

Drug Development and Mechanistic Studies

- **Title of group:** Drug Development and Mechanistic Studies
- **Head of research group:** Dr. Mohammad Waseemul



جامعة عجمان
AJMAN UNIVERSITY

College of Pharmacy & Health Sciences



Research areas

- Drug development
- Drug action and mechanistic
- Biochemical effects of phytochemicals
- Antioxidants and stress modulation
- Cancer research

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Research group members

1. Dr. Mohammad Waseemul Islam
2. Prof. Nageeb Hassan
3. Dr. Samir Bloukh
4. Dr. Moayad Al Shahwan
5. Dr. Elshaimaa Arafa
6. Dr. Babiker El Hag
7. Dr. Ebrahime Abu El Fetouh
8. Dr. Nihal Ibrahim
9. Dr. Richie Bhandare
10. Dr. Shihab Deiab
11. Dr. Manal Buabeid
12. Mr. Ahmed Khattab

13. Mr. Hamed Abu Sara

14. Mr. Miran Alhalabi

Scope of the Research and focus areas

Research areas:

- Drug discovery and development
- Pharmacological and toxicological studies
- Cancer research
- Bio-evaluation of medicinal plants and phytochemical analysis

Focus areas of Research:

- The Research group is engaged in different aspects of pharmacological toxicological and microbiological studies, at cellular and molecular levels. The research group is engaged to study on various aspects of pharmacology and toxicology, including Drug Properties, Drug Interactions, Studies of Symptoms, Mechanisms, Treatments and Detection of Poisoning, and Pharmacological Screenings.
- One of the laboratories is engaged in bio-evaluation of medicinal plants and phytochemical analysis. Studies are being carried out on the efficacy, safety and mechanisms of herbal medicine, natural supplements used in the treatment of diabetes, anxiety, stress, obesity, gastric ulcers, addiction, neuro-pharmacological studies including Parkinson's disease, neuro protective natural products.
- The research group is also engaged in in vitro cytotoxic and anticancer studies.
- Combination of innocuous dietary components with anticancer drugs is an emerging new strategy for cancer chemotherapy to increase the tumor responses. Studies have been carried out on human ovarian cancer cells, Naringenin against UVB-induced apoptosis and genome involvement. At present efforts are being put to establish the cancer cell line for in vitro and in vivo anticancer studies.
- Recently the study was carried out with the aim to overcome the side effects associated with oral diclofenac sodium possible effectiveness as oleaginous ointment base to have benefits associated with topical therapy, using in vitro and ex-vivo drug delivery.
Current Research activity/Research group Projects:
- Evaluation of Therapeutic Potential and Safety of the *Prosopis cineraria* (L.) Druce (Fam. Leguminosae), the National Plant of the United Arab Emirates. Project ID No: (Ref. # 2017-A-PH-02) started on 15.10.2017; closing date 5.10.1., Coinvestigators: Prof. Nageeb A. Hassan; Dr. Moayad Al Shawan; Dr. Samir Issa Bloukh; Dr. Richie Rashmin Bhandare.
- Measures to Combat Counterfeit and Substandard Quality of Drug Products in United Arab Emirates" (Ref. # 2017-A-PH-07), Starting date 15.10.2017; completion date 5.10.1., Co-investigator: Dr. Farah Hamad.

- Role of Tangeritin, a novel antiulcerogenic agent from Mediterranean Mandarin peels, in the prevention of gastric mucosal lesions, in albino rats. Starting date 15.10.2017. Co-investigator. Principle investigator Dr. Elshima Arafa; Co-investigator, Dr. M. Waseemul Islam.
- Some of the research members are engaged in the collaboration of the other research group in the College:
- Oxidation in Omega-3 Fish Oil Supplements: Rancidity determination; Principal investigator: Moayed Jamal Alomar; Coinvestigator Moayad J. Al-Shahwan, Moawia M. M. Al-Tabakha, Abdalla Al Khateeb.
- Factors Influencing Vitamin D Deficiency: A Cross-sectional Study among College Students” (Ref. # 2017-A-PH-09). Ajman University UAE Budget: 9800AED. Principal investigator: Coinvestigator: Dr. Shawan

Research achievements:

- a. The research group members have published the papers in the current year. The papers published in the following journals.
 - Asian Journal of Pharmaceutical and clinical research, 2018
 - Journal of Applied Pharamceutical Sciences, 2018
 - Journal ofPharmaceutical Sciences and Research, 2018
 - International journal of Research in Medical Sciences, 2017
 - Europen Journal of Research in Ayurveda and Pharmacy, 2017
 - Europens Journal of Pharmaceutical and Medical Research, 20117
 - European Journal of Pharmaceutical and Medical Research, 2017
- b. The research group members participated the following conferences in the current year:
 - International Conference on Pure and Applied chemistry
 - Dubai International pharmaceutical and Technologies conference and exhibition
 - International conference of Pharmacy and Medicine
 - International Pharmaceutical conference (ZTIPC), Jordan.

Research facilities:

Instruments:

1. The Rota rod
2. Tail flick analgesiometer,
3. Eddy’s hot plate
4. Morris Water maize ,
5. Gas anesthesia system,
6. Grip strength meter,
7. Mouse activity wheel,
8. Open field cage,
9. Biorad Chemidoc system
10. Palthysmometer
11. Pole climbing apparatus
12. Vogel test apparatus
13. Tread mill of rats
14. Metabolic cages

15. Histamine chamber for Asthma
16. Elevated maize for anxiety
17. Photoactometer
18. Hematology analyzer
19. Automated biochemical Analyzer
20. Hot air oven
21. Rectal temperature thermometer for rats and mice


Animal Care Center

The Animal care center has the following facilities:

1. Albino mice and rats
2. Rabbits
3. Chicken
4. Deep freezer for keeping carcass of animals
5. Heat radiator
6. Animal food and animal bedding material storing system

Medicinal Plant Extraction Unit.

The unit is engaged in extracting the medicinal plant extracts using soxhelt apparatus and other.



جامعة عجمان
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Research Facility
(Ajman Campus)

Instrumental Testing



High-performance liquid chromatograph (HPLC)
Model: Prominence-i
Shimadzu (Japan)



Fourier transform infrared (FTIR)
Model: IRAffinity
Shimadzu (Japan)



Ultraviolet-Visible (UV-Vis)
Spectrophotometry
Model: UV-1800
Shimadzu (Japan)



Microwave synthesizer
Model: Discover SP
CEM (USA)



Rotary evaporator
Model: Rotavapor® R-300
Buchi (Switzerland)



Full automated chemistry analyzer
Model: BT1500
Biotecnica (Italy)



جامعة عجمان
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College of Pharmacy & Health Sciences

Research Facility (Ajman Campus)

Instrumental Testing



Climate Chamber
Mettler (Germany)



SZ-100 Nanoparticle Size & Zeta Potential Analyzer
Horiba (France)



Mini-protean tetra cell system
BioRad (USA)



جامعة عجمان
AJMAN UNIVERSITY

College of Pharmacy & Health Sciences

Research Facility (Ajman Campus)

Microbiology Testing



Colony counter
Stuart Scientific (UK)



Incubator
Mommert (Germany)



Autoclave
Equitron (India)



Laminar flow
PMV (UK)



Mini dual vertical
agarose gel
electrophoresis



Hematocrit Centrifuge (M24)
LW Scientific (USA)



Microscopes
Krüss & Olympus



Elisa reader ELX808 (USA)



جامعة عجمان
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Research Facility (Ajman Campus)

Animal Testing



Albino mice



Treadmill of mice



Vogal test apparatus



Tail flick analgesiometer



Plethysmometer



Pole climbing apparatus

- Histamine chamber
- Elevated maize plus
- Morris water maize
- Metabolic cages
- Digital thermometer
- Hot air oven
- Grinder
- Rota rod
- Activity meter
- Biochemical analyzer
- Haematology analyzer
- Weighing balance
- Animal weighing balance
- Hot plate