on Research Group Project No. RGP-VPP-203.
- Worked as Research Assistance for Project no. BIO1046-02-10

Administrative and Scientific Activities

- Established bioavailability laboratory at college of Pharmacy, King Saud University, Riyadh
- Designed and prepared the standard operative procedure (SOPs) for bioavailability laboratory at college of Pharmacy, King Saud University, Riyadh
- Member of editorial board of Journal of Geriatric Cardiology and Austin Journal of Pharmaceutical and Analytical Chemistry
- Reviewer for scientific peer review Journals
 - *Biomedical Chromatography*
 - *Basic and Clinical Pharmacology Toxicology*
 - *Pharmacological Research*
 - *Clinical Research and Regulatory Affairs*
 - *Journal of Pharmacy and Pharmacology*
- Prepared Checklist on “Quality Review of Summary of Products Characteristics for Biological products” for Drug Controller General of India.
- Life Member of the Indian Pharmacological Society

Awards and Achievements

- Awarded financial grant from Ministry of Higher Education, Saudi Arabia for oral presentation in **2nd World Congress on Bioavailability & Bioequivalence 2011-Pharmaceutical R&D Summit Dates: 6-8 June, 2011, Las Vegas USA**
- Awarded **GOLD MEDAL** in VII convocation (14th Jan 2005) for securing first position in merit list in Master of Pharmacy.
- Qualified **Graduate Aptitude Test in Engineering 2002 (GATE)** with **96.17** percentile conducted by I.I.Sc. Bangalore (A.I.R. **0169**).
- Awarded Senior Research Fellowship (SRF) by Ranbaxy Research Laboratory during the period of Ph.D.
- Awarded MHRD Fellowship by UGC during the period of Master of Pharmacy.
- First prize with merit certificate for securing 1st position in M. Pharmacy Ist semester.

Workshops and Conferences

- **Oral presentation in 2nd World Congress on Bioavailability & Bioequivalence 2011-Pharmaceutical R&D Summit Dates: 6-8 June, 2011, Las Vegas USA**
- One week “National Workshop on Clinical Pharmacology” from February 19-24, 2007, held at Department of Pharmacology P.G.I.M.E.R. Chandigarh.
- Symposium on “Promotion of Pharmacovigilance in India” organized by Department of Pharmacology, AIIMS, New Delhi.
- International Symposium on “Herbal Drug Research and Therapy” organized by Vallabhbhai Patel Chest Institute University of Delhi.
- A 3-day workshop on GCP and clinical research organized by MACR Department, Ranbaxy Research Laboratories, Gurgaon.
- Guiding Principal For Pharmacist HIV/ AIDS in India conducted by Indian Pharmaceutical Association, Delhi branch, Jamia Hamdard.
- Personal & Professional Enlightenment for Pharmacist conducted by Delhi Pharmaceutical Trust at Indian Habitat Centre, New Delhi-110 003

Skills and Languages Known

- Awareness of different regulatory agencies guidelines like US FDA ,UK MHRA / UK MCA, TGA , ICH
- Proficient with MS-windows, MS-office, IMS. Biostatistics and expertise in Literature Searc
- Proficient in English, Hindi and Urdu, both written and spoken.