



## College of Pharmacy

Research Groups > Drug Delivery and Pharmaceutical Technology Group

## Drug Delivery and Pharmaceutical Technology Group

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- [Dr. Khairi Mustafa](#)
- [Dr. Muhammad Sarfraz](#)
- [Dr. Mohammad Bostanudin](#)
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## Research areas

- Control release drug delivery system
- Self-emulsifying drug delivery system
- Synthesis and fully characterize a range of polysaccharides-based nanoparticles used as drug delivery systems
- In vitro drug release evaluation
- Comparison studies between generic and brand-name medications
- Pharmacokinetic and in silico assessments using GastroPlus® modeling and simulation software
- HPLC development methods

## Research funding

1. PI: Mosab Arafat, Grant awarded: 2018, Agency awarded: Al Ain University, Grant Amount of AED 400,000 equivalent to (~110,000 USD).
2. Co-pi: Mosab Arafat, Grant awarded: Jan 2020, Proposal no. 1270, (Research Start-up grant no: 700032854 ), Agency awarded: UAEU. Project duration: 2 years, Grant Amount of AED 400,000 equivalent to (~110,000 USD).
3. PI: Mohammad Bostanudin, Grant awarded: 2020, Agency awarded: Al Ain University, Grant Amount of AED 20,000 equivalent to (~5,500 USD).
4. PI: Arshad Mahmood, Grant awarded: 2020, Agency awarded: Al Ain University, Grant Amount of AED 25,000 equivalent to (~6,800 USD).

## Research facilities

- Automated dissolution sampling apparatus.
- Licensed GastroPlus® modeling & simulation software
- Tablet quality control testing equipment
- Tablet punching machines
- Sharing central research lab equipment (e.g. HPLC, FTIR Absorption Spectroscopy, Atomic Absorption Spectroscopy)

## Publications

1. Mosab Arafat, Khairi M Fafelelbom, Muhammad K Sarfraz, Mohammad F Bostanudin, Qurat-ul-Ain Sharif, Anna Esmaeil, Othman A AL Hanbali, Salahdein Aburuz.  
Comparison between branded and generic furosemide 40 mg tablets using thermal

- gravimetric analysis and Fourier transform infrared spectroscopy. *Journal of Pharmacy and Bioallied Sciences*. 12 (4), 489-498, 2020
2. Memoona Rashid, Muhammad Sarfraz, Mosab Arafat, Amjad Hussain, Nasir Abbas, Muhammad Waqas Sadiq, Muhammad Fawad Rasool & Nadeem Irfan Bukhari. Prediction of lisinopril pediatric dose from the reference adult dose by employing a physiologically based pharmacokinetic model. *BMC Pharmacology and Toxicology*. 21(1):56, 2020
  3. Khairi M. S. Fafelelbom, Moawia M. M. Al-Tabakha, Nermin A. M. Eissa, Dana Emad Eddin Obaid, Sadik Sayed. Development and Validation of an RP-HPLC Analytical Method for Determination of Lisinopril in Full and Split Tablets. *Research Journal of Pharmacy and Technology*. 13(6): 2647-2652, 2020
  4. Shujaat Ali Khan, Wajeeha Azam, Akram Ashames, Khairi Mustafa Fafelelbom, Kaleem Ullah, Abdul Mannan, Ghulam Murtaza.  $\beta$ -Cyclodextrin-based (IA-co-AMPS) Semi-IPNs as smart biomaterials for oral delivery of hydrophilic drugs: Synthesis, characterization, in-Vitro and in-Vivo evaluation. *Journal of Drug Delivery Science and Technology*. 60: 101970, 2020
  5. Mohammad F. Bostanudin Noor S. Muhamad Noor Shariza Sahudin Azwan Mat Lazim Suk Fei Tan Md Zaidul I. Sarker. Investigations of amphiphilic butylglyceryl functionalized dextran nanoparticles for topical delivery. *Journal of Applied Polymer Science*. 2020. <https://doi.org/10.1002/app.50235>
  6. Mohammad F Bostanudin, Aikaterini Lalatsa, Dariusz C Górecki, Eugen Barbu. Engineering butylglyceryl-modified polysaccharides towards nanomedicines for brain drug delivery. *Carbohydrate Polymers*. 236, 116060, 2020
  7. Hammad Saleem, Muhammad Sarfraz, Kashif Maqbool Khan, Muhammad Aijaz Anwar, Gokhan Zengin ORCID Icon, Irshad Ahmad. UHPLC-MS phytochemical profiling, biological propensities and in-silico studies of *Alhagi maurorum* roots: a medicinal herb with multifunctional properties. *Drug Dev Ind Pharm*; 46(5):861-868, 2020
  8. Irfan Pervaiz, Hammad Saleem, Muhammad Sarfraz, Muhammad Imran Tousif, Umair Khurshid, Saeed Ahmad, Gokhan Zengin, Kouadio Ibrahime Sinan, Marcello Locatelli et al., Multidirectional insights into the phytochemical, biological, and multivariate analysis of the famine food plant (*Calligonum polygonoides* L.): A novel source of bioactive phytochemicals. *Food Research International*. 137, 109606. 2020
  9. Bostanudin MF, Arafat M, Sarfraz M, Górecki DC, Barbu E. Butylglyceryl Pectin Nanoparticles: Synthesis, Formulation and Characterization. *Polymers* 11 (5), 789, 2019
  10. Al Hanbali O, Khan H, Sarfraz M, Arafat M. Transdermal patches: Design and current approaches to painless drug delivery. *Acta Pharm*. 69 (1):1 - 19. 2019

## Conferences

1. Mosab Arafat, C. Kirchhoefer, Muhammad Sarfraz. Studying vesicles membrane stability of nano-particles containing bile salts using calcein as a marker for stability. 4th International Conference on Nanomaterials, Nanodevices, Fabrication and Characterization (ICNNFC'19). April 14-16, 2019. Rome, Italy.

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