



College of Pharmacy

Research Groups > Drug Formulations, Analysis and Characterization Group

Drug Formulations, Analysis and Characterization Group

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- [Prof. Mohammad Hudaib](#)
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- [Dr. Muhammad Safraz](#)
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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.
- Central Research lab (e.g. HPLC, FTIR Absorption Spectroscopy, Atomic Absorption Spectroscopy)

Publications

1. R. Jebarah, M. Hudaib, Y. Bustanji, R. Al-Abbassi, N. Alhourani, V. Kasabri. Essential oil composition and antiproliferative potential of the aerial parts of *Majorana syriaca* (L. Rafi): An aromatic essential oil bearing ethnomedicinal herb from Jordan. *TEOP (JEOBP)*, In Press (2019).
2. SM. Aleidi, E. Shayeb, J. Bzour, EY. Abu-rish, M. Hudaib, S. Al Alawi, Y. Bustanji. Serum level of insulin-like growth factor-I in type 2 diabetic patients: impact of obesity. *Hormone Molecular Biology and Clinical Investigation*, DOI: <https://doi.org/10.1515/hmbci-2019-0015>, Published Online: 09-08-2019 (2019).
3. Bostanudin MF, Arafat M, Sarfraz M, Górecki DC, Barbu E. Butylglyceryl Pectin Nanoparticles: Synthesis, Formulation and Characterization. *Polymers* 11 (5), 789,

2019.

4. Al Hanbali O, Khan H, Sarfraz M, Arafat M. Transdermal patches: Design and current approaches to painless drug delivery. *Acta Pharm* 2019; 69 (1):1 - 19. "Croatian Pharmaceutical Society and Slovenian Pharmaceutical Society"
5. 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"
6. 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"
7. 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.
8. 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,
9. 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
10. Mosab Arafat, Muhammad Sarfraz, Kirchhoefer C, Mikov M., Löebenber 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.*
11. Mosab Arafat, Kirchhoefer C, Mikov M, Sarfraz M, Löebenber 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.
12. 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.
13. 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
14. 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
15. 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.

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18. Hamad IM, Arida AI, 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.
19. Al-Tabakha MM, Arida AI, Fafelelbom 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.
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23. 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.
24. 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
25. 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

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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

Löebenbergr. 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 Löebenbergr. 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., Löebenbergr 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**.
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