



College of Pharmacy

Research > Drug Formulations, Analysis and Characterization Group

Drug Formulations, Analysis and Characterization Group

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Research areas

- Targeted drug delivery
- Drug formulations and in vivo and in vitro testing
- Physico-chemical characterization of drug
- Stability testing
- Development of analytical methods

Research interest

Our research focus on:

- Targeted drug delivery including particle size reduction and drug-carrier loading studies.
- Drug formulations and in vivo and in vitro testing, which involve preparation of dosage forms and testing drug products performance in vitro and in mice.
- Physico-chemical characterization of drugs via determining particle size, surface area and theoretical and experimental partition coefficient of drugs.
- Stability testing including different formulation and drug products are studied in terms of their stability in environmentally controlled chamber
- Development of analytical methods via using alternative or innovative analytical techniques for analyzing existing drugs/products and newly synthesized ones.

Research facilities

- Well-equipped pharmaceutical technology lab.
- HPLC
- FTIR Absorption Spectroscopy
- Atomic Absorption Spectroscopy

Publications

1. Al Hanbali O, Khan H, **Sarfraz M, Mosab Arafat**. Transdermal patches: Design and current approaches to painless drug delivery. *Acta Pharm* 2019; 69 (1):1 - 19. "**Croatian Pharmaceutical Society and Slovenian Pharmaceutical Society**"
2. Ftikhar S, Saqib A, Sarwar MR, **Sarfraz M, Mosab Arafat**, Shoaib QU. Capacity and willingness to use information technology for managing chronic diseases among patients: A cross-sectional study. *PLoS ONE* 2019;14(1): e0209654 "**USA**"
3. Khalid N, **Sarfraz M, Mosab Arafat**, Akhtar M, Löebenber R, Rahman N. Nano-sized Droplets of Self-emulsifying System for Enhancing Oral Bioavailability of Chemotherapeutic Agent VP-16 in Rats: A Nano Lipid Carrier for BCS Class IV Drugs. *J Pharm Pharm Sci* 2018; 21 (1): 398 - 408. "**Canadian Society for Pharmaceutical Sciences**"

4. Othman A Al Hanbali, Rania Hamed, **Mosab Arafat**, Youssef Bakkour, Hisham Al-Matubsi, Randa Mansour, Yazan Al-Bataineh, Mohammad Aldhoun, **Muhammad Sarfraz**, Abdel Khaleq Yousef Dardas. [Formulation and evaluation of diclofenac controlled release matrix tablets made of HPMC and Poloxamer 188 polymer: An assessment on mechanism of drug release](#). *Pak J Pharm Sci* 2018; 31: 1 (Suppl), p 345-351.
5. Maira Faizullah, Nisar-Ur-Rahman, Muhammad Ihtesham Umar, **Mudassir Anwar**, **Muhammad Sarfraz**. A cross-sectional study on knowledge, attitude and practices of medical doctors towards antibiotic prescribing patterns and resistance in Khyber Pakhtun Khawah. *Journal of Applied Pharmaceutical Science*; December 2017, Vol. 7 (12), pp. 038-046,
6. Kamal T, **Sarfraz M**, **Mosab Arafat**, Mikov M, Rahman N. Cross-linked guar gum and sodium borate based microspheres as colon-targeted anticancer drug delivery systems for 5-fluorouracil. *Pak J Pharm Sci* 2017; 30: 6 (Suppl), 2329-2336
7. **Mosab Arafat**, **Muhammad Sarfraz**, Kirchhoefer C, Mikov M., Löbenberg R. Dual Effect of Bile Salts in Nanocarriers: Counteracting Gastrointestinal Lysis and Enhancing The Oral Bioavailability of BCS Class III Drug. *The Americana Association of Pharmaceutical Scientists Journal*. AAPS Annual Meeting and Exposition. November 12-15, 2017. San Diego, California, USA.
8. **Mosab Arafat**, Kirchhoefer C, Mikov M, Sarfraz M, Löbenberg M. Nanosized liposomes containing bile salt: a vesicular nanocarrier for enhancing oral bioavailability of BCS class III drug. *J Pharm Pharm Sci* 2017; 20: 305-318. DOI: 10.18433/J3CK88.
9. **Mosab Arafat**, Zaha'a Ahmed, Osama Arafat. Comparison Between Generic Drugs and Brand Name Drugs From Bioequivalence and Thermoequivalence Prospective. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2017; 9 (6): 1-4.
10. **Mosab Arafat**, The effect of intestinal bile on the stability of lipid-based vesicular system used as oral drug carriers. *Glob Drugs Therap* 2016 (2)1:1-2: DOI: 10.15761/GDT.1000109
11. **Mosab Arafat**, Cathrin Kirchhoefer, Momir Mikov. Mixed Micelles Loaded with Bile Salt: An Approach to Enhance Intestinal Transport of the BCS Class III Drug Cefotaxime in Rats. *European Journal of Drug Metabolism and Pharmacokinetics*. 2016, 42:1-11. DOI: 10.1007/s13318-016-0375-9
12. **Mosab Arafat**, Zaha'a Ahmed, Momir Mikov. Determination of Nifedipine in Rat Plasma Using HPLC-UV Detector: A Simple Method for Pharmacokinetics and Oral Bioavailability Studies. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2016; 8 (8): 98-102.
13. **Mosab Arafat**. Approaches to Achieve An Oral Controlled Release Drug Delivery System Using Polymers: A Recent Review. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2015; 7 (7): 16-21.
14. **Moawia M. Al-Tabakha**. Future prospect of insulin inhalation for diabetic patients: The case of Afrezza versus Exubera. *J Control Release*. 2015; 215 (10): 25-38. DOI: 10.1016/j.jconrel.2015.07.025.
15. Hamad IM, Arida Al, **Al-Tabakha MM**. Effect of the lubricant Magnesium Stearate on Changes of Specific Surface Area of Directly Compressible Powders Under Compression. *Jordan Journal of Pharmaceutical Sciences*. 8(1): 21-33, 2015.

16. **Al-Tabakha MM**, Arida Al, **Fahelbom KMS**, Sadek B, Saeed DA, **Abu Jarad RA**, Jawadi J. Influence of capsule shell composition on the performance indicators of hypromellose capsule in comparison to hard gelatin capsules. *Drug Development and Industrial Pharmacy*. 2015; 41(10): 1726–1737. DOI: 10.3109/03639045.2014.1002409.
17. **Mosab Arafat** , Svetlana Golocorbin Kon, Momir Mikov (2015). The Measurement of Cefotaxime Sodium in Rat Plasma After Oral Administration: A Sensitive HPLC-UV Method. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2015; 7 (4) 343-346.
18. **Al-Tabakha MM**, Arida Al, **Fahelbom KMS**, Sadek B, **Abu Jarad RA**. Performances of New Generation of Delayed Release Capsules. *Journal of Young Pharmacists*. 2015; 7(1): 36-44. DOI:[10.5530/jyp.2015.1.7](https://doi.org/10.5530/jyp.2015.1.7)
19. **Mosab Arafat** (2014). Simple HPLC Validated Method for Determination of Diltiazem Hydrochloride in Human. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2014; 6 (9): 213-216.
20. **Mosab Arafat**, Aisha Salam, Osama Arafat. The Association of Type 2 Diabetes with Obesity and Other factors: In Multinational Community. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2014; 6 (9) 257-260.
21. **Al-Tabakha MM**. HPMC Capsules: Current Status and Future Prospects. *Journal of Pharmacy and Pharmaceutical Sciences*. 13(3): 428-442, 2010. DOI: [10.4103/0250-474X.42968](https://doi.org/10.4103/0250-474X.42968)
22. Muhammad Rehan, Anum Saqib, Tayyab Riaz, Haleema Aziz, **Mosab Arafat**, Hamna Nouman. Attitude, perception, willingness, motivation and barriers to practice-based research: A cross-sectional survey of hospital pharmacists in Lahore, Punjab, Pakistan. **PloS one** 2018;13 (9), e0203568

Conferences

1. **Mosab Arafat**, C. Kirchhoefer, Muhammad Sarfraz, Raimar Löbenberg. Study the Effect of Physiological Fluid on Vesicles Membrane Stability of Liposomes containing Bile Salts using Calcein as a Marker for Vesicles Leakage. *The Americana Association of Pharmaceutical Scientists Journal*. AAPS Annual Meeting and Exposition. November 4-7, 2018. **Washington DC, USA**.
2. **Mosab Arafat**, Cathrin Kirchhoefer, Momir Mikov, **Muhammad Sarfraz**, Raimar Löbenberg. The enhancement of the poor oral bioavailability of cefotaxime sodium using nano-mixed micelles formulation. *Canadian Society for Pharmaceutical Sciences*. 2018 CSPS Annual Symposium. May 22 – 25, **2018. Toronto, Canada**.
3. **Muhammad Sarfraz**, Nayab Khalid, **Mosab Arafat**, Muhammad Akhtar, Nisar-Ur-Rahman, Raimar Löbenberg. Nano-sized Droplets of Self-emulsifying System for Enhancing Oral Bioavailability of Etoposide in Rats. *Canadian Society for Pharmaceutical Sciences*. 2018 CSPS Annual Symposium. May 22 – 25, **2018. Toronto, Canada**.
4. **Mosab Arafat**, **Muhammad Sarfraz**, Kirchhoefer C, Mikov M., Löbenberg R. Dual Effect of Bile Salts in Nanocarriers: Counteracting Gastrointestinal Lysis and Enhancing The Oral Bioavailability of BCS Class III Drug. *The Americana Association of Pharmaceutical Scientists Journal*. AAPS Annual Meeting and Exposition. November

12-15, 2017. San Diego, **California, USA.**

5. **Mosab Arafat.** The application of nanotechnology on drug delivery systems. Nanotechnology and Materials ScienceWorld Congress and Expo, 13th – 15th April 2015, Dubai, United Arab Emirates.
6. Moawia Al-Tabakha, **Khairi Fehelbom**, Dima Said and **Rami Abu Jarad.** Initial Disintegration of “Vegetable” Capsules and Hard Gelatin Capsules: *In Vitro* Comparison Study. 12-14 of March, 2012 (Dubai International Pharmaceuticals & Technologies Conference & Exhibition).
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