

NU Core Research Areas & Groups

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COLLEGE OF ENGINEERING

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COLLEGE OF PHARMACY - CORE RESEARCH AREAS & GROUPS

Core Research Area	1 Development (Formulation and evaluation) of drug delivery systems(DDDS)	
About the Research	<p>The development of new drug delivery systems is a global need. The conventional formulations are having some drawbacks as not achieving the targeted delivery or showing more side effects due to higher doses. New drug delivery formulations involve the use of approaches that provide better health outcomes in terms of dosage reduction, targeted delivery, and better bioavailability. It is seen that certain drugs have high hepatic bypass effects which can be circumvented by the use of different routes of administration including transdermal, sublingual, nasal, etc. It is seen that various brands available in the market are showing different rates of drug delivery leading to variation in therapeutic action. By evaluating these dosage forms, we will be able to correlate parameters responsible for these differences and also able to suggest solutions for the same. The research will be focused on the following areas:</p> <ol style="list-style-type: none"> 1. Formulation of new drug delivery systems 2. Evaluation of new drug delivery systems 3. Development of herbal formulations 4. Use of drug formulations in patients 5. In-vitro release studies to measure the availability of the drug 6. Quality control studies on the marketed formulations 	
People	<p>Lead: 1-Prof.(Dr.) Alka Ahuja</p>  <p>Email: alkaahuja@nu.edu.om Mobile : 968-95146786 Link: https://www.nu.edu.om/research/docs/ResearchFacultyProfile-Cop.pdf</p> <p>2- Dean Dr. Khalid Al Balushi</p>	<p>Team: CoP- Prof. Mullaicharam, Dr. Mohammed Ghazali, Dr. Nirmala Amaresh, Dr. Nida, Ms. Muna, Dr. Sumaiya Al Kindi, Ph. Dunia. CoE – Dr. Geetha Devi</p>



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Projects & achievement

Internal NU grant Funded projects

2019-2020

1. Investigation of antibiotics residues in imported and locally produced red meat in Muscat, Sultanate of Oman
2. Kinetic Modeling Studies of Biodegradable Nano Capsules Containing Anti-tuberculosis drug

2020-2021

1. Formulation and evaluation of novel drug delivery system using in situ gelling approaches for antiemetic drugs used in cancer patients

TRC Funded projects

2018-2019

1. Formulation and Evaluation of a Sustained Release Preparation of an Immunosuppressant drug

Student TRC 2020-2021

Determination of tetracycline residues in red meat available in Oman.

Ph.D. thesis Title – Awarded to a team member- 2018

Development and evaluation of bioadhesive thermosensitive in situ gelling formulation of metronidazole and Diclofenac potassium for treatment of periodontal disease

Besides these current projects, the team members have handled as PI/Co- PI Research projects funded by UGC, AICTE, CSR, ICMR etc.(Govt. of India) and consultancy projects funded by UK based company.


Team members have supervised Masters and Ph. D thesis also. A number of awards and honors have been bestowed too in recognition of the Research accomplishments.

Recently featured publications

1. AR. Mullaicharam, K. Senthil Kumari, P. J. Joseph Francis, Mr. Maheswaran, Dietary Requirements for Parkinson's Disease-A Review, Asian Journal of Pharmaceutical Technology & Innovation, Volume 05, Issue 23, pp. 21 – 31, April 2017.

2. AR Mullaicharam, Nirmala Halligudi Hajar Ali Al-Balushi ,Huwaidda Juma Al-Obaidani , Ikhlas Mohammed Al-Balushi ,Maha Sabeeh Kalash Al-Mohemmedawi, Joseph. Awareness and knowledge of Diabetes Mellitus among health care professionals, patients and public of Muscat region in Oman, World Journal of Pharmaceutical Research, Volume 6, Issue 5, January 2017.
3. Sohar/Bowshar Sultanate of Oman, Turkish Journal of Family Medicine & Primary Care, Volume 10, Issue 1, pp. 13-18, 2016.
4. Halima Abdullah AlSawafi, Jihad Mahmood AlMukhladi, Tharaya Hamed Al Kharusi, Nirmala Amaresh, A R Mullaicharam. Evaluation of Antibacterial Activity of Omani Natural and Commercial Henna (Lawsonia Inermis), Journal of Medical and Health Research, Volume 1, pp. 10, Oct 2016.
5. Hamid Khan, Mushir Ali, Alka Ahuja, and Javed Ali. Validated HPLC-UV method for simultaneous determination of some anti-inflammatory and analgesic drugs, Asian Journal of Pharmaceutical analysis, Volume 6, Issue 3, pp. 183-187, 2016.
6. Hamid Khan, Mushir Ali, Alka Ahuja, Javed Ali, Sayeed Ahmad. Application of validated HPTLC method for dissolution study of FDC tablets containing Telmisartan and Hydrochlorothiazide, Research Journal of Pharmacy and Technology, Volume 10, Issue 4, pp. 1149-1154, January 2017.
7. Hamid Khan, Mushir Ali, Alka Ahuja, Javed Ali. Formulation and Invitro Evaluation of FDC bilayer matrix tablets containing Telmisartan as sustained release and Hydrochlorothiazide as immediate release, Research Journal of Pharmacy and Technology, Volume 10, Issue 4, pp. 1085-1090, January 2017.
8. Hamid Khan, Mushir Ali, Alka Ahuja, Javed Ali. Validated UPLC/Q-TOF-MS method for simultaneous determination of Telmisartan and Hydrochlorothiazide in human plasma, Research Journal of Pharmacy and Technology, Volume 9, Issue 9, pp. 1441-1446, 2016.
9. Maroia Humaid Al Quraini, Arwa Aamir AL Mhrezi, Sara Salim Said AL Amri, Amani Abdullah Saif AL Yousefi, Alka Ahuja. Evaluation of Tmax, Cmax and AUC of the Marketed Formulations of Amoxicillin, BAOJ Pharmaceutical Sciences, Volume 2, Issue 3, pp. 1-15, January 2017.
10. Said Al Alawi, Said Al-Habsi, Fahad Al Buasidi, Khalifa Al-Muqbali, Mohammed Hussiani, Mohammed Al-Falahi, Alka Ahuja. Preparation of solid dispersions of poorly soluble drugs, The Pharmaceutical and Chemical Journal, Volume 3, Issue 4, pp. 98-109, 2016.
11. Mullaicharam AR, Kumari S, Mohamed Essa M, Velusamy T. Food/herbs/dietary requirements for Parkinson's disease. In Food and Parkinson's Disease. Nova Science Publishers, Inc. 2016. p. 153-172
12. Ahuja A, Al Rashdi I, Mezna Al nassri, Al-Fannah J, Kyle G, Al Farsi S, Al Hinai K, A survey of complementary and alternative medicines use in out-patient pediatric specialties and pediatric emergency department, Clinical and Medical reports, Volume 1, Issue 1, pp. 1-5, December 2017.
13. Alka Ahuja, Ibtisam Al Rashdi, Mezna Al nassri and Jehan Al-Fannah. Use of Complementary and Alternative medicines (CAM) amongst children and adults, Current trends in Clinical and medical Imaging, Volume 2, Issue 1, pp. 1-3, Oct 2017.
14. Alka Ahuja, Khawla Khamis Al Quaitaei, Laila Khalifa Al Saadi, Jehan Al Fannah, Unplanned Readmissions with medication related problems in hospitals, JOJ Case stud. Volume 5, Issue 1, Nov 2017.
15. Alka Ahuja, Shurooq Sulaiman Al -Omairi, Anwaar Yousuf Al-Riyami and Ahlam Salim Al- Yarubi. In-vitro Pharmaceutical Equivalence studies for Paracetamol and Atorvastatin formulations, BAOJ Pharmaceutical Sciences, Volume 3, Issue 4, pp. 045, November 2017..

16. Faisal Obaid Alotaibi, Gulam Mustafa, Alka Ahuja. Study of enhanced anti-inflammatory potential of nigella sativa in topical nanoformulation, International Journal of Pharmacy and Pharmaceutical Sciences, Vol 10, Issue 7, pp. 41-51, July 2018.
17. Hamid Khan, Mushir Ali, Alka Ahuja, Javed Ali. Validated UPLC/Q-TOF-MS, Method for simultaneous determination of Aceclofenac, Paracetamol and Chlorzoxazone in human plasma and its application to Pharmacokinetic study, Asian Journal of Pharmaceutical Analysis, Volume 7, Issue 2, pp. 93-99, 2017.
18. Hana Nasser Al Nadhairi, Hasna khalfan Al Shuaibi , Hajer Ahmed Al Rashdi Amira Salim Al Khawaldi, Nirmala Halligudi. Prevalence and management of asthma in pediatric in Muscat region, International Journal of Pharmaceutical Sciences Letters, Volume 6, pp. 055-060, 2017.
19. Jahan F, Siddiqui MA, Khabouri ZAl , Riyami Rfmal and Ahuja. A Factors influencing quality of academic research: perception of faculty researchers at Oman Medical College, Medical and Clinical Archives, Volume 2, Issue 1, pp. 1-5, Jan 2018, doi: 10.15761/MCA.1000127
20. Khawla Khamis Al Quaitaei , Laila Khalifa Al Saadi , Jehan Al Fannah and Alka Ahuja A Retrospective Cohort Study of Pediatric Unplanned Readmission with Medication Related Problems in Tertiary Hospital, Journal of Clinical Review & Case Reports, Volume 3, Issue 5, pp. 1 – 6, July 2018.
21. Mullaicharam and Nirmala Halligudi. St John's wort (*Hypericum perforatum* L.): A Review of its Chemistry, Pharmacology and Clinical Properties, International Journal of Research in Phytochemical and Pharmacological Sciences, Volume 1, Issue 1, pp.5-11. Jan 2018.
22. Mullaicharam Bhupathyaaj , Yaseen Moosa Malallah Al- Lawatia and Nirmala Amaresh, Basic concepts of benchmarking in higher education:-A Review, European Journal of Biomedical and Pharmaceutical sciences, Volume 5, Issue 3, pp. 117-121, Feb 2018.
23. Wadi N.M. A, Khiang P. K, Ahuja A. Al zarzour R. H. Kaur G. Investigation of healing effect in situ-forming mucoadhesive hydrogel on ligature-induced periodontitis in rats, Malaysian Journal of pharmacy, Volume 3, Issue 1, November 2017.
24. Wadi N.M. A, Mohamad Fasil, Ahuja Alka and Kok Khiang Peh. Development and evaluation of in situ-forming syringeable mucoadhesive gel formulation for periodontitis, Malaysian Journal of pharmacy, Volume 3, Issue 1, November 2017.
25. AR Mullaicharam, Yaseen Al Lawatia, Jayasekher, Nirmala Halligudi, Ahmed Basheer. The use of benchmarking practices in achieving competitive advantage in Oman Medical College- Survey based study, European journal of Pharmaceutical and Medical research, Volume 5, Issue 8, pp. 519-525, Sep 2018.
26. Mullaicharam AR, Mohammed Ashraf Moawad Taha, "Knowledge and Attitude towards Human Papilloma Virus infection among Health Care Professionals in Muscat, Oman", European Journal of Pharmaceutical and Medical Research, 6, 06-17, August 2019.
27. Mullaicharam. Challenges in Neonatal Screening in Health Care System (Invited Article), International Journal of Research in Hospital and Clinical Pharmacy, Volume 1, Issue 1, pp. 15-17, Oct 2018.
28. Alka Ahuja, Abeer Ahmed Al- Ansari and Sumaiya Anwar Al- Zadjali, Study of prevalence and management of hypertension in omani population, International Journal of Clinical and Medical cases, ISIN 2517-7346, Volume, 3, Issue 3, Pages 1-7, 2020
29. Alka Ahuja, Medication safety in elderly patients, MOJ Gerontology and Geriatrics, Volume 5, Issue 2, 42-45, March 2020
30. Asma Saud Hamood Al Badri, Jood Mohsin Said AlMuqbali, Khawla Yousuf Abdullah AlRahbi, Jehan AL Fannah, Alka Ahuja, A study of the paediatric prescriptions at the

	<p>tertiary care hospital in Oman, Journal of Pharmaceutical Research, Volume 5, Issue 1, Pages 17-21, 2020..</p> <p>31. Harith Salam Mohammed, Ahmad Makame Mwadini, Nida'a Mohammed Ali Wadi and Alka Ahuja, Formulation and evaluation of ophthalmic antibacterial gels and comparison of different polymers using factorial design, Journal of Clinical Research and reports, ISSN: 2690-1919, Volume 3, Issue 3-055, 1-7, March 2020.</p> <p>32. Harith Salam Mohammed, Ahmad Makame Mwadini, Nida'a Mohammed Ali Wadi , Dunia Ali, Marwa Hatem and Alka Ahuja, Development of Azithromycin ophthalmic gels using various polymers, Acta Scientific Pharmaceutical Sciences. ISSN: 2581-5423), Volume 4, Issue 4, 48-54, 2020</p> <p>33. Mullaicharam AR, Mohammed Ashraf Moawad Taha, "Knowledge and Attitude towards Human Papilloma Virus infection among Health Care Professionals in Muscat, Oman", European Journal of Pharmaceutical and Medical Research, 6, 06-17, 2019.</p> <p>34. Nida Mohammed Ali Wadi, How far is the effect of sub-minimum inhibitory concentration (sub MIC) on virulence factors expressed by bacteria, J immunol Tech Infect Dis MARCH 2020 vol. 9</p> <p>35. Iqbal MK, Chaudhuri A, Iqbal A, Saleem S, Gupta MM, Ahuja A, Ali J, Baboota S. Targeted delivery of natural bioactives and lipid-nanocargos against signaling pathways involved in skin cancer. Curr Med Chem. Nov 2020. doi:10.2174/0929867327666201104151752. PMID: 33148148.</p> <p>36. Mullaicharam, Khalid Al Balushi, Korlapati Venkateswara Rao, Alka Ahuja, Muna Al Dalai, Majed M Abukhader, Nirmala Amaresh, Sushma Pole. A review on tacrolimus: a potent immunosuppressive agent. International Journal of Scientific Research and Engineering Development. Nov-Dec 2020.3(6) :725-744.</p>	
Resources /lab facilities	<p>1. Dissolution test Apparatus with external Bath Circulator (SC/TR) DS 8000 Description: Dissolution Tests are conducted to determine the drug release patterns, physiological availability and bioavailability of formulated drug products. It is also used as a quality control tool. The Dissolution rate of a drug from the solid state is defined as the amount of drug substance that goes into solution per unit time under standardized conditions of liquid / solid interface, temperature, and solvent composition</p> <p>2. Tablet Hardness Tester (landa) Description: Single Station Automatic measurement of tablet parameters - Diameter/Length & Hardness</p> <p>3. Tablet disintegration tester Description: Disintegration tester is intended to demonstrate the effective break-up (complete powder formation) of the solid</p>	

formulation. LABINDIA has introduced a novel Tablet Disintegration Tester for testing the disintegration time of tablets, capsules and other solid dosage form

4. Friability apparatus

Description :a method, which is employed to determine physical strength of uncoated tablets upon exposure to mechanical shock and attrition

5. SP-UV 500DB/VDB

Specification: The SP-UV 500 series is a double beam spectrophotometer in the production series of Spectrum Instruments. It gets

a technology patent - "space separated double beam, Non-Symmetric vertical optical path".

Compared with traditional

Double beam technology, simplified optical path improves reliability. The "width narrow and depth deep" design saves placement room

6. Spectronic

Specification: 20D+ Thermo electron corporation, wavelength range 340-950 nm

7. Dissolution test Apparatus with external Bath Circulator (SC/TR)

DS 8000

Specification:

Dissolution Tests are conducted to determine the drug release patterns, physiological availability and bioavailability of formulated drug products. It is also used as a quality control tool.

The Dissolution rate of a drug from the solid state is defined as the amount of drug substance that goes into solution per unit time under standardized conditions of liquid / solid interface, temperature, and solvent composition

8. Micron Laser Particle Size Analyzer

9. equipment 96 Micro Plate Reader device

10. Bench Top Centrifuge NEYA 10R/16R

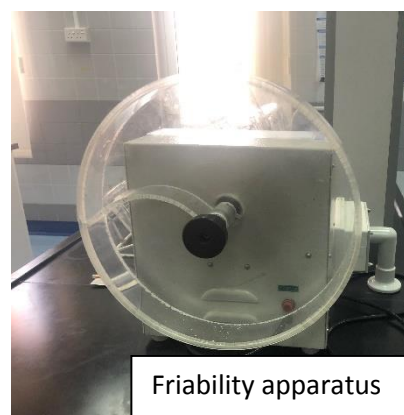
11. Refrigerated centrifuge

12. Incubator

13. ELISA



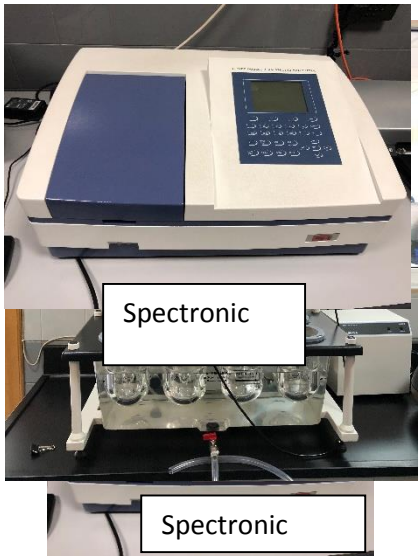
Tablet disintegration tester




Friability apparatus



SP-UV 500DB/VDB

	<p>14. Laminar air flow</p> <p>15. Autoclave</p>	
News & events/training (if any)	Conference/ workshop/ training /scholarly activities related to the research	
	<p>Event:</p> <ol style="list-style-type: none"> 1. Oman Pharmaceutical Conference 2019 3-4-Dec-19 2. Regular Research Clubs. 3. Research day, 23th April 2014 4. Research day, 11th April 2017 5. Research day, 26th March, 2018 <p>Faculty is updated regularly by participating in Research meetings</p>	

Core Research Area	2 Drug Discovery and Development (DDAD)	
About the Research	<p>Research focus: The research is focused on the following thrust areas;</p> <ul style="list-style-type: none"> - Computer-aided drug design, in silico molecular modeling, Prediction of ADMET and biological properties. - Design and synthesis of biologically active compounds of pharmaceutical interest. - Phytochemical screening of Omani Medicinal plants and evaluation of their biological properties such as anti-microbial, anti-oxidant, cytotoxic, anti-diabetic and anti-inflammatory, etc. - Preclinical and Clinical Pharmacology, Nanomedicine and Drug Delivery System, Toxicology Systematic evaluation of the efficiency of phytomedicine, nutraceuticals, and novel polymeric nanoparticles encapsulated with drugs through pre-clinical trials. - Formulation and Drug development procedures 	
People	<p>Lead: Dr Shah Alam Khan College of Pharmacy</p>  <p>Email: shahalam@nu.edu.om Mobile : 97245361 Link: https://www.nu.edu.om/research/docs/ResearchFacultyProfile-Cop.pdf</p>	<p>Team:</p> <ol style="list-style-type: none"> 1. Dr. Abdul Salam Nazmi (Pharmacology) 2. Dr. Dhanalekshmi UM (Pharmacology) 3. Dr. Majed Abukhader (Clinical Biochemistry) 4. Dr. Mohd. Jawaaid Akhtar (Pharm Chem) 5. Ms. Bushra Sabahi (Chemistry) 6. Prof. Syed Mohd. Rizwan (CoE)
Projects & achievements	<p>1. Synthesis, molecular docking, antioxidant and cholinestrase inhibitory activity of coumarin based tri-hybridized molecules: An MTDL approach for the development of anti- Alzheimer drugs” RG project funded by TRC Oman. (Code: FP/RGP/HSS/19/232/CoP); (19,900 RO/51,740 USD). PI: Dr. Shah Alam Khan, Co-I: Dr. Majed AbuKhader and Ms. Bushra Al Sabahi.</p>	

	<p>2. In-silico Pharmacophore Modeling and Evaluation of Potential Cytotoxicity, Anti-Cancer and Free Radical Scavenging Activity of <i>Caralluma arabica</i> – an Omani Traditional Medicine” NU internal research grant . (3,400 RO/8840 USD) PI: Dr. Abdul Salam Nazmi,Co-PI: Dr. Dhanalekshmi UM.</p> <p>Dr. Dhanalekshmi received young scientist award from CSIR-CLRI, India. She successfully completed 2 CSIR and 1 DST Funded projects by Government of India.</p> <p>Dr. Shah Alam Khan has supervised three TRC- FURAP (URG) projects. His students have received</p> <ol style="list-style-type: none"> 1. Best poster award in Oman Pharmaceutical Conference 2019. 2. Best poster award in 1st International conference on Frankincense and Medicinal plants: Recent advances in research and industry, Sultan Qaboos University, Muscat, 2018. 3. Best Poster award in Oman Pharmaceutical Conference 2015 4. First prize in the poster presentation category at First International Conference, Nizwa University, 2012. 5. Second prize in poster presentation category in Oman Pharmaceutical Conference 2019. <p>Dr. Mohd Jawaaid Akhtar supervised the thesis of two M. Pharm students entitled- Design and synthesis of 1,2,4-triazine as Anticonvulsant agents Design and synthesis of isatin derivatives as Anticonvulsant agents</p>
<p>Recently featured publications</p>	<ul style="list-style-type: none"> Asif Husain, Medha Bhutani , Shazia Parveen, Aftab Ahmad, Shah Alam Khan, Md Azhar Iqbal. Synthesis, in vitro cytotoxicity, ADME and molecular docking studies of benzimidazole bearing furanone derivatives. <i>J Chinese Chem Soc</i> 2021;68(2): 362-373. Impact factor=1.554. Shah Alam Khan* and Al Balushi K. Combating COVID-19: The role of drug repurposing and medicinal plants. <i>J Infection and Public Health</i> 2021; 14(4): 495-503. Impact factor 2.447 Asif Husain, Farah Iram, Anees A. Siddiqui, Shah A. Khan* Daoud Ali, Saud Alarifi, SNH Azmi, Nafis ur Rahman. Identification of metabolic pathways involved in the biotransformation of Eslicarbazepine acetate using UPLC- MS/MS, human microsomal enzymes and <i>in silico</i> studies. . <i>Journal of King Saud University-Science</i> 2021;33(2):101281. Impact factor=3.819. Neelima Srivastava, Shah Alam Khan*, Asif Husain, Al Balushi K. Recent advances in the development of chemotherapeutic agents for malaria. <i>Mini Reviews in Medicinal Chemistry. 2021</i> (In Press) Impact factor 2.733 Md Azhar Iqbal, Asif Husain, Ozair Alam, Shah Alam Khan, Aftab Ahmad, Md Rafi Haider, Md Aftab Alam. Design, synthesis and biological evaluation of imidazopyridine linked thiazolidinone as potential anticancer agents. <i>Archiv Der Pharmazie. 2020;353(10): 2000071, Impact factor= 2.59</i> Shahad Alsaraf, Zainab Hadi, Wafa M. Al-Lawati, Amal A. Al Lawati, Shah Alam Khan*. Chemical composition, in vitro antibacterial and antioxidant potential of Omani Thyme Essential Oil along with in silico studies of its major constituent. <i>Journal of King Saud University-Science. 2020;32(1):1021-1028. Impact factor=3.819</i> Sumeet Gupta, P, Anroop Nair, Vikas Jhawar, Nazia Mustaq, Abhishek Sharma, Meenakshi Dhanawat, and Shah Alam Khan. Unwinding Complexities of Diabetic

Alzheimer by Potent Novel Molecules. *American Journal of Alzheimer's Disease & Other Dementias*. 2020; 35: 1-17. Impact factor=1.544

- Aaisha Al Dhahli, Fatema Al Hasani, Wafa M. Al Lawati, SN Hejaz, **Shah Alam Khan***. Essential oil from the rhizomes of the Saudi and Chinese *Zingiber officinale* cultivars: Comparison of chemical composition, antibacterial and molecular docking studies *Journal of King Saud University-Science*. 2020; 3343-3350. Impact factor=3.819.
- Mohd Rashid, Asif Husain, Ravinesh Mishra, Shahid Karim, Shamsir Khan, Makhmur Ahmad, Naser Al-wabel, Amjad Husain, Aftab Ahmad, **Shah Alam Khan**. Design and synthesis of benzimidazoles containing substituted oxadiazole, thiadiazole and triazolo-thiadiazines as a source of new anticancer agents. *Arabian Journal of Chemistry*, 2019; 12(8): 3202-3224. Impact factor=4.762
- Saif Ahmad, **Shah Alam Khan**, Adam Kindelin, Tasha Mohseni, Kanchan Bhatia, M Nasrul Hoda, Andrew F. Ducruet. Acetyl-11-keto- β -boswellic acid (AKBA) Attenuates Oxidative Stress, Inflammation, Complement Activation and Cell Death in Brain Endothelial Cells Following OGD/Reperfusion. *NeuroMolecular Medicine*. 2019; 21: 505–516. Impact factor=2.629
- Saif Ahmad, Adam Kindelin, **Shah A. Khan**, Maaz Ahmed, Kanchan Bhatia, Md.Hoda, A F Ducruet. C3a receptor inhibition protects brain endothelial cells against oxygen-glucose deprivation/reperfusion. *Experimental Neurobiology*, 2019; 28(2):216-228. Impact factor=2.37.
- Asif Husain, **Shah Alam Khan***, Farah Iram, Md. Azhar Iqbal, Mohammad Asif. Insights into the chemistry and pharmacological actions of Furanones: A versatile pharmacophore. *European Journal of Medicinal Chemistry*, 2019; 171:66-92. Impact factor 5.572.
- Fuloria S, Subramaniyan V, Karupiah S, Kumari U, Sathasivam K, **Meenakshi DU**, Wu YS, Sekar M, Chitranshi N, Malviya R, Fuloria NK. (2021) Comprehensive Review of Methodology to Detect Reactive Oxygen Species (ROS) in Mammalian Species and Establish Its Relationship with Antioxidants and Cancer. *Antioxidants*. 10(1):128. Impact Factor 5.2.
- **Dhanalekshmi UM**, Gowri T, Ramya B, Srinivasan R. Fresh juice and extract of *Drynaria quercifolia* rhizome nutraceutical for the management of arthritis with special emphasis on enzyme levels. *J Pharm Bioall Sci* [Epub ahead of print] Impact Factor -1.1.
- Soliman, A., Majeed, R., Himyari, H. F., **UM, Dhanalekshmi. & Khan, S. A.** (2020). In vitro Cytotoxic, Antioxidant and Antimicrobial Activities of Alcoholic and Chloroform Extracts of Dhofari Frankincense. *Dhaka University Journal of Pharmaceutical Sciences*, 19(2), 105-110. IF 0.25.
- Fuloria, S.; Subramaniyan, V.; Karupiah, S.; Kumari, U.; Sathasivam, K.; **Meenakshi, D.U.**; Wu, Y.S.; Guad, R.M.; Udupa, K.; Fuloria, N.K. (2020). A Comprehensive Review on Source, Types, Effects, Nanotechnology, Detection, and Therapeutic Management of Reactive Carbonyl Species Associated with Various Chronic Diseases. *Antioxidants* 9, 1075. IF 5.2.
- Kishore, N., Raja, M.D., Kumar, C.S., **Dhanalekshmi, U.** and Srinivasan, R. (2016), Lipid carriers for delivery of celecoxib: In vitro, in vivo assessment of nanomedicine in rheumatoid arthritis. *Eur. J. Lipid Sci. Technol.*, 118: 949-958. Impact Factor -2.06.
- 37. Rajarshi Nath, M. Shahar Yar, Shelly Pathania, Gourav Grover, Md Jawaid Akhtar*, Synthesis and anticonvulsant evaluation of indoline derivatives of functionalized

	<p>aryloxadiazole amine and benzothiazole acetamide, J. Mol. Stru. 1228 (2021) 129742. Impact Factor 2.463.</p> <p>38. Rajarshi Nath, Shelly Pathania, Gourav Grover, Md Jawaid Akhtar*, Isatin Containing Heterocycles for different biological activities: Analysis of Structure activity relationship, J. Mol. Stru. 1222 (2020) 128900. Impact factor 2.463</p> <p>39. M. J. Akhtar*, COVID19 inhibitors: A prospective therapeutics, Bioorg. Chem. 101 (2020) 104027 Impact factor 4.831.</p> <p>40. G. Grover, R. Nath, R. Bhatia, M. J. Akhtar*, Synthetic and Therapeutic perspectives of Nitrogen Containing Heterocycles as Anti-Convulsants, Biorg. Med. Chem. 28 (2020) 115585. Impact factor 3.073.</p> <p>41. M.J. Akhtar*, M.S. Yar, G. Grover, R. Nath, Neurological and psychiatric management using COMT inhibitors: A review, Bioorg. Chem. 94 (2020) 1-25. Impact Factor -4.831.</p> <p>42. Al-Sabahi BN, Fatope MO, Essa MM, Subash S, Al-Busafi SN, Al-Kusaibi FS, Manivasagam T. Pomegranate seed oil: Effect on 3-nitropropionic acid-induced neurotoxicity in PC12 cells and elucidation of unsaturated fatty acids composition. Nutr Neurosci. 2017 Jan;20(1):40-48. Impact factor 3.765.</p>	
Resources /lab facilities	<ul style="list-style-type: none"> - UV –Vis spectrophotometer - 96 well microplate reader - FT-IR - Rotary evaporator - Soxhlet extractor - Clevenger apparatus - Refractometer 	
News & events/training (if any)	<p>Dr. Dhanalekshmi is a Certified Laboratory Animal Scientist by CCLAS-Spain. Participated in Drug Designing on SARS-CoV-2 Virtual conference, 2021 by Medical Pharmacologists Society, India</p> <p>Online Industrial training program on Regulatory toxicology- 2021 by Trichinopoly I, India</p> <p>Certificate of Completion for the educational activity for Improving Oral anticoagulant Use by FDA Interprofessional Continuing Education, 2020</p>	