

CURRICULUM VITAE

(Adnan Salim Jaran. PhD)

Professor

Microbiology & Molecular Biology

Full Name: ADNAN SALIM JARAN

Academic Rank: Full Professor
Microbiology & Molecular Biology.

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EDUCATION/QUALIFICATIONS

University of Manchester Medical School 1991 - 1995	PhD in Microbiology and Molecular Biology (full time) <i>Supervisors:</i> Dr L.B.Quesnel & Dr J.M.Braganza <i>Title:</i> Uptake of antibiotic drugs by cells from Cystic fibrosis and Normal subjects
University of Manchester Medical School 1988 - 1991	MSc in Microbiology/Immunology (full time) <i>Supervisor:</i> Dr Ann Mostratos <i>Title:</i> Use of Immune Stimulating Complex (ISCOM) as Adjuvants for Peptide Antigens
Yarmouk University Faculty of Medical Sciences 1982 - 1985	BSc. in Medical Technology (full time) (Medical Laboratory Science) MLS

MEMBERSHIP OF PROFESSIONAL ORGANISATIONS

- Associate of the Institute of Biomedical Sciences (AIBMS)
- Member of Saudi Society for Studies in Medical Jurisprudence (SSSMJ).
- Hold a Medical Laboratory licence form MOH/Jordan since 1998

PRACTICAL EXPERIENCE:

- Deputy Dean of faculty of Science. Al-al Bayt University, Sept 2018 to date.
- Head of Department of Medical Laboratory Science. Al-al Bayt University, Sept. 2016 to Aug 2018.
- Professor of Microbiology and Molecular Biology at Al- al Bayt University, Dept. of Medical Laboratory Science. 10th April 2018 to Date
- Senior lecturer/Associate Professor of Microbiology and Molecular Biology at Al- al Bayt University, Dept. of Medical Laboratory Science. 18th Sept. 2016 to 9th April 2018.
- Senior lecturer/Associate Professor of Microbiology and Molecular Biology at Al- al Bayt University, Dept. of Biological Sciences. 9th Nov. 2009 to 17th Sept. 2016.
- Senior lecturer/Associate Professor of Microbiology and Molecular Biology at Al-Imam Muhammad Ibn Saud Islamic University, College of Medicine. Saudi Arabia. Sept. 2010 to Aug. 2014.
- Lecturer/Assistant Professor of Microbiology and Molecular Biology at Al- al Bayt University, Dept. of Biological Sciences. Sept. 1997 to Nov. 2009.
- Deputy Dean; Faculty of Science, Al al-Bayt University Sept. 2005 to Sept. 2007.
- Deputy Dean; Faculty of Science, and Head of Biological Sciences Depart. Al al-Bayt University. Sept. 2005 to Sept. 2006.
- Assistant Dean; Dean Ship of Scientific Research at Al al-Bayt University. Oct. 2004 to Sept. 2005.
- Assistant Dean; Dean Ship of Postgraduate and Scientific research at Al al-Bayt University. November 2003 - Sept. 2004
- Head of the Department of Biological Sciences. Al al-Bayt University. Sept. 1999 - Sept. 2003.
- Assistant Dean; Faculty of Art and Science at Al al-Bayt University. Sept. 1998 – Sept. 1999.
- Lecturer/Assistant Professor at the Jordan University of Science and Technology (JUST). Joint appointment in both the Applied Biological Sciences department (Faculty of Science) and the Medical Technology department (Faculty of Medicine). Sept. 1996 - Aug. 1997.
- Research Scientist at Manchester Royal Infirmary. Sep.1994 – Jan 1996 (with responsibility for training new staff).
- Supervisor at Sabha Medical Laboratories Amman – Jordan. Sept.1987 – Aug.1988
- Medical Technologist at the pathology Department of King Hussein Medical Centre (with responsibility for training new staff). Sep.1985 – Sep.1987
- Practical Training (Intercalated year) at Jordanian hospitals as part of the final year of the BSc. Course in Medical Technology. Sep.1985 – Sep.1987

TRAINING COURSES AND WORKSHOPS:

- 2015 Towards Further Enhancement of EU-MED RDI Cooperation and Horizon 2020. 14 – 15 Sept. 2015. Meridian Hotel Amman Jordan.
- 2013 University Teaching and Learning Program workshop. 27th April – 1st May 2013. Madareem Crown Hotel, Quality Training Academy. Riyadh Saudi Arabia.
- 2013 Principles of Students Assessment Workshop. 16 – 17 March 2013, Al Imam Mohammad Bin Saud Islamic University, Riyadh Saudi Arabia.
- 2012 Four workshops attended in SIMEC 2012 Pre-Conference activities entitled: I- How to construct an MCQ, II- Advances in assessment: Blue printing and psychometric analysis, III- Research in medical education and IV- Helping your students learn to learn: There may be nothing more important you do as a teacher. 22-23 April 2012. King Faisal Conference Hall Intercontinental Hotel, Riyadh Saudi Arabia (18 CME/PD hours accredited by Saudi Commission for Health Specialties. (No. 25548/2012; 6/3/2012).
- 2011 The 5th GCC Certificate Course on “new trends in Medical Education” entitled “What you need to know about planning and delivering an educational programme for medical students” (12 CME hours). March 1 - 3, 2011. Al-Imam Mohammad Ibn Saud Islamic University. SA.
- 2011 The “Writing for publication in Medical Education” Workshop sponsored by Dr. Al-Khouli’s Chair for Developing Medical Education in Saudi Arabia (5 CME hours). Feb. 28, 2011. Al-Imam Mohammad Ibn Saud Islamic University. SA.
- 2011 The 2ed international Winter Course on Problem Based Learning (PBL). 26 CME/PD credit hours. At Sulaiman Al Rajhi Colleges, Saudi Arabia in collaboration with Maastricht University, Holland. 13-17 Feb. 2011.
- 2005 Regional workshop on Project/ Resource Capacity Management in Contract Research & Development. (UNESCO) Amman - Jordan.
- 1999 Workshop on "Building Interactive Media for Technical Education and Training Using Multimedia Software Tools." (UNESCO) JUST.
- 1996 Tenth Workshop in Teaching Technology and Assessment. JUST
- 1996 Workshop on The Effect Of Anti-Inflammatory Drugs. JUST.
- 1995 Radio labelling and handling and safety of radio labelled isotopes. Manchester Royal Infirmary. UK.
- 1994 Experimental animal work on animal handling (Rat, Mouse, Rabbit and Guinea pig). Holding UK Home office licence to perform experimental animal work.
- 1992 Tissue culture training at the Dept. of Medical Genetics at Manchester Royal Infirmary. UK.
- 1990 Advanced Medical Virology at the Virology Department of Booth Hall Children's hospital Manchester. UK.

TEACHING EXPERIENCE: -

I- Courses taught at JUST:

1- Dept. of Applied Biological Sciences: -
General Biology 1 (B101), General Biology 2 (B102),
General Biology Practical (B105), Cell Biology (B252),
Methods and Instrumentation (B272). Co-ordinator for
General Biology 2 (B102) courses.

2- Dept. of Medical Technology: -
Microbial Genetics (MT 742) Master's level.

II- Courses taught at Al al-Bayt University: - 1997 to date

1- Dept. of Biological Sciences (BSc.): -

General Biology 2 (0404102), General Biology Practical 2 (0404106), Haematology (0404411), Biological Analysis (040421), Biological Analysis Practical (0404422), Tissue Culture (0404438), Tissue Culture Practical (0404439), Immunology (0404403) Immunology Practical (0404404), Parasitology (0404414), Parasitology Practical (0404415), Cell and Molecular Biology (0404201), Basic Microbiology (0404330), Microbiology practical (0404331), Microbiology for nursing (0404230), Microbiology for nursing practical (0404231), Biotechnology (04044) Seminar (4044) and Graduation Project (0404499).

2- Dept. of Medical Laboratory Science (MLS) BSc.:-

Essentials and Ethics of Medical Laboratory Science (406115), Medical Terminology (406102), Pathology (0406223), Laboratory instrumentation (0406234), General Microbiology (406251), General Microbiology practical, Diagnostic Microbiology (406), Diagnostic Microbiology practical (406), Medical Mycology and Virology (406355), Quality assurance and laboratory management (406) Immunology and Serology (406) Immunology and Serology practical (406), Medical Parasitology (406) and Medical Parasitology practical (406).

III- Post Graduate courses (MSc.)

Molecular Biology, Advanced Tissue Culture, Microbial Physiology, Biotechnology, Special topics, Advanced Microbiology and Research Methods in Biology.

IV- Courses taught at Al Imam Mohammad Ibn Saud Islamic University

Principle of Human Diseases I, Principle of Human Diseases II, and Problem based Learning sessions and Supervision of Students' seminars, Microbiology sections in the Cardiovascular Block, Respiratory Block, Musculoskeletal block, Hemopoietic system block and Host defense block and Basic laboratory diagnostic skills course.

V- Supervised forty four (44) students at B.Sc. level for their Graduation Projects.

VI- Supervised Fourteen (16) MSc. Students' theses. Examiner for a number of MSc. Theses both in and outside Al al-Bayt University.

VII- 1991 & 1992 Laboratory Demonstrator: - Practical sessions for BSc. Course in Biological Sciences at Manchester University.

ADMINISTRATIVE, ACADEMIC AND RELATED EXPERIENCE

a- Administrative:

- Head of Department of Medical Laboratory Science. Al al-Bayt University. Sept 2016

to date.

- Year one medicine coordinator (Med I), College of Medicine, Imam Mohammed Ibn Saud Islamic University, Saudi Arabia 2011 to 2014.
- Deputy Dean; Faculty of Science, Al al-Bayt University. Sept 2005 to Sept. 2007.
- Head of Biological Sciences Depart. Al al-Bayt University. Sept. 2005 to Sept 2006.
- Assistant Dean; Dean ship of Scientific research at Al al-Bayt University. Sept. 2004 to Sept. 2005.
- Assistant Dean; Dean Ship of Postgraduate and Scientific research at Al al-Bayt University. November 2003 to Sept. 2004
- Head, Department of Biological Sciences. Al al-Bayt University (1999 - 2003)
- Assistant Dean, Faculty of Arts and Science, Al al-Bayt University (1998-1999)
- Member of the Board of the Faculty of Art and Science. Al al-Bayt University (1997-2003)
- Member of the Council for Research and Postgraduate Studies. Al al-Bayt University (1999 to 05).
- Member of the Council for Postgraduate Studies. Al al-Bayt University (1999 to 2007).

b- Committees:

Participated in various Faculty and Department Boards at the Universities of JUST, Al al-Bayt. and at Al-Imam Mohammad Bin Saud Islamic University

Participated in administrative and academic committees including:

Member of the Curriculum Development Committee (CDC), college of medicine Al Imam University Saudi Arabia. (2010 to 2014)

Member of the research committee at the college of medicine Al Imam University Saudi Arabia. (2010 to 2014)

Member and Secretary of the Anatomy Department, Al-Imam University Saudi Arabia. (2010 to 2014)

Co-planner for the Hemopoietic system block at Al-Imam University.

Planner of principle of Disease I (PODI) block at Al-Imam Uni.

Planner of principle of Disease II (POD II) block at Al-Imam Uni.

Co-Planner in the Learning Skills II Course at Al-Imam University

Co-Planner in the Respiratory block at Al-Imam University

Co-Planner in the Cardio vascular block at Al-Imam University

Member, Curriculum Committee, Faculty of Science, Al al-Bayt University.

Member, Central Tender committee, Al al-Bayt University. Sept. 1999 to Sept. 2005.

Chairman of the disciplinary committee for nonacademic staff. Al al-Bayt University 2001-2005

Member of the editorial board of Al-Manara Journal Al al-Bayt university Sept. 2003 to 2005.

Convenor, Scientific Research and Postgraduate Studies Committee. Al al-Bayt University (1999 - 2000).

Member, Scientific Research and Postgraduate Studies Committee. Faculty of Science Al al-Bayt University (1997-1998).

Member, Curriculum Committee. Department of Applied Biological Sciences JUST (1996-1997)

C- Associate editor, editor of the following Journals

- Microbiology and Experimentation (MedCrave Publishing Group)
- EC Microbiology (E. CRONICON)

SKILLS: -

Computer skills: Microsoft Office, word processing, spread sheets, graphics, data processing and handling, information retrieval and Microcomputers.

Tissue culture techniques: Primary and secondary cell culture

Immunological techniques: ELISA, Monoclonal antibodies, antibody labelling and tagging with fluorescent stains.

Microscopy techniques: Light microscope, Electron microscope, Fluorescent microscope, Laser confocal microscope.

Separation techniques: Bench and ultra-centrifugation, cell sorting by Fluorescence associate cell sorting (FACS)

HPLC techniques: Use of HPLC analysis to measure fat-soluble vitamins in serum using solvent extraction.

CONFERENCES: -

2017 International Conference of Chemistry & Biosciences. 5-6 April 2017. Al al-Bayt University, Jordan.

2014 4th International Conference on Algal Biomass, Biofuels and Bio-products. 15-18 June, 2014. Santa Fe Convention Center, Santa Fe, New Mexico, USA

2012 Saudi International Medical Education Conference (SIMEC 2012). King Faisal Conference Hall Intercontinental Hotel, Riyadh, Saudi Arabia.

2009 Euro Med Symposium, Plant Natural Products from Biodiversity to Bio-

industry: National Research Center, Dokki, Cairo, Egypt

2008 Biodiversity (Aqaba-Jordan)

2008 The 6th Arab conference on use of Antimicrobial Agents (Morroco).

2006 Scientific Day at the Faculty of Science. Al al-Bayt University.

2005 Scientific Day at the Faculty of Art and Science. Al al-Bayt University.

2002 Faculty of Art and Science, Second Scientific Conference. Al al-Bayt University

2000 The First Arab Symposium on Antimicrobial Drugs. University of Jordan.

1999 The First Conference in Medical and Biological Sciences. Zarka Private University.

1999 The Second Conference in Biotechnology in Jordan. Al al-Bayt University.

1998 The Biological Studies in Northern Badia of Jordan. Al al-Bayt University.

1997 The 8th Arab Conference of Biological Sciences & The 4th Jordanian Conference of Biological Sciences (Biology in The Twenty First Century) Amman Jordan.

1997 XIIth International Cystic Fibrosis Congress. I.

1996 Biotechnology in Jordan. Al al-Bayt University.

ABSTRACTS PRESENTED AT CONFERENCES: -

- 1- Arezki Azzi, **Adnan Jaran** and Waleed AlShaqhaa. (2018). Development of new antiherpetic compounds. EuroSciCon Conference on Microbiology & Virology. June 21-22, 2018 Paris, France. Arch Clin Microbiol
- 2- **Adnan S. Jaran**. (2017). Antimicrobial Resistance Patterns and Plasmid Profiles of *Staphylococcus aureus* Isolated From Different Clinical Specimens. International Conference of Chemistry & Biosciences. 5-6 April 2017. Al al-Bayt University, Jordan.
- 3- R. Anwer, S. Khursheed, **A.S. Jaran**, K.A.S. Berkeit, and T. Fatma. (2014). Experimental evidence for the presence of insulin-like protein in spirulina and its characterization by secondary structure analysis. 4th International Conference on Algal Biomass, Biofuels and Bio-products: Santa Fe Convention Center, Santa Fe,

New Mexico, USA.

- 4- Fawzi Irshaid, **Adnan Jaran**, Fatiha Dilmi, Khaled Tarawneh, Raji Hadeth and Ahad Al-Khatib. (2010). Prevalence of Epstein-Barr Virus Latent Membrane Protein-1 in Jordanian Patients with Hodgkin's Lymphoma and Non-Hodgkin's Lymphoma. WASET 2010 PENANG, MALAYSIA.
- 5- **Adnan S. Jaran***, Khaled A. Tarawneh, Fawzi Irshaid and Magda A. Ezealarab. (2009). Antioxidant and Antimicrobial Activity of Some Methanolic Plant Extracts in North Jordan' Euro Med Symposium, Plant Natural Products from Biodiversity to Bioindustry: National Research Center, Dokki, Cairo, Egypt.
- 6- **Jaran, AS.** and Omar Zaki. (2008). Isolation and characterization of Ampicillin resistant gene (bla_{TEM-1}) from *E.coli* in northern Jordan. Abstract. The 6th Arab conference on use of antimicrobial agents. (Rabat-Morocco).
- 7- **Jaran, A.S.** and Rayan, Nareeman. (2000). The Prevalence of Antibiotic Resistance in Cultured Specimens in Al-Mafraq Area. Abstract: - *The First Arab Symposium on Antimicrobial Drugs.* (University of Jordan).
- 8- **Jaran, A. S.** and, Nisreen. Salah (1999). A Study on the Effect of Smoking on Blood Composition. Abstract: - *The First Conference in Medical and Biological Sciences* (Zarka Private University).
- 9- Quesnel, L. B., **Jaran, A. S.**, Braganza, J. M. (1996). Antibiotic accumulation and membrane trafficking in cystic fibrosis cells. XIIth International Cystic Fibrosis congress. I. *J. Med.Sc.* vol. **32** Supplement.
- 10- Quesnel, L. B., **Jaran, A. S.**, Braganza, J. M. (1996). Antibiotic accumulation and membrane trafficking in cystic fibrosis cells. *Abstract: Medical Research Society.*

PUBLICATIONS: -

- Sabah Mohammad Khaleel, **Adnan Saleem Jaran** and Taghleeb Muhammad-Fateh Al-Deeb (2019). Antimicrobial and Lipid Peroxidation Inhibition Potential of *Ziziphus Spina-christi* (Sedr), A Jordanian Medicinal Plant. *Journal of Biological Sciences.* **19 (2):** 131-136
- **Adnan S. Jaran** (2017). ANTIMICROBIAL RESISTANCE PATTERNS AND PLASMID PROFILES OF *Staphylococcus aureus* ISOLATED FROM DIFFERENT CLINICAL SPECIMENS IN SAUDI ARABIA. *European Scientific Journal.* **13 (9):** 1 – 9
- Fatima-Azzahra Delmani, **Adnan S. Jaran**, Yaser Al Tarazi, Hani Masaadeh

and Omar Zaki. (2017) Characterization of Ampicillin resistant gene (blaTEM-1) Isolated from E.coli in northern Jordan. *Asian Journal of Biomedical and Pharmaceutical Sciences*,7 (61): 11-15

- Fatima Azzahra Delmani¹, **Adnan Jaran**, José Torreblanca, Javier Moreno, Gregorio García-Herdugo, Rosario Vilaplana, Francisco González-Víltchez (2016). Biological Activity of the Water Soluble Complex *trans*-dichloro-1,2-propylenediamine-N,N,N',N'-tetraacetato ruthenium (III) (RAD). *Asian journal of biological and life sciences*. **5 (3)**: 253 – 259.
- **Adnan S. Jaran**. (2016). Prevalence and seasonal variation of human intestinal parasites in patients attending hospital with abdominal symptoms in northern Jordan. *Eastern Mediterranean Health Journal*. **22(10)**: 756 – 760.
- Sabah M. J. Khaleel, **Adnan S. Jaran** and Malik S. Y. Haddadin. (2016). Evaluation of Total Phenolic Content and Antioxidant Activity of Three Leaf Extracts of *Ziziphus spina-christi* (Sedr) Grown in Jordan. *British Journal of Medicine & Medical Research* **14(6)**: 1-8.
- Adnan S. Jaran. (2016). Antibiotic Resistance Patterns and Plasmid Profiles of *Escherichia coli* Isolates from clinical specimens. *British Microbiology Research Journal*. 11(5): 1-7. (*Microbiology Research Journal International*)
- **Adnan S. Jaran**. (2015). Antimicrobial Resistance Pattern and Plasmid Profile of some *Salmonella spp.* Isolated from clinical samples in Riyadh area. *European Scientific Journal*. **11(6)**: 136-149.
- Tarazi Y. H., Almajali A. M., Ababneh M. M., Ahmed H. S., Jaran A. S. (2015). Molecular study on methicillin-resistant *Staphylococcus aureus* strains isolated from dogs and associated personnel in Jordan. *Asian Pacific Journal of Tropical Biomedicine*. 5 (11): 902 – 908.
- Fawzi Irshaid Irshaid, Khaled Tarawneh, Aisha Alshdefat, Fatiha Dilmi, Adnan Jaran, Raji Al-Hadithi, Ahad Al-Khatib (2013). Loss of P16 Protein Expression and Its Association with Epstein-Barr Virus LMP-1 Expression in Hodgkin's Lymphoma. *Iranian Journal of Cancer Prevention* 6 (2): 78 – 84.
- Khaled A. Tarawneh, Fawzi Irshaid, **Adnan S. Jaran**, Magda Ezealarab and Khaled M. Khleifat. (2010). Evaluation of Antibacterial and Antioxidant Activity of Methanolic Extracts of Some Medicinal Plants in Northern Part of Jordan. *Journal of Biological Sciences*. **10 (4)**: 325-332.

- F. Irshaid, **A. Jaran**, F. Dilmi, K. Tarawneh, R. Hadeth and Ahad Al- Khatib (2010). Prevalence of Epstein-Barr Virus Latent Membrane Protein-1 in Jordanian Patients with Hodgkin's Lymphoma and Non-Hodgkin's Lymphoma. *Journal of Biological Sciences*. **10 (6)**: 507-513.
- Irshaid, F., Dilmi, F., Tarawneh, K., Hadeth, R., **Jaran, A.**, Al-Khatib, A. (2010)
Loss of P16/INK4A protein expression is a common abnormality in Hodgkin's lymphoma
Proceedings of World Academy of Science, Engineering and Technology
- Fawzi Irshaid, Fatiha Dilmi, Khaled Tarawneh, Raji Hadeth, **Adnan Jaran** and Ahad Al-Khatib. (2009). Loss of P16/INK4A Protein Expression is a Common Abnormality in Hodgkin's Lymphoma. *International Journal of Biological and Life Sciences* **5 (4)**: 215-220.
- Hani A. Masaadeh, and **Adnan S. Jaran**. (2009). Incident of *Pseudomonas aeruginosa* in Post- operative Wound Infection. *American Journal of Infectious Diseases*. **5 (1)**: 1-6.
- Hani A. Masaadeh, and **Adnan S. Jaran**. (2009). Determination of the Antibacterial Efficacy of Common Chemical Agents in Cleaning and Disinfection in Hospitals of North Jordan. *American Journal of Applied Sciences*. **6 (5)**: 811-815.
- **A. S. Jaran**, S.R.Yasin. (2006). Species specificity Using Fifteen PCR-based Human STR systems. *Journal of Biological Sciences*; **6 (1)**: 200-201.
- Salem R. Yasin, Mawieh M. Hamad, Ali Z. ElKarmi, **Adnan S. Jaran**. (2005). African Jordanian Population Genetic Database on Fifteen Short Tandem Repeat Genetic Loci
Croat Med J; **46**: 587-592.
- Salem K, Yasin S, ElKarmi A, Hamad M, **Jaran A.** (2003). Jordanian population data on five STR forensic loci: D16S539, TPOX, CSF1PO, Penta D, and Penta E. *Leg Med (Tokyo)*.**5 (4)**:251-2.
- **Jaran, A.S.** (2001). The Prevalence of Antibiotic Resistance of Clinical Isolates of Bacteria in Al-Mafraq Area. *Al-Manara* **7(1)**. 141- 149.
- Nizar Abuharfeil, **Adnan Jaran**, Barakat Shabsough and Homa Darmani. (2001). Effect of Sodium Nitrite on Natural Killer Cells Isolated From Human Periphral Blood. *Archives of Toxicology*. **75 (5)**. 291 – 296.

- Quesnel, L. B., **Jaran, A. S**, Braganza, J. M. (1998). Antibiotic accumulation and membrane trafficking in cystic fibrosis cells. *J. Antimicrob. Chemother.* **41(2)**. 215-221.
- Quesnel, L. B., **Jaran, A. S**, Braganza, J. M. (1996). Antibiotic Accumulation in Health and Cystic Fibrosis Epithelial Cells. *Clinical Science* **91(s35)**. 6p
DOI: 10.1042/cs091006Pa
- **Jaran, A. S.**, Braganza, J. M., Quesnel, L. B. (1993). Abnormal antibiotic accumulation by cystic fibrosis cells. *Medical Science Research* **21**, 733-737.
- Parasitology Practical Manual (2000). Al al-Bayt University.
- Parasitology Practical Manual (2010). Al al-Bayt University.

Publication In press: -

- 1- **Adnan S. Jaran** and Fatima-Azzahra Delmani (2019). Antimicrobial Resistance Patterns and Plasmid Profiles of *Pseudomonas aeruginosa*. (in press)

PUBLICATIONS IN PREPARATION: -

- 1- Thyroid Hormones in Pregnant Women in the North Badia of Jordan, a Survey Study.
- 3- Effect of Smoking on RBC's Glutathione and Blood Components.
- 4- Accumulation of Antibiotic Drugs in Different Types of Animal Tissues
- 5- Use of Synthetic Peptides as Vaccines against Microbial Diseases.
- 6- Tissue Culture Practical Manual
- 7- Medical Immunology Practical Manual